

Projections Suite

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Projections Suite Introduction

Welcome to Projections Suite

The **Projections Suite** software is an array of applications designed to help state analysts review historical employment data, estimate future employment trends for industries and occupations, and report final projections.

The **Projections Suite** combines the five major projections applications: **Short-Term Industry Projections (STIP)**, **Long-Term Industry Projections (LTIP)**, **Occupational Projections (OP)**, **Report Manager (RM)**, and **Local Review (LR)** into one unified structure. All five applications have a similar look and feel and share common data.



Projections Suite contains various components for creating, analyzing, reviewing, and reporting industry and occupational projections in one unified product. This documentation contains the following sections for each of its applications, framed between its useful procedures and usage:

- [Projections Applications and Controls](#)
- [Short-Term Industry Projections \(STIP\)](#)
- [Long-Term Industry Projections \(LTIP\)](#)
- [Occupational Projections \(OP\)](#)
- [Report Manager \(RM\)](#)
- [Local Review \(LR\)](#)

- [File Formats](#)
- [Statistical and Technical Terms](#)

This documentation (as well as other tools) is also available on the **Projections Managing Partnership (PMP)** site, [Projections Central](#).

Current Release

- **DB Tool: 7.0.1008.00 / PS Software: 8.1.0324.00.**

Projections Suite Installation

[Technical Support Contacts](#) are available by clicking on the link. If you are installing **Projections Suite**, you are encouraged to follow the steps and scenarios on this page first.

Installing the current version of **Projections Suite (PS)** requires that two major steps be completed.

Step 1: SQL Express and Database Tool Installation

A **Database Setup Tool** is available to assist you with creating and setting up the Projections Suite database. This tool must be installed by someone who is logged in as an **administrator** on the computer. Choose one of the following scenarios which best fits you or your group and environment to install the tool, then continue to step 2.

Scenario 1:

The local user **has administrative rights on their machine and is the main user of the PS application**:

- The local user is logged into the machine under their own Windows Login ID.
- You may choose to install SQL Express manually (see more detailed information about this in the [DSU installation manual](#)) . If SQL Express does not exist on the machine, select the link below where SQL Express is included, if automatic installation is desired.
- [Install the Database Setup Utility WITH SQL SERVER 2012 EXPRESS included automatically.](#)
- [Install the Database Setup Utility \(NO SQL Server Express included but must already be installed on the machine\).](#)

☞ **The links in Scenario 1 will not open in any browser window when you click on it or select it, if *you do not have administrator rights on the computer you're logged onto*. This is often reported as a page error. Please check your current computer account's status as an administrator before attempting Scenario 1.**

Scenario 2:

The local machine user who is the main user of the PS application **DOES NOT** have administrative rights on their machine, and requires an IT administrator to install software on their machine. The IT Administrator should do the following:

- [Install SQL Server Express 2017](#). The IT administrator will need **SQL Server Management Studio** installed. Note the **prerequisites below** or on the Microsoft page which need to be installed (or verified previously installed and up to date) on the target machine before SQL Express.
- Once SQL Server Express is installed, the IT administrator should run SQL Server Management Studio, connect to the SQL Express instance, and do the following:
 1. Add the windows login of the local user to the Security Logins section.
 2. Under Server Properties, set Security Server Authentication to both SQL Server and Windows authentication mode (this will require restart of the SQL server process which can be done from control panel or the SQL Server Configuration Manager).
 3. [Install the Database Setup Utility \(NO SQL Server Express included\)](#).

When prompted, select **Run** and then follow the prompts to complete installation (if you experience an installation problem then try again using **Save**). Once installed, read the Quickstart Section 2 in the [DSU installation manual](#) to setup your database. If you are not sure if you are an admin on your computer, please contact your office's technical support staff to manage the installation.

Step 2: Projections Suite Installation

The Projections Suite system should be installed using the account of the primary user of the system. If you logged in as an administrator please log out and log in as the primary user before beginning the installation.

- [Read the PS Software Installation and Setup Manual here](#).
- [Click here to Install the Projections Suite Software](#).

When prompted, select **Run** and then follow the prompts to complete installation (if you experience an installation problem then try again using **Save**).

Prerequisites/Additional Installation Information

The Projections Suite system requires several supporting application prerequisites. Depending on your choices in section 1, some of these will be installed automatically as part of the Database Setup Utility (DSU). Whether installed as part of the DSU or manually, they must be installed by someone who is logged in as an administrator on the computer. Installed automatically by the DSU:

- [.Net Framework 4.8](#)
- [SQL Server 2012 Express \(if selected to do so\)](#)

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With scenario 2 in section 1, the IT administrator will need to verify prerequisites and install the above as necessary. Other prerequisites:

- [FoxPro Microsoft OLEDB driver](#) - For Occupational Projections users. This can be installed from within the DSU.

The installation program for the database setup utility will check to see if your system has the required prerequisites installed. If not, then it will install those as needed.

Please read the [installation manual](#) (and the [Release Notes](#)) for instructions on installing and configuring prerequisites and your database using the Database Setup Utility. If you are not sure if you are an admin on your computer, please contact your office's technical support staff to complete the installation.

Technical Support Contacts

[Technical Support Contacts](#) are available by clicking on the link. If you are installing Projections Suite, you are encouraged to follow the steps and scenarios on this page first.

Related Content

- [Add Separations Tables](#)
- [Backup Database](#)

Access Projections Suite

To open **Projections Suite** on a desktop or laptop, use one of the following procedures

1. **Double-click** on the **Projections Suite** desktop icon.



Figure 1: Projection Suite icon

Or

1. Click the **Start Menu** button.
2. Click **Projections Managing Partnership**.
3. Select **Projections Suite**.

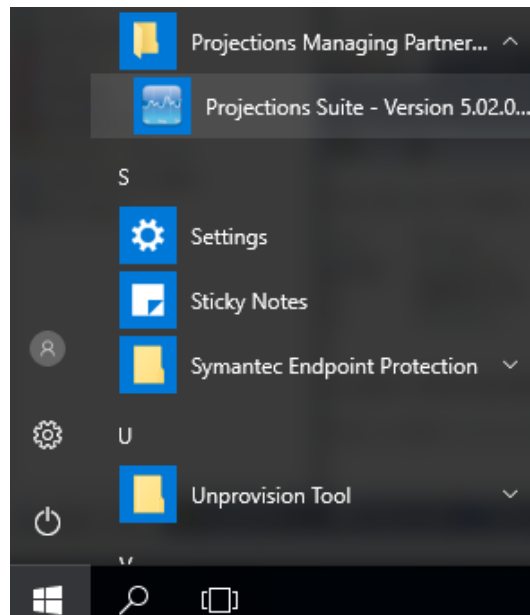
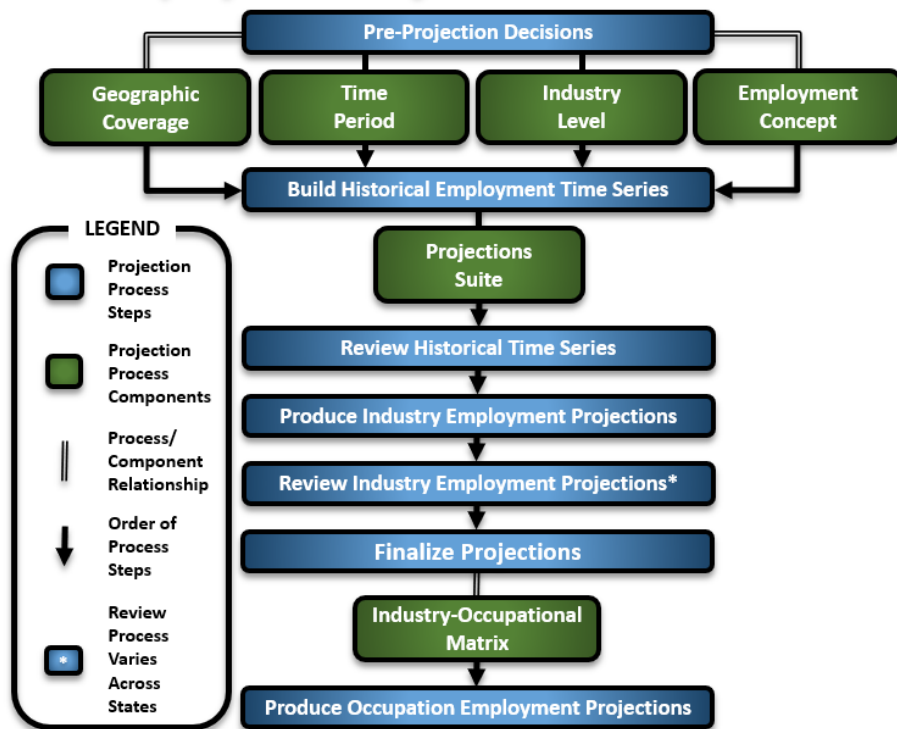


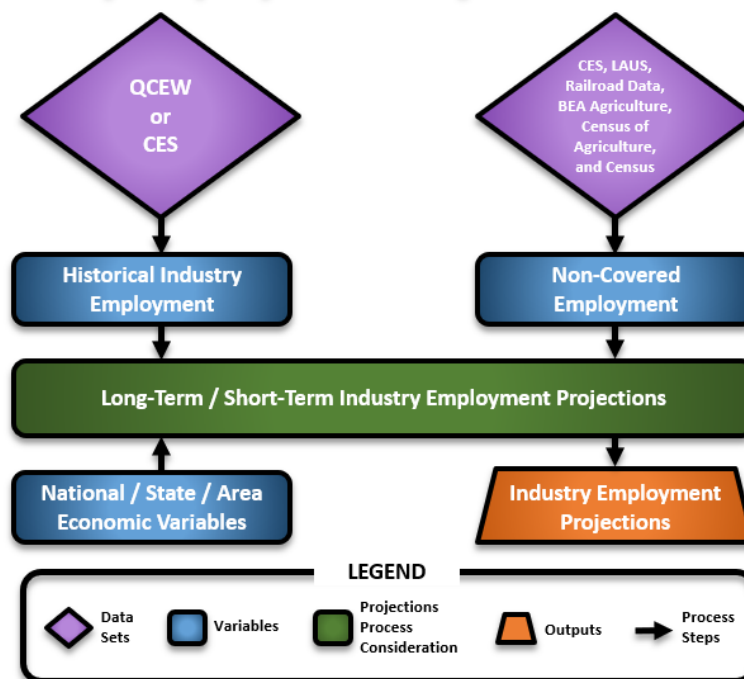
Figure 2: Menu choices used to open Projections Suite

Projections Process

Employment Projections Process Flow



Industry Employment Projections Process



Technical Assistance Contacts

For **technical assistance** with downloading, installing, website assistance, and using the **Projections Suite**, please contact any of the people below.

Long-Term Industry Projections

Brett Judd

(801) 889-9863

bdjudd@utah.gov

Mike Sylvester

(801) 707-2967

msylves@utah.gov

Occupational Projections

Brett Judd

(801) 889-9863

bdjudd@utah.gov

Report Manager

Jared Schrock

(385) 310-7961

jschrock@utah.gov

Local Review

Mike Sylvester

(801) 707-2967

msylves@utah.gov

Short-Term Industry Projections

Aaron Campbell

(801) 391-5609

aaronc@utah.gov

Mike Sylvester

(801) 707-2967

msylves@utah.gov

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Analytical Assistance

For **analysis and methodology assistance**, please contact any of the people below. These people are PMP technical leads for each of the applications.

Long-Term Industry Projections

Stephen Birch

(850) 245-7266

Stephen.birch@deo.myflorida.com

Occupational Projections

Anthony Hayden

(518) 523-7157

anthony.hayden@labor.ny.gov

Report Manager

Darnell Cloud

(312) 793-1227

Darnell.Cloud@illinois.gov

Short-Term Industry Projections

Darnell Cloud

(312) 793-1227

Darnell.Cloud@illinois.gov

Applications & Controls

The **applications** (or parents of the functioning **modules**) are listed near the top of the **Projections Suite** software's displayed window:




Figure 1: Applications and controls in Projections Suite

These applications can be navigated while using the software by clicking on them in this main menu. Selecting an application option in the main menu will change the **group menu** on the left side of the Projections Suite's window, so the specific modules of that application (and its group menu) can be accessed and used. Further explanation of those modules is continued in this documentation.

☞ These pages are available in this Help File, as well on the [Projections Central](#) site if you have a verified account there.

Projections Suite contains the following applications and controls:

- [Short-Term Projections](#)
- [Long-Term Projections](#)
- [Occupational Projections](#)
- [Report Manager](#)
- [Local Review](#)
- **Getting Started**
 - By clicking **Getting Started** on the main menu at any point while calculating projections, this help document will appear in a separate window. Alternatively, clicking the **Help**  button on the [Active Module Toolbar](#) will open to the module's section you are currently having trouble with in this document. Also see [Navigating the Getting Started & Help File Documentation](#) to see how this help file is organized and controlled if you're a new Projection's Suite analyst, user, or have questions.

☞ **Tips** use this icon and are written **throughout this Getting Started and Help documentation**, as well as the [Projections Central](#) site. They're there to assist the user in navigating the Projections Suite modules and see more explanatory material on specific topics.

- [Settings](#)

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- Clicking the **Settings** menu selection will open the **Projection Suite Settings**, where you can adjust the way the software looks (to include general software settings and specifics like chart colors, etc.).
- Exit
 - Exits Projections Suite.

Projections Suite Controls

The controls are continued in further detail in the following selections:

- [Navigating the Getting Started & Help File Documentation](#)
- [Application Toolbar](#)
- [Application Group Menus](#)
- [Settings Menu](#)
- [Screen Controls](#)
- [Active Module Toolbar](#)
- [Date Spinner Controls](#)
- [Select Chart Dates](#)
- [Graph Enhancement Controls](#)
- [Select Multiple Items](#)

Navigating the Getting Started Help File

To open the help file while using the Projections Suite, click on the **Help** (?) button. The help file will be opened to the currently selected module's topic.

Projections Suite Help Navigation Menu

The navigation menu is located near the top of the help window and contains the following:

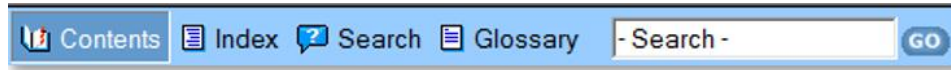


Figure 1: Navigation menu

- **Contents** - Selected by default when the help file is opened. The **Contents** option shows an hierarchical table of contents, organized by parent topics to sub-topics contained in the help file.
- **Index** - The **Index** is not used in the Projections help file.
- **Search** - Allows the user to search the help file for a specific term.
- **Glossary** - Contains a list of common acronyms used throughout the Projections help documentation.

Bread Crumb Navigation

- The bread crumb trails show the navigation path from the primary page down to the granular sub-topic page you're currently on. Click on the desired path segment from the bread crumb trails at the tops of the help pages.

[Home](#) > [Occupational Projections](#) > [Occupational Analysis](#) > Copy Staffing Patterns

Figure 2: Click on Occupational Projections, to navigate directly to that topic

Table of Contents Navigation

- From the **Contents** tab, click on the page's Table of Contents link.

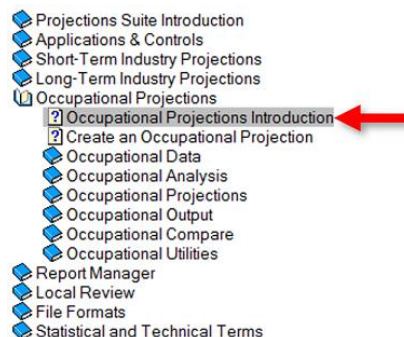


Figure 3: Click on the Table of Contents link to go directly to a topic

Application Toolbar

Projections Suite **applications** include the standard Short-Term Industry Projections (**STIP**), Long-Term Industry Projections (**LTIP**), Occupational Projections (**OP**), Report Manager (**RM**), and Local Review (**LR**) applications.

The **Application Toolbar** appears across the top of (and allow access to) each of the application's **Group Menus**. Its purpose is to display the group menu (sub-menu) modules for each of the active application's sections.

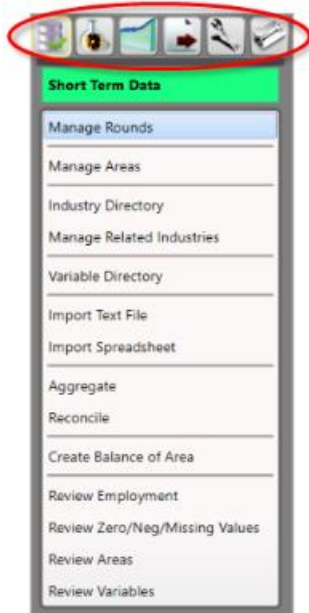









Figure 1: Application Toolbar

Hovering over each selection reveals a hot-key for quick access. Depending on which application you choose, the typical **Application Toolbar** group menu items include:

- **Data Menu (F5)** 
- **Analysis Menu (F6)** 
- **Projections Menu (F7)** 
- **Adjustments Menu (F8)** 
- **Output Menu (F9)** 
- **Geographic Comparison Menu (F12)** 
- **Utilities Menu (F11)** 

☞ Not all **Application Toolbar** group menu choices are available in each application.

Application Group Menus

Use the **Group Menu** under each **Application Toolbar** menu to access the individual modules within each of the applications.

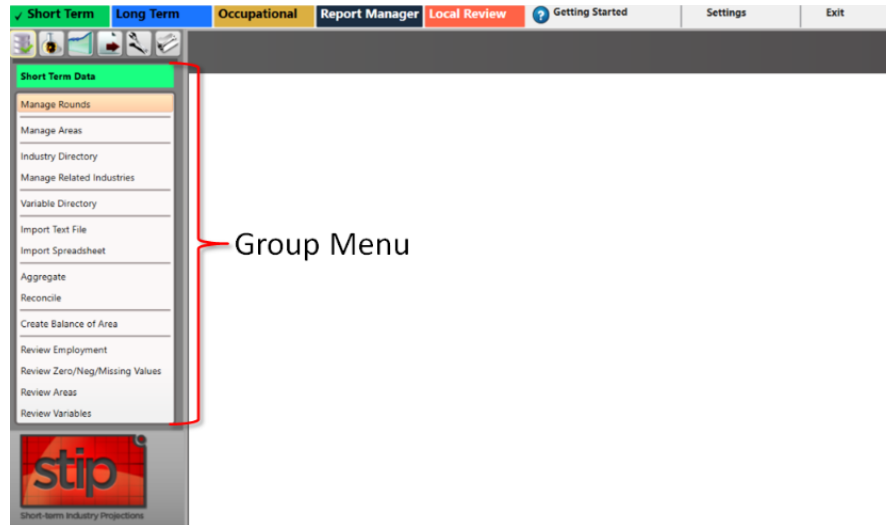


Figure 1: This example displays the Short-Term Data group menu, showing its modules on the left of the screen

To utilize the **Application Toolbar**, select which group you want to navigate to, then **click** on which **module** you want to use. The chosen module will activate its associated display:

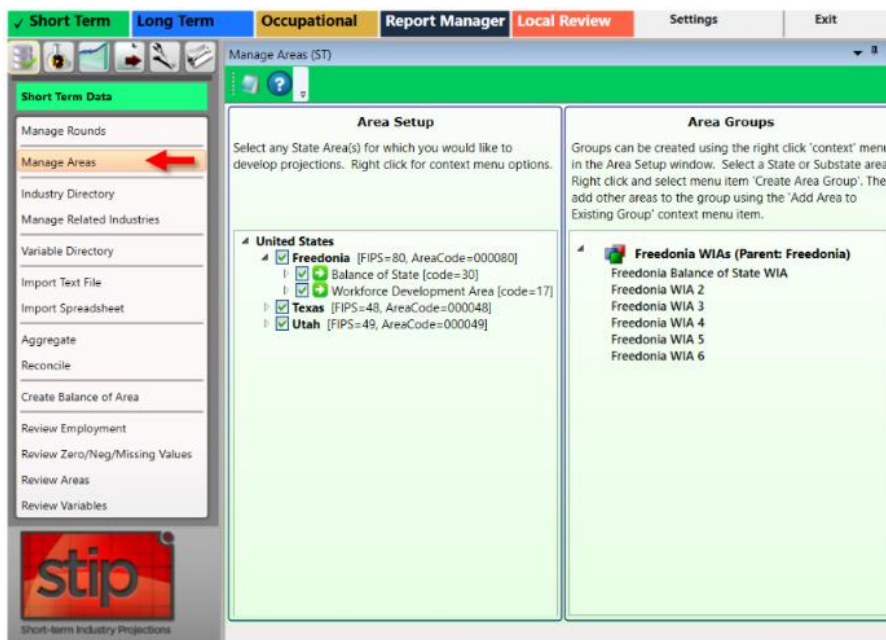


Figure 2: This example displays the activated Manage Areas module

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There are two types of modules, **long-lived** and **short-lived**. The types act differently when you open multiple windows.

- **Long-lived** - These windows stay open when you open another window. Examples are Manage Rounds, Manage Areas, and Industry Directory. When a long-lived window is open and you open another, the first window auto-hides at the bottom of the frame. If you hover over the auto-hidden window, it partially opens. Click the title in the bottom of the frame to swap the auto-hidden window with the open window.
- **Short-lived** - These windows automatically close when you open another window.

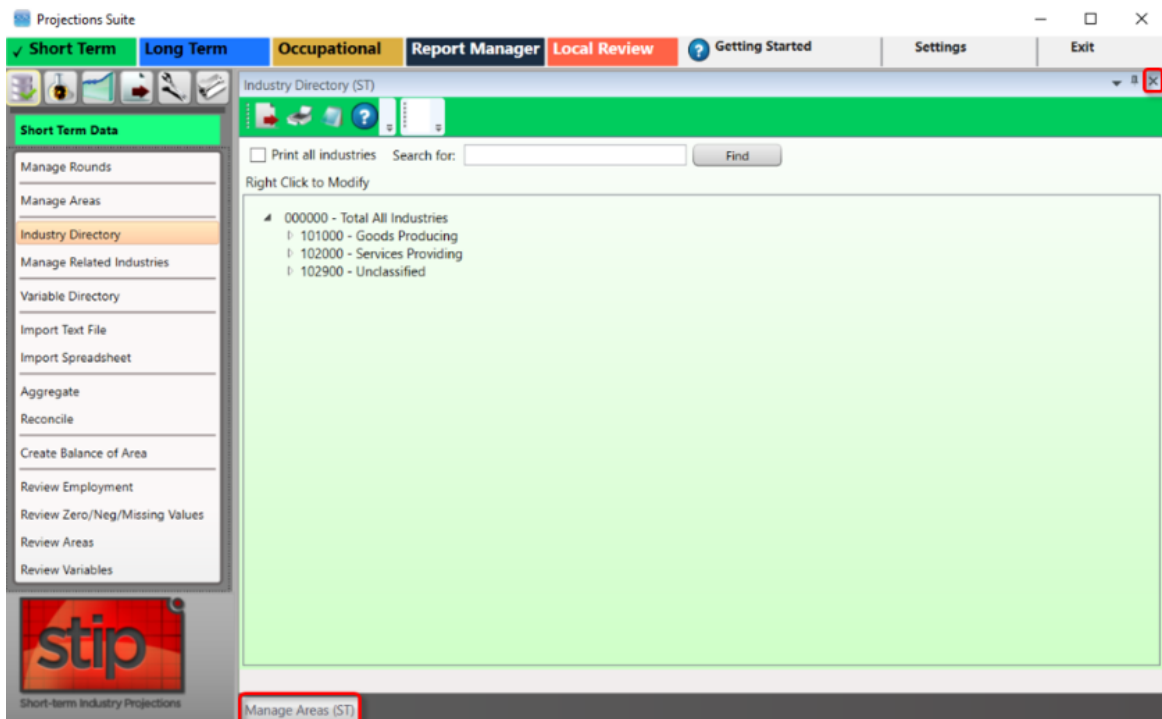



Figure 3: Example of a long-lived module's tab

To **close** long-lived windows, simply open them by clicking on the hidden window's tab, then click the **X** near the top right-hand corner of the module (closing the window in this way saves any changes). Be careful not to click the **X** in the *uppermost* top right-hand corner (above the highlighted **X** in Figure 3), unless you want to **close** Projections Suite entirely.

If you close an open module, the auto-hidden module will partially display. Click the auto-hide push pin  to fully display the window.

Some modules like **Create Balance of State** need to remain open and finish processing *before* accessing other modules, due to its long processing time.

Settings Menu

The **Settings Menu** is located on top of the window's menu bar. **Click** that location on the bar to open the **Settings** options.

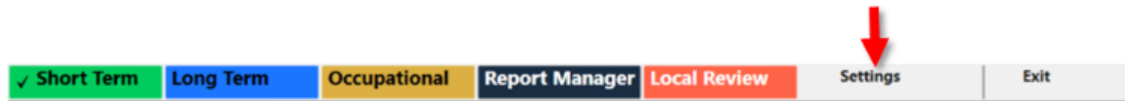


Figure 1: Settings menu selection

The **Settings** option allows the user to set specific values for common settings for Projections Suite and its applications. There are eight main areas in the **Settings** menu:

- **Application** - Displays general application settings (i.e., window size, backup options, etc.).
- **Charts** - Allows you to change chart settings and colors. In this documentation file, all colors are left at their default.
- **General Data Preparation** - Settings for application defaults (specifically for [Outliers](#)).
- **Geographic Comparison** - Account details for the **Geographic Comparison** modules under **Compare** group menus.
- **Long Term** - Settings for Long-Term data defaults (base and projected years, dummy variable years, etc.).
- **Occupational Projections** - Settings for Occupational data defaults (various year settings).
- **Short Term** - Settings for Short-Term data defaults (BVAR/VAR model defaults, dummy variable start dates, etc.).
- **Support Site Account** - Shows [Projections Support Site](#) email and (visually covered) password.

Utilize Settings Menu

1. Clicking the **Settings** menu choice displays the **Projections Suite Settings** in a separate window:

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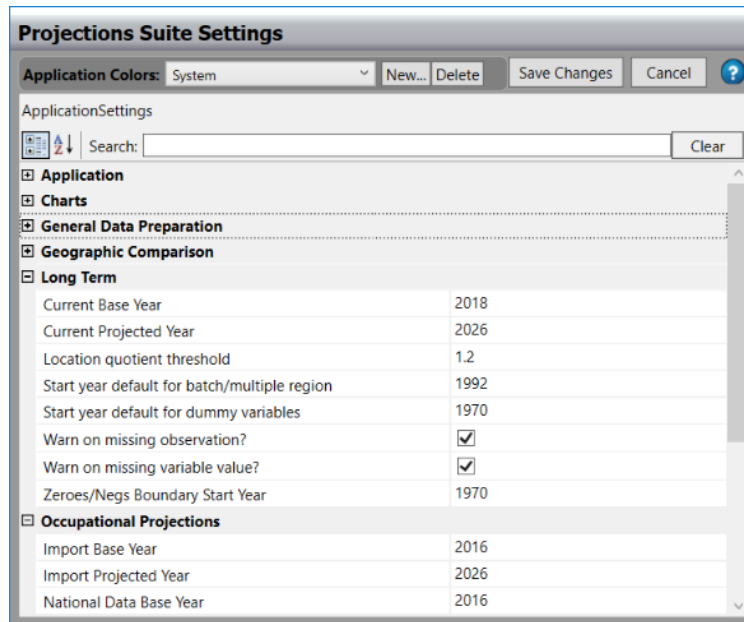


Figure 2: Projections Suite Settings

2. Click the expand **[+]** icon for the desired option.
 3. Click on one of the cells in the right column to change the existing value.
 4. Click the **Save Changes** button to save changes made to an option.
 5. Click the **Cancel** button to cancel the modifications made during this **Settings** instance.
- ☞ An example of changing settings is the **Long Term** option is modifying the **Current Base Year**. Analysts usually reset this value at the beginning of each new projections cycle. The **Current Projected Year** is also change, **ten years later than the Current Base Year** when calculating any Long-Term Projections through its software applications and modules.

Screen Controls

This section aids a new user with familiarization of modules, screens, and demonstrates the look and feel, and shows the standardized ease of use of **Projections Suite**. Trying out these options will increase your ability to use the application efficiently and to your liking.

- ☞ [Projections Training](#) includes demonstrations of the user interface. Training is currently being updated, but this will provide a good explanation and visuals of Projections Suite's environment.

Screen Resolution

The maximized, supported screen resolution is 1920x1080 when the software is full-screen. If you cannot see the entire screen, please check your monitor's resolution. Do this by **right-clicking** your desktop and selecting **Display settings**, and adjusting your recommended **Display resolution**.

Docking and Floating

Projections Suite opens modules as docked or floating. Most modules as are opened as docked, by default. This documentation will tell you if a window or screen will be opened as floating. However, nearly all windows can be docked or floated. To change whether a window is docked or floated use the following steps:

1. **Right-click** the title bar (above the [Active Module Toolbar](#)) of any window, or click the **down arrow** to open the following context menu.

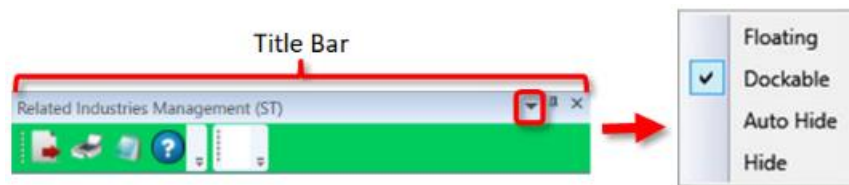






Figure 1: Right click the title bar

2. Click the desired choice.
 - **Floating** - The window can be dragged to any position within the application, or outside the main application's window. To dock the window, **right-click** in the title bar and select **Dockable**, then close the window. When you reopen the module it will be docked.
 - **Dockable** - The window is in a fixed position to the rest of the application windows.
 - **Auto Hide** - The window is minimized and the title displays in the bottom left of the window. To re-open the window, uncheck the **Auto Hide** option.




- **Hide** - The window closes. To reopen the window, **click** the module under the same group menu.

☞ Alternatively, double-clicking the title bar will quickly switch between floating and docked, if the screen is dockable.

In addition, as you move the floating window over the application's window, you will see square tile icons (, , , ) with an arrow on each of window's four sides to the right of the application's group menu. To dock the module's window, click and drag by the module's title bar to an arrow and release the cursor button.

☞ If another module is already open in the window, the multiple modules will tile themselves in the window.

Push Pin Icon Controls

The **push pin icon**  pins the module's tab to the bottom of the Projections Suite window. You can partially view the module by clicking its tab. When this is done, the push pin icon is horizontal  in the module's title bar (in partial view). To make it fill the window again, click its push pin icon so its position becomes vertical  and the module's window expands.

Additional Screen Controls

Screen Controls are initially listed at the top of each module or through its window, to orient you and familiarize you with its functions. These terms are commonly **bolded** in this documentation, to draw attention to granular *steps*, useful to complete a function in a module. Some examples include:



Figure 2: Module choices within group menus (on the left of the display)

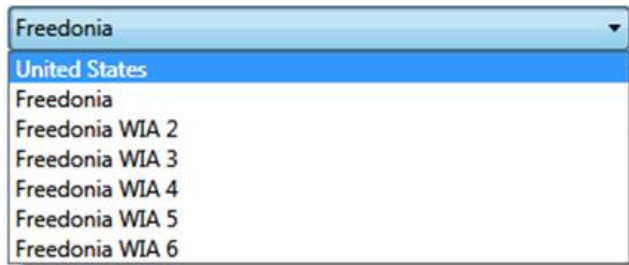


Figure 3: Drop-down menus

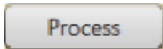


Figure 4: Buttons



Figure 5: Check boxes

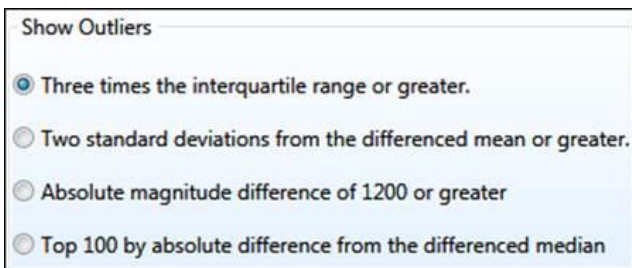


Figure 6: Radio buttons, also known as a control group in this documentation

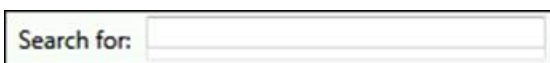


Figure 7: Input fields



Figure 8: Collapse and Expand Data Grid buttons



Figure 9: Sliders



Figure 10: Date spinners

For more information on operating spinners, reference the [Date Spinner Controls](#) topic.

Active Module Toolbar

The **Active Module Toolbar** has selections to export, print, record notes, or access the help documentation using the files created for the currently active module.

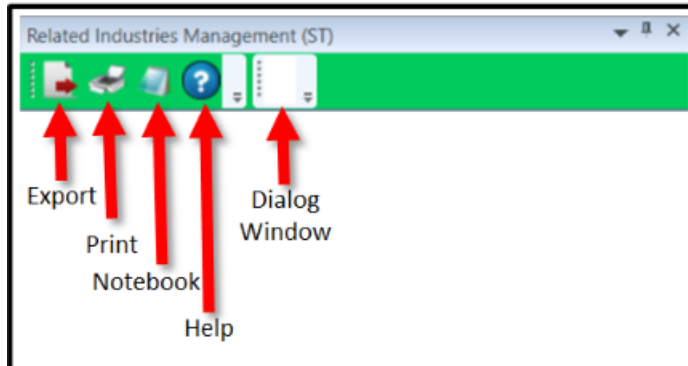


Figure 1: Active Module Toolbar

☞ Not all tools are available in every instance of a module's Active Module Toolbar. The toolbar is contextual, its options based on which module you are currently running.

- **Export Icon** - Used to export data to spreadsheets, external files, between Projections Suite applications (i.e., Occupational Projections to Report Manager), or for external software usage (LEWIS or EXPO/QCEW).
- **Print Icon** - Prints reports, spreadsheets, or notes.
- **Notebook Icon** - Accesses the [Notebook](#) modules. The Notebook option is not available in the Long-Term Industry Projections application.
- **Help Icon** - Different from the Getting Started menu option, the Help Icon will **automatically open the associated help information for the currently selected module**. The information under the Help Icon is similar to the pages found in this document, able to be navigated by topics.
- **Dialog Window** - Displays system information messages, based on the current module and activity.

Date Spinner Controls

Date spinner controls are in several of the Projections Suite modules. They are used to adjust chronological data ranges and analysis dates. They are typically displayed in pairs as **From** and **To** date spinners, but can be displayed in several combinations.



Figure 1: From and To date spinners

Utilize a Display Date Spinner

Click the **up** and **down arrows** to adjust the time frame (year, quarter, month) you want to examine. You can also click the **From** or **To** text to display (in some modules) a **circular menu** that lists the available selections. Click on what time frame you want to change and use your keyboard, in the **From** to **To** selections. When done, press the **Enter** key to accept your selection. Use the **arrows** to change the dates with a similar function.

- ☞ Most date spinners are usually accompanied by a **max** button. Click the **max** button to automatically view the **longest time frame possible** based on the available data, to reset to the start of a zoom-in graph's visualization and all following time.
- ☞ Throughout the documentation, this **Date Spinner Controls** section will be referenced when this capability is available in the module.

Select Chart Dates

Besides using date spinner controls, data on graphs can be examined in more detail by selecting the time series with the cursor to **Select Chart Dates**. For example:

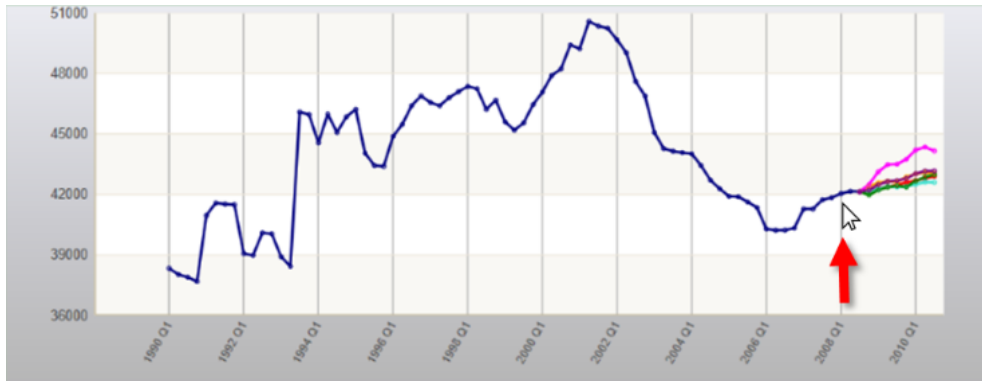


Figure 1: Start by holding the left cursor's button at the starting date of interest (2008 Q1)

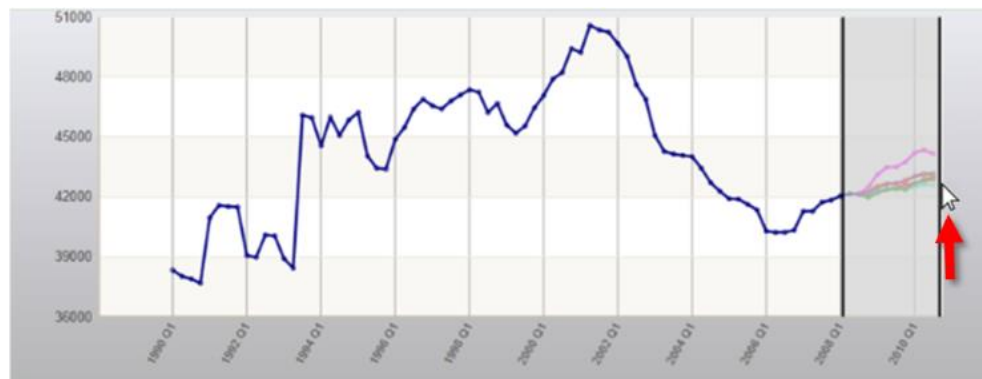


Figure 2: Drag the cursor to the desired ending date and release the left button

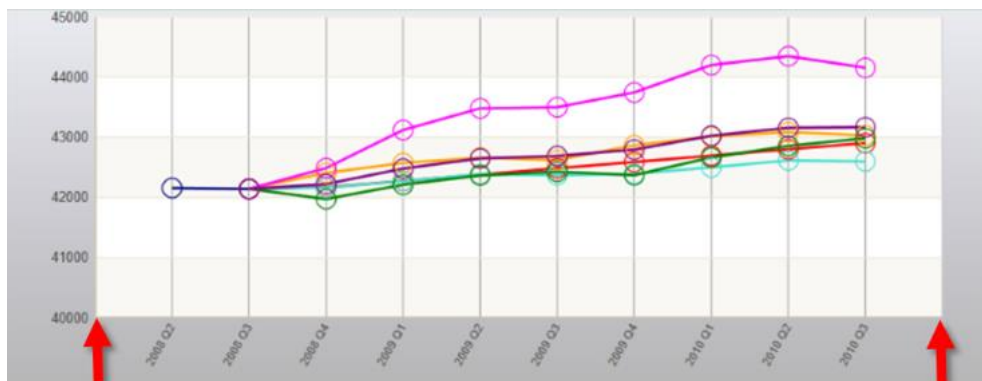


Figure 3: The graph will change its visualization, using the selected starting and ending date points (2008 Q1 past 2010 Q3)

☞ Click the **max** button to start over and view the longest time frame possible.

Graph Enhancement Controls

Graph Enhancement Controls are available in several modules throughout Projections Suite. Their purpose is to apply statistical overlays on top of calculated / projected data. They are referenced often in the documentation and demonstrated here.

There are five options to enhance your graph:

- **Mean**
- **Best Fit**
- **Minimum/Maximum (Min/Max)**
- **Trend**
- **Standard Deviation (Std. Dev.)**

They are displayed at the bottom of graphs in the following layout:

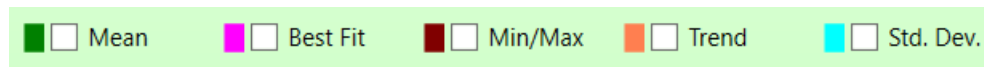


Figure 1: Graph Enhancement Controls

Mean

This line represents the average value of the provided data. The **Mean** will be displayed as a green line through the center of your graph:

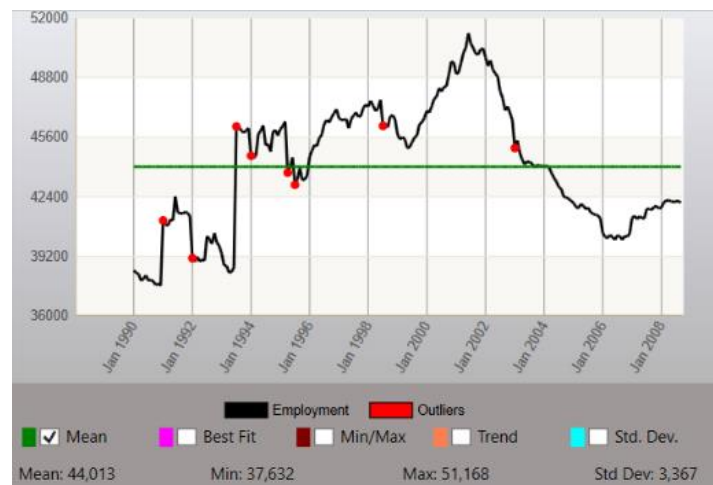


Figure 2: Mean selected

Best Fit

Displayed in pink, the **Best Fit** measures the relationship between the mean value and the corresponding values of all other variables. Clicking the Best Fit check box will overlay a calculation based on a linear model. If you select a linear model in

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Projections and click Best Fit, the statistical line will line up with the projection (long-term's red dot, demonstrated in Figure 3).

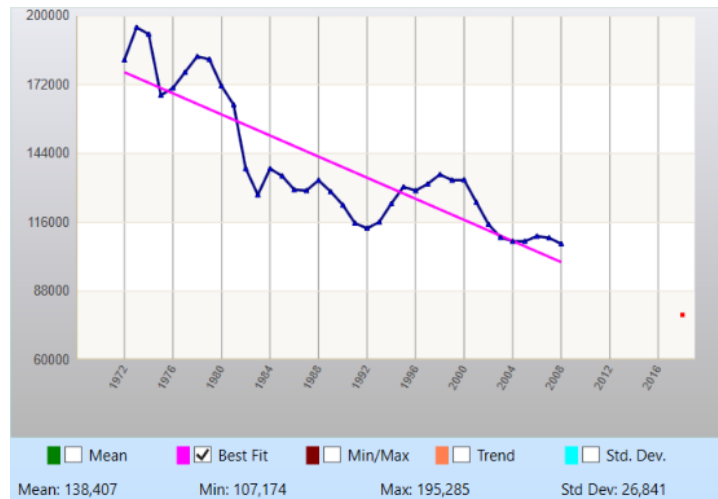


Figure 3: Best Fit selected

Min/Max

The Minimum/Maximum (**Min/Max**) is displayed in brown. These two lines attain the bounds of the upper and lower threshold, within which all other data values are contained. Based on the numerical data on the left, the mean is in the precise middle between the minimum and maximum values.

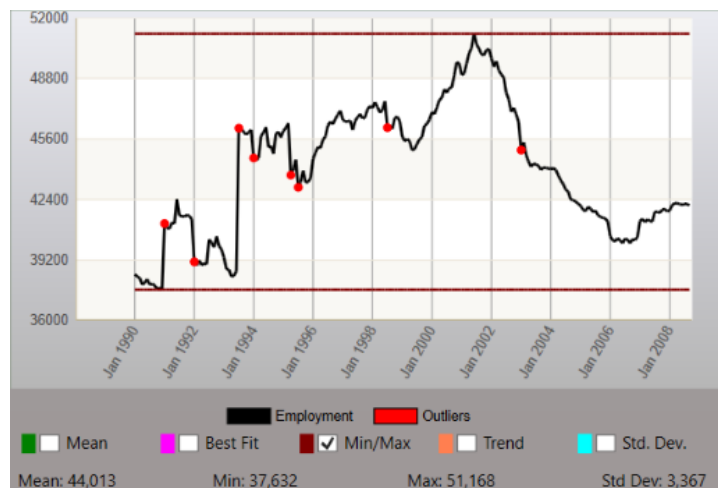


Figure 4: Min/Max selected

Trend

The **Trend** displays in orange. For many time series, two important components are seasonal variation, which is periodic change usually in yearly cycles, and *trend*, which is the long-term change in the seasonally adjusted figures. The Trend check box calculates its line based on a polynomial model. If you choose a polynomial model and

click Trend, the statistical line will align with your projections (as demonstrated in Figure 5).

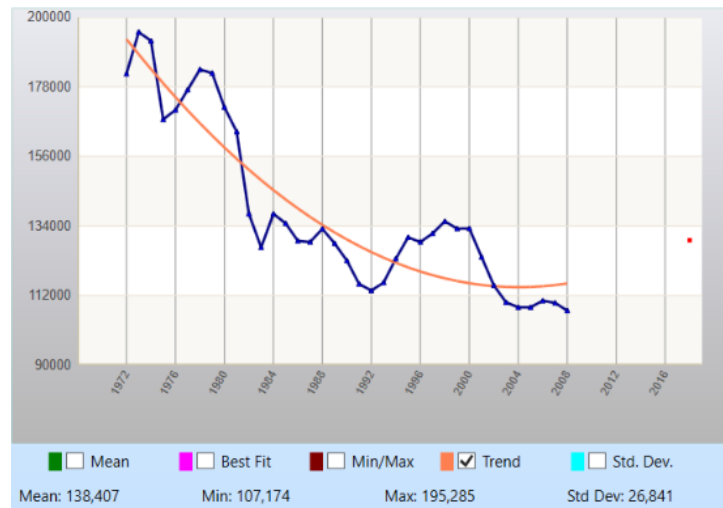


Figure 5: Trend selected

Std. Dev.

Standard Deviation (**Std. Dev.**) is displayed in blue. Standard Deviation is the positive square root of the variance, a commonly used measure of the dispersion of observations in a sample. Checking Standard Deviation draws two lines at one standard deviation above and below the mean.

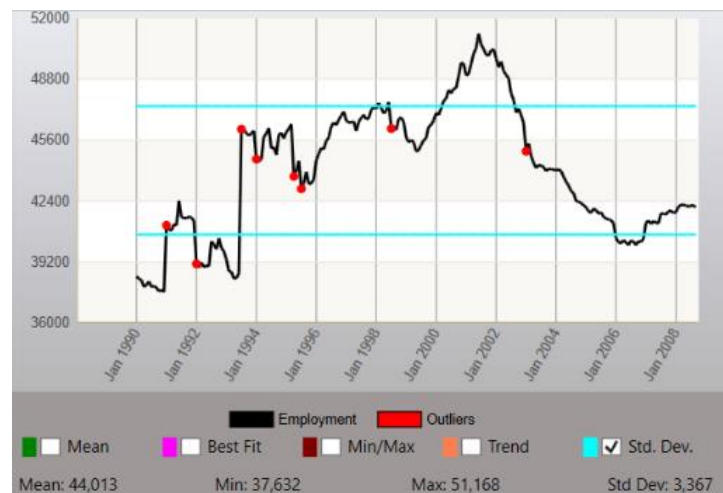


Figure 6: Std. Dev. selected

Multiple Selections

Multiple graph enhancement controls can be selected at once, to further interpolate the data or enhance your presentation. Up to all five controls can be selected simultaneously.

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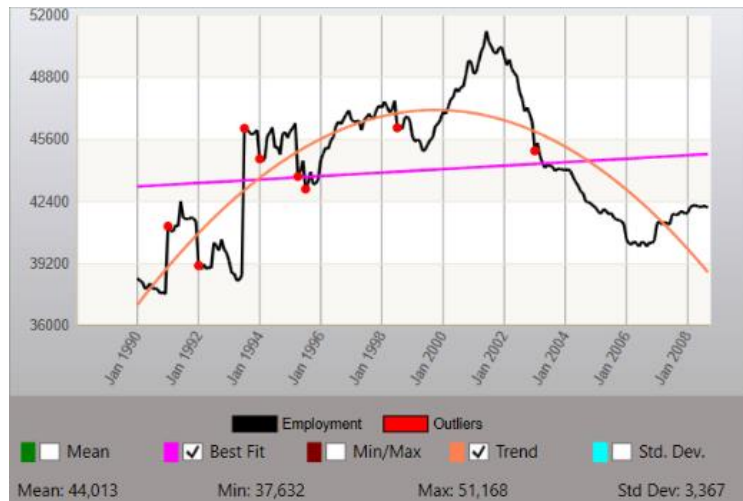


Figure 7: Multiple Graph Enhancement Controls selected

Related Content

- [Time Series \(LT\)](#)

Select Multiple Items

Throughout Projections Suite, selecting more than one possible choice for a process may be desirable. To do this (where it is available), use the following steps:

Select Items in a Continuous Range

1. Click the first item to be selected.
2. Hold down the **Shift** key.
3. Click the last item to be selected. This selects the entire range of items.

Select Items in a Non-Continuous Range

1. Click the first item to be selected.
2. Hold the Control (**Ctrl**) key down (**keep it held down during the entire selection process**).
3. Individually, click each item to be selected.
4. Release the Control (**Ctrl**) key. This selects the individual items only.

☞ Be careful! Clicking on an item without holding down the **Shift** or **Ctrl** key will result in all previously selected items to be deselected. The selection process will need to begin again.

Short-Term Industry Projections



Short-Term Industry Projections (STIP) examines the methods and models involved in forecasting two-year industry employment projections for a state or sub-state area. The STIP application helps state analysts develop industry employment projections that can be reported or that can be applied to occupational staffing patterns. Projections show trends for industries and provide information helpful to users in making education, job training, and career decisions.

Information about Short-Term Industry Projections is available on the Projections Central Support site, under [STIP Resources](#). The STIP Resources contains useful checklists, monthly national variables, and various tips. Use these resources to get started with Short-Term Projections.

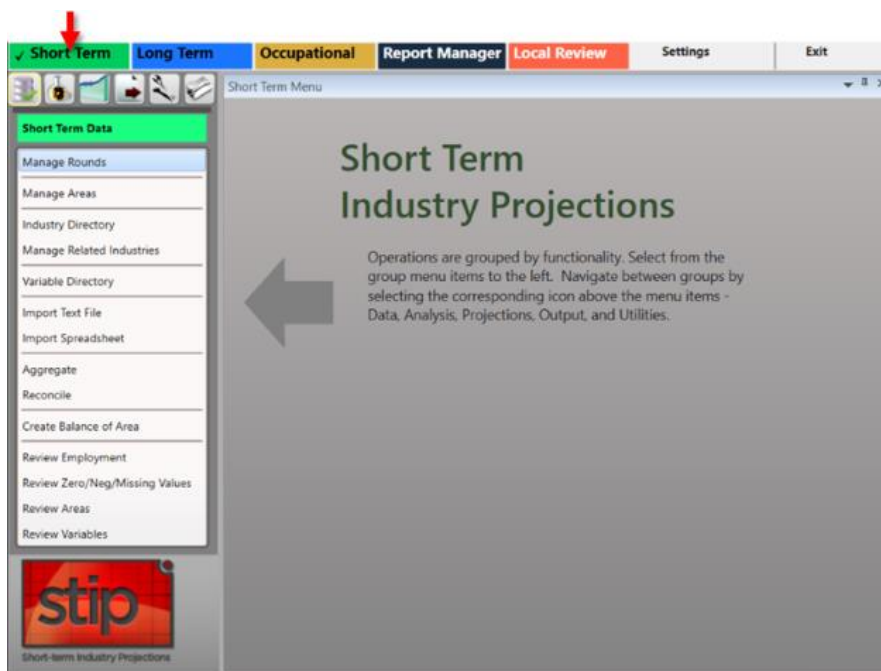


Figure 1: Short-Term Industry Projections application

Short-Term Industry Projections

For an outline on how to [Create a Short-Term Industry Projection](#), follow the link.

The **Short-Term Industry Projections** application has the following group menus:

- [Short-Term Data](#) (F5)
- [Short-Term Analysis](#) (F6)
- [Short-Term Projections](#) (F7)
- [Short-Term Output](#) (F9)
- [Short-Term Compare](#) (F12)
- [Short-Term Utilities](#) (F11)

Create a Short-Term Industry Projection

This section is meant to be an end-to-end guide for creating a **Short-Term Industry Projection (STIP)**. Visit the [STIP Resources](#) page on this PMP website for additional, helpful information when producing Short-Term Projections.

- For a printable checklist that follows the format of the following steps, click [here](#).

Produce Short-Term Industry Projections

1. Pre-Projection Decisions and Adjustments

These decisions and adjustments should be made before starting to produce industry employment Projections or forecasts.

Use [Manage Rounds](#) to set or modify rounds and to determine discrepancies associated with the imported data.

Use Manage Areas to set the geographic coverage:

- Area Set Up - predefined areas
 - States
 - Counties
 - Metropolitan Statistical Areas
 - Micropolitan Statistical Areas
- Area Set Up - user defined areas
- Area Groups - user defined grouping of existing areas

Directories

- [Industry Directory](#)
 - Industry codes cross-walked from [NAICS](#) codes. Use to review or adjust industries.
- [Variable Directory](#)
 - Use to review or adjust variables for use in the Projections process.

2. Prepare and Import Data

- Use the [Import Spreadsheet](#) module to import employment data series and variable data.
- Employment Series File: The file may be populated with [QCEW](#), CES, or any user-defined monthly historical series.
- You must have the state industry employment series. If you have monthly data, [Aggregate](#) by time to create an annual series. For Short-Term, you must have the state industry monthly employment series with at least 4 years of data. Monthly data can be rolled up to annual data for use in Long-Term.

Short-Term Industry Projections

- Import the National Economic Variable Spreadsheet. This data is available on under [STIP Resources](#) on the [Projections Central Support](#) website.

3. Review and Edit Data

- [Preview Employment](#) to add, edit, or delete data.
- You must have industry "000000 - Total All Industries" employment in your employment series. You may use [Aggregate](#) to roll-up data.
- The [Data](#) and [Analysis](#) menu categories are necessary to evaluate historical data.
- The Analysis menu category is used to evaluate employment and variable data.
- Review variable data to add, edit, or delete data.

4. Develop Short-Term Industry Projections

- Evaluate and select [Leading Index](#) variables for use in Projections models.
- Use [Project Single Region](#) to project the state industry or sub-state area as a single region. Select the models, analyze results, and save Projections. All industries must be completed and saved.
- Use [Project Multiple Regions](#) if projecting sub-state areas.

5. ICT Export

- Use [ICT Export](#) to transfer ICT data to [Occupational Projections](#).

Short-Term Data

The **Short-Term Data** group menu (**F5**) enables the management of rounds, areas, industries, and variables. Data importing, manipulation, and review tools are also available.

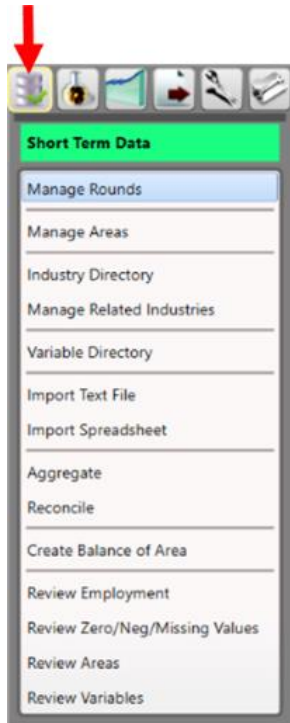


Figure 1: Short-Term Data group menu

The **Short-Term Data** group menu contains the following selections:

- [Manage Rounds](#)
- [Manage Areas](#)
- [Industry Directory](#)
- [Manage Related Industries](#)
- [Variable Directory](#)
- [Import Text File](#)
- [Import Spreadsheet](#)
- [Aggregate](#)
- [Reconcile](#)
- [Create Balance of Area](#)
- [Review Employment](#)
- [Review Zero/Neg/Missing Values](#)
- [Review Areas](#)
- [Review Variables](#)

Manage Rounds

Use the **Manage Rounds** module to define a projection period, based on a specific time frame for completing **Short-Term Industry Projections**. A Short-Term Projections round will include a two-year period following the base period (the last ending month of the employment series), and a title to describe the round.

You may have as many rounds defined as you need, and you can define multiple rounds for the same base period. Defining rounds for the same base period allows you to do projections with different scenarios.

- ☞ It is very important to remember to select a **current** round before processing any data in the system.

Screen Controls

- **Select current round** drop-down menu
- **Right click menu** choices
- **Add**
- **Edit**
- **Delete**

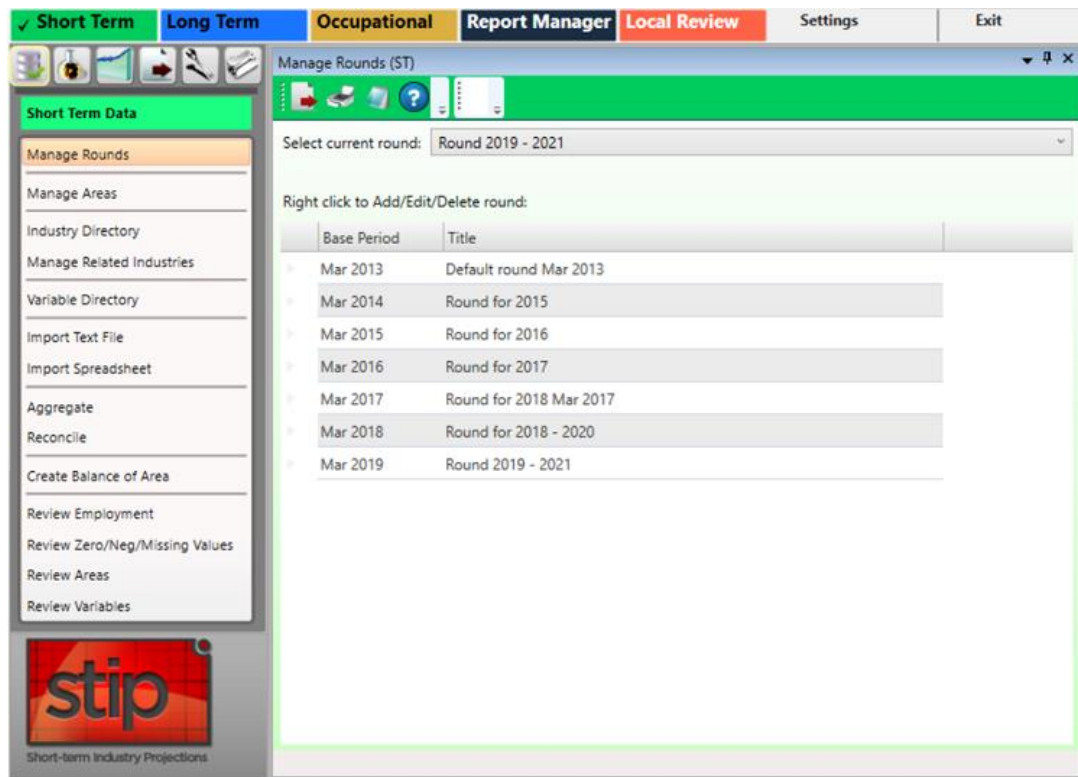


Figure 1: Manage Rounds module

Add a New Round


1. **Right click** the background of the **Manage Rounds** screen to open a context menu.
2. Select the **Add** option.
3. Type the monthly **Base Period** of the new round. The base period is the month and year where the employment series data will end. This is typically at the end of the quarter.
4. **Tab** into the Title field and type a **Title** for the new round. The title can be any description that easily defines the round.
5. Press the **Enter** key to save the round. **Right click** and select **Cancel Add** to cancel adding the round.

Edit a Round

1. **Right click** a round to edit it.
2. Select the **Edit** option from the context menu.
3. Update the information and press **Enter** or **Tab**.

Delete a Round

1. **Right click** the round you want to delete.
2. Select the **Delete** option from the context menu. The **Delete Record** dialog box will be displayed.
3. Click **Yes** to delete the round. Click **No** to keep the round.

 **Use caution** when deleting rounds that have data connected to them. If a round has data tied to the round, you will get an error message and **not be able to delete the round until the data has been removed**.

Export Round Data to a Spreadsheet

1. Click the **Export** icon on the [Active Module Toolbar](#). A **Save As** dialog box will be displayed.
2. Enter a name for the file and navigate to the location to save the data. The default name will be **STIP - DataRounds.xlsx**.
3. Click **Save**. This creates a spreadsheet listing all the rounds defined in the system.

Related Content

- [ICT Export](#)
- [Variable Directory](#)
- [Project Single Region](#)
- [Project Multiple Regions](#)

Manage Areas

Use the **Manage Areas** module to select and customize areas for Industry and Occupational Projections. Manage Areas organizes the basic geographical areas your projections will be calculated from. You can select your state, add or change area types, add sub-state areas, and create **Area Groups**. Area Groups are used in sub-state projections and the **Project Multiple Regions** ([ST](#) and [LT](#)) modules.

The Manage Areas module is available in the Short-Term, Long-Term, and Occupational Projections applications. The changes you make in any of these modules will populate throughout the applications.

Screen Controls

Area Setup section

- **Right Click Context Menu (United States)**
 - **Show All States**
 - **Hide Unchecked States**
- **Right Click Context Menu (State)**
 - **Show All Area Types**
 - **Show Area Types with Areas**
 - **Add Area Type**
 - **Create Area Group**
 - **Print Area Types**
 - **Print Areas**
 - **Print Area Groups**
- **Right Click Context Menu (Substate)**
 - **Add Area**
 - **Edit Area Type**
 - **Print Area Types**
 - **Delete Area**

Area Groups section

- **Right Click Context Menu (Highest Level)**
 - **Delete Area Group**
 - **Print Area Groups**
- **Right Click Context Menu (Substate)**
 - **Delete Area Group Member**

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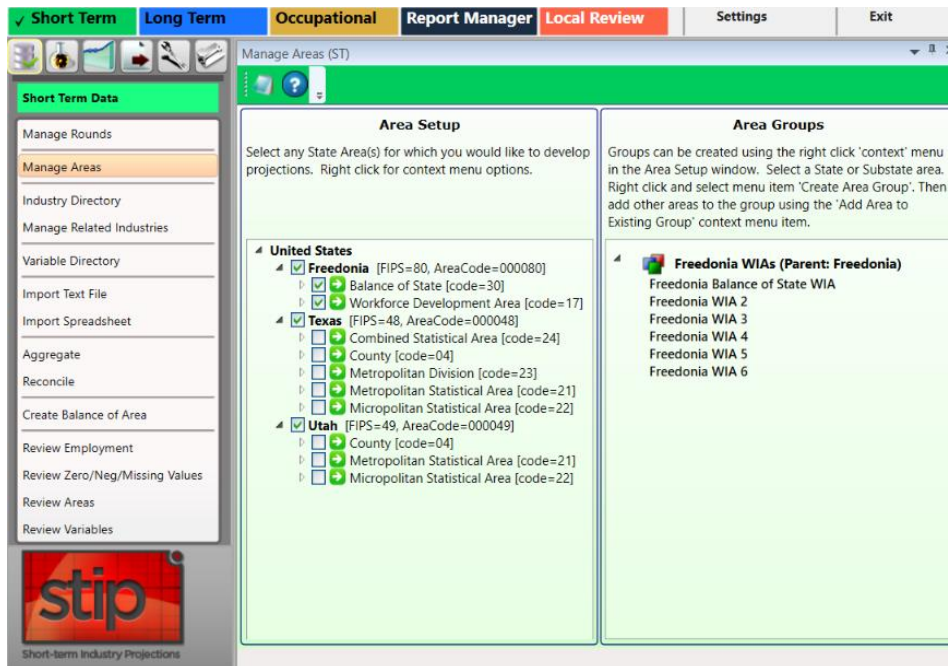


Figure 1: Manage Areas module

Area Setup Section of the Screen

1. **Right click the State Area** you want to work with to open its context menu.



Figure 2: Context menu for working with areas

Depending on the changes needed to this area, click the appropriate option from the following:

- **Edit Area**
- **Print Areas**
- **Create Area Group**

- **Add Area to Existing Group**
- **Print Area Groups**
- **Delete Area**

Edit an Area

1. Click **Edit Area**. The Edit Area dialog box will display.

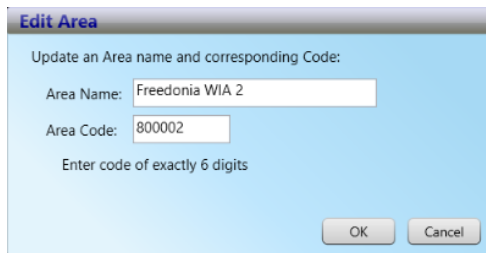


Figure 3: Edit Area dialog box

2. Change the **Area Name** and/or **Area Code**.
3. Click **OK**.

Print Areas

1. Select **Print Area Groups** from the context menu. This menu choice is accessed by right-clicking the second highest level (Freedonia, in this example) in the **Area Setup** section. The **Print Preview** screen will be displayed.
2. Click the **Print** icon to print the area's data.

Create an Area Group

1. **Right click** on the 2nd level in the **Area Setup** screen section.

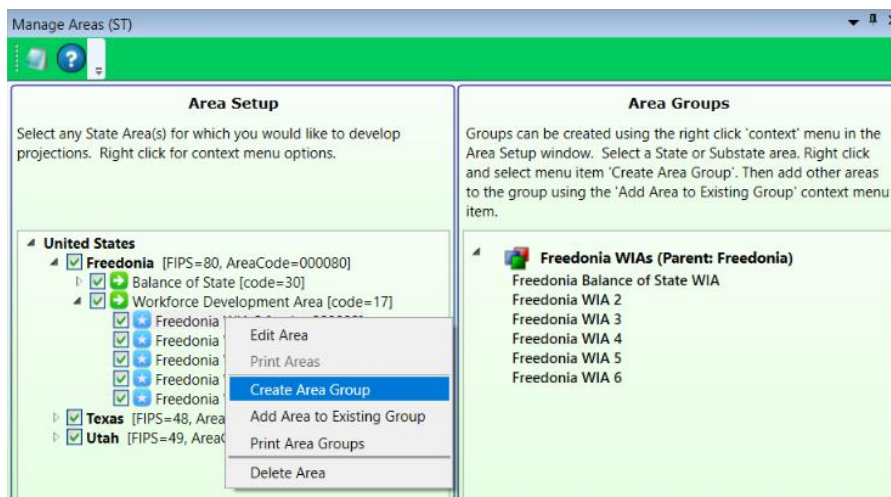


Figure 4: Create Area Group, to add to the Area Groups screen selection

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2. Click **Create Area Group**. The **Create Area Group** dialog box will be displayed.

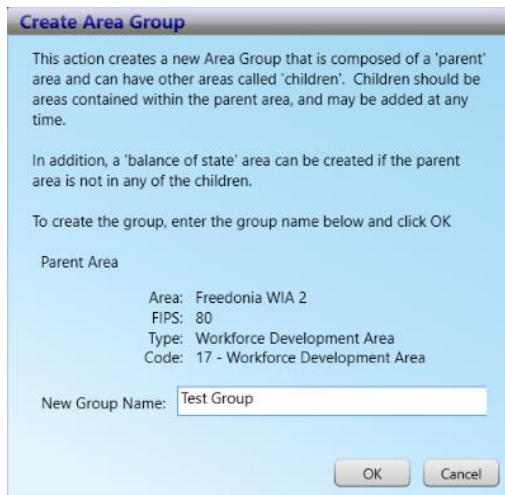


Figure 5: Create Area Group dialog box

3. Give the area a **New Group Name**.
4. Click **OK**. This will add the new Area Group (named Test Group, in this example) to the **Area Groups** section of the screen.

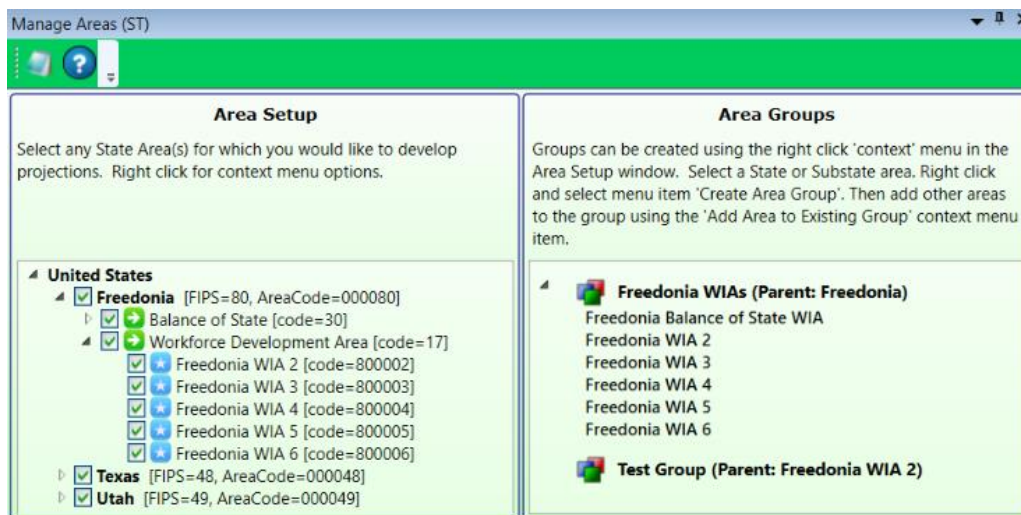


Figure 6: The new Area Group (Test Group) is added

5. Continue adding areas to the Area Group by **right-clicking** and selecting **Add Area to Existing Group** from the context menu. Select a group from the drop-down menu to add the area to the Area Group, then click **OK**.

Delete Area

1. **Right click** on the area to select it.

2. Select **Delete Area**. The following dialog box will be displayed:

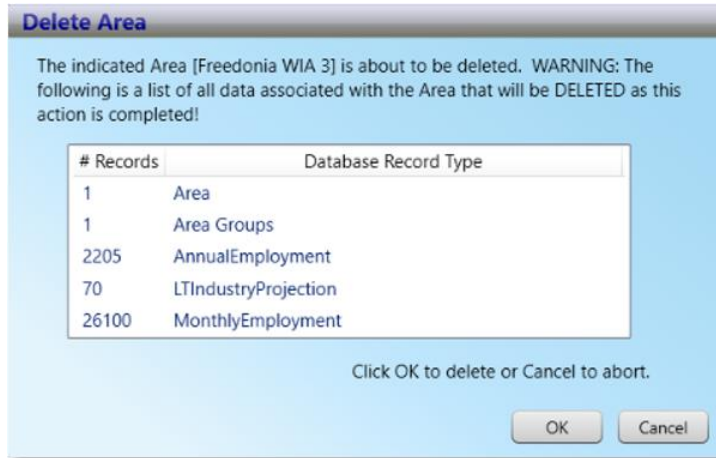


Figure 7: Delete Area dialog box

3. To delete the area, click **OK**. Click **Cancel** to keep the area.

Delete an Area Group

1. **Right click** the **Area Group** to select it for deletion.

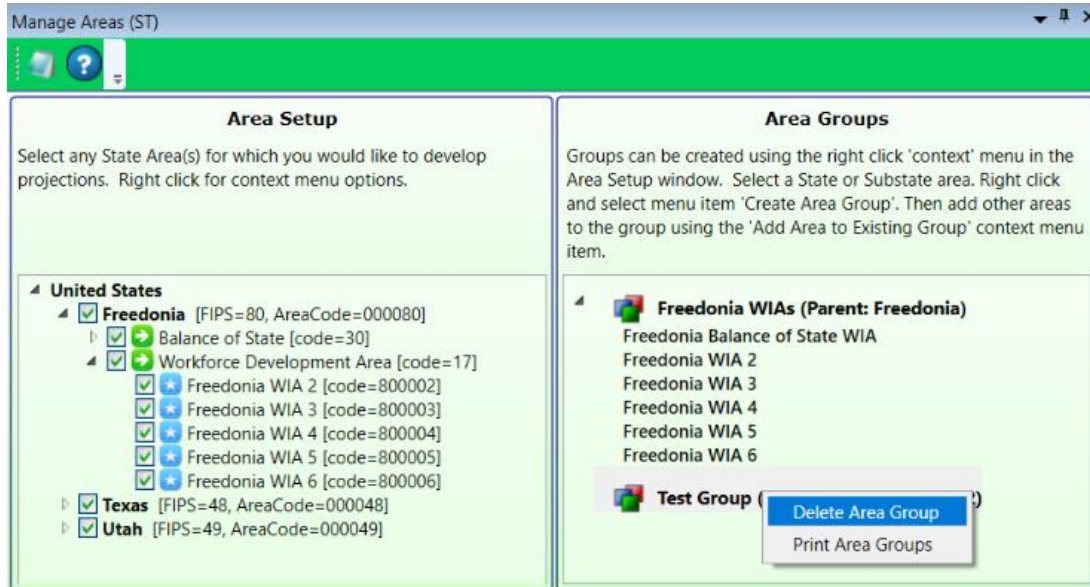


Figure 8: Delete the Area Group, Test Group

2. Select **Delete Area Group** from the context menu. You will be prompted to confirm the deletion.
3. Click **OK** to confirm. Click **Cancel** to keep the Area Group.

View Area Types

It may be helpful to view the various area types when initially setting up your Projections software, to determine the best way to classify your areas. To view all area types:

1. **Right click** your state and select **Show All Area Types**. This will list all of the area types and their associated codes in the Area Setup section.

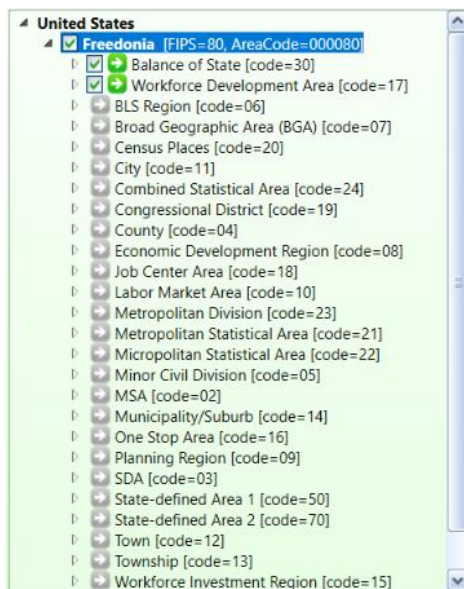


Figure 9: All area types

2. When you are finished, close the list by **right-clicking** your state and selecting **Hide Area Types With No Areas** from the context menu.

Related Content

- [Create Balance of Area](#)
- [Review Areas](#)
- Project Multiple Regions ([ST](#) and [LT](#))
- [Area Format](#)

Industry Directory

Use the **Industry Directory** as a resource for information about specific industries, listed by [NAICS](#). The Industry Directory lists all valid industry codes and titles in a tree view. All Projections Suite applications use it for defining industries. **A default Industry Directory is installed with the Projections Suite.**

Analysts can modify the directory as needed for your state. However, the position of industries in the industry tree is critical. When adding or moving industries, ensure you place them correctly within the parent industry. Industry placement will affect **Aggregation** of employment data in later projections steps.

The Industry Directory module is available in the Short-Term, Long-Term, and Occupational Projections applications. The same screen displays in each application.

Screen Controls

- **Print all industries** check box
- **Search for** field
- **Find** button
- **Expand/Collapse** arrows

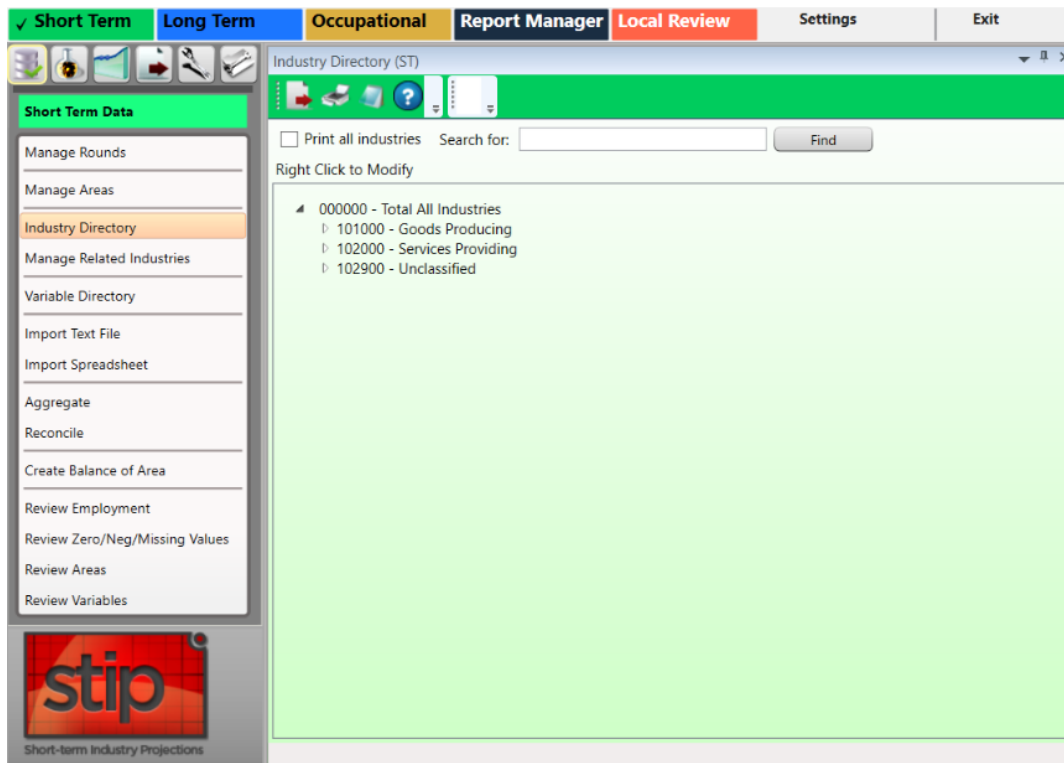




Figure 1: Industry Directory module

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The **Total All Industries** code is displayed at the top of the tree. Beneath **Total All Industries** are the NAICS codes for Super-Sectors (2-digit), sectors (3-digit), and detailed industries (4 - 6 digit).

Manually Expand/Collapse the Industry Hierarchy

1. Click the **Expand**  icon next to the general category of the industry. The category will expand one level.
2. Continue clicking the expand icons in that category until the desired industry level is displayed.
3. Click the **Collapse**  icon on the category header to collapse to that level.

Use the Search Tool

1. Click into the **Search for** field.
2. Type an industry description or industry code.
3. Click the **Find** button or press **Enter**. The designated industry will be displayed if it is listed in the industry hierarchy.

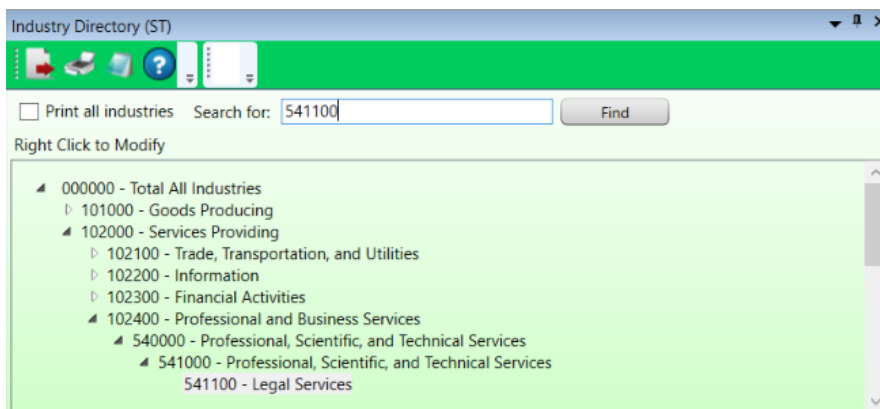


Figure 2: Using the Search for field



Figure 3: Use a description to find an industry

Additional Options in the Industry Directory

There are various options in the **Industry Directory** to help customize industries. To customize the directory:

1. **Right click** on an entry in the Industry Directory. Depending on which industry level you've selected, one of two context menus will be displayed.

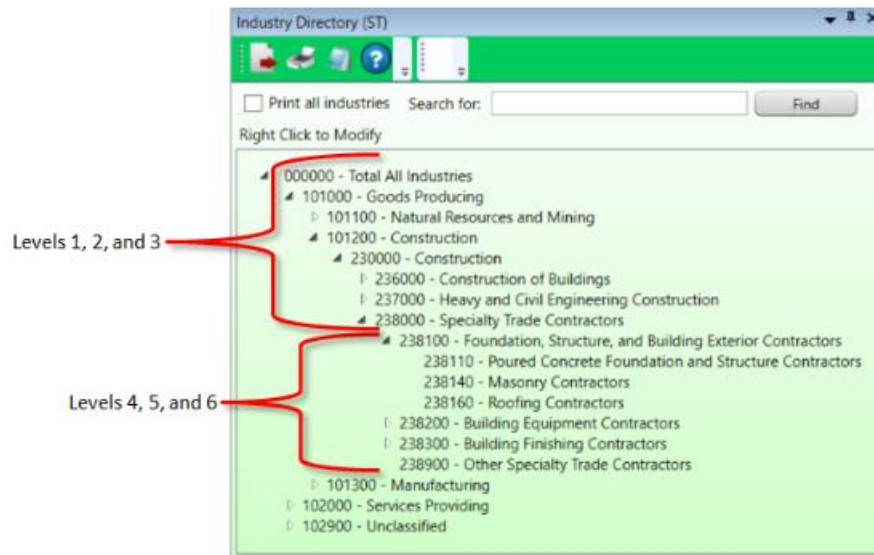


Figure 4: Industry Directory breakdown

The context menus contain the following items:

- **Expand all children** will expand the selected entry to the sixth level.
- **Collapse all children** will collapse all entries within the selected entry.
- **Add** enables the addition of new industries to the selected entry. Ensure their placement is correct to avoid future aggregation issues.
- **Cut** will remove the selected entry and copy it to the clipboard for pasting into another area.
- **Delete** will delete the selected entry.
- **Edit** enables editing of a selected entry.
- **Move** allows the selected entry to be moved to another location in the directory.
- **Paste** will paste a previously cut industry into another area in the hierarchy.


Related Content

- [NAICS](#)

Manage Related Industries

Use the **Manage Related Industries** module to view and edit [Related Industries](#) for specific areas and industries.

The default set of related industries is included during system installation and can be used to help you determine industry assignments, but they must be assigned to be used in the projections process. The default list includes a set of industries, assigned to specific industries, selected by national experts. These lists can be used as a starting point for assigning related industries, then adjusted for each area/industry combination. Related industries are used as variables in the projections process when the **Related Industries** model is selected in [OLS](#), [VAR](#), or [BVAR](#) model types.

A related industry marked with a red flag  indicates the industry has no employment data and should not be included in projections calculations. Either delete the industry from the list or import data for the industry. If a flagged industry remains in the list, an error will occur when trying to project an industry using the Related Industries model.

Screen Controls

- **Select an Area** drop-down menu
- **Assign Defaults to all Industries** button - Assigns pre-set Related Industries to all industries in the selected area
- **Select an Industry** drop-down menu
- **Remove All Related Industries** button - Eliminates all related industries for the selected area
- **Arrow** buttons

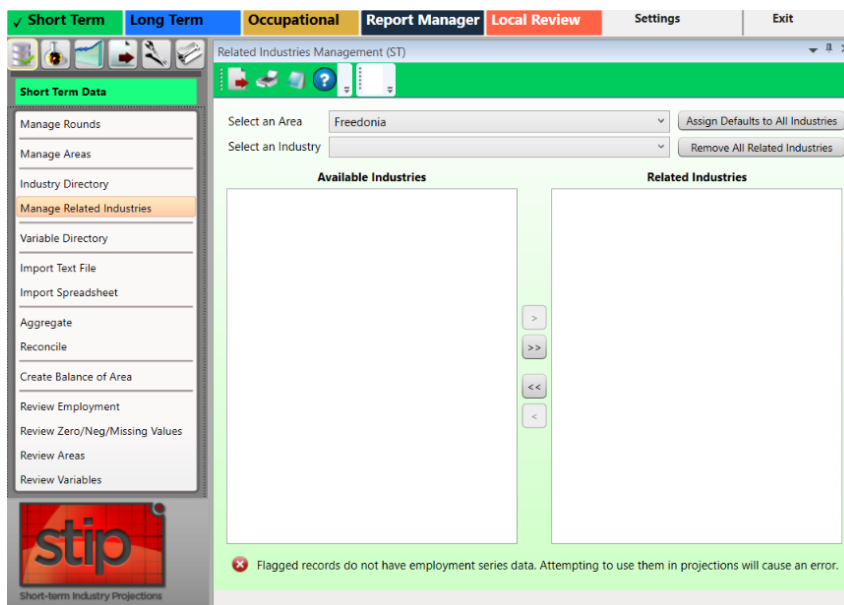


Figure 1: Manage Related Industries module

Assign Default Related Industries to an Area

1. **Select an Area.**
2. Click the **Assign Defaults to All Industries** button. By assigning the default, you are saying you want to use the default set of related industries.
3. A confirmation dialog will display. Click **Yes** to assign default industries. Click **No** to cancel.

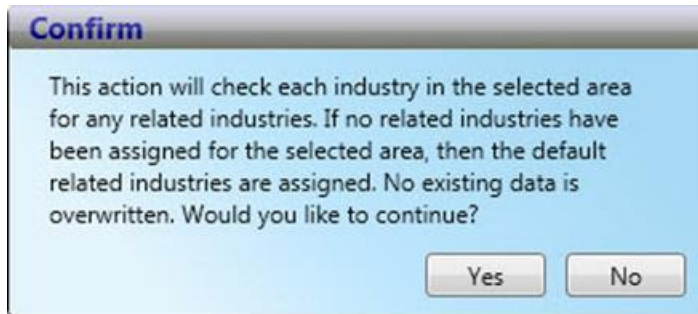


Figure 2: Confirm dialog box

- ☞ Default related industries are typically defined for 3-digit industries, but may not be present for all 3-digit industries. More detailed industries (4, 5, and 6-digit) will not have default related industries assigned. This means that, at the national level, they have not determined which (if any) related industries should be assigned. See the [NAICS](#) term for more information on industry classification.
- ☞ If the area/industry selection already has related industries assigned, the **Assign Defaults** button will not overwrite the relationships between these industries. This protects custom assignments.

View and Edit an Industry's Related Industries

1. **Select an Area** and Industry from the drop-down menus. The available industries for those choices display in the **Available Industries** table. In Figure 3, you can see that no default industries have been assigned to (an example) industry **519000 - Other Information Services** in the **Related Industries** table.

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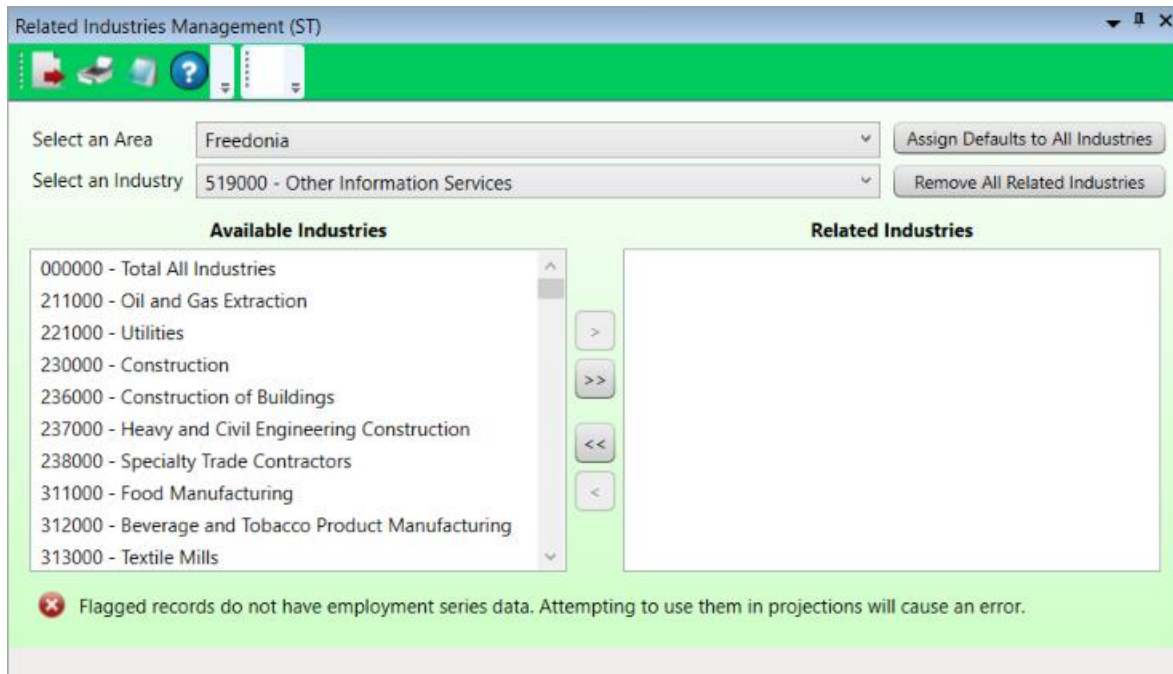


Figure 3: Available Industries are displayed

2. Select industries in the **Available Industries** table to move into the **Related Industries** table. Industries can be moved one at a time or in multiple selections.
3. Use the **arrow buttons** to move the selected industry or industries to or from the **Related Industries** table.

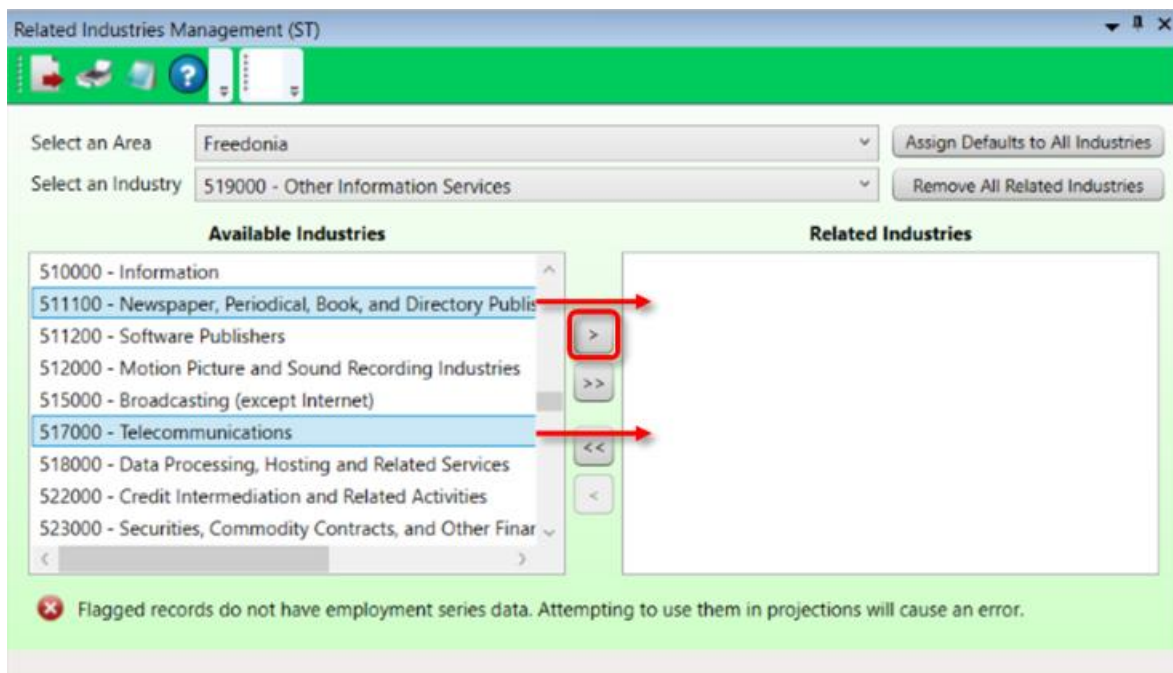


Figure 4: Select Related Industries

The industries in the **Related Industries** table and the selected industry are now related. These industries will now be used as variables in the projections process when the **Related Industries** model is selected in OLS, VAR, or BVAR model types. Typically, you do not want too many variables, so the **Related Industries** table should be kept to a minimum (no more than 4 or 5 industry selections).

Context menu items are also available to assist in selection by right-clicking the **Available** and **Related Industries** tables:

Available Industries table

- **Add Selected**
- **Select All**
- **Unselect All**

Related Industries table

- **Remove Selected**
- **Select All**
- **Unselect All**
- **Add Default Industries** - add any default industries that were previously removed
- **Update Default Industries** - update the default related industries list. Any subsequent adding default industries to other areas will use the new values.

Remove All Related Industries

1. Click the **Remove All Related Industries** button. A confirmation message will be displayed.
2. Click **Yes** to remove the industries. Select **No** to cancel.

Related Content

- [NAICS](#)
- [Related Industries](#)

Variable Directory

Use the **Variable Directory** to create, edit, and delete the monthly variable definitions used in the projections process. Short-Term variable types are National, State, or Regional.

Variable data can be [imported](#) as a spreadsheet. Match variable names on spreadsheets exactly; misspellings will cause a new variable to be created in the directory. View a variable file format example by clicking [here](#).

The Short-Term application comes with a default set of national variables, as well as data for each of those variables. The national variables are updated about every three months. **National variables** are available on this PMP site under [STIP Resources](#), first among the **Supplemental Files (Short-Term Monthly National Variables Time Series - USVariables.zip)**. Update the variables whenever you update the employment series, so the data match the ending date set for the round in the [Manage Rounds](#) module.

State and Regional variables are imported or created in this Variable Directory module and it is up to the state analyst to compile data for these types.

Screen Controls

- **Select Variable Type** drop-down menu

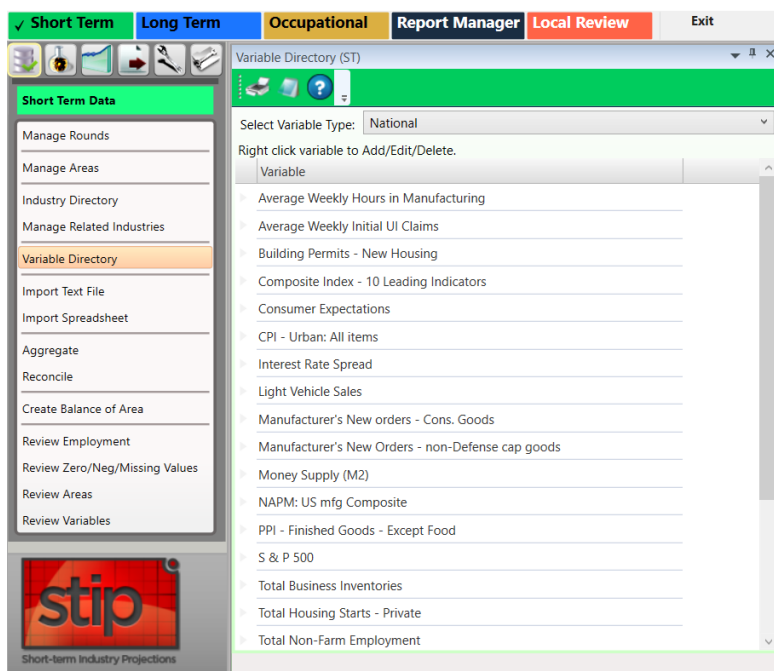


Figure 1: Variable Directory module

Add a Variable

1. **Select Variable Type** from the drop-down menu.
2. **Right click** the variable table and select **Add**.

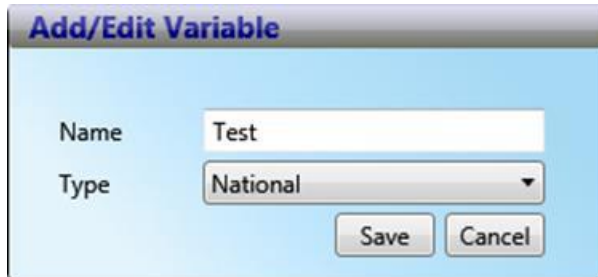
A screenshot of a software dialog box titled "Add/Edit Variable". The dialog has a light blue background and a grey title bar. It contains two labels: "Name" and "Type". The "Name" label is next to a text input field containing the word "Test". The "Type" label is next to a drop-down menu showing "National". At the bottom right of the dialog are two buttons: "Save" and "Cancel".

Figure 2: Add/Edit Variable dialog box

3. Enter a variable **Name** (this must be a unique name that clearly identifies the variable).
4. Select the variable **Type** (National, State, or Regional).
5. Click **Save**.

Edit a Variable

1. **Right click** the variable and select **Edit**.
2. Edit the variable name and/or type.
3. Click **Save**.

Delete a Variable

1. **Right click** the variable and select **Delete**. A dialog box will be displayed.
2. Click **Yes** to delete the variable. Click **No** to keep the variable.

☞ Use caution when deleting variables. All data series associated with the variable will be deleted.

Related Content

- [Review Variables](#)
- [Preview Variables](#)
- [Manage Rounds](#)
- [Export Variable Series](#)
- [Import Spreadsheet](#)

Import Text File

The **Import Text File** module is only used to import **Quarterly Census of Employment and Wages (QCEW)** program data.

The file is created specifically for this import by running QCEW job **ES2J247D** (also known as job **247D**). Request the file from your QCEW analysts by providing the parameters for the specific data you need. To save time, it is very important to extract data from the QCEW job output specific to the industry employment and area data required. For example:

- **[NAICS](#) Specifications**
 - 3 digit, 4 digit, etc.
- **Area Specifications**
 - Statewide, county, or other area designation
- **Timeframe**
 - Monthly for **Short-Term** (ST)
 - Annual for **Long-Term** (LT)

☞ **Monthly** (for Short-Term, or **STIP**) can be used to create **annual** values (in Long-Term, or **LTIP**); see [QCEW Data Extract Instructions](#).

The text file may have the needed data, but it may require importing into a spreadsheet file first to manipulate or clean up the data before importing it. If this is the case, use the [Import Spreadsheet](#) module to add the data to the database. Reference the **QCEW Data Extract** topic (linked above) for additional information.

☞ The **Import Text File** module is available in the **Short-Term** and **Long-Term** Projections applications. The same screen displays in each application.

Screen Controls

- **Select File to Import** field
- **Browse** button
- **Import** button
- **Change Font Size** slider

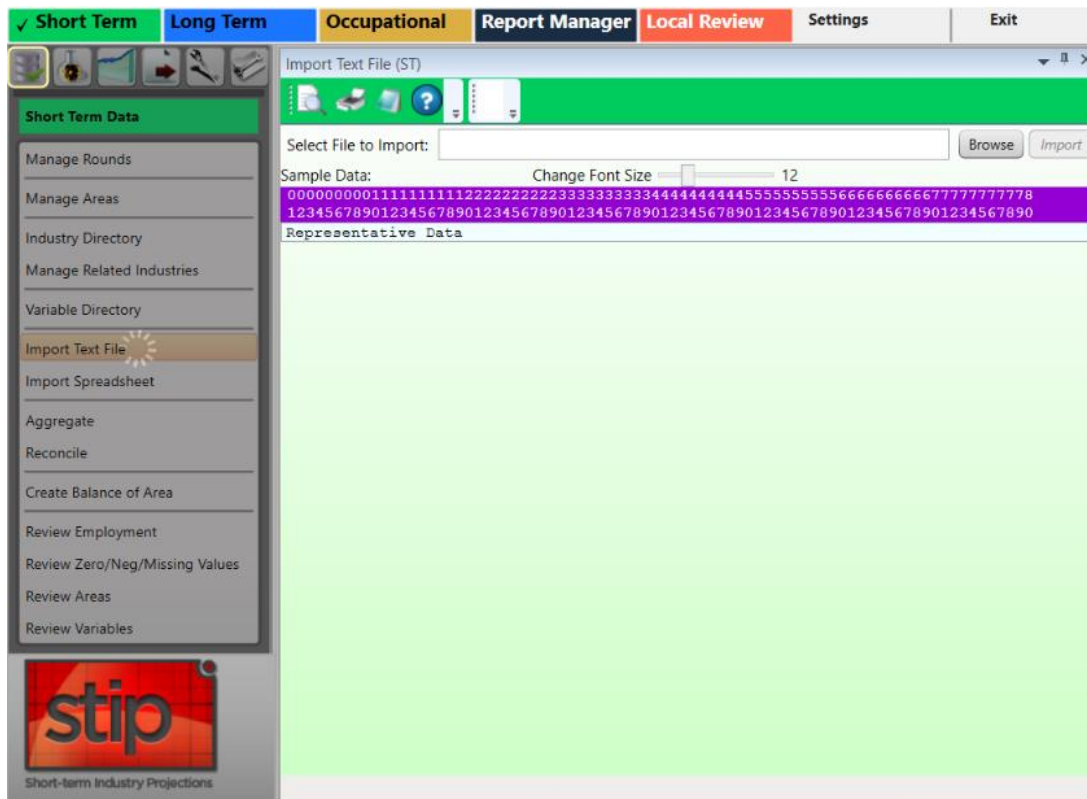


Figure 1: Import Text File module

☞ The format of the text file to be imported must have the data elements of the table into which it is imported. The valid table formats are in the **Related Content** below.

QCEW Text Format

The **QCEW** text file format consists of a fixed set of **42** or **43** required columns, depending on the QCEW type (**Expo202** or **Win202**, respectively). If the text file has fewer or greater number of columns, the application will display errors. For additional information about this format, see the [QCEW Output Text Format](#) page.

Win202 / MSA Text Format

The **Win202 / MSA** format is similar to the standard QCEW format, except the area code has one additional column. The import software expects this format to have **43** columns. If the text file has fewer or greater number of columns, the application will display errors. For details about this format, see the [Win202 / MSA Text Format](#) page.

Import Text File

1. Click the **Browse** button.

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2. Select the text file and click **Open**. The first row of data will appear below the purple bar.

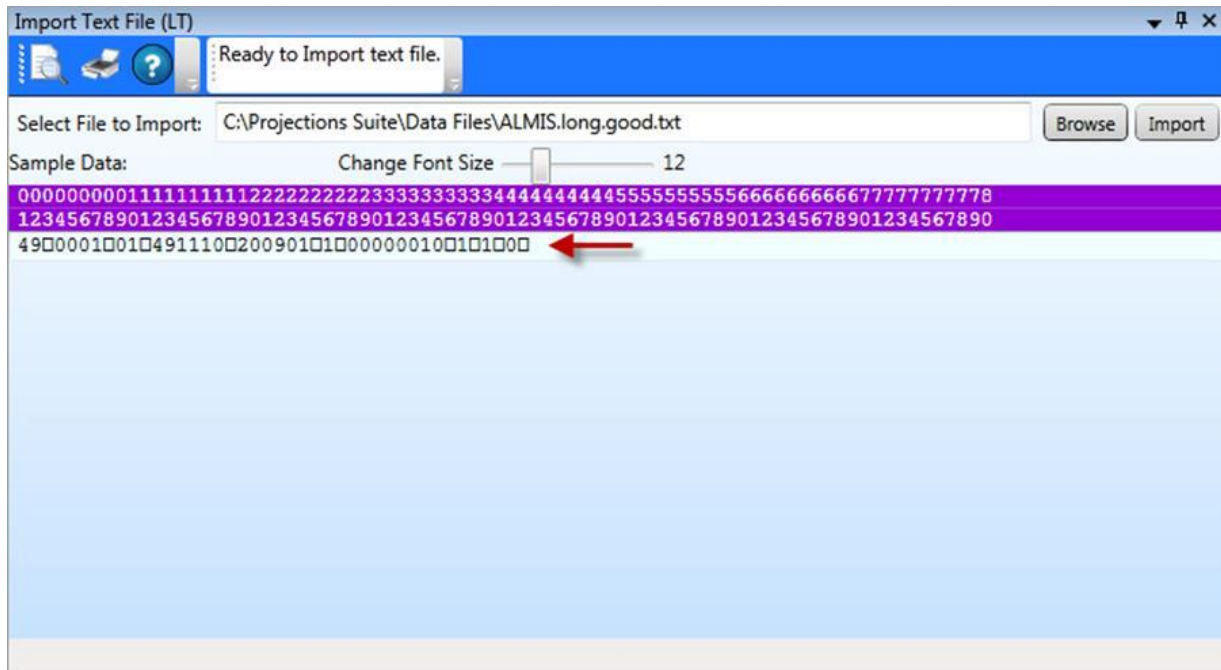


Figure 2: First row of data in a file

Numbers in the purple bar are read top to bottom to indicate the column position they represent. For example, 0 and 1 is the first column position. 1 and 0 is the tenth column position. 2 and 5 is the twenty-fifth column position, and so on. These column positions help in explaining the data elements of the text file.

Click the **Preview** button  on the [Active Module Toolbar](#) to preview the data in the text file.

3. If you are satisfied with the file layout, click **Import**. There are two places import information displays (see Figure 3):
 - The Active Module Toolbar.
 - A detailed data validation message/confirmation will be displayed in the message grid. These messages will provide information to determine the cause of import errors.

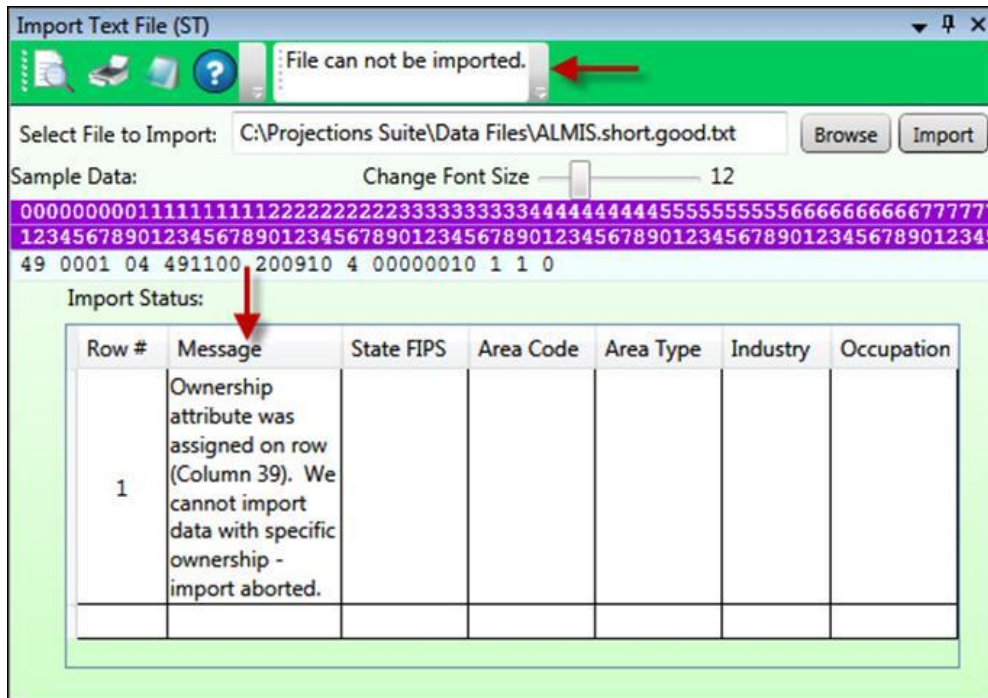


Figure 3: Data validation messages

4. If you are not satisfied with the file layout, click **Cancel**. The import will stop.
- ☞ Once the data is imported, you can view it in the [Review Employment](#) module to verify the information is correct or resolve any problems if it is not.
5. Click the **X** in the top right corner to close the **Import Text File** module to enable the other group menu selections.

Related Content

- [File Formats Introduction](#)
- [QCEW Output Text Format](#)
- [Win202 / MSA Text Format](#)
- [QCEW Data Extraction Instructions](#)

Import Spreadsheet

Use **Import Spreadsheet** to import various spreadsheet formats. This is the most common method for importing data. Spreadsheet file formats must be exact. For additional information and examples of file formats, reference the [File Formats Introduction](#) topic.

The Import Spreadsheet module is available in the Short-Term and Long-Term applications. The same general screen displays in each application, however, if you attempt to import data meant for use in the Short-Term application while using the Long-Term Import Spreadsheet module (and vice versa), you will be prompted to use the correct module for importation.

Screen Controls

- **Select File to Import** field
- **Browse** button
- **Import** button
- **Detected file type** field

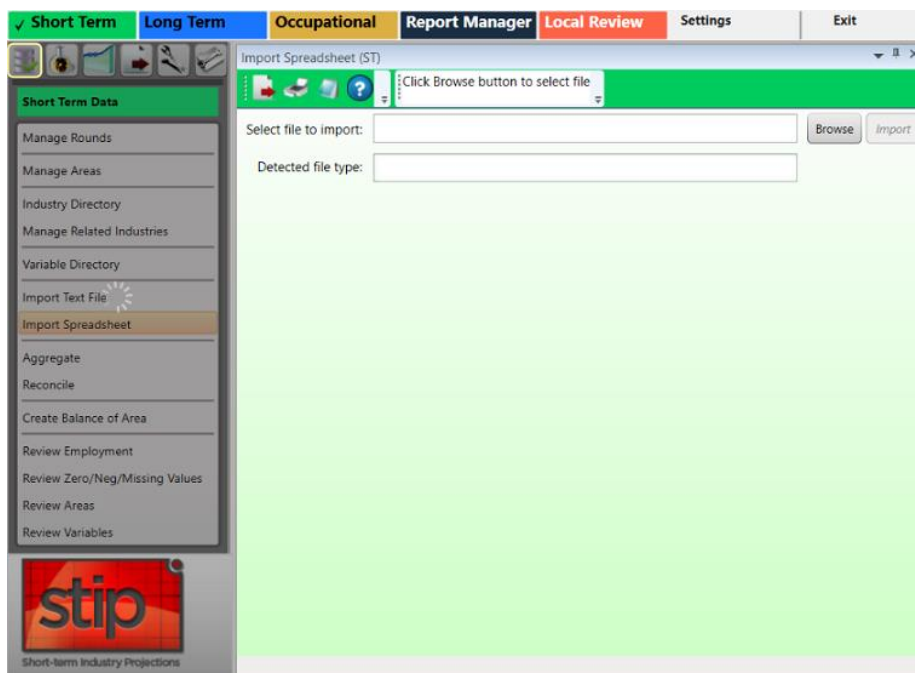


Figure 1: Import Spreadsheet module

Import a Spreadsheet

1. Click the **Browse** button.
2. Select the spreadsheet file and click **Open**. The system will validate the data and display the file type in the **Detected file type** field. Depending on the type of

import, you will be prompted to classify variables and validation messages (if any) will display.

3. Click the **Import** button. An **Import Spreadsheet** dialog box will be displayed, indicating if the import was successful and how many usable rows will be imported.

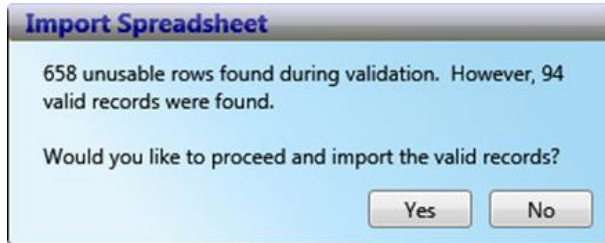


Figure 2: Import Spreadsheet dialog box

4. Click **Yes** to import the valid records. Click **No** to stop importing the records. Clicking **Yes** will progress the **Import Spreadsheet** dialog box:



Figure 3: Successfully imported records

5. Click **OK**. **Import Status** messages will display in the message table. Evaluate the messages to verify data was imported correctly. Also use the **Review** modules (near the end of this [Short-Term Data](#) group menu) to verify the data.

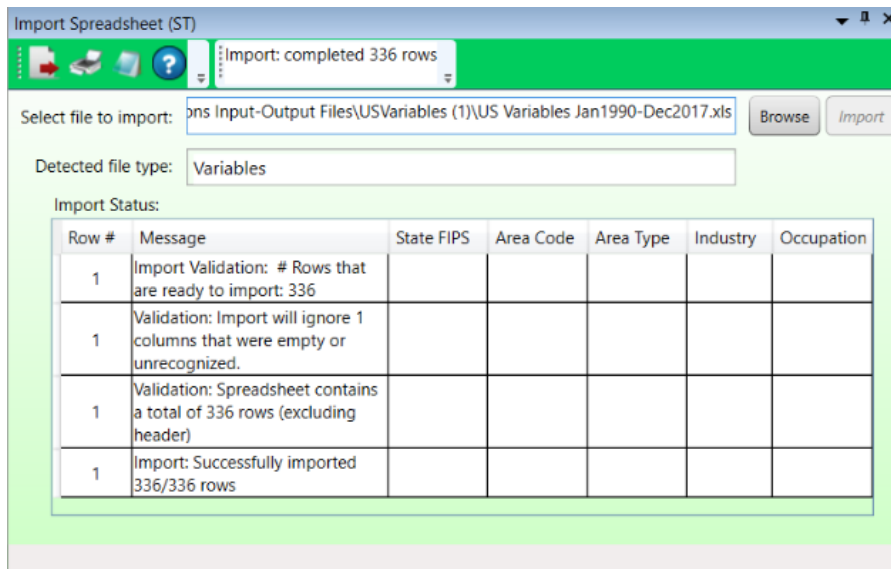


Figure 4: Import Status messages

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6. Click the **X** in the top right corner to close the **Import Spreadsheet** module and enable the other group menu items.

Related Content

- [File Formats Introduction](#)
- [Variable Directory](#)

Aggregate

The **Aggregate** module is a tool for creating industry employment series within the system, rather than importing data from external sources. With the aggregation tools, you can create total industry series from more detailed industries and ensure that state total records are the sum of sub-state records. The Aggregate module allows the user to rollup data across selected areas, industries, and time.

For example, if employment information is imported for 3-digit industries, you can aggregate employment from the detailed 3-digit industries to sector (2-digit) industries. Also, aggregation by time can create an annual employment series from monthly employment series. You have the option of creating new records or supplementing already existing data.

The Aggregate module is available in the Short and Long-Term applications. The same screen displays in each application.

Screen Controls

- **Select aggregation type** down-down menu
- **Industry** radio button
- **Industry Levels** radio button
- **Select an Industry** drop-down menu
- **Select an industry** Level drop-down menu
- **Roll up to** drop-down menu
- **Overwrite** radio button
- **Add** radio button
- **Aggregate Data** button
- **View Results Data/Graph** button

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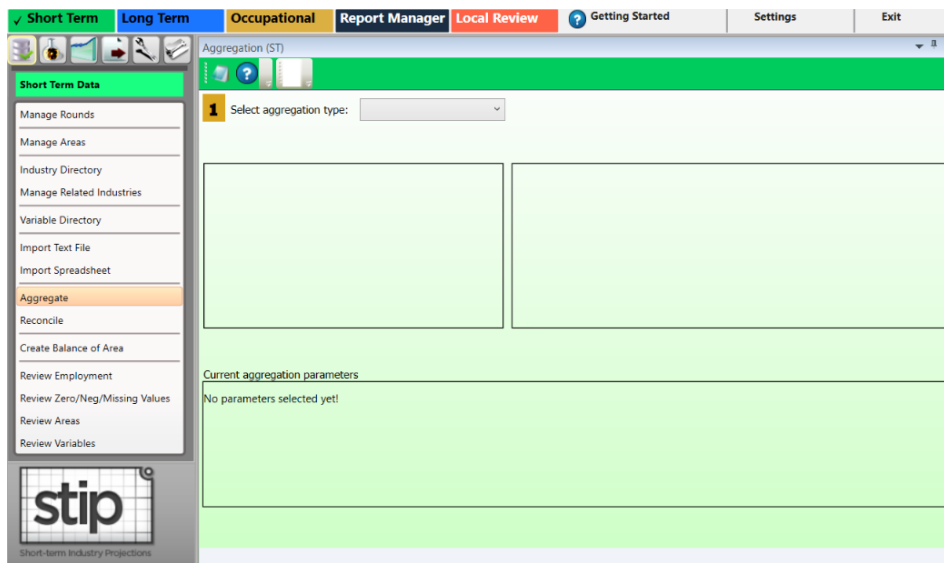


Figure 1: Aggregate module

The **Aggregate** module uses numeric step indicators to guide the process. After Step 1 (**Select aggregation type**), the other steps will be enabled.

Aggregate by Industry

Aggregate by Industry adds employment across various industry levels or groups of industries for a particular area or group of areas.

1. Select **Aggregate by Industry** from the **Select aggregation type** drop-down menu. The step guide buttons will be unlocked.

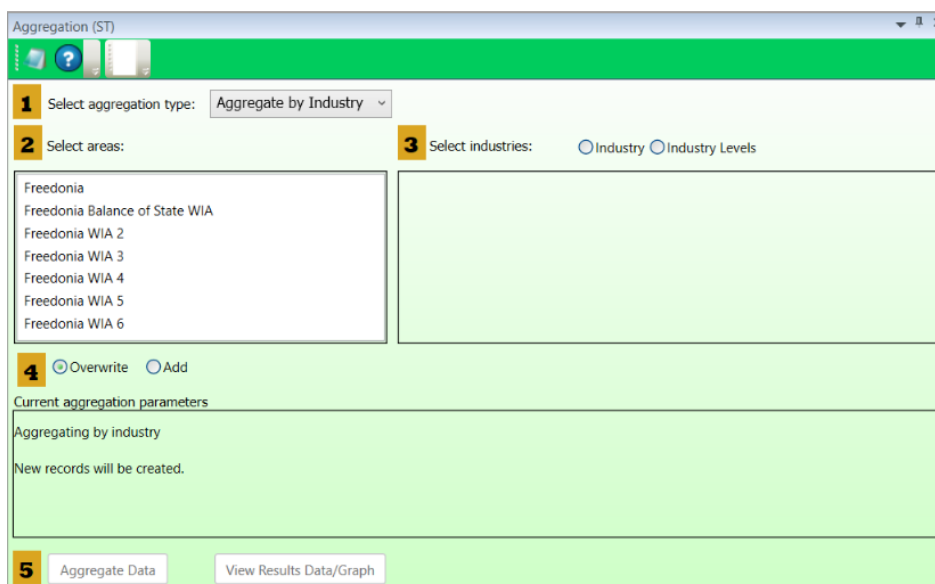


Figure 2: Aggregate by Industry selected

2. **Select areas** to aggregate from the area list box. The list shows all areas with monthly employment in the database. For assistance with selecting multiple items, click [here](#).
3. Select the **Industry** or **Industry Levels** radio button.
 - When the **Industry** radio button is selected, the **Select an industry** drop-down menu becomes available. Selecting an industry will populate the **Select industries to sum** window. Select the industries to include in the aggregation from the **Select industries to sum** window and continue to the next step.
 - Selecting the **Industry Levels** radio button enables you to **Select an industry Level** from the drop-down menu and select a level to **Roll up to** from the drop-down menu. Option combinations are available to aggregate data at various industry levels. The chosen industry level will select the next highest level to **Roll up to** automatically, but higher roll-up levels can be selected as well.

The image shows two screenshots of a software window titled '3 Select industries:'. The top screenshot shows the 'Industry' radio button selected. Below it, a dropdown menu 'Select an industry:' is set to '334000 - Computer and Electronic Product Manufacturing'. Below that, a list box 'Select industries to sum:' contains several items, all of which are checked: '334000 - Computer and Electronic Product Manufacturing', '334100 - Computer and Peripheral Equipment Manufacturing', '334200 - Communications Equipment Manufacturing', '334300 - Audio and Video Equipment Manufacturing', '334400 - Semiconductor and Other Electronic Component Manufacturing', '334500 - Navigational, Measuring, Electromedical, and Control Instruments Manufacturing', and '334600 - Manufacturing and Reproducing Magnetic and Optical Media'. The bottom screenshot shows the 'Industry Levels' radio button selected. Below it, a dropdown menu 'Select an industry Level:' is set to 'ThreeDigit'. Below that, a dropdown menu 'Roll up to:' is set to 'Sector'.

Figure 3: Select industries option group

☞ Each time selections are made, the **Current aggregation parameters** window will change to reflect the modifications.

4. Select an **Overwrite** or **Add** radio button option.
 - **Overwrite** will replace an existing data point with newly summed data. It will only do this on a month-by-month basis. Months not part of the rollup process will be left unaffected.

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- **Add** will add the new value to existing data, if that data is present. This is a way to supplement the aggregation process.

5. Click the **Aggregate Data** button to perform the rollup.
6. Click the **View Results Data/Graph** button. The **Aggregation Results** screen will activate to show the results of the aggregation. If other areas or industries were chosen in Step 2, they will be available from the drop-down boxes.

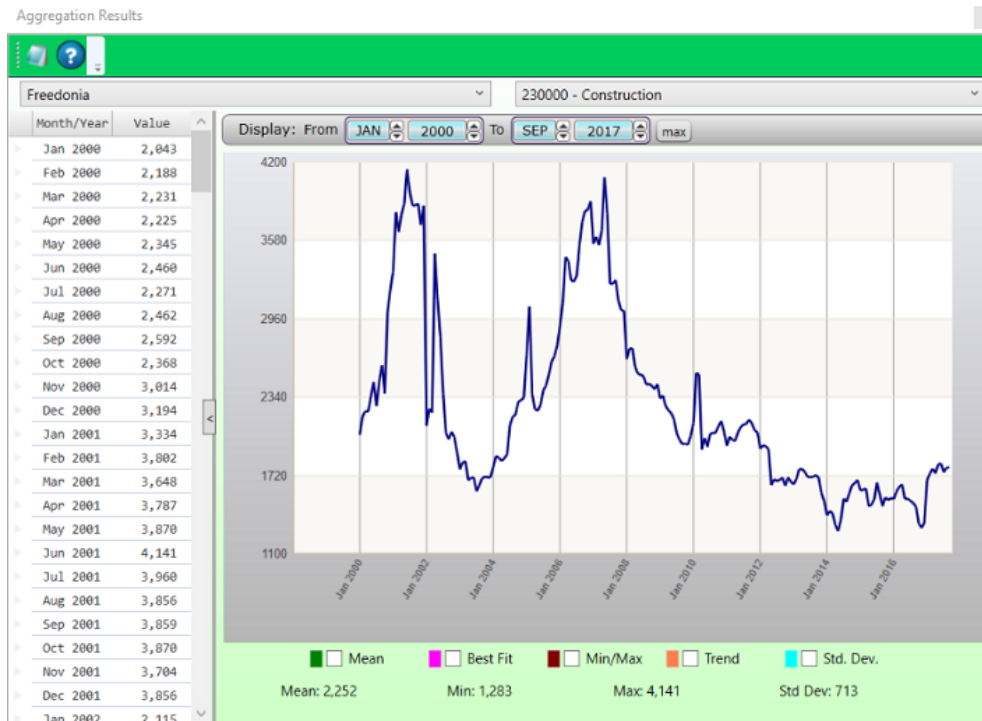


Figure 4: Aggregation Results

- ☞ To view statistical values overlaid on the data, select the [Graph Enhancement Controls](#) at the bottom of the graph. Use the [Display date spinner](#) or [select chart dates](#) with your cursor to examine the data.

Aggregate by Area

Aggregate by Area sums the employment for each child member of an area group and creates a new employment series for the parent area for a particular industry or group of industries.

1. Click the **Select aggregation type** drop-down menu and select **Aggregate by Area**.
2. Select a group from the **Select area groups** list. More than one area group can be selected.

3. Select either the **Industry** or **Industry Levels** radio button option. Select specific industries from the industry list, or select an industry level.
4. Click the **Aggregate Data** button.

Aggregate by Time

Aggregation by Time will average monthly employment for a year to create annual employment for that year, for specific areas and industries.

1. Click **Aggregate by Time** from the **Select Aggregation Type** drop-down menu.
2. **Select the areas** to include in the aggregation.
3. Select the **Industry** or **Industry Levels** radio button. Select the industries to include.
4. Click the **Aggregate Data** button.

Related Content

- [Industry Mix](#)

Reconcile

Use the **Reconcile** module to compare summed employment and actual employment for industries, areas, or times. Reconcile is a tool that helps you determine the consistency of industry employment in the database. It's important, for example, that employment in sub-state areas adds to employment at the state level for each industry, and that employment adds consistently across industry levels. It's also important that annual data be reflective of monthly data for the same industry and area. The Reconcile module provides diagnostic information for all of these scenarios.

The Reconcile module is available in the Short-Term and Long-Term applications. The same screen displays in each application.

Screen Controls

- **Select reconciliation type** drop-down box
- **Select areas** list box
- **Select industries** option group
 - **Industry** radio button
 - **Industry Levels** radio button
- **Select an industry** drop-down box
- **Select industries to sum** check boxes
- **Select an industry level** drop-down box
- **Roll up to** drop-down box
- **Reconcile Data** button
- **Off** radio button
- **Absolute difference greater than** radio button/spinner
- **Percent difference great than** radio button/spinner
- **Date Range** spinner
- **View Results Data/Graph** button

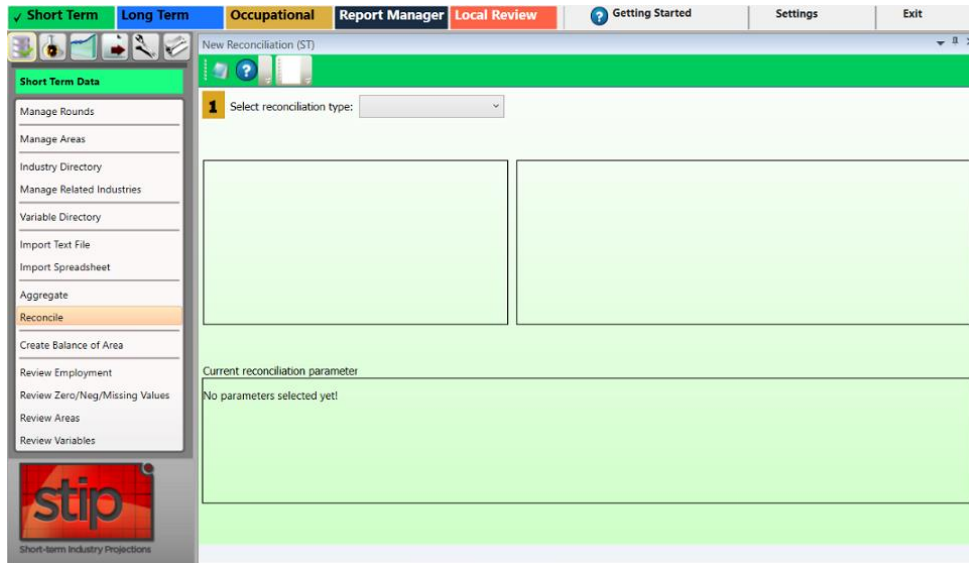


Figure 1: Reconcile module

- ☞ The **Reconcile** module uses numeric step indicators to guide the process. After **Step 1** (select reconciliation type), the other steps will be enabled.

Reconcile by Industry

Reconcile by Industry compares employment between various industry levels or groups of industries, for a particular area or group of areas.

1. Select **Reconcile by Industry** from the **Select reconciliation type** drop-down.
2. **Select area(s)** to be included in the reconciliation.

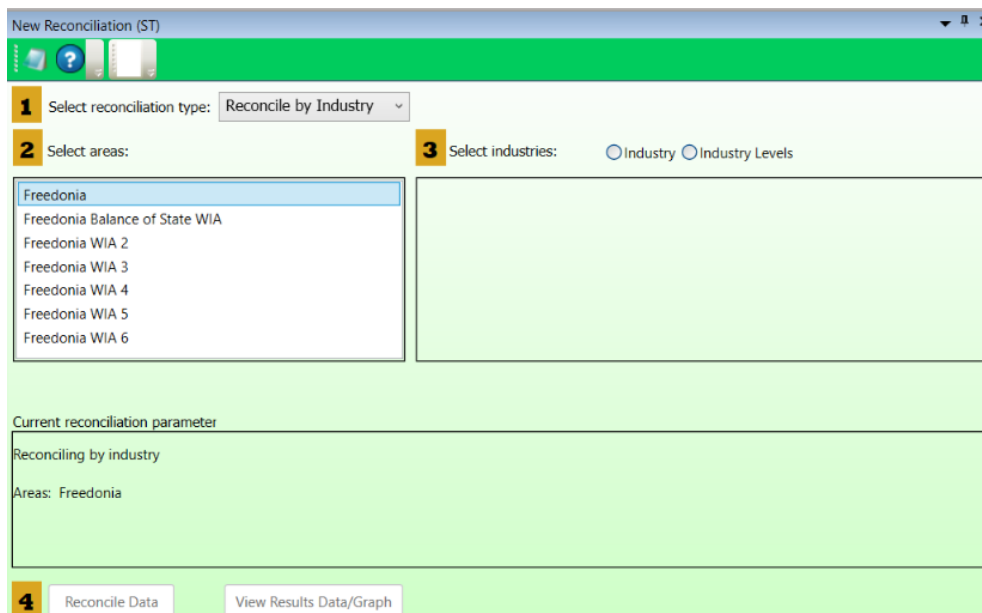


Figure 2: Select the area(s)

3. Select the **Industry** or **Industry Levels** radio button.
 - If the **Industry** radio button is selected, the **Select an industry** drop-down menu becomes available. After selecting an industry, the **Select industries to sum** window will populate. Select the industries to include in the reconciliation from the **Select industries to sum** window and continue to the next step.
 - Selecting the **Industry Levels** radio button will allow you to **Select an industry level** and **Roll up to level** from two drop-down menus. The selected Industry Level will choose the next highest level to **Roll up to** automatically, but higher roll-up levels can be selected from the menu.

The figure consists of two screenshots of the 'Select industries' window. The top screenshot shows the 'Industry' radio button selected, with a dropdown menu for '334000 - Computer and Electronic Product Manufacturing' and a list of sub-industries to sum. The bottom screenshot shows the 'Industry Levels' radio button selected, with dropdown menus for 'Select an industry Level' (ThreeDigit) and 'Roll up to' (Sector).

3 Select industries: ☒ Industry ☐ Industry Levels

Select an industry: 334000 - Computer and Electronic Product Manufacturing

Select industries to sum:

- ☒ 334000 - Computer and Electronic Product Manufacturing
- ☒ 334100 - Computer and Peripheral Equipment Manufacturing
- ☒ 334200 - Communications Equipment Manufacturing
- ☒ 334300 - Audio and Video Equipment Manufacturing
- ☒ 334400 - Semiconductor and Other Electronic Component Manufacturing
- ☒ 334500 - Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
- ☒ 334600 - Manufacturing and Reproducing Magnetic and Optical Media

3 Select industries: ☐ Industry ☒ Industry Levels

Select an industry Level: ThreeDigit

Roll up to: Sector

Figure 3: Select an Industry or Industry Levels

- ☞ Each time selections are made, the **Current reconciliation parameter** window will change to reflect the modifications.
4. Click the **Reconcile Data** button.
 5. Click the **View Results Data/Graph** button. The **Review reconciliation results** screen will open in a new window to show the results of the reconciliation. If other areas or industries were chosen, they will be available from the drop-down boxes.

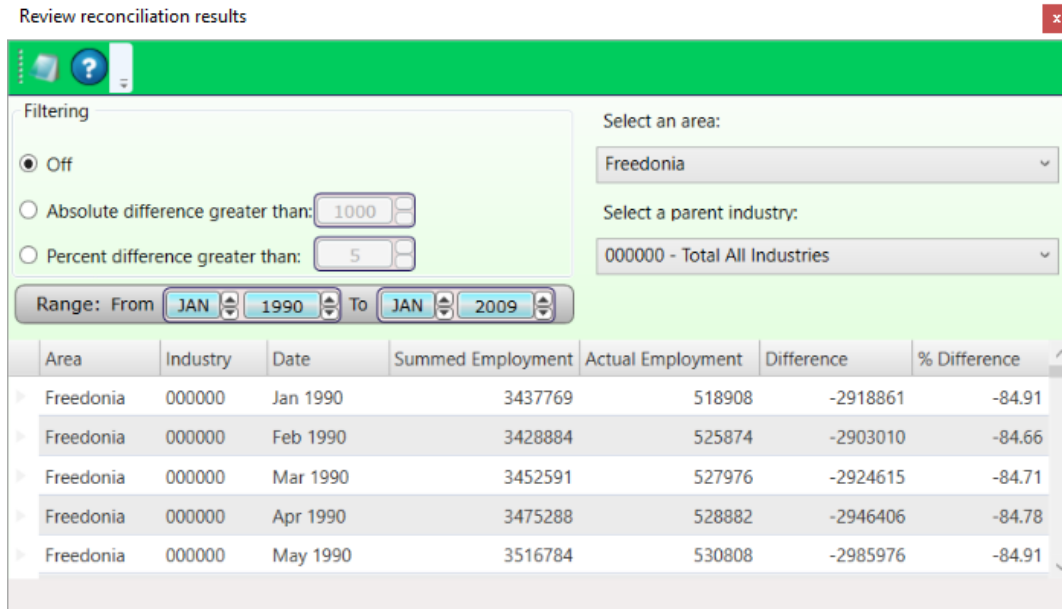


Figure 4: Review reconciliation results

- Other options are available to filter results. The filter defaults to off. One way to filter is the **Absolute difference greater than** spinner. The default value is 1000, but you can adjust this. Another filter is a **Percent difference greater than** spinner. A **Date Range** spinner is also available to view results within a specific time frame.

Reconcile by Area

Reconcile by Area compares employment in the members of an Area Group to the employment in the parent area for a particular industry or industries.

1. Select **Reconcile by Area** from the **Select reconciliation type** drop-down.
2. **Select area groups** to be included in the reconciliation.
3. Click a **Select Industries** radio button.
4. Click the **Reconcile Data** button.
5. Click the **View Results Data/Graph** button. The **Review reconciliation results** screen will display the results of the reconciliation.

Reconcile by Time

Reconcile by Time compares the average monthly employment for a year to the annual employment for that year, for specific areas and industries.

1. Select **Reconcile by Time** from the **Select reconciliation type** drop-down.
2. **Select area(s)** to be included in the reconciliation.
3. Click a **Select industries** radio button and make your selections.

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4. Click the **Reconcile Data** button. The **Review reconciliation results** screen will activate to show the results of the reconciliation.

Related Content

- [Industry Mix](#) (LT)

Create Balance of Area

Create Balance of Area creates a new area consisting of all employment in a parent area that does not belong to the child members of the area group. For example, if a state is projecting employment in metropolitan statistical areas (MSAs), a state's balance of area would contain the remainder of the employment in the state that lies outside the MSAs. A Balance of Area is also known as a Balance of State (BOS).

The Create Balance of Area module is available in the Short-Term and Long-Term applications. The same screen displays in each application.

Screen Controls

- **Select an Area Group** down-down menu
- **Provide a Name** input field
- **Area Code** input field
- **Process** button

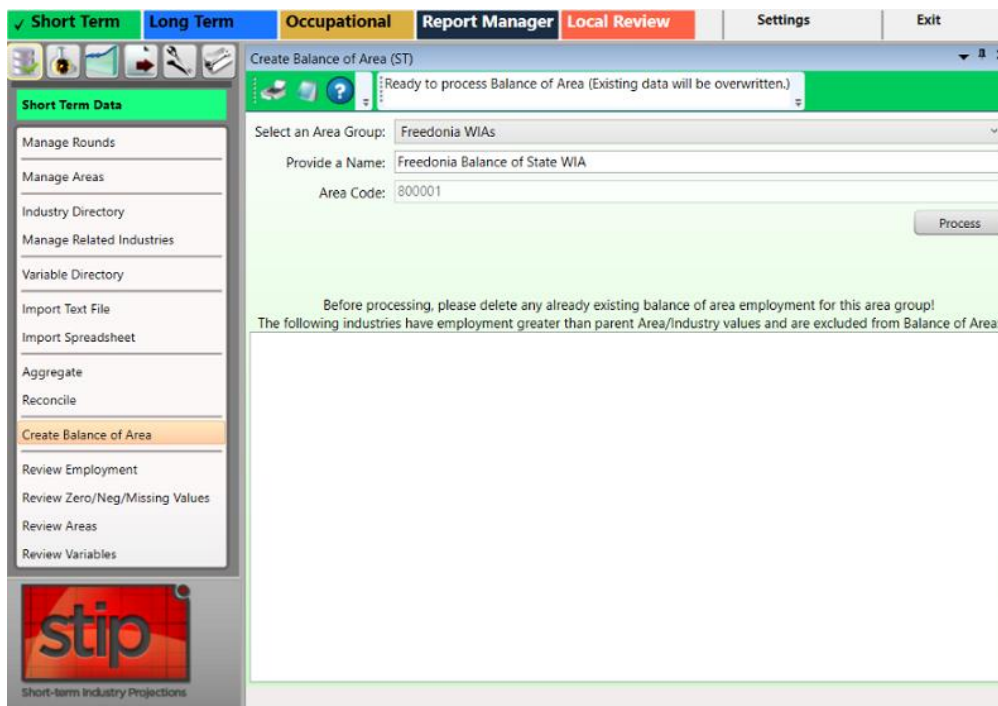


Figure 1: Create Balance of Area module, docked

Create a Balance of Area

1. Click the **Create Balance of Area** menu option. The **Create Balance of Area** screen will open in an undocked window (which can be aligned if the display's arrows are aligned while the window is selected).
2. **Select an Area Group** from the drop-down menu.

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3. Type a name for the new area in the **Provide a Name** input field.
4. Type a valid **Area Code** into the input field. The area code must be 6 digits in length. The **Process** button will be enabled.

Create Balance of Area (ST)

Ready to process Balance of Area (Existing data will be overwritten.)

Select an Area Group: Freedonia WIAs

Provide a Name: Freedonia Balance of State WIA

Area Code: 800001

Process

Before processing, please delete any already existing balance of area employment for this area group!
The following industries have employment greater than parent Area/Industry values and are excluded from Balance of Area:

Figure 2: Preliminary information entered, Process button unlocked

5. Click the **Process** button. For each industry at the parent area level (for example, the state level), the software sums all of the employment in the industry in each of the sub-state areas that already exist in the group. It then subtracts that sum from the state employment and creates a new industry record. The record is the difference between the state employment and the sum of the non-balance of area sub-state employment. This new employment value is assigned to the Balance of Area. The system will do this for each year when accessed through Long-Term Industry Projections and for each month when accessed through Short-Term Industry Projections.

When processing is finished, the BOS Processed dialog box will be displayed.

BOS Processed: 25650 records to write!

Balance of state is processed, other than the displayed industries would you like to save the values?

Yes No

Figure 3: Number of records processed

6. Click **Yes** to save the Balance of Area records to the database. Click **No** to cancel the save.

After the values have been saved, any industries with sums greater than the group total (which have been excluded from the saved values) are noted in the bottom section of the **Create Balance of Area** screen.

Create Balance of Area (ST)

Monthly Balance of Area created.

Select an Area Group: Freedonia WIAs

Provide a Name: Freedonia Balance of State WIA

Area Code: 800001

Process

Before processing, please delete any already existing balance of area employment for this area group!
The following industries have employment greater than parent Area/Industry values and are excluded from Balance of Area:

- 230000 - Construction
- 480000 - Transportation and Warehousing
- 510000 - Information

Figure 4: All records saved, highlighted industries were not

You can view the new industry employment data in the Long-Term [Edit Employment Time Series](#) module.

Related Content

- [Manage Areas](#)

Review Employment

Use the **Review Employment** module to perform a quality check on the historical data series for industries in a specified area. With the quality check, you are able to identify potential problems in the data series.

Prerequisites that must be completed prior to using this module are:

- Run the area set up using the [Manage Areas](#) module.
- Import the Monthly Employment Data using the [Import Text File](#) or [Import Spreadsheet](#) modules.

Screen Controls

- **Select an Area** drop-down menu
- **Show / print flagged records only** check box
- **Process** button
- **Employment Table** tab
- **Missing Industries (Substate)** tab

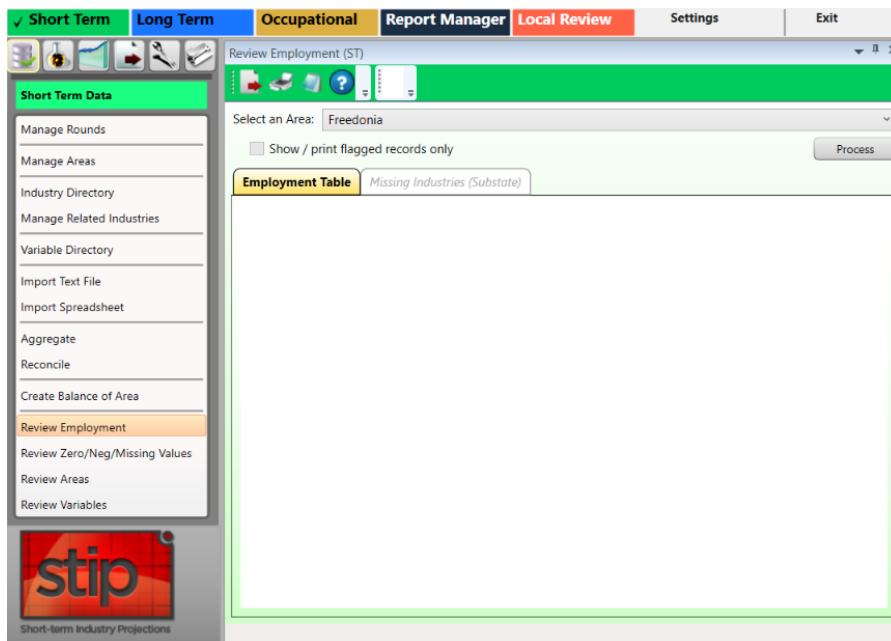
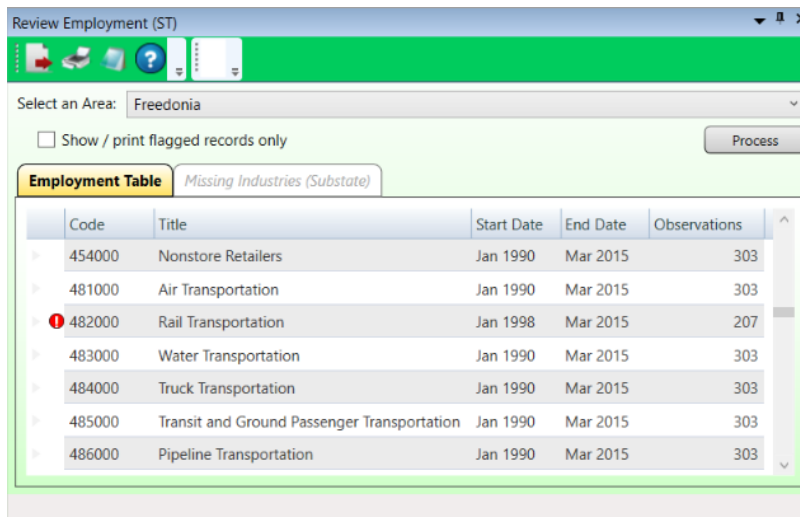


Figure 1: Review Employment module

Review Historical Employment Data


1. **Select an Area.**
2. Click **Process**. A list of industries will display on the **Employment Table** tab with the start date and end date for each industry, as well as the number of

observations. If an industry contains a start date or an ending date that is different from the majority of the industries and different than the round ending date, they will be flagged.




Code	Title	Start Date	End Date	Observations
454000	Nonstore Retailers	Jan 1990	Mar 2015	303
481000	Air Transportation	Jan 1990	Mar 2015	303
482000	Rail Transportation	Jan 1998	Mar 2015	207
483000	Water Transportation	Jan 1990	Mar 2015	303
484000	Truck Transportation	Jan 1990	Mar 2015	303
485000	Transit and Ground Passenger Transportation	Jan 1990	Mar 2015	303
486000	Pipeline Transportation	Jan 1990	Mar 2015	303

Figure 2: Employment Table tab

The flag  displays if there is information missing between the start and end dates. The flagged records should be reviewed for accuracy. One tool to help locate missing dates is by using the [Review Zero/Neg/Missing Values](#) module. Running this module can help identify each industry that may be missing employment and print a report. If there is missing employment information, use the [Preview Employment](#) module under the Analysis category to view or modify employment data.

Once you have corrected any issues, click **Process** to reprocess the data. It is okay to have industry ending data extend beyond the ending date of the round, but be aware that numerous flags may appear in the list of industries on the employment tab. Flags are used as a warning to identify potential problems, but do not necessarily need to be removed to continue.

3. Check the **Show / print flagged records only** box to view only records with flags.

 Click a table heading to sort data by that heading. For example, to sort by Title, click the Title heading.

Missing Industries (Substate) Tab

If the selected area is a sub-state area, the **Missing Industries (Substate)** tab is enabled after clicking the Process button. At the top, the tab displays a list of industries that were found in the state area but not found in the sub-state area.

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Review Employment (ST)

Select an Area: Freedonia WIA 2

☐ Show / print flagged records only Process

Employment Table **Missing Industries (Substate)**

The following industries were found in Freedonia, but not in Freedonia WIA 2.

Code	Title	Start Date	End Date	Observations
230000	Construction	Jan 1990	Sep 2008	225
310000	Manufacturing	Jan 1990	Sep 2008	225
480000	Transportation and Warehousing	Jan 1990	Sep 2008	225
510000	Information	Jan 1990	Sep 2008	225

There were no Freedonia WIA 2 industries missing from Freedonia.

Code	Title	Start Date	End Date	Observations
------	-------	------------	----------	--------------

Figure 3: Missing Industries (Substate) tab

At the bottom, industries found at the sub-state level but not statewide are displayed. Before you run the [Project Multiple Regions](#) module, you must have all the same industries in the state and sub-state areas.

Review Zero/Neg/Missing Values

The **Review Zero/Neg/Missing Values** module allows the viewing of industries, in the selected area, which have employment levels that are zero, negative, or are missing values. This identifies errors in an employment data series.

Prerequisites that must be completed prior to using this module are:

- Run the area set up using the [Manage Areas](#) module.
- Import the Monthly Employment Data using the [Import Text File](#) or [Import Spreadsheet](#) modules.

Screen Controls

- **Select an area** drop-down menu
- **Beginning Date** spinner
- **Show only exceptions from base period** check box
- **Process** button

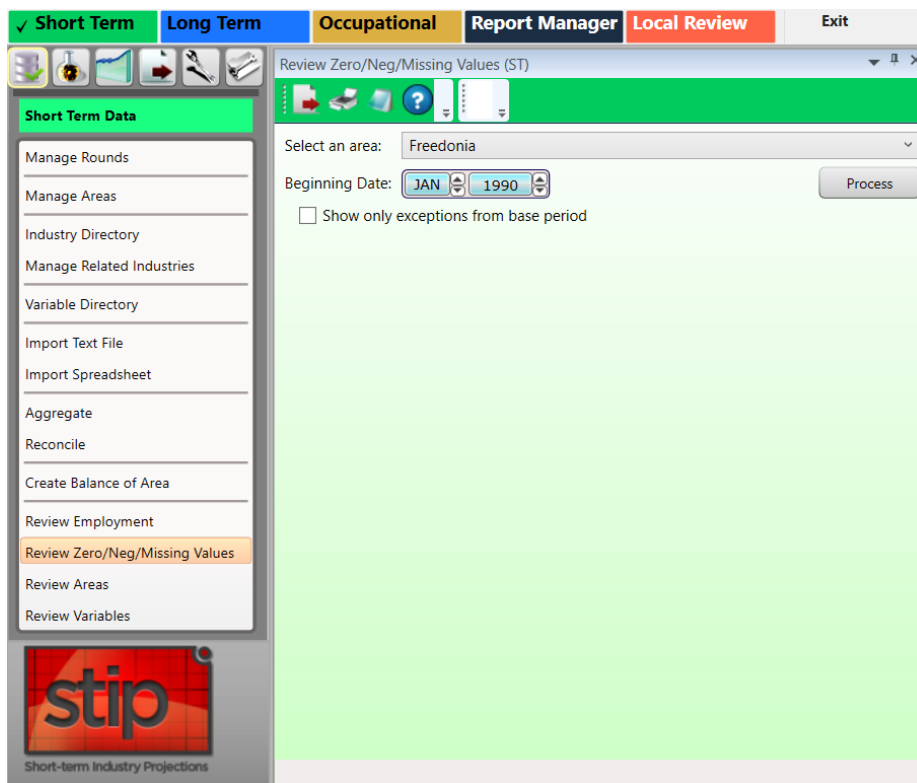


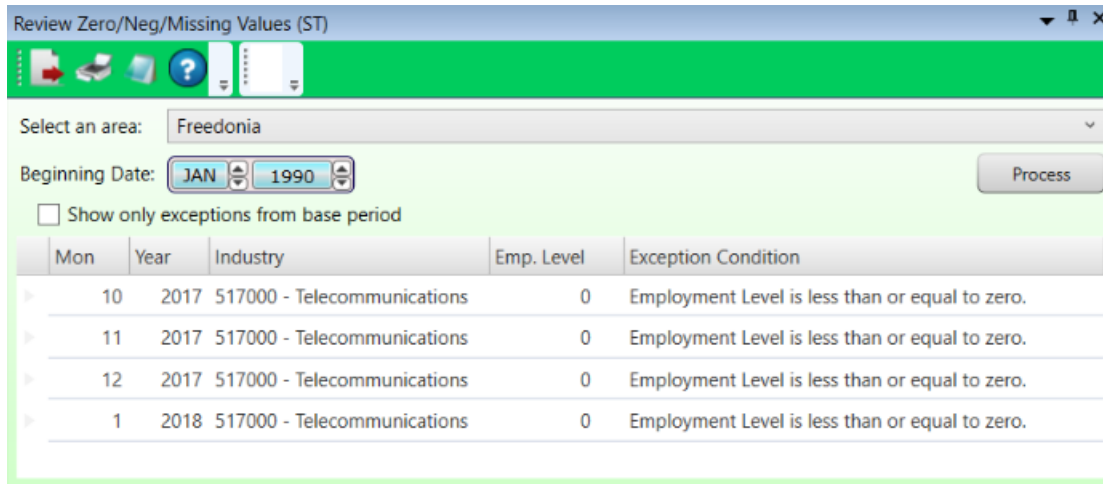
Figure 1: Review Zero/Neg/Missing Values module

Review Zero/Neg/Missing Values

1. **Select an Area** from the drop-down menu.
2. Click the **Beginning Date** [spinner](#) to set the **Beginning Month and Year**.

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3. Click the **Show only exceptions from base period** check box to use the base period only.
4. Click the **Process** button. Industries with zero, negative, or missing values for the selected area and date are displayed.



Review Zero/Neg/Missing Values (ST)

Select an area: Freedonia

Beginning Date: JAN 1990

☐ Show only exceptions from base period

Process

Mon	Year	Industry	Emp. Level	Exception Condition
10	2017	517000 - Telecommunications	0	Employment Level is less than or equal to zero.
11	2017	517000 - Telecommunications	0	Employment Level is less than or equal to zero.
12	2017	517000 - Telecommunications	0	Employment Level is less than or equal to zero.
1	2018	517000 - Telecommunications	0	Employment Level is less than or equal to zero.

Figure 2: Flagged records display with the reasons they are flagged

Take note of the Month, Year, and Industry columns with error flags and visit the [Preview Employment](#) module under the Short-Term Analysis group menu to view and modify employment data. Once you have corrected any issues, return to this module and click **Process** to reprocess the data and verify there are no exceptions or that there is no concern for the exception.

Review Areas

The **Review Areas** module compares area group information to identify potential problems found in the employment data series.

Prerequisites that must be completed prior to using this module are:

- Run the area setup and set up an area group using the [Manage Areas](#) module. Creating area groups allows for the comparison of information between a parent and child areas. This will help to determine if there are data problems.
- Import the Monthly Employment Data using the [Import Text File](#) or [Import Spreadsheet](#) screens.

The Review Areas module is available in the **Short-Term** and **Long-Term** applications. The same screen displays in each application.

Screen Controls

- **Select an Area Group** drop-down menu
- **Process** button
- **Show / print flagged records** only check box

Figure 1: Review Areas module

Review Areas

1. **Select an Area Group.**
2. Click the **Process** button. When processing is complete, the results display.

Review Areas (ST)

Select an Area Group: Freedonia WIAs

☐ Show / print flagged records only Process

Area	Min Start	Max End	# Indus.	Reasons flagged
▶ Freedonia	Jan 1990	Sep 2008	114	
▶ Freedonia Balance of State WI	Jan 1990	Sep 2008	114	
▶ Freedonia WIA 2	Jan 1990	Sep 2008	114	
▶ Freedonia WIA 3	Jan 1990	Sep 2008	116	Child industry count greater than parent industry count.
▶ Freedonia WIA 4	Jan 1990	Sep 2008	114	
▶ Freedonia WIA 5	Jan 1990	Sep 2008	114	
▶ Freedonia WIA 6	Jan 1990	Sep 2008	114	

Figure 2: Discrepancies are listed in the Reasons Flagged column

Review starting dates, ending dates, and number of observations to make certain they are what is expected. A flag indicates there are issues with the record. In Figure 2, Freedonia WIA 3 contains more observations than the other areas. This information can help identify possible discrepancies.

Modify data as needed either using the [Preview Employment](#) module or by re-importing a corrected spreadsheet. When the number of industries is different in child areas than the parent area, the **Review Employment (ST and LT)** module can then be used to determine specifics of the discrepancies. Industries can be identified that are found in the parent area but not in a child area, and vice versa.

Once you have corrected any issues, return to this module and click **Process** to reprocess the data and verify there are no exceptions or that there is no concern for the exception.

Review Variables

Use the **Review Variables** module to review the National, State, and Regional variables for any inconsistencies in the data series.

Prerequisites that must be completed prior to using this module are:

- Run the area setup using the [Manage Areas](#) module.
- Import the Monthly Variable data using the [Import Spreadsheet](#) module.

Screen Controls

- **Select Variable Type** drop-down menu
- **Show / print flagged records only** check box
- **Process** button

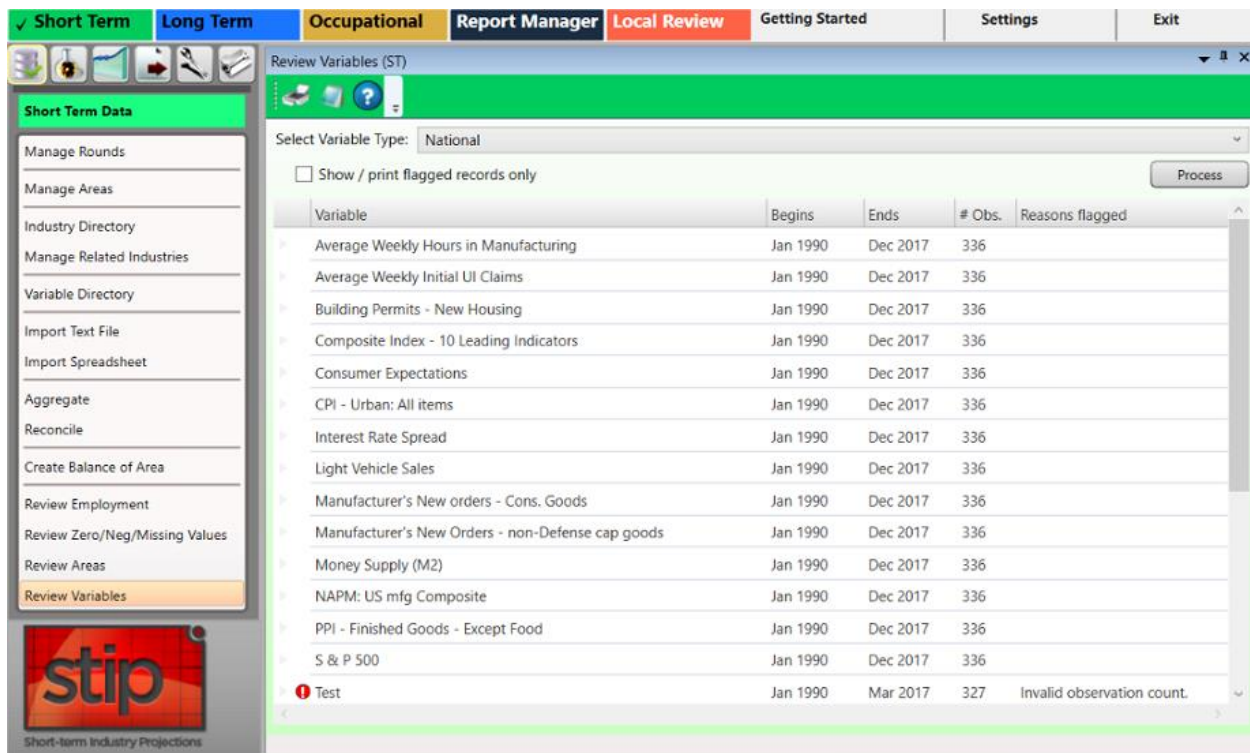


Figure 1: Review Variables module

Review Variables for Inconsistencies

1. **Select Variable Type** from the drop-down menu.
2. Click the **Process** button. The variables of the selected type will be displayed. Variables with errors will be flagged and their discrepancies listed in the **Reasons flagged** column.

 Click the **Show / print flagged records only** check box to hide all records that do not have discrepancies.

Review any flagged records to ensure the information is correct. Use the [Preview Variables](#) module under the Analysis category to modify or add a variable record, or re-import variable data. Once you have corrected any issues, return to this module and click **Process** to reprocess the data and verify there are no exceptions or that there is no concern for the exception.

Related Content

- [Variable Directory](#)
- [Preview Variables](#)
- [Dummy Variables](#)

Short-Term Analysis

The menu items for the **Short-Term Analysis** group menu include tools to review, evaluate, and analyze employment or variable data series or to create/edit dummy variables in preparation for processing projections. The employment series imported into the Short-Term application should be an unadjusted (not seasonally adjusted) data series.

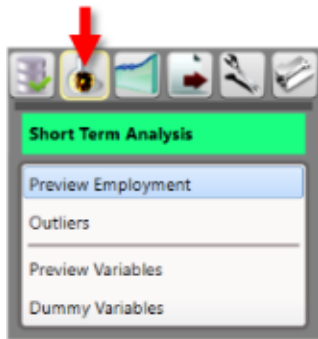


Figure 1: Short-Term Analysis group menu

The **Short-Term Analysis** group menu contains the following selections:

- [Preview Employment](#)
- [Outliers](#)
 - [Time Series Plot Tab](#)
 - [Transformed Time Series Plot Tab](#)
 - [Seasonality Plot](#)
- [Preview Variables](#)
- [Dummy Variables](#)

Preview Employment

Use the **Preview Employment** module to analyze and edit the Monthly Industry Employment data series.

The graph displays all of the monthly employment data values so you can visually see trends for the employment series and any irregularities that might be occurring. Using this module, you are able to view the historical graph of an industry's employment series and review the related industries assigned to the selected industry.

Screen Controls

- **Select an Area** drop-down
- **Select an Industry** drop-down
 - **View % Shares** check box
- **View [Related Industries](#)** button
- **Delete Data Series** button
- **Level** radio button
- **% Growth** radio button
- **Display date** spinner
 - **Max** button
- **Graph Enhancement** controls

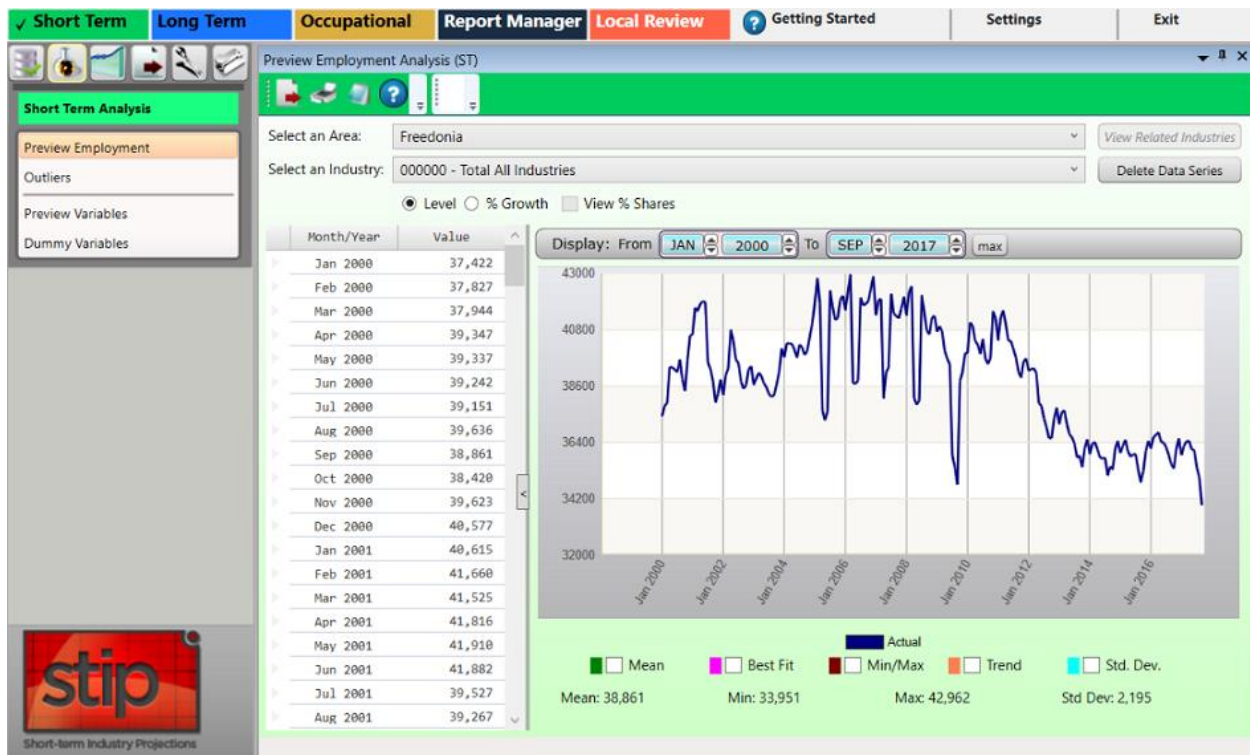
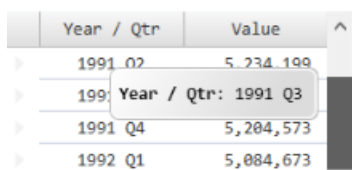


Figure 1: Preview Employment module

View Monthly Industry Employment Data

1. **Select an Area** from the drop-down menu.
2. **Select an Industry**.
3. Click either the **Level** or **% Growth** radio button.
 - The **Level** radio button displays the actual employment data charted.
 - The **% Growth** radio button displays the percent of change of the data charted. The growth calculation represents the compounded annual growth rate for the two-year projection period. A [Growth Rate document](#) is available on this website in the [Short-Term Resources](#) section.
 - The **View % Shares** check box displays (as a separate line on the graph) the percent of a sub-state area industry employment, compared to the state total for the industry. To activate the **View % Shares** check box, select a sub-state area from the **Select an Area** drop-down menu.
4. Change the display months and years by using [date spinner controls](#) or by [selecting chart dates](#). The graph will be updated automatically as changes are entered using these controls. [Graph enhancement controls](#) can also be used to overlay statistical measures on the graph.

The **data grid** displays the date (**Month/Year**) and employment level (**Value**) for the selected area and industry historical series. When scrolling through the data grid, a date pop-up will appear (see Figure 2). As you move the scroll bar, the pop-up will display the month/year in chronological order. When the desired date is located in the series, release the mouse button and the selected date will appear at the top of the grid.



Year / Qtr	Value
1991 Q2	5,234,199
1991 Q3	5,284,573
1991 Q4	5,284,573
1992 Q1	5,084,673

Figure 2: Data pop-up

☞ Alternatively, click on a value in the Data Grid and move up and down through the series with the keyboard arrow buttons.

Edit the Data Grid

1. Highlight the row you want to adjust.
 2. **Right click** and select **Add**, **Edit**, or **Delete** from the context menu.
- ☞ To **add new information**, select **Add**. A new record will appear at the top of the grid. Double-click in the blank **Month/Year** field and enter the date.

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☞ You can enter the date as Oct 2008, October 2008, or 10 2008. All of these examples will format to Oct 2008.

- Press **Tab** to or double-click the **Value** field to enter a value. Press **Enter** to add the record and the value will be sorted into the proper order within the grid. **Right click** and select **Cancel Add** to delete the new row without adding it to the data series.
- To edit a value, **right click** it and select **Edit**. Type the new value and press **Enter** to save it.
- To **delete an observation** from the series, **right click** it and choose **Delete**. When prompted, click **Yes** to delete the record.

☞ Multiple observations can be deleted simultaneously. For instructions on making multiple selections, click [here](#).

Additional Preview Employment Options

- Click the **Review Related Industries** button, to display a list of industries related to the selected industry in a new window.
- Click the **Delete Data Series** button to remove employment data for the selected area/industry combination.

Export/Print the Area/Industry Combination

- Click the **Export** button on the Active Module Toolbar to create a spreadsheet from the area/industry selection.
- Click the **Print** button to print a report.

Related Content

- [Review Zero/Neg/Missing Values](#)

Outliers

Outliers are data that deviate from normal seasonal fluctuations. An outlier is a point in a time series that has a value different enough from the points immediately surrounding it to raise questions about that point's validity.

Outliers may occur for several reasons:

- Errors in the data.
- Very small data values causing relative fluctuations.
- Economic upturns or downturns reflected in employment values rising or falling suddenly.

It is the analyst's responsibility to decide the cause of a particular outlier's presence in an employment series. The software cannot make that decision. However, the Outlier module provides the tools to search for possible outliers and to suggest possible alternative values.

The Outlier module is duplicated in the Short and Long-Term applications. The only difference is Short-Term displays monthly data in addition to yearly data. The Long-Term Outliers module will calculate yearly data only.

Screen Controls

- **Settings** tab
 - **Select Areas** drop-down
 - **Analyze All Areas** check box
 - **Three times the interquartile range or greater** radio button
 - **Two standard deviations from the differenced mean or greater** radio button
 - **Absolute magnitude difference of 1200 or greater** radio button
 - **Top 100 by absolute differenced from the differenced median** radio button
- [Time Series Plot](#) tab
- [Transformed Time Series Plot](#) tab
- [Seasonality Plot](#) tab (Short-Term only)
- **What's an outlier** button
- **Change Default Outlier Magnitude** button
- **Change Default Outlier Count** button
- **Find Outliers** button

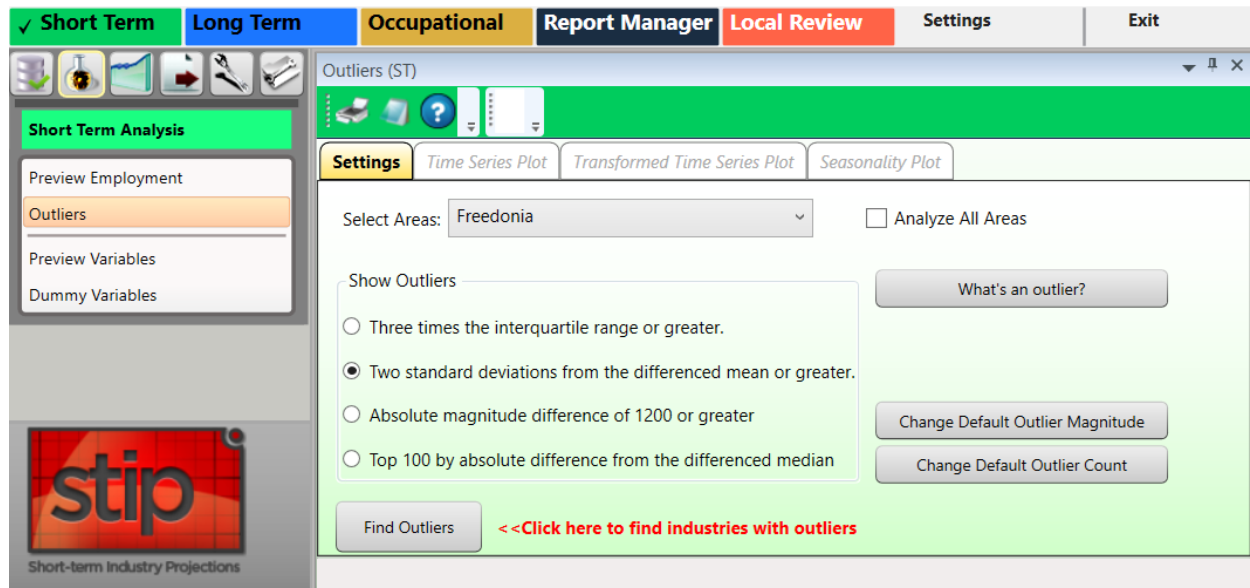


Figure 1: Outliers module

Prepare Outlier Processing

1. Select an area from the Select Areas drop-down menu, or check **Analyze All Areas** box.
2. Select a **Show Outliers** radio button.

☞ To display the Outlier Detection Methodologies explanation, click the **What's an outlier** button.

Outliers to show include:

- **Three times the interquartile range or greater.**
 - This option calculates quartiles for the differenced series at the 25th, 50th, and 75th percentile. The difference between the 75th and 25th percentile is called the interquartile range. The system flags any industries with points on the differenced series that are more than three times the interquartile range, above the 75th percentile or below the 25th percentile.
- **Two standard deviations from the differenced mean or greater.**
 - This calculates the standard deviation from the mean of the differenced series, then flags any industries with points on the differenced series that are more than two standard deviations above or below the mean.
- **Absolute magnitude difference of 1200 or greater.**

Short-Term Industry Projections

- This flags any industries with points on the differenced series that have an absolute value above a specific setting. The default magnitude to compare against is 1,200.
- ☞ Click the **Change Default Outlier Magnitude** button to set a different absolute magnitude difference.
- **Top 100 by absolute difference from the differenced mean.**
 - This ranks all differenced points for all industries by the absolute value of their differences from the median of the differenced series, then flags any industries that have points in the top portion of the list. By default, the top 100 points measured by absolute difference are selected.
- ☞ Click the **Change Default Outlier Count** button to set a different number of points to return.
3. Click the **Find Outliers** button. When the outlier calculations are complete, the view will be switched to the **Time Series Plot** tab to display the results.

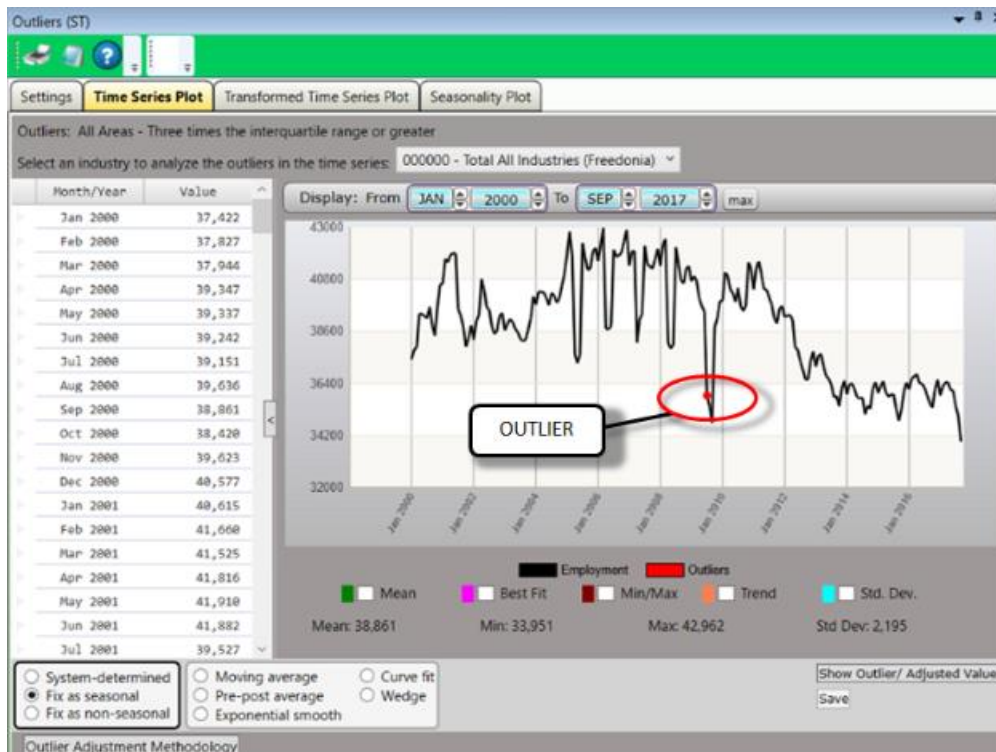


Figure 2: The Time Series Plot tab displays

Red dots indicate the calculated locations of outliers. If there are no outliers within the chosen criteria, the **Time Series Plot** tab will not display.

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The **Transformed Time Series Plot** tab will also be unlocked after clicking the **Find Outliers** button.

Related Content

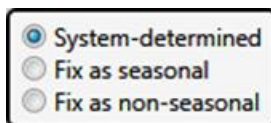
- [Time Series Plot](#)
- [Transformed Time Series Plot](#)
- [Seasonality Plot](#)

Time Series Plot Tab

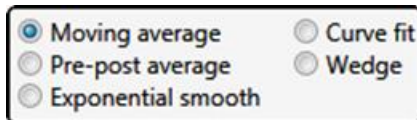
The **Time Series Plot** tab displays the outlier information you initially selected in the **Outlier** module. At the top of the screen, the area and type of outlier is displayed.

Screen Controls

- **Select an industry** drop-down menu
- **Display date** spinner
 - **Max** button
- **Graph Enhancement Controls**



- **System-determined** radio button
- **Fix as seasonal** radio button (selecting this option will unlock the **Seasonality Plot** tab)
- **Fix as non-seasonal** radio button



- **Adjustment Options**
 - **Moving average** radio button - This option takes the average of the preceding three months (default) as the new value for an outlier point. It will display a **green dot** on the graph as the suggested value.
 - **Select number of months (or years in Long-Term)** drop-down
 - **Pre-post average** radio button - This option averages the values of the points immediately before and after the outlier points.
 - **Exponential smooth** radio button - This option displays the [R-Squared](#) value of the smoothing equation, which can help determine the validity of the adjusted values.
 - **Curve fit** radio button - This option displays the R-Squared value for use in fitting a first-degree linear equation to the time series or a second-degree polynomial equation.
 - **Select degree of equation** drop-down
 - **Wedge** radio button - This option requires two outlier points for calculation. The system draws a straight line between the point immediately before the first outlier and immediately after the last outlier. This causes the interpolation of the outlier points as well as the intermediate values.
 - **Start point (anchor)** date spinner

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- **End point (value) date spinner**
 - **Show Outlier/ Adjusted Values** button
 - **Outlier Adjustment Methodology** button - opens a document which explains the moving average, pre-post average, exponential smooth, curve fit, and wedge methodologies/adjustments in more detail.
 - **Save** button - This button replaces the outlier values with new values, based on the methodology chosen.
 - **Configure Outlier Data on the Time Series Plot Tab**
1. Select an industry from the **Select an industry to analyze the outliers in the time series** drop-down menu.
 2. Check one or more of the [Graph Enhancement Controls](#), if desired.

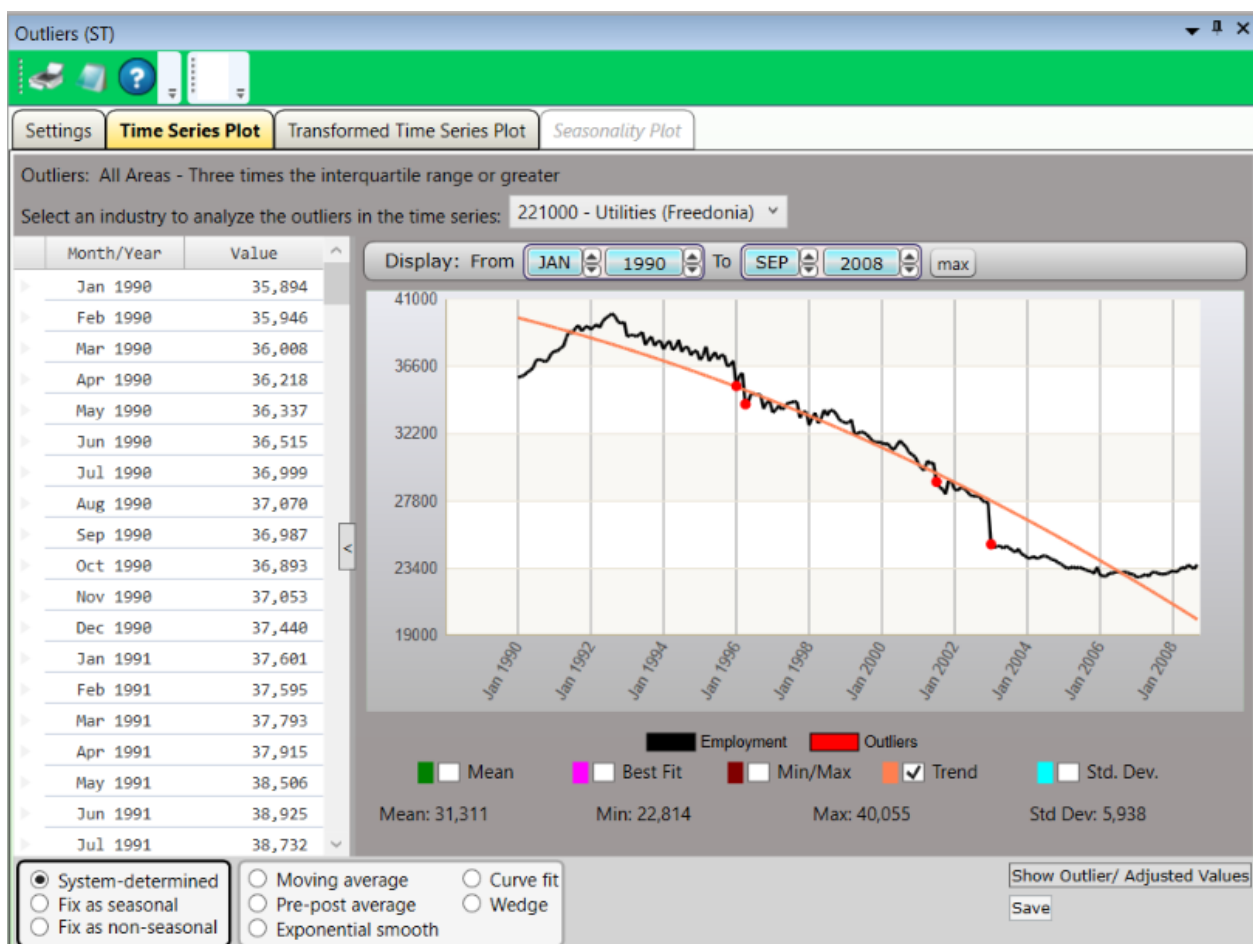


Figure 1: Time Series Plot tab with the Trend Graph Enhancement Control selected

3. Set the time frame using the **Display date** spinner. Months and years are available in Short-Term.
- Click the Max button to automatically set the longest time frame possible. It is also possible to [select chart dates](#) to examine them in greater detail.

Short-Term Industry Projections

- When choosing either the **Fix As Seasonal** or **Fix As Non-Seasonal** radio buttons, a dialog box will be displayed asking if the outlier points for this industry should be recalculated or not. Select the appropriate response.
- Select an **Adjustment Option** radio button (if desired).
- Click the **Show Outlier/Adjusted Values** button to view detailed information about the chosen industry. The outlier values will be opened in a new window:

Projections Suite Short Term Outlier Values

	Date	Original Value	Adjusted Value	% Diff
▶	[199301] Jan 1993	38,536	39,471	2.43
▶	[199307] Jul 1993	38,003	38,687	1.80
▶	[199504] Apr 1995	36,948	37,399	1.22
▶	[199601] Jan 1996	35,320	36,751	4.05
▶	[199604] Apr 1996	34,131	35,825	4.96
▶	[199610] Oct 1996	33,832	34,759	2.74
▶	[199710] Oct 1997	33,233	34,274	3.13
▶	[199801] Jan 1998	32,756	33,496	2.26

Save

Figure 2: Outlier/Adjusted Values with Moving Average selected

- Click the **Save** button.

☞ Click the **Outlier Adjustment Methodology** button to view how the adjustments were calculated. The **Outlier Adjustment Methodologies** document will open in a new window.

Edit the Data Grid

The data grid displays the data series dates and Values in a column to the left of the graph. To edit the data grid:

- Highlight the row you want to adjust.
- Right click** and select **Add**, **Edit**, or **Delete** to adjust the values in the graph.

Related Content

- [Seasonality Plot](#)

Transformed Time Series Plot Tab

The **Transformed Time Series Plot** displays the outlier information you selected in the **Outlier** module. It graphs the differenced series and shows where differenced points lie outside the outlier definition. The Transformed Time Series Plot tab displays two red lines indicating the value based on the Show Outlier definition chosen on the **Settings** tab. Any points where two values rise well above or below the red line are marked as outlier points on the **Time Series Plot** tab.

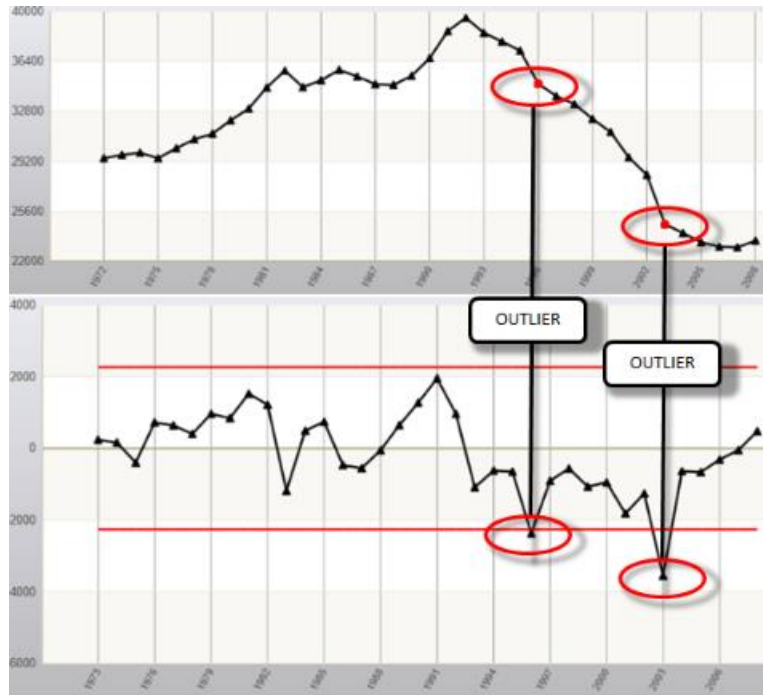


Figure 1: Time Series Plot (top) and Transformed Time Series Plot (bottom) outlier correlations

At the top of the page, the area and type of outlier is displayed. The date and **Value** display in the data grid on the left. The graph displays the industry data.

Short-Term Industry Projections

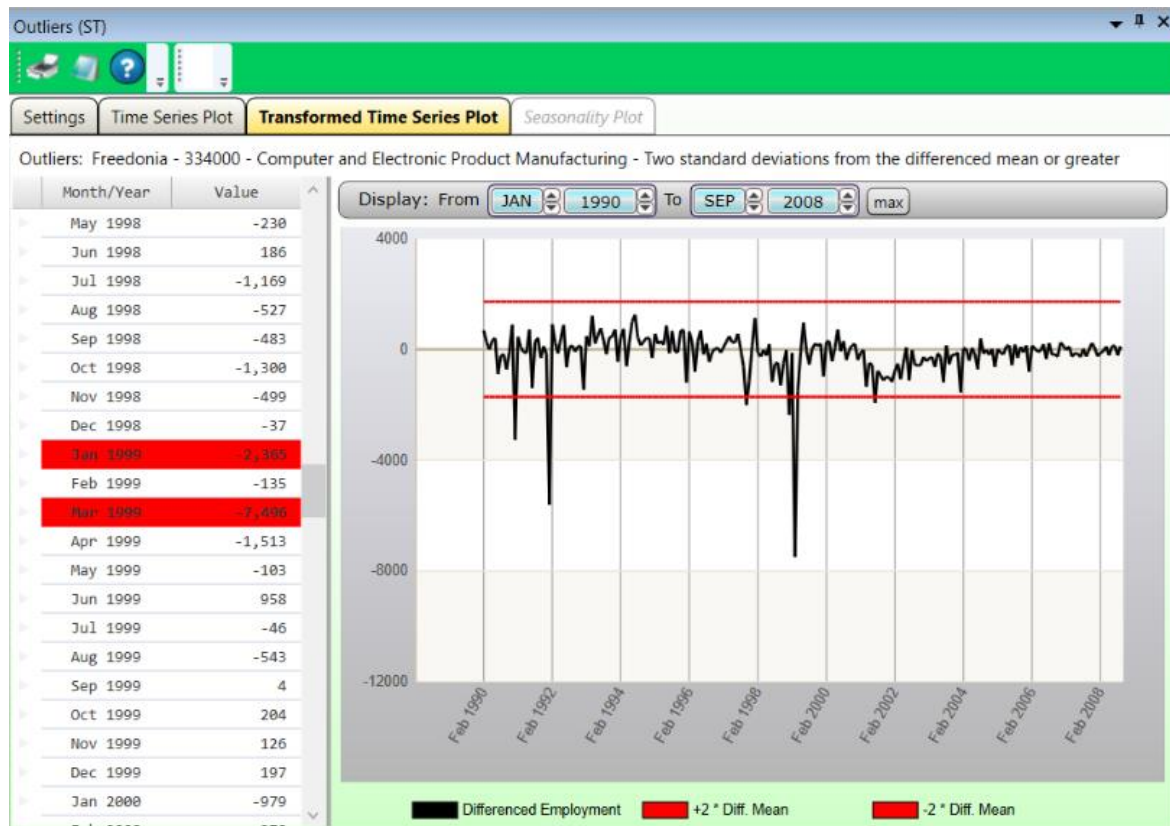


Figure 2: Transformed Time Series Plot Tab

1. Set the time frame using the **Display** date spinners.
 - Click the **max** button to automatically set the longest time frame possible.
 - ☞ Outliers are highlighted in red in the data grid on the left.

Seasonality Plot

The **Seasonality Plot** is available only for series that are determined by the software to be seasonal, or where month-to-month employment shows a strong tendency to be affected by seasonal characteristic employment patterns. The Seasonality Plot tab groups all the monthly employment together for the selected industry. The first black line shows January's employment, the next line shows February's employment, and so forth. The red lines show the mean of the monthly employment. Seasonal industries are differenced from year-to-year instead of month-to-month, to remove the effects of the seasonal change. The graphed time series plot in the Seasonality Plot tab shows the obvious seasonal effects.

The Seasonality Plot Tab is not available in Long-Term Projections.

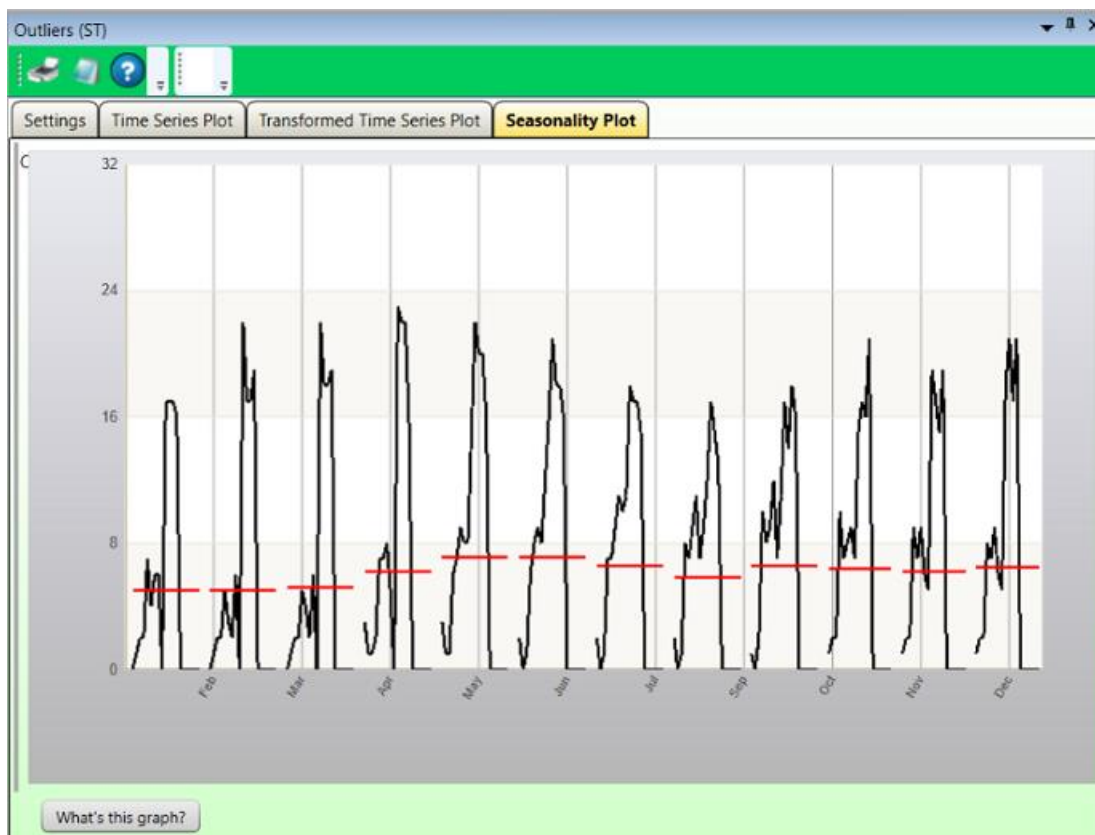


Figure 1: Monthly data for Scenic and Sightseeing Transportation

Click the **What's This Graph?** button to view a detailed explanation of how data is calculated and displayed on the Seasonality Plot. The Seasonality Graph document will open in a new window.

Preview Variables

The purpose of the **Preview Variables** module is to view, edit, and graph the national, state, and regional variable historical series data defined by and imported into the system. The variable time series displays in a grid of data and in graph form for the selected variable. Whenever a variable is changed on the screen, the system updates the data and accompanying graph.

Screen Controls

- **Select a Monthly Variable Type** drop-down menu
- **Select a Monthly Variable** drop-down menu
- **Delete Data Series** button
- **Level** radio button
- **% Growth** radio button
- **Display date** spinner
- **Graph Enhancement Controls**

Preview Variables

1. **Select a Monthly Variable Type** from the drop-down menu.
2. **Select a Monthly Variable**.



Figure 1: Preview Variables module

3. Click either the **Level** or **% Growth** radio button.

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- The **Level** radio button displays the actual employment data charted.
 - The **% Growth** radio button displays the percent of change of the data charted. The growth calculation represents the compounded annual growth rate for the two-year projection period. A [Growth Rate document](#) is available on the Projections Central website under the Short-Term Resources section.
4. Change the display months and years by adjusting the [date spinner controls](#), or by [selecting chart dates](#). The graph will be updated automatically as changes are entered using these controls. [Graph enhancement controls](#) can also be used to overlay statistical measures on the graph.

The **data grid** displays the date (**Month/Year**) and employment level (**Value**) for the selected area and industry historical series. When scrolling through the data grid, a date pop-up will appear (see Figure 2). As you move the scroll bar, the pop-up will display the month/year in chronological order. When the desired date is located in the series, release the mouse button and the selected date will appear at the top of the grid.



Year / Qtr	Value
1991 Q2	5,234,199
1991 Q3	
1991 Q4	5,284,573
1992 Q1	5,084,673


Figure 2: Date pop-up

- ☞ Alternatively, click on a value in the data grid and move up and down through the series with the keyboard arrow buttons.

Edit the Data Grid

1. Highlight the row you want to adjust.
 2. **Right click** and select **Add**, **Edit**, or **Delete** from the context menu.
- To **add new information**, select **Add**. A new record will appear at the top of the grid. Double-click in the blank **Month/Year** field and enter the date.
- ☞ You can enter the date as Oct 2008, October 2008, or 10 2008. All of these examples will format to Oct 2008.
- ☞ This is a method to add a single value. To enter several at once, use [Import Spreadsheet](#).
- Press **Tab** to or double-click the **Value** field to enter a value. Press **Enter** to add the record and the value will be sorted into the proper order within the grid. **Right click** and select **Cancel Add** to delete the new row without adding it to the data series.

- To edit a value, **right click** it and select **Edit**. Type the new value and press **Enter** to save it.
- To **delete an observation** from the series, **right click** it and choose **Delete**. When prompted, click **Yes** to delete the record.

 Multiple rows can be deleted simultaneously. For instructions on making multiple selections, [click here](#).

Additional Preview Variables Options

- Click the **Review Related Industries** button, to display a list of industries related to the selected industry in a new window.
- Click the **Delete Data Series** button to remove variable data from the selected variable type.

Export/Print the Variable Information

- Click **Export** on the [Active Module Toolbar](#) to create a spreadsheet with the variable data.
- Click **Print** to print the variable data.

Related Content

- [Variable Directory](#)
- [Review Variables](#)
- [Export Variable Series](#)

Dummy Variables

Use the **Dummy Variables** module to create or modify dummy variables for use in the **Leading Index** and **Project Single Region** modules.

Dummy variables are used when there is a major discontinuity in a data series. Create dummy variables to represent key events at a point in time or to represent a series of data points for a specific period. For example, an analyst may want to contrast differences in the economy during a different tax season, during hurricane recovery efforts, or after a major business center was built in an MSA. Dummy variables are available for use by some models to affect the projected values for industries.

Screen Controls

- **Select Variable** drop-down
- **Variable Type** drop-down
- **Add** button
- **Delete** button
- **Save** button
- **Cancel** button
- **Date** spinner controls
- **Wrap mode** check box
- **Add Values** button
- **ON** button
- **OFF** button
- **All ON** button
- **All OFF** button
- **Remove Value** button

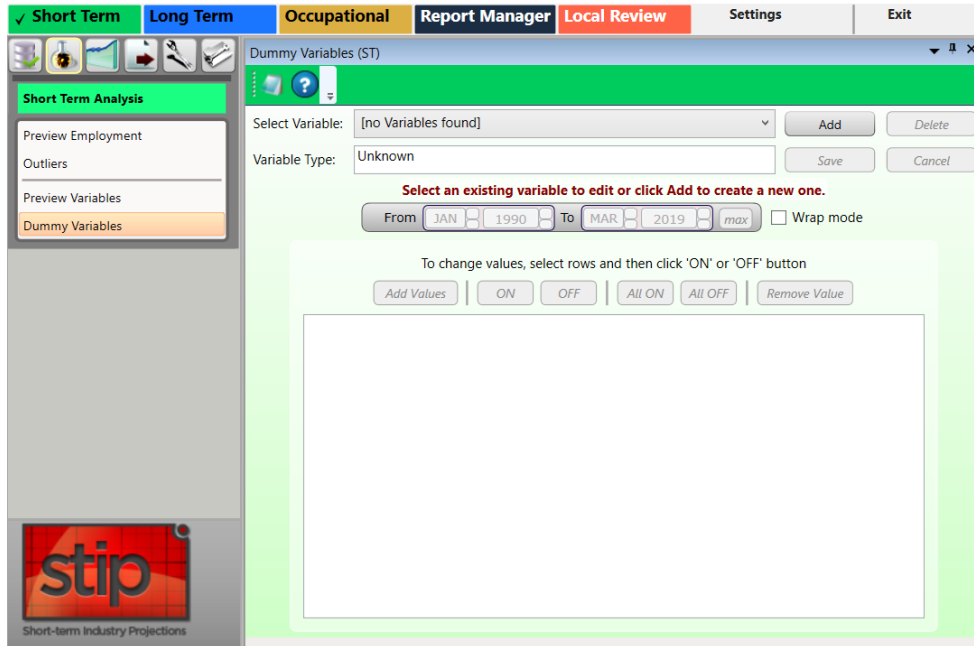


Figure 1: Dummy Variables module

Add a Dummy Variable

1. Click the **Add** button. The Add Variable dialog box will be displayed.
2. Type a **Variable Name** and select a **Variable Type**.
3. Click the **OK** button. The new variable will be added via the **Dummy Variables** screen:

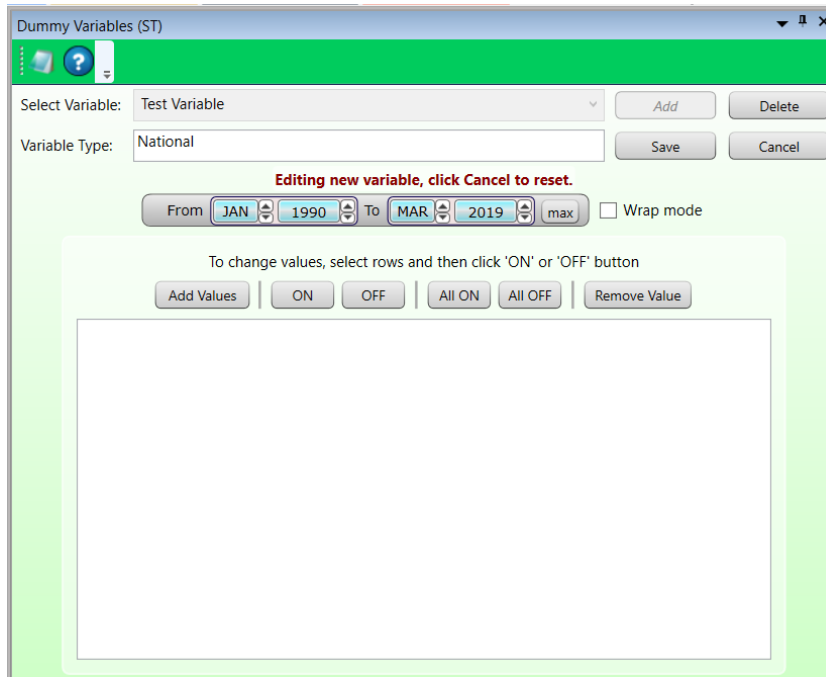


Figure 2: Test variable added to Dummy Variables

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4. Use the [Date Spinner Controls](#) to select the **From** and **To** dates. Click the **max** button to automatically set the longest time frame possible.
5. Click **Add Values**. Values from the selected months and years will populate in a list.

☞ In **Figure 3** below, some of the values after **June 1990** were turned on by using the **ON** button after their selection. Turning them ON changes their value to **1** and displays them as green, as a visual indicator of when they're on and off.

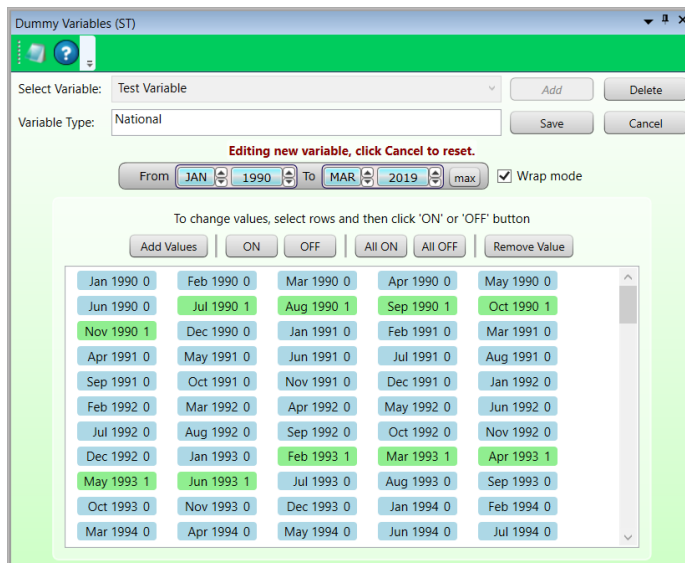


Figure 3: Date values listed

6. To wrap the variables in the box, click the **Wrap mode** check box.

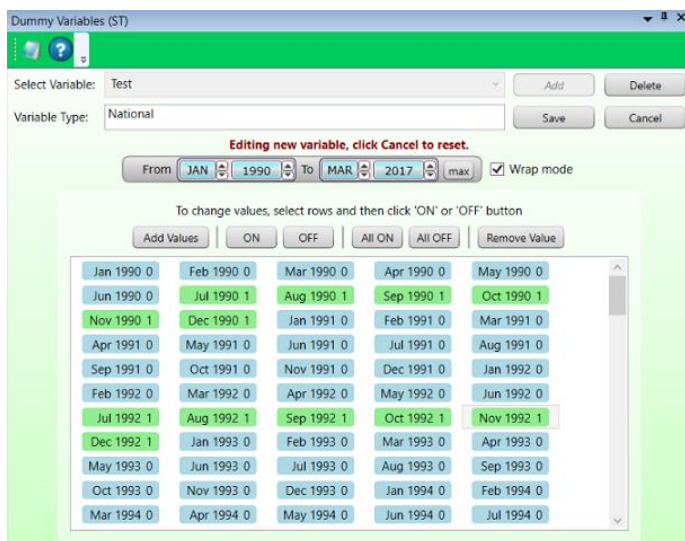


Figure 4: Wrap mode


Change Variable Values

Dummy Variables have two values, either a zero (0) or a one (1).

- **0** is the default value.
- **1** corresponds to (or is used to "mark") some event or value that needs to be displayed for a specific month/year.

To turn the values on or off, or remove the values:

- Click the **ON** button to turn the variable on (1) for that year. On values indicate the period of the key event.
- Click the **All ON** button to turn the variables on for all years.
- Click the **OFF** button to turn the variable off (0) for the selected year.
- Click the **All OFF** button to turn the variables off for all years.
- Click **Remove Value** to remove a selected value from the list.

 Multiple values can be selected at once. For assistance with selecting multiple variables at a time, click [here](#).

Once all values you want included are modified, click **Save**. The variable will become available for selection and use in the [Leading Index](#) and [Project Single Region](#) modules.

Edit a Dummy Variable

1. Select a variable from the **Select Variable** drop-down menu.
2. Edit the values using the listed controls.
3. Click the **Save** button when the variable has been modified to your specification.

Delete a Dummy Variable

1. Select a variable from the **Select Variable** drop-down menu.
2. Click the **Delete** button. A **Delete Monthly Variable** dialog box will be displayed.
3. Click **Yes** to delete the variable. Click **No** to keep the variable.

Short-Term Projections

Use the **Short-Term Projections** group menu items to analyze variables, project industry employment values, view and analyze projections, and roll up Projections.

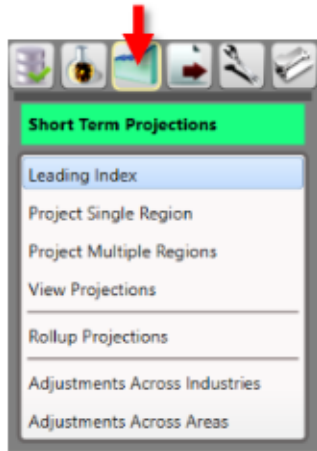


Figure 1: Short-Term Projections group menu

The **Short-Term Projections** group menu contains the following selections:

- [Leading Index](#)
- [Project Single Region](#)
 - [Results Graph Tab](#)
 - [Statistical Details Tab](#)
 - [Details Graph Tab](#)
 - [User Defined Models Tab](#)
- [Project Multiple Regions](#)
 - [Industry View Tab](#)
 - [Area View Tab](#)
- [View Projections](#)
- [Rollup Projections](#)
- [Adjustments Across Industries](#)
- [Adjustments Across Areas](#)

Leading Index

The purpose of the **Leading Index** module is to choose and evaluate variables to be used to project industry employment. Selecting, processing, and saving of different variable/area combinations can enhance the accuracy of Projections. Use variables to analyze state and sub-state areas as prime factors in explaining the economic activity in the Projections process. Model types that use the leading index variables are [OLS](#), [VAR](#), and [BVAR](#) when the **Variables** option is selected in **Project Single Region** (see **Figure 1**).



Figure 1: Variables selections in the Project Single Region

A prerequisite to running the Leading Index module is that you must already have the total employment for the selected area imported for the Leading Index to process. The variables are evaluated with the total employment to see how well they compare.

Screen Controls

- **Select an Area** drop-down menu
- **Start/End date** spinner
 - **Max** button
- **Analyze** button
- **Save** button
- **National** tab
- **State** tab
- **Regional** tab
- **Graph** tab
- **Select National Variables to Analyze** list box

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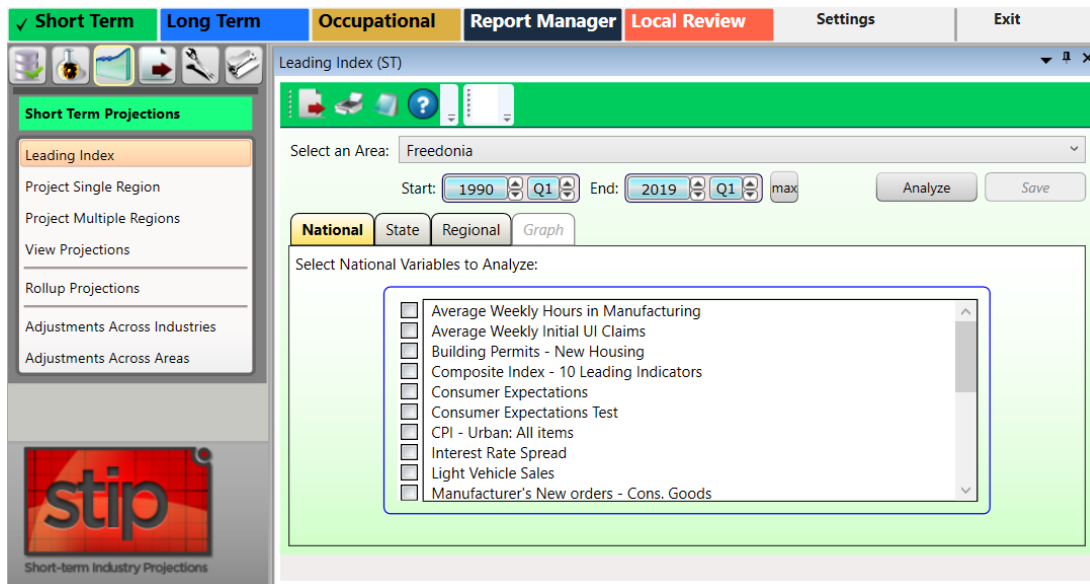


Figure 2: Leading Index module

Analyze Variables

1. **Select an Area** from the drop-down menu.
 2. Select a time frame using the **Start/End date** spinners. Default date values as determined by variable data will be displayed.
 - Click the **Max** button to automatically set the longest time frame possible.
 - Data imported into the system are monthly data points, but are displayed as quarterly in this evaluation.
- ☞ These controls set the time frame for evaluating how well the variables follow the total employment for the area. The analysis is broken up into the three types of variables: National, State, and Regional. Results display for each variable as well as how all variables did together.
3. Select the variables to be analyzed from each tab.
 - ☞ Variables from any combination of the National, State, or Regional tabs can be selected for the same analysis. No more than six variables can be selected on each tab.
 4. Click the **Analyze** button. The Variable Name, and 2 Quarter and 4 Quarter Horizon lead times will display in a table at the bottom of the screen.
 - The National variables display on the National tab, the State on the State tab, and Regional on the Regional tab.
 - The **All Variables Combined** portion of the table includes National, State, and Regional variables, and displays on each tab.

Selected variables are analyzed to determine their effectiveness against the total employment for the area. There are two analytical lead times displayed for this screen, a two-quarter horizon and a four-quarter horizon. There are also two parameter values for each lead time frame: **% Turns**, and Historical Fit (see the bottom of Figure 3).

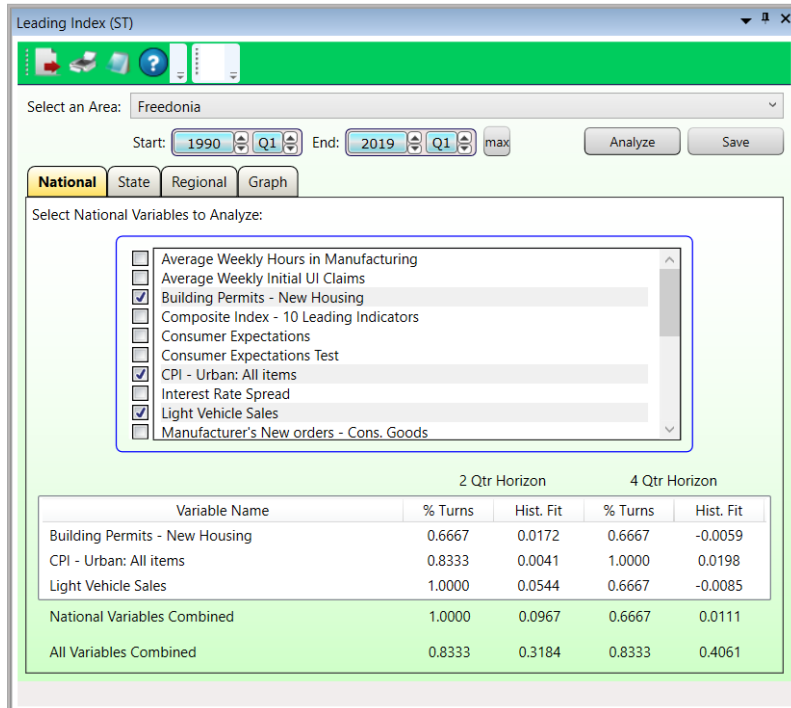


Figure 3: Data displayed in table

The **% Turns** parameter reveals the effectiveness of the index against the total area employment to determine what percent of the turns are captured. The goal is a value of 1.0000, or close to it. The [Historical Fit](#) parameter displays the [Adjusted R-Squared](#) statistic for each regression equation evaluated. This indicates the general explanatory power of the index relative to variation in the employment series.

When more variables are used, better results for the % Turns and Historical Fit are usually produced, but the results can be misleading. Increasing the number of variables is contrary to having the most efficient results. Capturing the turns and Historical Fit using fewer variables (3-5) has better predictive capabilities than using many (i.e., the maximum of 18) variables.

The selected Leading Index variables will serve as a default set of explanatory variables in the OLS, VAR, and BVAR projection models. The selection of variables may require various trial and error analyses to find a set that works for an area.

Each of the variable types (National, State, and Regional) are displayed and evaluated on their respective tabs. Each of the variable lead values are calculated individually, then as combined variables. Finally, all the variables are calculated together to show

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how effectively they do together. Each of the variable type tabs will display the combined variable values.

Display the Leading Index Values in Graph Form

1. Click the **Graph** tab.
2. Click the **Level** or **Growth** radio buttons to display graph details.
 - The **Level** graph displays the [Actual Values](#) as well as projected values for the **2 Lead** and **4 Lead**.
 - The **Growth** graph has some additional information to help in the analysis. Whenever there are at least two consecutive quarterly growth increases followed by a consecutive growth decrease, the label **DT** displays to indicate a **downturn** in the economy. Conversely, whenever there are at least two consecutive quarterly growth decreases, followed by a consecutive quarterly increase, the label **UT** displays to indicate an **upturn** in the economy. Overall growth values for the actual 2 Lead and 4 Lead are displayed along the bottom of the graph.



Figure 4: Leading Index growth graphed data

Save the Leading Index Variables

1. Once a set of variables has been selected, use any tab except for the **Graph** tab to click the **Save** button to use the leading index variables in the [Project Single Region](#) module (when the Variables option is selected for a model). A dialog box will be displayed.
2. Click **OK** to save the data.

Project Single Region

Use the **Project Single Region** module to project industry employment for a selected area using various economic models.

This is the main module for calculating Projections in the Short-Term application. The expression short-term means projected values are calculated for a two-year time frame. To use this module, all employment data importing, review and analysis tasks, as well as any variable evaluation preparations and creation are required. Save the **Projected Industry** information to use in the **Occupational Projections** application or for other reporting purposes.

Screen Controls

- **Select an Area** drop-down
- **Select Industry** drop-down
- [Related Industries](#) button
- **Start Quarter** spinner
- **Models** selection group
 - [Trend](#) drop-down
 - [OLS](#) drop-down
 - [ARMA](#) drop-down
 - [VAR](#) drop-down
 - [BVAR](#) drop-down (if the User-defined module is visible, this will be a fill-in field)
- [Tournament](#) button
- **Save Projections** drop-down menu
- **Save** button
- **View Errors/View Data** toggle button
- **Results** tab
- **Results Graph** tab
- **Statistical Details** tab
- **Details Graph** tab
- **User Defined Models** tab
- **Projections Process** buttons
 - **Step 1** button
 - **Step 2** button
 - **Step 3** button

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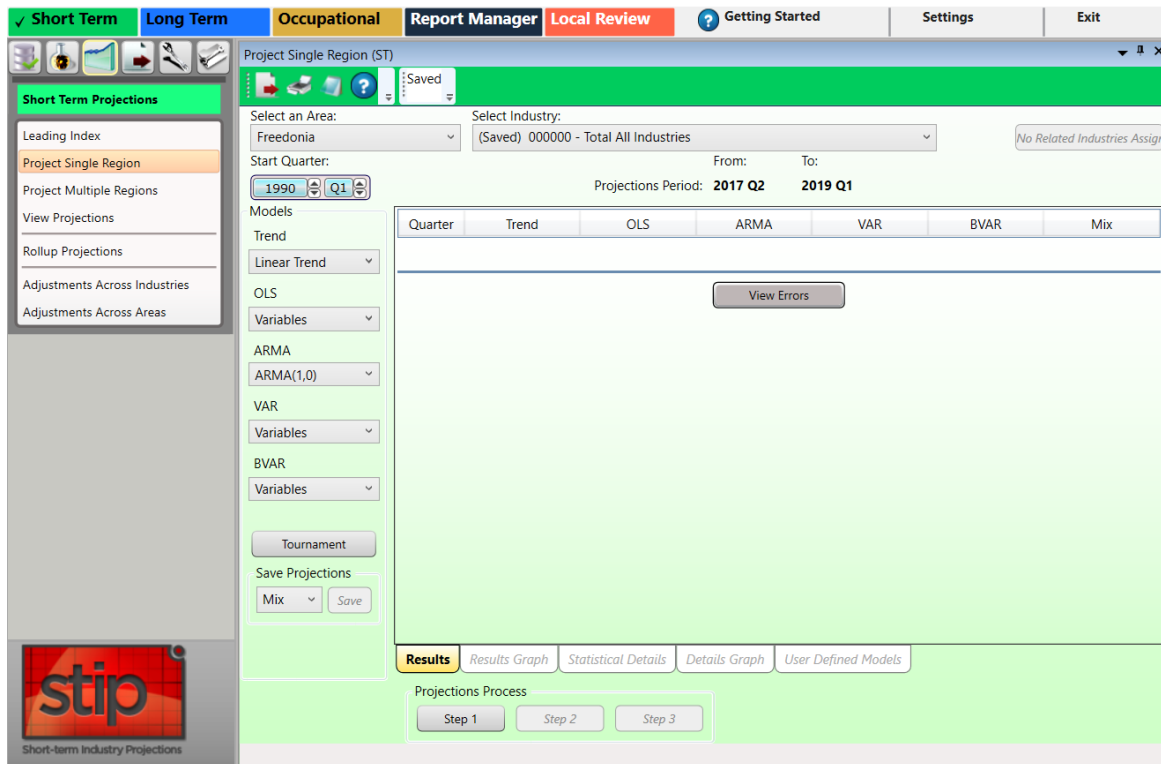


Figure 1: Project Single Region module

Set Up Project Single Region

1. **Select and Area.**
 2. Select an industry from the **Select Industry** drop-down menu.
 - Optionally, click the **Related Industries** button to view the industries that will be included, if the industry has related industries. If the industry does not have related industries, the button will be unavailable and read *No Related Industries Assigned*.
- ☞ This option is for viewing only and not for setting the Related Industries. To set related industries, refer to the [Manage Related Industries](#) module.
3. Set the **Start Quarter** year and quarter using the date spinner. The Start Quarter date spinner is populated with the quarter date that corresponds to the beginning monthly value of the selected industry. Keep in mind (and this is an important distinction) that the imported industry employment data is for monthly observations but the output for projected values will be displayed by quarter.
 4. The **Projections Period** label displays just below the **Select Industry** drop-down, and is based on the projection round that was defined and selected in the [Manage Rounds](#) module. The Projections Period information changes when you move through [Steps 1, 2, and 3](#) (follow the link for a detailed description of the steps).

☞ When this module is first opened, this label will be set to the **Step 1** time frame, **which is 24 months back from the round setting**.

5. Select models from the **Models** selection group. The Models selection group contains five model types that are available for processing Projections: **Trend**, **OLS**, **ARMA**, **VAR**, and **BVAR**. Each model type contains a number of models available for selection.

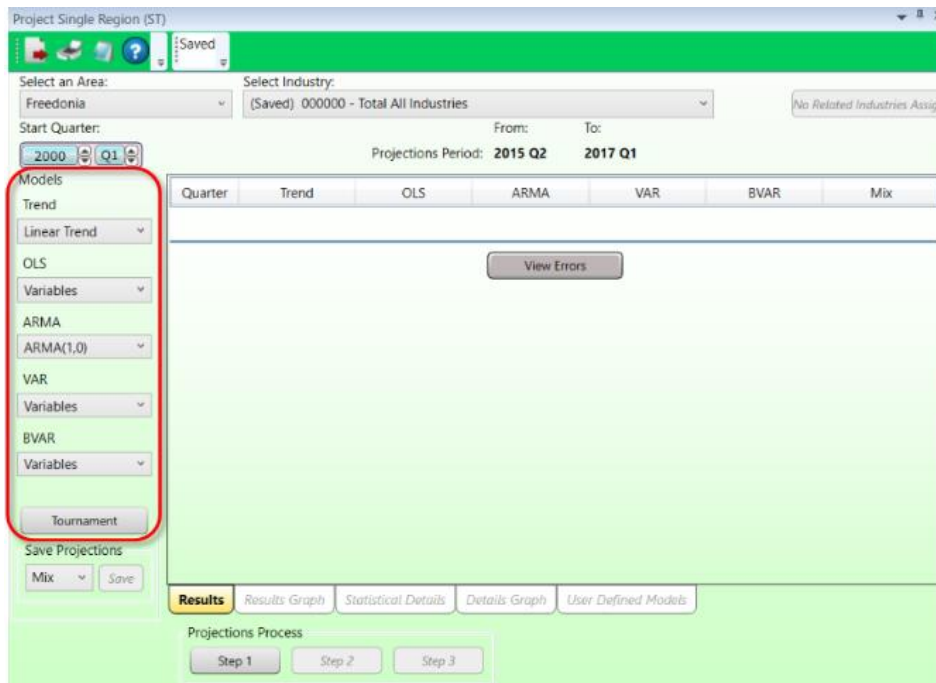


Figure 2: Models selection group

Tournament Button

The [Tournament](#) button is optional, available to process all four **Trend** models, all four **OLS**, **VAR**, and **BVAR** models, and all nine **ARMA** models. By clicking the Tournament button, the system will process all the models and select a winner from each model type. The winner for each type is the model with the lowest Mean Absolute Percent Error ([MAPE](#)). The Tournament button is available to help pare down the models, but is not required to run before continuing with the Projections Process steps. Click the **Tournament** button to use this automatic method to select models.

Manually Customize Models

1. Manually select options from the Trend, OLS, ARMA, VAR, and BVAR model drop-down menus. Model options use the information you set up previously in the Short-Term Projections modules.

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- ☞ If you select **User-defined** from the OLS, VAR, or BVAR model drop-down, the User Defined Models tab will activate. See [User Defined Models](#) for more information.
 - ☞ If you select an industry with related industries and one of the related industries does not have monthly employment data, a **Step Completion Issue** dialog will be displayed and the projection will not run. To set related industries, refer to the [Manage Related Industries](#) module.
2. When the models have been selected, either with the Tournament button or manually, you are ready to proceed to through the Projections Process Step buttons.

Projections Process Step Buttons

1. Click **Step 1**. Step 1 selects data from the starting quarter to 24 months back from the ending date of the selected round. This gives an idea of how well the projections do against the actual employment for the 24-month period. Use the **Results Graph** tab to view the comparison.

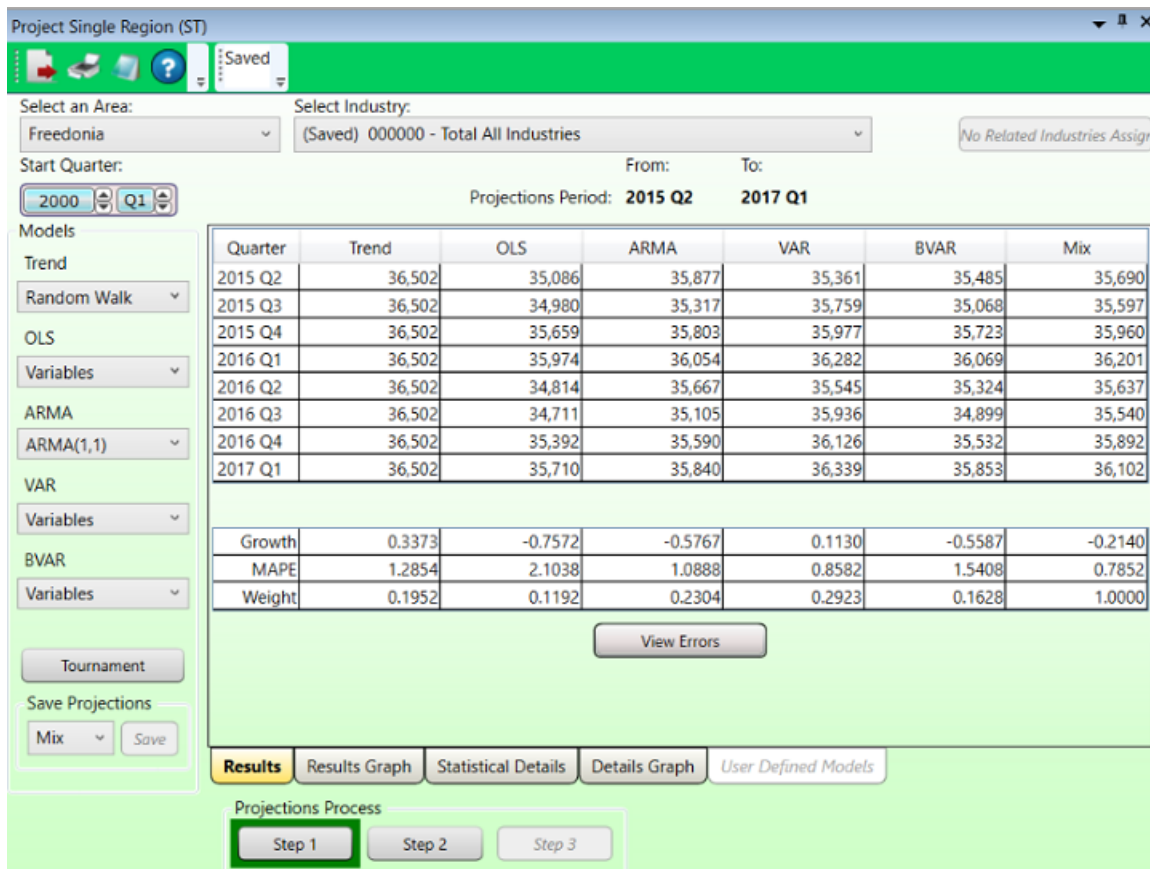


Figure 3: Step 1 results on the Results tab

2. The calculated projected employment values display in a table on the [Results Graph](#) tab. The **Mix** column displays values that are calculated using the weights of each of the other methods. Toggle the **View Errors/View Data** button to view the errors (percent difference between the projected and [actual values](#)) for each step.
- ☞ The values produced during each step are for analysis. The step process allows you to view projections at different intervals to help determine the best final values. Various tabs with different data views are available (listed below). Use the **Results Graph** tab to view the comparison.
3. Click the **Step 2** button. Step 2 selects data from the **starting quarter to 12 months** (4 quarters) back from the ending date of the selected round. This gives an idea of how well the projections do against the actual employment for the 12-month period. The calculated data displays in the **Results** tab. Clicking the **View Errors/View Data** toggle button will display errors for four quarters on Step 2.
4. Click the **Step 3** button. Step 3 selects data for the **full period set by the round**, and projects out **2 years** (8 quarters) – the full projection period. At the conclusion of this step, you are able to save [Forecast Values](#) from your choice of models.

The calculated data displays in the **Results** tab. Clicking the **View Errors/View Data** toggle button in Step 3 will display no errors, because there are no actual values with which to compare the projected values.

After running **Step 3**, projected values are available to be **saved as the final values**.

Save Calculated Data

1. Select an option from the **Save Projections** drop-down menu. Save the projection values after choosing and processing them through all 3 steps, analyzing them and evaluating them for the projected models.
 2. Click the **Save** button. The **Save** button is only available while in the **Results** tab. The default model is **Mix**, but it is valid to choose any of the other five models. Saving the values updates any previously saved values. After saving an **Industry Projection**, the saved quarterly values will be available in the [View Projections](#) module.
 3. In addition, the saved status changes in the [Active Module Toolbar](#) and the industry title in the combo box will change to saved status as well. The saved information includes eight quarterly values for the selected area, industry, models chosen, the model saved, and a date time stamp. Additionally, information is written to the Notebook when the final values are saved.
- ☞ You must save a **State Projection** for each industry prior to running **sub-state Projections** using the [Project Multiple Regions](#) module.

Results Graph Tab

The **Results Graph** tab is a visual display of the historical series and the eight quarterly projected values for each model type. Colored lines represent each of the projected model types.

Screen Controls

- **Display date** spinner
- **View Graph Data** button

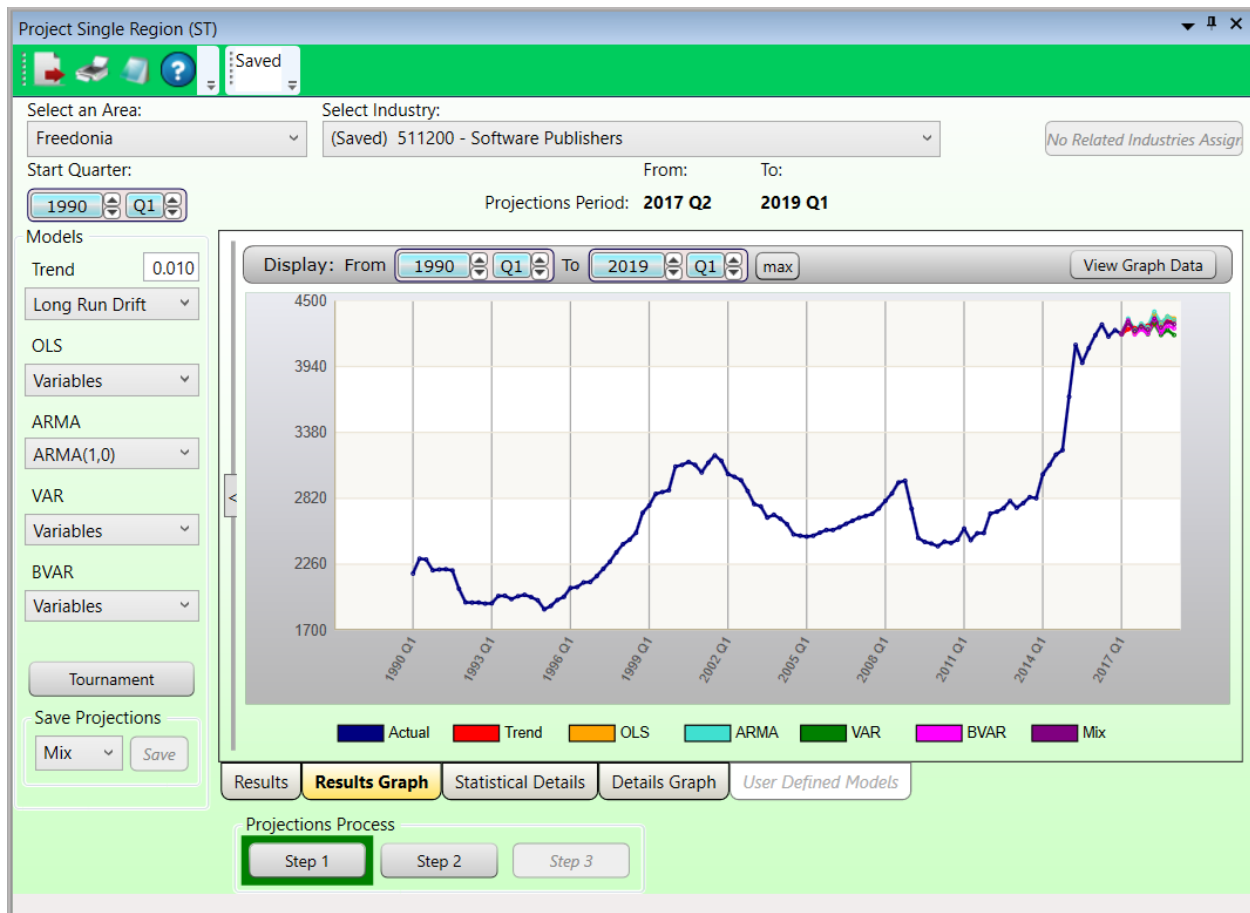


Figure 1: Results Graph tab showing the actual and projected data

Use the [Date Spinner Controls](#) to zoom in or out on the graph within a date range. You can also [select chart dates](#) to look at the information more closely.

Short-Term Industry Projections

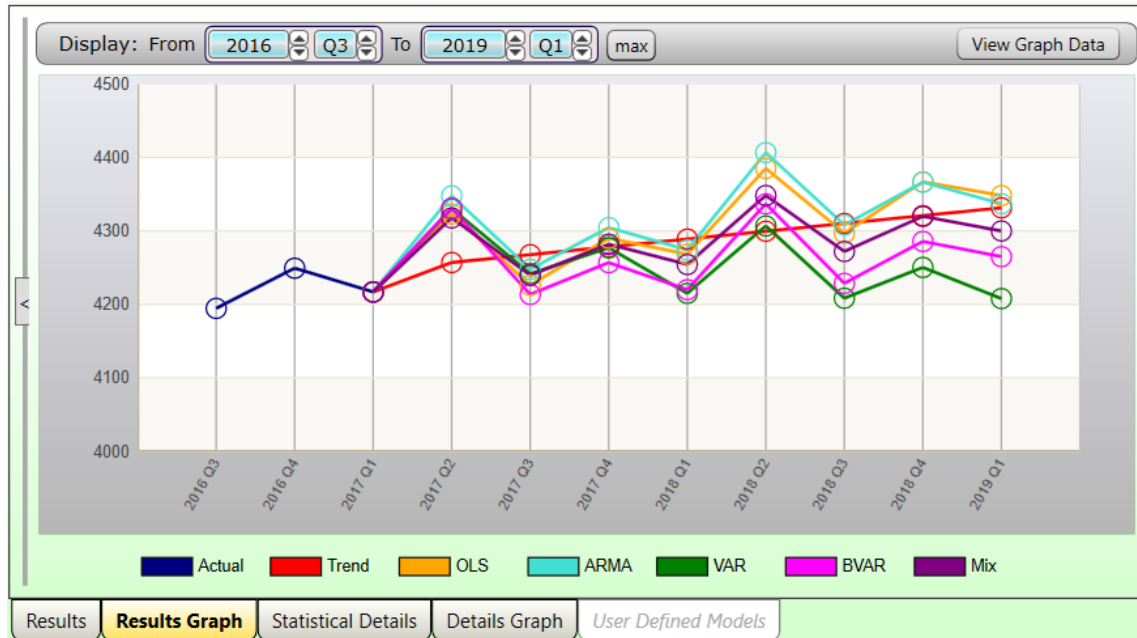


Figure 2: Results Graph tab projected values, zoomed in

Click the **View Graph Data** button to open the table of figures used to calculate the graph in a new (**View Results Data**) window. Projected values will be near the bottom of the table.

View Results Data							
Quarter	Actual	Trend	OLS	ARMA	VAR	BVAR	Mix
2017 Q2	4303	0	0	0	0	0	0
2017 Q3	4385	0	0	0	0	0	0
2017 Q4	4509	0	0	0	0	0	0
2018 Q1	5019	0	0	0	0	0	0
2018 Q2	5013	4257	4323	4348	4330	4331	4318
2018 Q3	5181	4268	4226	4248	4242	4214	4240
2018 Q4	5394	4278	4290	4305	4277	4257	4282
2019 Q1	5678	4289	4268	4274	4215	4220	4254
2019 Q2	5897	4300	4385	4407	4307	4337	4348
2019 Q3	6302	4310	4297	4308	4208	4229	4272
2019 Q4	6474	4321	4367	4366	4250	4286	4320
2020 Q1	6962	4331	4348	4337	4208	4265	4300

Figure 3: View Results Data window, opened by clicking the View Graph Data button

Clicking on any of the **Project Single Region** controls (the **Models** control group, **Select an Area** drop-down, etc.) will revert you back to the **Results** tab to conduct another analysis.

Screen Controls

- [illegible]

Display Data on the Statistical Details Tab

1. Click the desired **Model Details** button from the control group. These statistics will help determine what model values are the best. The statistic's **Values** will display where applicable, for the selected **Model Details**. If N/A displays, that statistic is not available for that model.

Values/Details table:

- [Sum of Squared Residuals](#)
- [R-Squared](#)
- [Adjusted R-Squared](#)
- [Durbin-Watson](#)
- Box Q (see [Number of Observations](#))
- [Log Likelihood](#)
- [Observations](#)
- [Variables](#)

Each model displays different statistics in the table for each variable name in the table headers:

- The number of [Lags](#)
- Beta
- [T-Statistic](#)
- T-Probability
- [Standard Error](#)

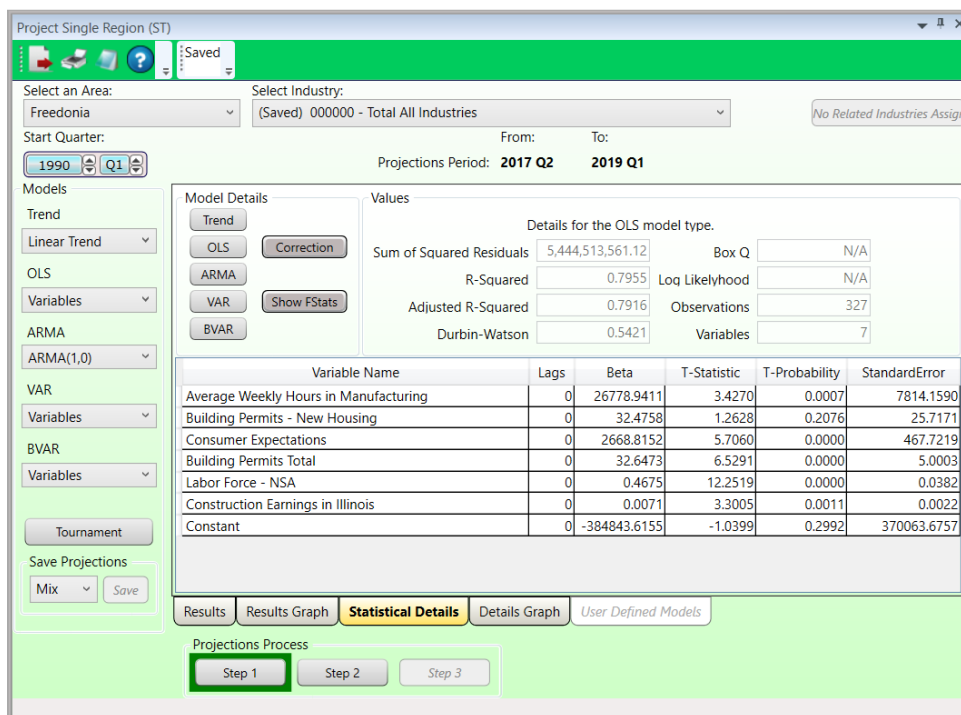


Figure 2: OLS selected from the Model Details control group

The **Trend Model** displays 12 monthly variables, plus the constant. **OLS**, **VAR**, and **BVAR** models display the variables selected in the [Leading Index](#) module. VAR and BVAR repeat, depending on the number of lags used (the default is six).

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Two models, OLS and VAR, have buttons associated with them.

The OLS **Correction** button is available when you finish **Step 3**. Click the **OLS** button on the **Statistical Details** tab, view the **Details Graph** tab for OLS, then return to the Statistical Details tab. This is required so you can review the predicted values on the Details Graph to see any correctable anomalies. Then use the OLS Correction button to correct and review the data series and projected values. A **Correction Variable** will be added on the Statistical Details tab. You can go back to the Details Graph to view the correction on the graph.

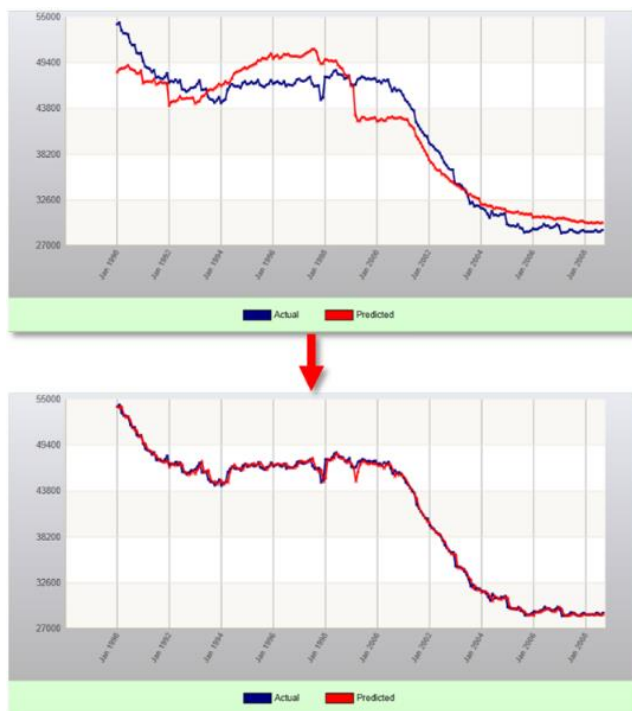


Figure 3: Before (top) and after (bottom) OLS Correction

The **Show FStats** button becomes available when you click the **VAR** button. The **F-Statistics** window (see Figure 4) displays variable names, [F-Statistics](#), and **F-Probabilities** for the variables chosen in the **Leading Index** module.

F-Statistics		
Variable Name	F Statistic	F Probability
Total All Industries	41.2305	0.0000
Average Weekly Hours in Manufacturing	2.3024	0.0347
Building Permits - New Housing	0.9731	0.4437
Consumer Expectations	2.1484	0.0482
Building Permits Total	7.5513	0.0000
Labor Force - NSA	9.2087	0.0000
Construction Expenses in Wisconsin	0.5054	0.7420

Figure 4: F-Statistics

Details Graph Tab

The **Details Graph** tab displays the actual series and the predicted values for the **Projections Process** step selected, when the **Predictions** radio button is selected. The Details Graph populates only after completing the details (on the [Statistical Details](#) tab) for a model; otherwise it will only display an empty series.

Screen Controls

- **Predictions** radio button
- **Residuals** radio button
- **Display date** spinners
 - **Max** button



Figure 1: Details Graph with Predictions displayed

Another view option is available by selecting the [Residuals](#) radio button. This displays the differences between the predictions and the [actual values](#) for the selected industry.

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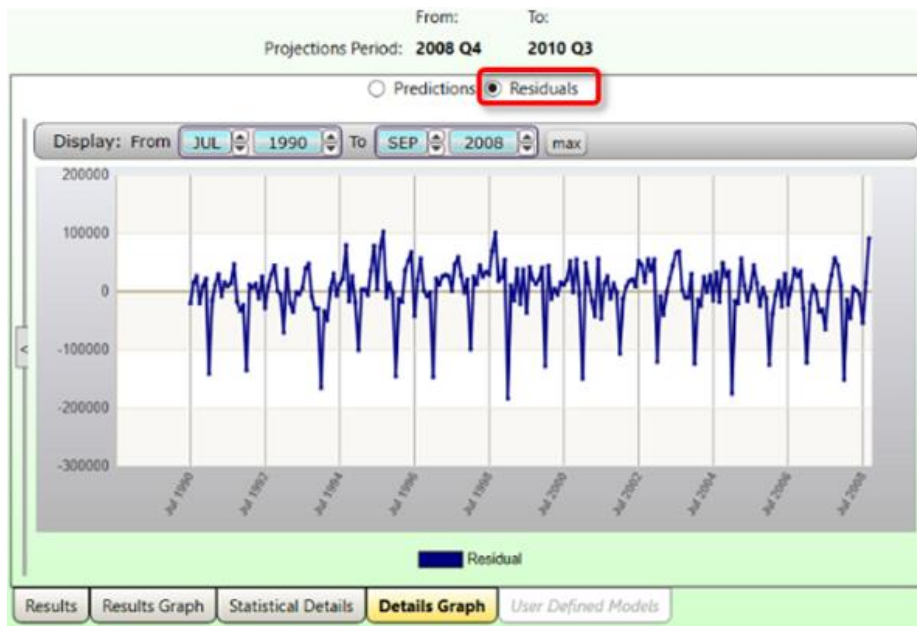


Figure 2: Details Graph displaying Residuals

Use the [date spinner controls](#) to display information for a specific time period. Or, you can [select chart dates](#) to display data from the selected time frame only.

User Defined Models Tab

The **OLS**, **VAR**, and **BVAR** models have an option to use variables defined by the user. Use this option to select the variables to use in the projection. After selecting the user-defined variables, proceed with the **Projection Process** steps. These variables can be from the last of national, state, or regional variables, and/or the list of industries with employment.

Selecting one of the **User-defined** models options from the drop-down menus in the **Models** control group (under either the **OLS**, **VAR**, or **BVAR** drop-down menus) will automatically display the **User Defined Models** tab, and display the variable options. These variables come from the list of imported variables or industries in the system. The User Defined Models tab displays four list boxes in a quadrant. Two are for variable and industry lists, and two are for selecting variables and industries.

Select one of three model types: OLS, VAR, or BVAR. The model type selected is the model used for those variables. The right side of the quadrant, either **Variable** or **Industry**, is the final list for each type.

Screen Controls

- [OLS](#) radio button
- [VAR](#) radio button
- [BVAR](#) radio button
- **Move Right** and **Left** buttons
- **Add... Index** button - add the selected leading index variables to the Selected Variables table.
- **Leading Index Variables (pie chart)** button - view the list of selected leading index variables.
- **Add... Related** button - add the list of related industries to the Selected Industries table.
- **Related Industries (building)** button - view the list of industries related to the initially selected industry (if applicable).

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Project Single Region (ST)

Select an Area: Freedonia

Select Industry: (Saved) 000000 - Total All Industries

Start Quarter: 1990 Q1

Projections Period: From: 2006 Q4 To: 2008 Q3

Models

Trend

Smoothing

OLS

User-defined

ARMA

ARMA(0,2)

VAR 6

User-defined

BVAR 6

User-defined

Tournament

Save Projections

Mix Save

Variable List

Average Weekly Hours in Manufacturing

Average Weekly Initial UI Claims

Building Permits 2 to 4 units

Building Permits - New Housing

Building Permits 1 unit

Building Permits 5 units or more

Building Permits Total

Composite Index - 10 Leading Indicators

Industry List

000000 - Total All Industries

211000 - Oil and Gas Extraction

221000 - Utilities

236000 - Construction of Buildings

237000 - Heavy and Civil Engineering Construction

238000 - Specialty Trade Contractors

311000 - Food Manufacturing

312000 - Beverage and Tobacco Product Manufacturing

Selected Variables

Selected Industries

Results Results Graph Statistical Details Details Graph User Defined Models

Projections Process

Step 1 Step 2 Step 3

Figure 1: User Defined Models tab

Define Variables

1. Select one of the model type radio buttons (near the top of the window) to be used for the variables.
 - OLS
 - VAR
 - BVAR
2. In the **Variable** or **Industry List**, select a variable or industry.
3. Populate the lists by clicking the **right arrow** to add the selected **Variable/Industry** to the **Selected Variables/Industries** table.
 - To remove one **Variable/Industry** from a **Selected** list, select the Variable/Industry and click the **left arrow**.
 - To remove all **Variables/Industries** from a **Selected** list, click the **double left arrow**.

Short-Term Industry Projections

- To view the variables that were selected in the [Leading Index](#) module, click the **Pie Chart** button near the middle of the quadrant.
- To add all leading index variables, click the **Add... Index** button.
- To view all related industries, click the **Building** button near the bottom of the quadrant.
- To add all related industries (if applicable), click **Add... Related**. To create or remove related industries, reference the [Manage Related Industries](#) module.

Select Industry: 322000 - Paper Manufacturing

From: 2006 Q4 To: 2008 Q3

Projections Period: 2006 Q4 2008 Q3

Variable List

Selected Variables

Industry List

Selected Industries

Results Results Graph Statistical Details Details Graph User Defined Models

Projections Process

Step 1 Step 2 Step 3

Figure 2: User Defined Models tab

The selected variables and industries are automatically saved for the model type chosen from the **OLS**, **VAR**, or **BVAR** radio buttons.

4. Run the **Projections Process** steps.
5. View the projected data from the user-defined models by clicking the available tabs in the module.

Project Multiple Regions

Use the **Project Multiple Regions** module to streamline development of Short-Term Industry Projections for multiple sub-state areas. This screen is a quick, alternative way to process sub-state area industry projections using specific models.

To use this module, the sub-state data series *must be* mutually exclusive and comprehensive. After statewide (aggregate area) Projections are calculated, the sub-state areas plus the Balance of Area must sum to statewide totals. There can be no overlap on sub-state areas. Sub-state areas can be any area type, but in each projection process they *must be* mutually exclusive and comprehensive.

Area information should be setup and all employment data for all areas to be included should be imported, reviewed, and analyzed. If a balance of area needs to be created, that task should be complete. The Project Multiple Regions module helps identifying problems, but the initial data review should already be complete.

Screen Controls

- **Select an Area Group** drop-down menu
- **Analyze** button - Analyzes area, employment, and projections information to help in the project multiple regions module.
- **Calculate** button - This button calculates any industries listed with a check on the initial processing tab.
- **Load** button - After processing projections, this button will present all projections information from the previously calculated values.
- **Load from summary** button
- **Initial Processing** tab - Displays information about areas and industries.
 - **Select all** button
 - **Deselect all** button
- **Industry View** tab - Displays projections information after the calculations are complete.
 - **Industry** selector
 - **Date** spinners
- **Area View** tab - Displays projections information after calculations have been done to be viewed by sectors within an area.

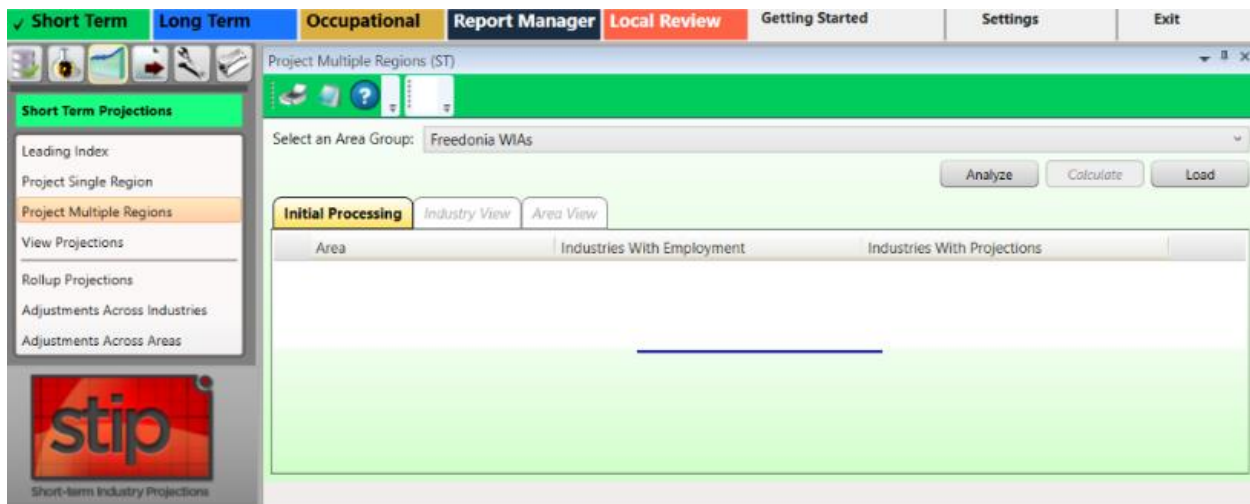


Figure 1: Project Multiple Regions module

Warning: All employment series must have clean data; no drastic increases/decreases (outliers, NAICS change issues, etc.). Make sure the series is correct before starting.

Develop Projections for Multiple Sub-state Areas

Initial Processing Tab

1. **Select an Area Group** from the drop-down menu. The listed areas are defined under the Data category, [Manage Areas](#) module. Once an **Area Group** is selected, the **Analyze** button will be enabled.
2. Click the **Analyze** button. The data processes and displays for the selected Area Group.

The upper portion of the module lists the areas included in the Area Group. Each area displays the number of **Industries With Employment** and **Projections** columns, to help the analyst know totals for processing. Click the **Analyze** button as many times as needed. Ideally, the **Industries With Employment** count should be the same **across all areas**. **Industries With Projections** will update as they are completed in the [Project Single Region](#) module. The **Industries With Projections** column contains zeros for the sub-state areas until you complete industry projections (see the upper portion of **Figure 2** below).

The **Load** button will load any values that have previously been calculated in the **Project Multiple Regions** module and display them for analysis. Pressing the **Load** button will automatically open the **Industry View** tab.

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- ☞ You can close the Project Multiple Regions and the Projections Suite, then open the Projections Suite and the Project Multiple Regions module again, and click the **Load** button to reload the data and pick up where you left off.

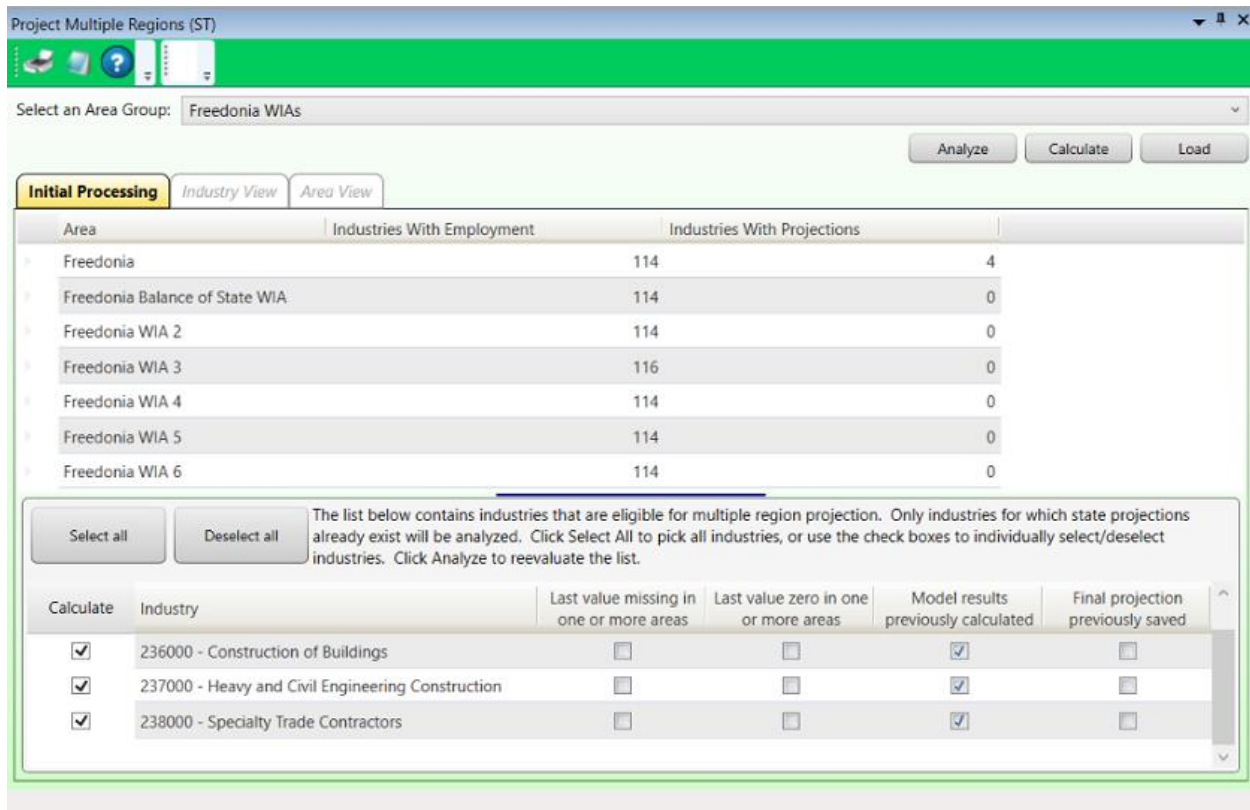


Figure 2: Data for Freedonia WIAs Area Group

The lower portion of the module contains a list of industries projected in the parent industry. The industry is ready to be calculated if the check box next to the **Industry** title is checked. The checked industries are eligible to calculate for sub-state areas.

If the last value is missing in the historical series or the last value is zero in one or more areas, the check boxes under those columns are checked and the industry is unchecked to prevent processing. The errors should be resolved before continuing. If the industry was calculated previously, or saved, the preliminary projections check box or the final projection check box is checked to inform you in case you do not want to overwrite the projected values.

Calculate for Sub-state Areas

1. Click the **Select All** button to select all of the listed industries for projections processing.
2. Click the **Deselect All** button to deselect all of the listed industries for projections processing.

Short-Term Industry Projections

3. Click an empty selection check box next to an industry to select it for projections processing.
4. Click a checked selection box next to an industry to deselect it from projections processing.
5. Once you have made your selections, click the **Calculate** button. You will be prompted to confirm the calculations. Click **Yes** to continue, click **No** to cancel.
6. By selecting **Yes**, projections will be calculated. You will automatically be taken to the **Industry View** tab and the **Area View** tab will become available.

Industry View Tab

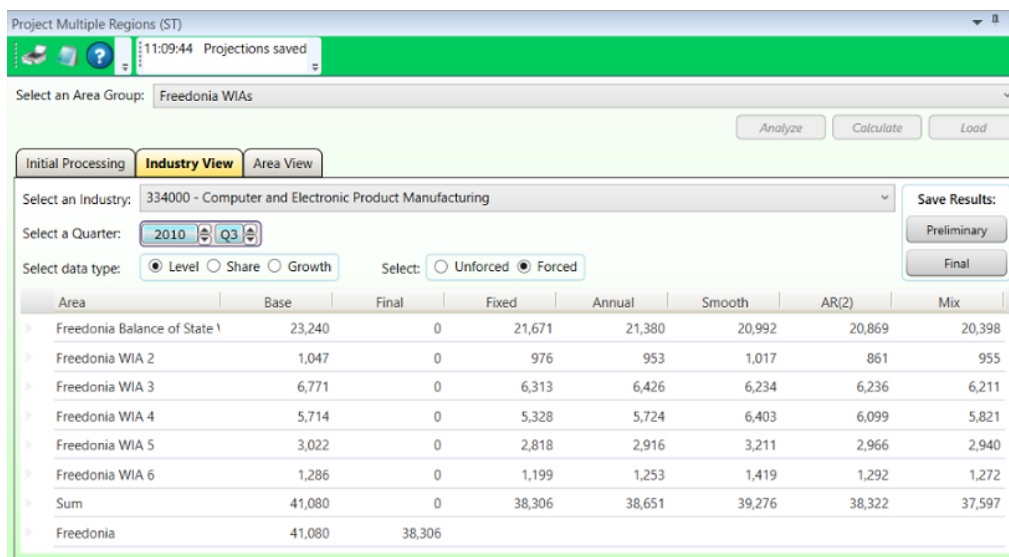
After calculating the industry information for the selected Area Group, the **Industry View** tab displays.

The calculation process in [Project Multiple Regions](#) projects the eight quarterly values for the two-year period for every area and industry and displays them on the list. There are 5 models used in the Short-Term (**ST**) calculations for **Project Multiple Regions**: Fixed, Annual, Smooth, AR(2), and **Model** values can be saved as **Final** values either by column or cell.

☞ See the [Statistical & Technical Terms](#) section for more information on the types of calculations produced in Projections Suite.

Screen Controls

- **Select an Industry** drop-down menu
- **Select a Quarter** data spinner
- **Select data type** control group
 - **Level** radio button
 - **Share** radio button
 - **Growth** radio button
- **Select** control group
 - **Unforced** radio button
 - **Forced** radio button
- **Save Results** control group
 - **Preliminary** button
 - **Final** button



Project Multiple Regions (ST)

11:09:44 Projections saved

Select an Area Group: Freedonia WIAs

Analyze Calculate Load

Initial Processing **Industry View** Area View

Select an Industry: 334000 - Computer and Electronic Product Manufacturing

Select a Quarter: 2010 Q3

Select data type: ☒ Level ☐ Share ☐ Growth

Select: ☐ Unforced ☒ Forced

Save Results: Preliminary Final

Area	Base	Final	Fixed	Annual	Smooth	AR(2)	Mix
▶ Freedonia Balance of State \	23,240	0	21,671	21,380	20,992	20,869	20,398
▶ Freedonia WIA 2	1,047	0	976	953	1,017	861	955
▶ Freedonia WIA 3	6,771	0	6,313	6,426	6,234	6,236	6,211
▶ Freedonia WIA 4	5,714	0	5,328	5,724	6,403	6,099	5,821
▶ Freedonia WIA 5	3,022	0	2,818	2,916	3,211	2,966	2,940
▶ Freedonia WIA 6	1,286	0	1,199	1,253	1,419	1,292	1,272
▶ Sum	41,080	0	38,306	38,651	39,276	38,322	37,597
▶ Freedonia	41,080	38,306					

Figure 1: Industry View tab

View Industry Information

1. **Select an Industry** from the drop-down menu.
2. **Select a Quarter** using the date spinner. The projection's final year and quarter are displayed by default.
3. Select the data type you want to view. The options are:
 - Employment **Level** (Level is the only option available for moving and editing values).
 - Percent **Share** for the area. Share converts each area's portion of the sum to a percentage. The shares for each area will sum to 100%.
 - Compound **Growth** rate for the two-year period.
4. Select **Unforced** or **Forced**.
 - **Unforced** is the default from original processing.
 - **Forced** forces the Sum to equal the state or parent total in the Final column. Do not use the **Forced** option until the initial analysis by Level is complete.

Information for five models displays in the Industry View table.

- **Fixed** - values represent the share of state employment found in the listed area. Fixed is based on the last actual employment value for the selected industry. This column compares [actual values](#) with projected shares of the other columns of data.
- **Annual** - values represent projected shares of employment for the listed area based on the average share over the last 12 months of data.
- **Smoothing** - values represent projected shares of employment for the listed area based on calculations using the smoothing trend model.
- **AR2** - values represent projected shares of employment for the listed area based on shares calculated using the ARMA 2.0 model.
- **Mix** - values represent the share of state employment for the listed area based on a performance weighted mix model of the three preceding models (annual, smoothing, and AR2).

Enter and Save Final Values

The **Final** column contains values selected by moving the level from the other columns and will be the final saved values for the industry.

1. **Right click** in a model's column. A context menu will be displayed.
2. Select **Move Cell** or **Move Column** from the menu.
 - Selecting **Move Cell** moves only that model's cell value to the **Final** column.
 - Selecting **Move Column** moves all values in that model to the **Final** column.

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3. To edit a value in the **Final** column, **double-click** the cell, edit the value, and press **Enter**.
4. In the **Save Results** control group, select a button to save results.
 - **Preliminary** - click to save the information for review.
 - **Final** - click to save the data after all analysis is complete. Selecting Final saves the projected values for the selected industry across all areas in the group.

The **Sum** and **State** or **Parent Area** (Freedonia, in Figure 1) rows help analyze how close the sum of all the sub-state areas compares to the statewide or parent area. Select the Forced view to force the final values to match the total of the parent area, based on their percentage share. When forced, the sum will match the total of the parent area, or very close (because of rounding).

Area View Tab

The **Area View** tab contains projected information for industries within a selected area and sector by quarter. You can view all sectors together by selecting **Total All Sectors**, or you can choose a particular sector which will list the individual industries for that sector.

This is useful to analyze data from an alternative view or for viewing Industries by area and sector. You can also view by **Level** or by **Growth** and change the active quarter. Saving of values in this screen is not possible; its only purpose is analysis.

Screen Controls

- **Select an Area** drop-down menu
- **Select a Sector** drop-down menu
- **Select quarter** date spinner
- **Level** radio button
- **Growth** radio button

Industry	Base	Final	Fixed	Annual	Smooth	AR(2)	Mix
236000 - Construction of Bu	1,266	0	1,119	1,126	1,100	1,120	1,093
237000 - Heavy and Civil En	1,205	0	906	959	1,262	927	1,052
238000 - Specialty Trade Co	6,712	0	5,568	5,750	5,766	5,443	5,511

Figure 1: Area View tab

View Projected Information

1. **Select an Area** from the drop-down menu.
2. **Select a Sector** from the drop-down menu. Select **Total All Sectors** to view all sectors together.
3. Select a time frame with the **Select quarter** date spinner.
4. Click the desired **Level** or **Growth** radio button. With each choice, the data updates to reflect the criteria.
 - Employment **Level**
 - Compound **Growth** rate for the two-year period

View Projections

The **View Projections** module allows viewing of completed industry Projections for the selected area and industry. The purpose of this module is to create a graphical representation of the historical industry series along with the final projected values (which are quarterly values). Once the Projections are complete, this module helps you to analyze the projections and allows you to print reports for selected industries.

Screen Controls

- **Select Area** drop-down menu
- **Select Industry** drop-down menu
- **Level** radio button
- **% Growth** radio button
- **Display date** spinner
 - **Max** button

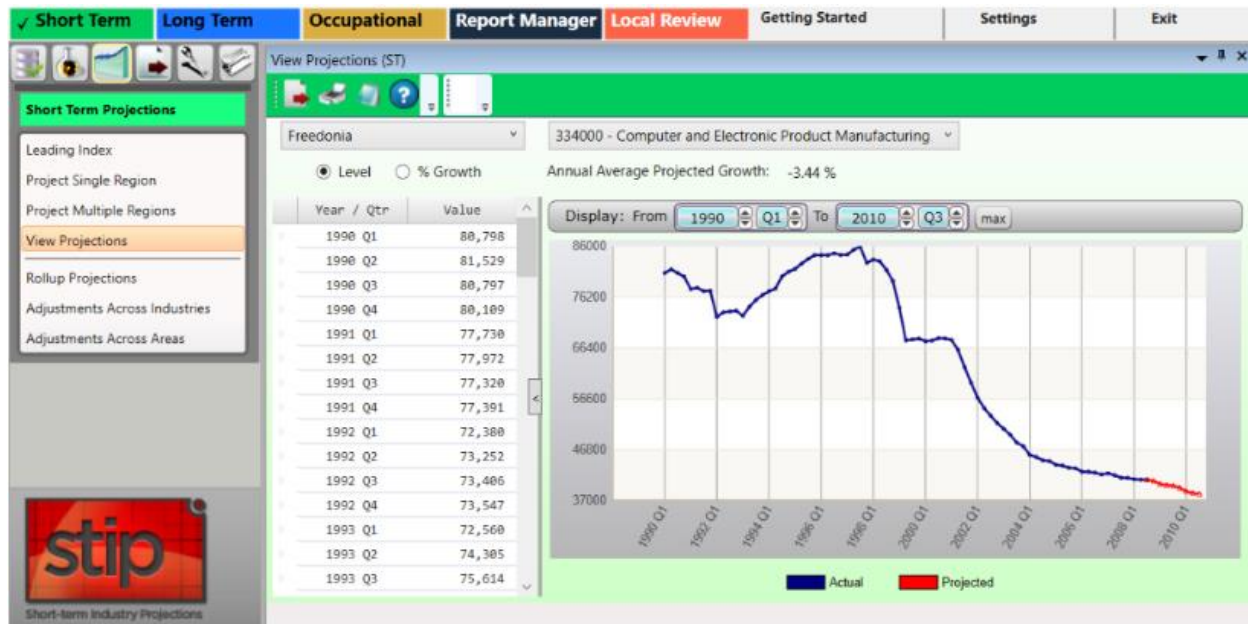


Figure 1: View Projections module


View Projections

1. **Select an area** from the drop-down menu.
2. **Select an industry.**
3. Click either the **Level** or the **% Growth** radio button. The **Annual Average Projected Growth** displays next to the radio buttons.
4. Select a time frame using the **Display date** spinners. Entering time values focuses the graph on the selected date range to evaluate the data points. An alternative way to zoom in on graph values is to [select chart dates](#).

- Click the **Max** button to view the maximum possible time frame.

The graph will display the historical series (represented by the blue line), as well as the projected values (represented by the red line). The data grid will display the quarterly values for both the historical and projected values. Only the last (latest) projected value is able to be edited. The value can only be edited while the **Level** radio button is selected.

Scrolling the grid activates a data popup. The popup (see Figure 2) will display a specific month and year. When the desired date displays, release the mouse button and the selected data will appear at the top of the grid. Alternatively, you can click on a value in the grid and move up and down with the keyboard's arrow keys.



Year / Qtr	Value
1991 Q2	5,234,199
1991 Q3	5,284,573
1991 Q4	5,284,573
1992 Q1	5,084,673

Figure 2: Date popup

If the historical series is not present, only the projected values will display.

Export a Report

After processing, you can use the **Export** icon on the Active Module Toolbar to export a report. A View Projections Export window will be displayed with the following options:

- Export Selected Industry
- Export Industries in Sector
- Export All Industries

Make your selection by clicking the associated radio button, then click **OK**. Select a location and name for the file, then click **Save**.

Print a Report

- Click the **Print** icon to generate a report for the selected industry and open the Print Preview window:

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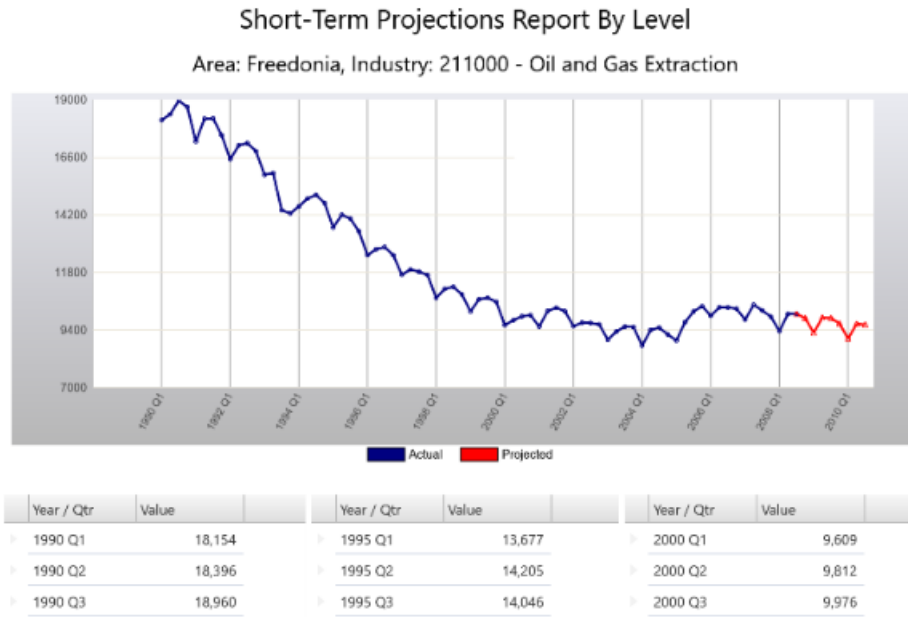


Figure 3: Short-Term Projections Report by Level

2. Click the **Print** button in the Print Preview window to print the report.

Rollup Projections

The **Rollup Projections** module enables consolidation of all children of the selected parent industry. This creates Projections for the selected parent industry. You may select any parent industry and choose the child industries to roll into the parent. Use caution with parent/child roll-ups to avoid summation errors.

To rollup Projections for a parent industry, all detailed industries in each sector should be completed for the area. If they are not completed, sector projected values and total values may not sum to the values expected when viewing projections or reviewing final reports.

Rolling up the historical series ensures that a sector which may not contain data will have the historical series data, in addition to the projected data. It is not required to add the historical series to the sectors. However, it does help when viewing projections for the sectors.

Screen Controls

- **Select an Area** drop-down menu
- **Select an Industry** drop-down menu
- **Rollup to Selected Industry** button
- **Rollup Historical Series** check box
- **Checkmark Industries** control group
 - **Sector** check box
 - **3-digit** check box
 - **4-digit** check box
 - **Checkmark** button

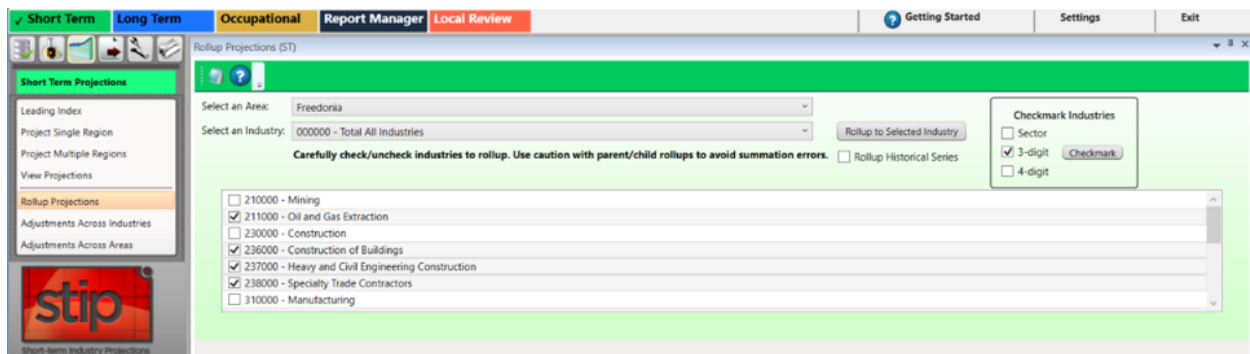


Figure 1: Rollup Projections module

Rollup an Industry

1. **Select an Area** from the drop-down menu.
2. **Select an Industry**. The industries to be included in the rollup are displayed.

☞ The **Rollup to Selected Industry** button will be unavailable if Projections are not complete for the more detailed industries under it.

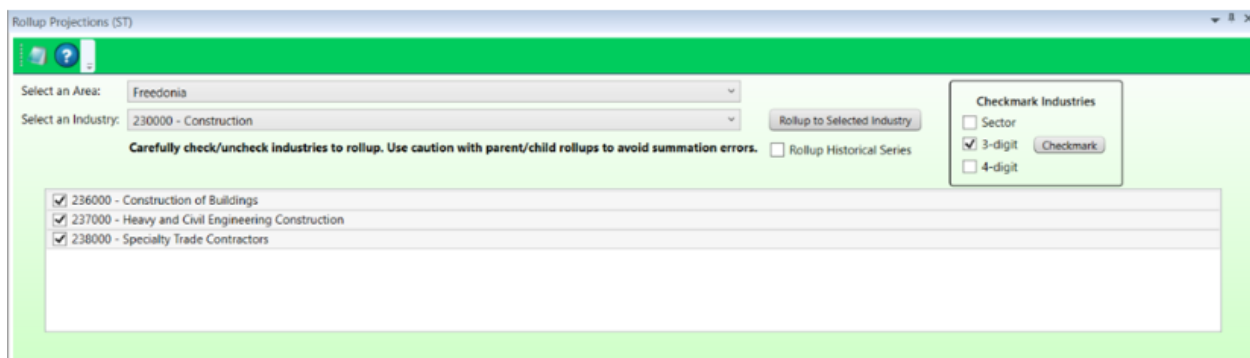


Figure 2: Industries 260000, 237000, and 238000 will be rolled-up to the parent sector, 230000

3. Click the **Rollup to Selected Industry** button. A dialog box will be displayed.
4. Click **Yes** to overwrite, click **No** to cancel the rollup.

Rollup Historical Series Check Box

The **Rollup Historical Series** check box performs an aggregation (that overwrites any existing historical series). Rolling up the historical series ensures a sector, which may not contain that data will have that data in addition to the projected data. Otherwise, the sector may contain only projected data. To **Rollup Historical Series** for an **Industry**:

1. Click the **Rollup Historical Series** check box.
2. Clicking the **Rollup to Selected Industry** button displays a confirmation dialog box.
3. Click **Yes** to continue the rollup. Click **No** to stop the rollup. After clicking the **Rollup to Selected Industry** button, the **Rollup complete** dialog box will be displayed.
4. Click **OK**.

Adjustments Across Industries

The **Adjustments Across Industries** module is used to process adjustments over specific industry levels. You can use a variety of techniques to adjust the employment Projections when summing to an industry total. Also, you can ensure that sub-sector values sum to the total. For Short-Term, you are only changing the last quarterly value.

Screen Controls

- **Select an Area** drop-down menu
- **Adjust** button
- **Reload** button
- **Undo** button
- **Save** button
- **Selected Industry Levels** control group
 - **Top-down** radio button
 - **Bottom-up** radio button


Figure 1: Adjustments Across Industries module

Adjust Across Industries

1. **Select an Area** from the drop-down menu.
2. Select at least two boxes from the **Select Industry Levels** control group, under the **Load** column. The **Adjust** button will activate when two selections from both the **Load** and the **Process** columns within the **Selected Industry Levels** control group are made. A selection in the **Process** column requires the same selection in the **Load** column. Selection of **Load** column choices are not limited by a selection in the **Process** column.

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With selections made in the **Selected Industry Levels** control group, [NAICS](#) codes and associated Projections (or zero-filled holding cells) will populate in the table. After running the adjustment the **Projection** column value will change from its original value.

- ☞ **Bottom-up** will be automatically selected in the **Adjustment Mode** control group because it is the first step. This forces all the industry levels to be additive. The **Top-down** option is not available until you make an edit in the **Projection** column.
- ☞ To edit the Projection column, **right click** and select **Edit**. A pencil icon  will display in the **Status** column of the industry Projection that was edited. The **Projection** edits roll (from the bottom) up to the parent industry. Editing a value in the **Projection** column will enable the Top-down adjustment mode.
- ☞ Click the **Constrain** check box to keep the projection value. If you constrain a projection value and do a top-down adjustment, changes will occur to the last quarterly value of child industries.

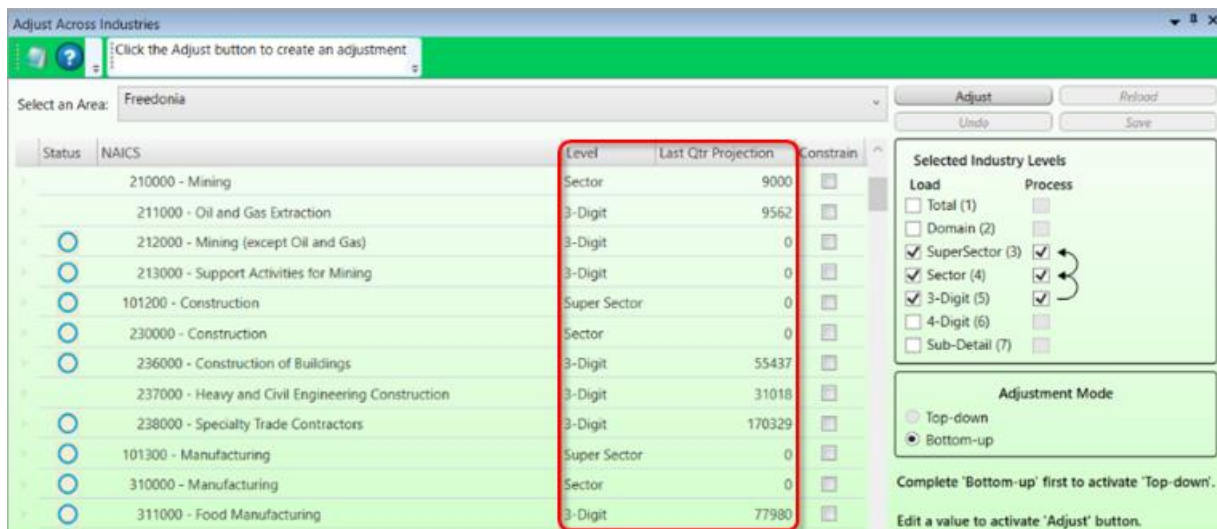


Figure 2: Selected Industry Levels selected

3. Click the **Adjust** button. Adjusted projections display in the **Projection** column.

Short-Term Industry Projections

Status	NAICS	Level	Last Qtr Projection	Constrain
↑	210000 - Mining	Sector	9562	<input type="checkbox"/>
○	211000 - Oil and Gas Extraction	3-Digit	9562	<input type="checkbox"/>
○	212000 - Mining (except Oil and Gas)	3-Digit	0	<input type="checkbox"/>
○	213000 - Support Activities for Mining	3-Digit	0	<input type="checkbox"/>
↑	101200 - Construction	Super Sector	256784	<input type="checkbox"/>
↑	230000 - Construction	Sector	256784	<input type="checkbox"/>
○	236000 - Construction of Buildings	3-Digit	55437	<input type="checkbox"/>
○	237000 - Heavy and Civil Engineering Construction	3-Digit	31018	<input type="checkbox"/>
○	238000 - Specialty Trade Contractors	3-Digit	170329	<input type="checkbox"/>
↑	101300 - Manufacturing	Super Sector	77980	<input type="checkbox"/>
↑	310000 - Manufacturing	Sector	77980	<input type="checkbox"/>
○	311000 - Food Manufacturing	3-Digit	77980	<input type="checkbox"/>

Selected Industry Levels

Load	Process
<input type="checkbox"/> Total (1)	<input type="checkbox"/>
<input type="checkbox"/> Domain (2)	<input type="checkbox"/>
<input checked="" type="checkbox"/> SuperSector (3)	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Sector (4)	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> 3-Digit (5)	<input checked="" type="checkbox"/>
<input type="checkbox"/> 4-Digit (6)	<input type="checkbox"/>
<input type="checkbox"/> Sub-Detail (7)	<input type="checkbox"/>

Adjustment Mode

☐ Top-down
☒ Bottom-up

Complete 'Bottom-up' first to activate 'Top-down'.
 Edit a value to activate 'Adjust' button.

Figure 3: Values adjusted

- To cancel an adjustment, click **Undo**. To start over, click the **Reload** button. All adjustments are canceled and the Projections are restored to the original values in the database.
- To save the adjusted data, click the **Save** button. A new Projections record is created with an adjusted model type and this projection has its selected flag for the area turned off.

Adjustments Across Areas

The **Adjustments Across Areas** module is used to process projection adjustments for specific industries, across area groups. This ensures employment Projections for individual sub-state areas are consistent, additive, and synchronized with the state totals. It is good to use the **Rollup Projections** module and complete roll-ups before using the adjustment modules.

Screen Controls

- **Select an Area Group** drop-down menu
- **Select an Industry** drop-down menu
- **Adjust** button
- **Reload** button
- **Undo** button
- **Save** button
- **Selected Area Levels** control group
 - **Parent Area** check box
 - **Child Areas** check box
- **Adjustment Mode** control group
 - **Top-down** radio button
 - **Bottom-up** radio button

The screenshot shows the 'Adjust Across Areas' module interface. At the top, there is a navigation bar with tabs: 'Short Term' (checked), 'Long Term', 'Occupational', 'Report Manager', 'Local Review', 'Getting Started', 'Settings', and 'Exit'. Below the navigation bar is a toolbar with icons for various functions. The main window is titled 'Adjust Across Areas' and contains a text box with the instruction: 'Select levels to display by checking boxes under 'Selected Area Levels' on right side of form'. Below this, there are two drop-down menus: 'Select an Area Group' (set to 'Freedonia WIAs') and 'Select an Industry' (set to '000000 - Total All Industries'). To the right of these menus are four buttons: 'Adjust', 'Reload', 'Undo', and 'Save'. Below the menus is a table with columns: 'Status', 'Area', 'Level', 'Projection', and 'Constrain'. The table is currently empty. To the right of the table is a control group titled 'Selected Area Levels' with two checkboxes: 'Parent Area' and 'Child Areas'. Below this is another control group titled 'Adjustment Mode' with two radio buttons: 'Top-down' and 'Bottom-up' (which is selected). At the bottom right, there is a text box with the instruction: 'Complete 'Bottom-up' first to activate 'Top-down'. Edit a value to activate 'Adjust' button.'

Figure 1: Adjustments Across Areas module

Adjust Across Areas

1. **Select an Area Group** from the drop-down menu.
2. **Select an Industry**.


- Use the **Selected Area Levels** control group to select the **Parent Area**, **Child Areas**, or **both**. The **Adjust** button will activate when both the Parent Area and the Child Areas check boxes from the Selected Area Levels control group are selected. As boxes are checked in the Selected Area Levels control group, values for the **Area**, **Level**, and **Projection** will populate in the table.

☞ To perform adjustments on an area group, select both **Parent Area** and **Child Area**.

The screenshot shows the 'Adjust Across Areas' window. At the top, there is a green bar with a question mark icon and a tooltip: 'Click the Adjust button to create an adjustment, to do Top-Down make a change to Projection column'. Below this, there are two dropdown menus: 'Select an Area Group:' set to 'Freedonia WIAs' and 'Select an Industry:' set to '236000 - Construction of Buildings'. To the right of these are buttons for 'Adjust', 'Reload', 'Undo', and 'Save'. Below the dropdowns is a table with columns: Status, Area, Level, Projection, and Constrain. The table contains seven rows of data, with the first row highlighted in red. To the right of the table is a control group titled 'Selected Area Levels' with two checked checkboxes: 'Parent Area' and 'Child Areas'. Below this is another control group titled 'Adjustment Mode' with two radio buttons: 'Top-down' (unselected) and 'Bottom-up' (selected). At the bottom, there is a note: 'Complete 'Bottom-up' first to activate 'Top-down'. Edit a value to activate 'Adjust' button.'

Status	Area	Level	Projection	Constrain
<input type="radio"/>	Freedonia (000080)	Parent Area	55437	<input type="checkbox"/>
<input type="radio"/>	Freedonia Balance of State WIA	Child Area	40919	<input type="checkbox"/>
<input type="radio"/>	Freedonia WIA 2 (800002)	Child Area	1204	<input type="checkbox"/>
<input type="radio"/>	Freedonia WIA 3 (800003)	Child Area	3599	<input type="checkbox"/>
<input type="radio"/>	Freedonia WIA 4 (800004)	Child Area	3844	<input type="checkbox"/>
<input type="radio"/>	Freedonia WIA 5 (800005)	Child Area	2094	<input type="checkbox"/>
<input type="radio"/>	Freedonia WIA 6 (800006)	Child Area	3152	<input type="checkbox"/>

Figure 2: Industry selected and Selected Area Levels chosen

- The **Adjustment Mode** control group is set to **Bottom-up** by default. To make a **Top-down** adjustment, you must edit at least one number in the **Projection** column.
- To edit the Projection column, right click and select **Edit**. A pencil icon  will display in the **Status** column of the industry projection that was edited and the Top-down adjustment mode will be enabled.
- Click the **Constrain** check box to keep the projection value from being adjusted. If you constrain a projection, the additivity of the table may be compromised.

- Click the **Adjust** button.

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Adjust Across Areas

Click the Adjust button to create an adjustment, to do Top-Down make a change to Projection column.

Select an Area Group: Freedonia WIAs

Select an Industry: 236000 - Construction of Buildings

Adjust Reload

Undo Save

Status	Area	Level	Projection	Constrain
<input checked="" type="radio"/>	Freedonia (000080)	Parent Area	54812	<input type="checkbox"/>
<input type="radio"/>	Freedonia Balance of State WIA	Child Area	40919	<input type="checkbox"/>
<input type="radio"/>	Freedonia WIA 2 (800002)	Child Area	1204	<input type="checkbox"/>
<input type="radio"/>	Freedonia WIA 3 (800003)	Child Area	3599	<input type="checkbox"/>
<input type="radio"/>	Freedonia WIA 4 (800004)	Child Area	3844	<input type="checkbox"/>
<input type="radio"/>	Freedonia WIA 5 (800005)	Child Area	2094	<input type="checkbox"/>
<input type="radio"/>	Freedonia WIA 6 (800006)	Child Area	3152	<input type="checkbox"/>

Selected Area Levels

☒ Parent Area

☒ Child Areas

Adjustment Mode

☐ Top-down

☒ Bottom-up

Complete 'Bottom-up' first to activate 'Top-down'.

Edit a value to activate 'Adjust' button.

Figure 3: Projections adjusted

5. Click the **Undo** button to cancel the adjustments to the data. To start over, click **Reload**. All adjustments are canceled and the Projections are restored to the original values in the database.
6. Click the **Save** button to save the adjusted data. A new Projections record is created with an adjusted model type and this projection has its selected flag set on, with the other selected flag for the area industry turned off.

Short-Term Output

The menu items in the **Short-Term Output** group menu allow creation of reports or exporting of data from the previous Short-Term Projections group menu.



Figure 1: Short-Term Output group menu

The **Short-Term Output** group menu contains the following selections:

- [Confidentiality](#)
- [ICT Export](#)
- [Export Historical Series](#)
- [Export Variable Series](#)
- [Reports](#)
- [Validate Data](#)
- [Compare Projections Analysis](#)
- [Export Industry Projections](#)

Confidentiality

Use the **Confidentiality** module to flag industries as confidential. This helps prevent releasing industry data to the public where data could potentially identify employers or their information.

The Confidentiality module is available in Short-Term and Long-Term Projections. Occupational Projections also has a [Confidentiality](#) module, but uses different settings.

Screen Controls

- **Select an Area** drop-down menu
- **Confidential** check boxes

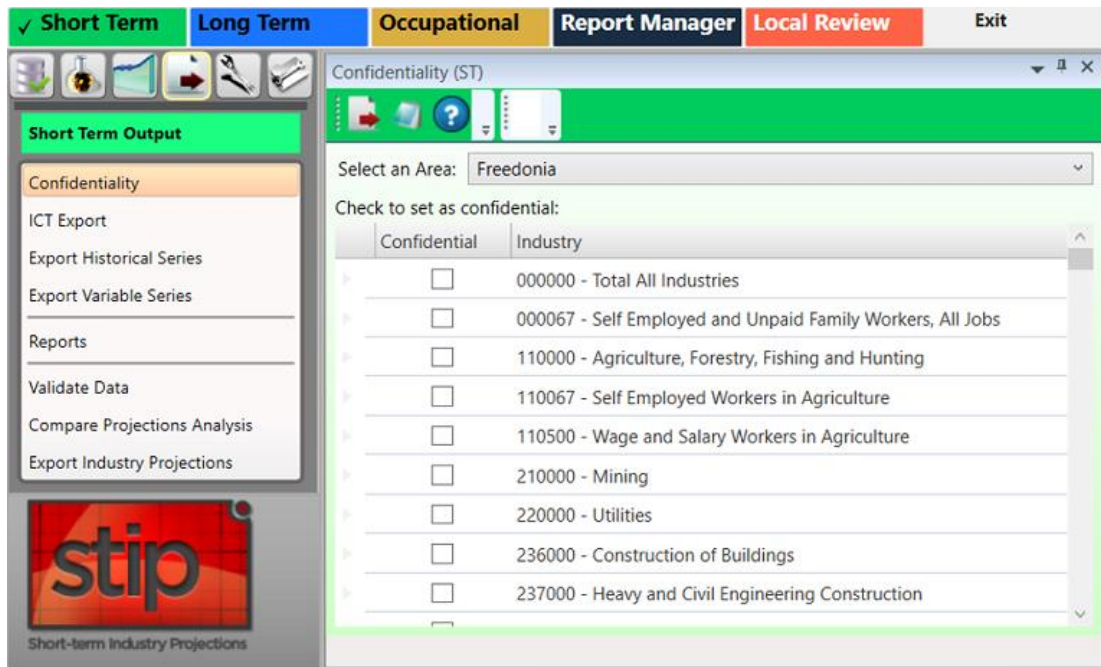


Figure 1: Confidentiality module

Mark an Industry as Confidential

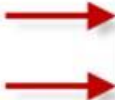
1. **Select an Area** from the drop-down menu. The industries with completed projections within the selected area will display.
2. Check the confidentiality box next to each industry you want to identify as confidential. Or, right click the check box or the industry and select the **Toggle Confidentiality** button. Clicking the Toggle Confidentiality button will change the current setting to the opposite setting.

- ☞ All industries with selected check boxes are treated as confidential. The Industry Projections software does not directly deal with confidentiality, but the checked industry flags carry forward into the ICT records in the Occupational Projections and Report Manager applications.

Create a Report of Confidential Industries

1. Click the **Export** button from the Active Module Toolbar. A **Save As** dialog box will be displayed.
2. Select a save location and type a name for the report.
3. Click **Save**.

The data exports into an Excel spreadsheet. The spreadsheet will contain the list of industries and display whether or not they're confidential.



	A	B
1	confidentiality	industry
2	FALSE	000000 - Total All Industries
3	FALSE	210000 - Mining
4	FALSE	230000 - Construction
5	TRUE	236000 - Construction of Buildings
6	FALSE	237000 - Heavy and Civil Engineering Construction
7	TRUE	238000 - Specialty Trade Contractors

Figure 2: Exported confidentiality report

Alternatively, click the **Print** button in the Active Module Toolbar to print a report of industries and their confidentiality.

ICT Export

Use the **Industry Control Total (ICT)** Export module to export projected industries to the internal ICT table for use in the Occupational Projections application or to a file for use in other applications and reports.

The values exported to the spreadsheet and to the ICT file are the last actual quarterly employment value and the last quarterly projected value for each industry.

A Base Year is determined from the year of the last quarter, and the Projected Year is determined from the year of the last projected quarter. In Short-Term Industry Projections, the [Short-Term Round](#) setting determines these quarters. The same base year, or the same projected year value, is the value for all date quarters during the year. The only industries exported to the ICT table or to the spreadsheet file are the industries on the list. If the Selected Industries list needs modification, modify the list and export the industries again. Previously saved ICT Projections for the area change to the new listed industries.

Screen Controls

- **Select an Area** drop-down menu
- **Transfer ICT data to Occupational Projections** check box
- **Available Industries** table
- **Selected Industries** table
- **Move** buttons

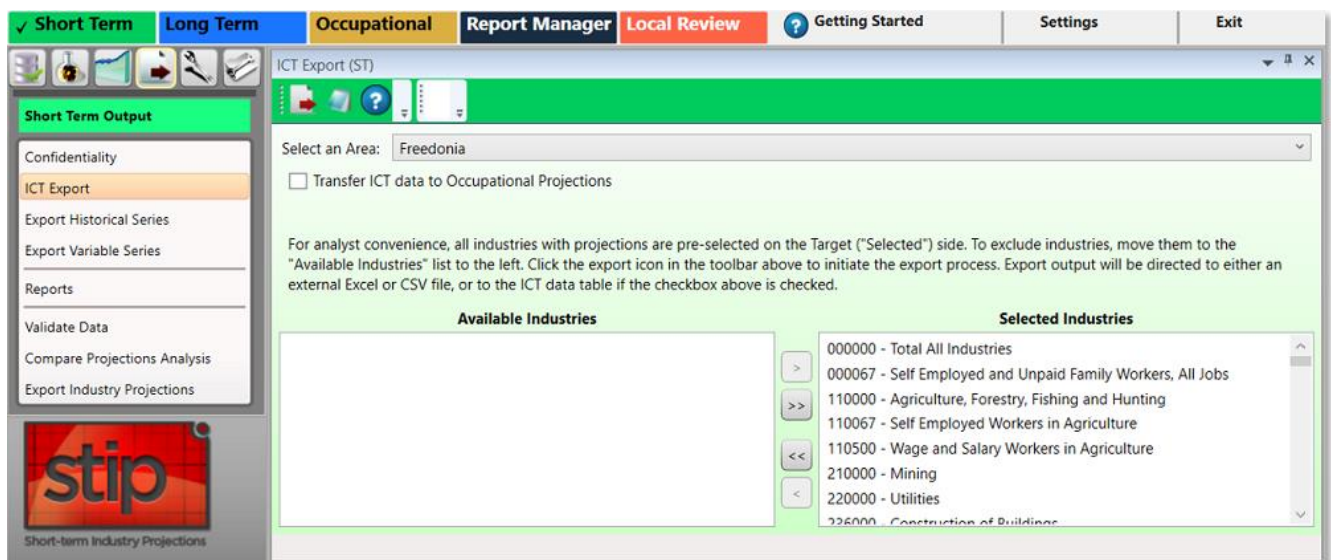




Figure 1: ICT Export module

Utilize ICT Export

1. **Select an Area** and a list of industries with projections will be displayed in the **Selected Industries** table. Industries that *should not* be exported should be moved to the **Available Industries** table. However, exporting all of the industries is usually typical.
2. To move industries into the **Available Industries** table (and exclude them from exportation), select an industry and click the **Move left**  button.
 - Manipulate the additional **move** and **move all** buttons to move industries from the Selected Industries table to the Available Industries table, and vice versa.

Right-clicking any industry opens a context menu which allows you to **Remove** or **Add Selected** (depending on which table you've right-clicked into), **Select All**, or **Unselect All** industries.

 Multiple industries can be moved at a time. For help with selecting multiple industries, click [here](#).

Export Data to Occupational Projections

1. To transfer ICT data to the Occupational Projections application, check the **Transfer ICT data to Occupational Projections** box prior to exporting the data.
2. When the list of selected industries is ready, click the **Export** button on the Active Module Toolbar.
3. A **Finished** message will display, letting you know the ICT data from the Selected Industry table was exported to the ICT table in Occupational Projections. Click **OK**.

Export Data to a Spreadsheet

1. Ensure the **Transfer ICT data to Occupational Projection** box is unchecked.
2. Click the **Export** button. A **Save As** window will display.
3. Select a location and type the name of the file to be exported.
4. Click **Save**.

Related Content

- [Manage Rounds](#)
- [Edit ICT](#)

Export Historical Series

Use the **Export Historical Series** module to export industry historical data to a spreadsheet file. This spreadsheet can be used to update the historical series, then import it back into the system.

Screen Controls

- **Select an Area** drop-down menu
- **Select a date range** spinners
 - **Max** button
- **Move** buttons
- **Available Industries** table
- **Selected Industries** table

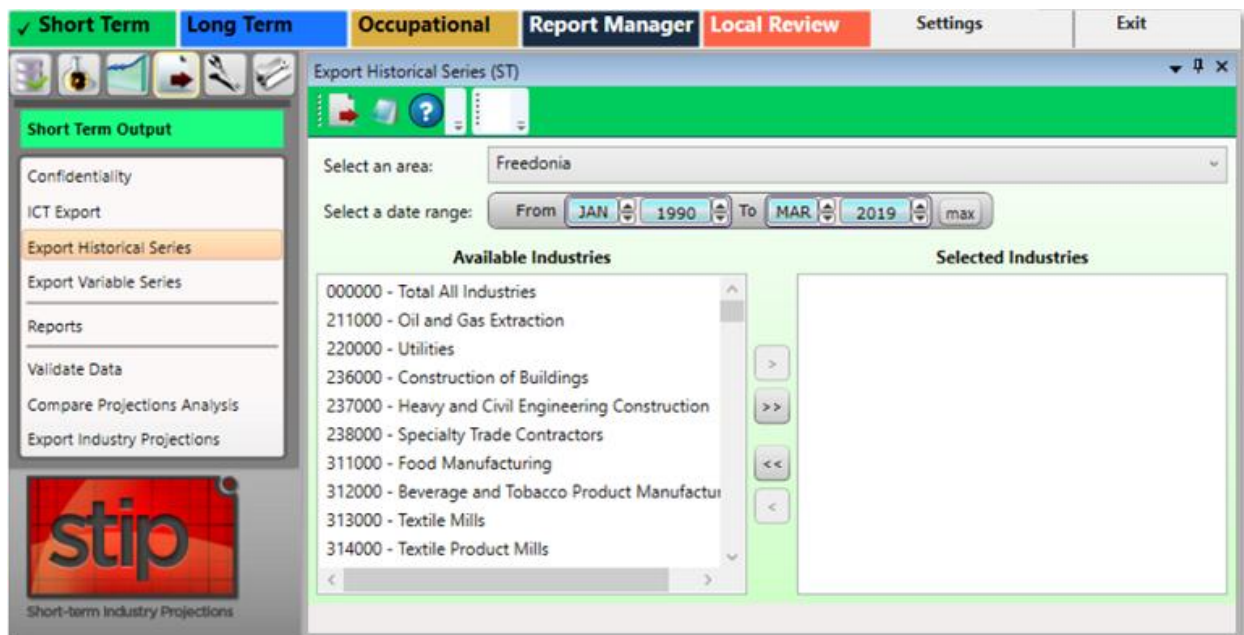


Figure 1: The Export Historical Series module

Export Historical Data

1. **Select an Area** from the drop-down menu.
2. **Select a date range** using the spinners.
3. Select industries from the Available Industries table to export their historical time series data. Multiple industries can be moved at a time. For help with selecting multiple items, click [here](#).
4. Click the **Add** > button. The selected industries will be moved into the **Selected Industries** table.

Short-Term Industry Projections

- Use the additional move and move all buttons to move industries from the Available Industries table to the Selected Industries table, and vice versa.
- Right-clicking any industry opens a context menu which allows you to **Remove** or **Add Selected** (depending on which table you've right-clicked into), **Select All**, or **Unselect All industries**.

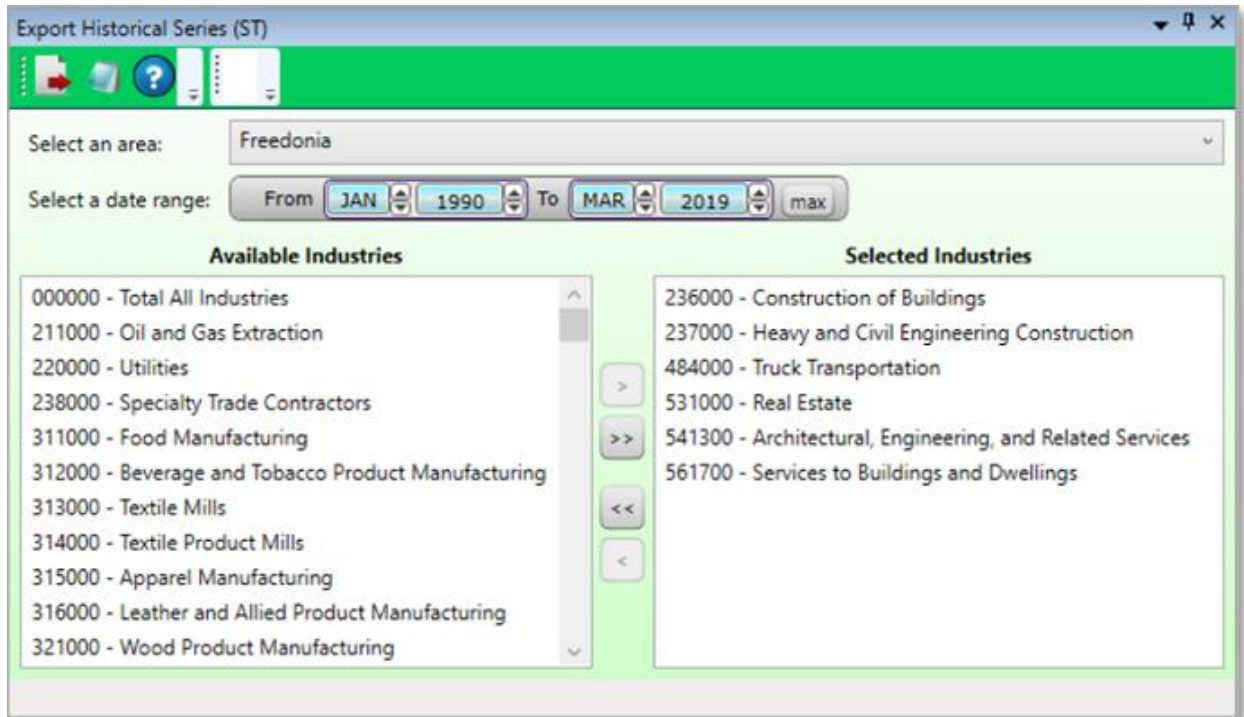


Figure 2: The selected industries are moved into the Selected Industries table and are ready for export

5. When the list of selected industries is ready, click the **Export** button on the [Active Module Toolbar](#). A **Save As** window will be displayed.
6. Select a location and type the name of the file to be exported.
7. Click the **Save** button.

Export Variable Series

Use the **Export Variable Series** module to export historical variable data. This module creates importable spreadsheets containing variable time series data. Variable data from only one variable type (**National**, **State**, or **Regional**) can be exported at a time in the Short-Term application. This spreadsheet can be used to update the historical series, then import it back into the system.

Screen Controls

- **Select a Variable Type** drop-down menu
- **Select a date range** spinner
 - **Max** button
- **Available Variables** table
- **Selected Variables** table
- **Move** buttons

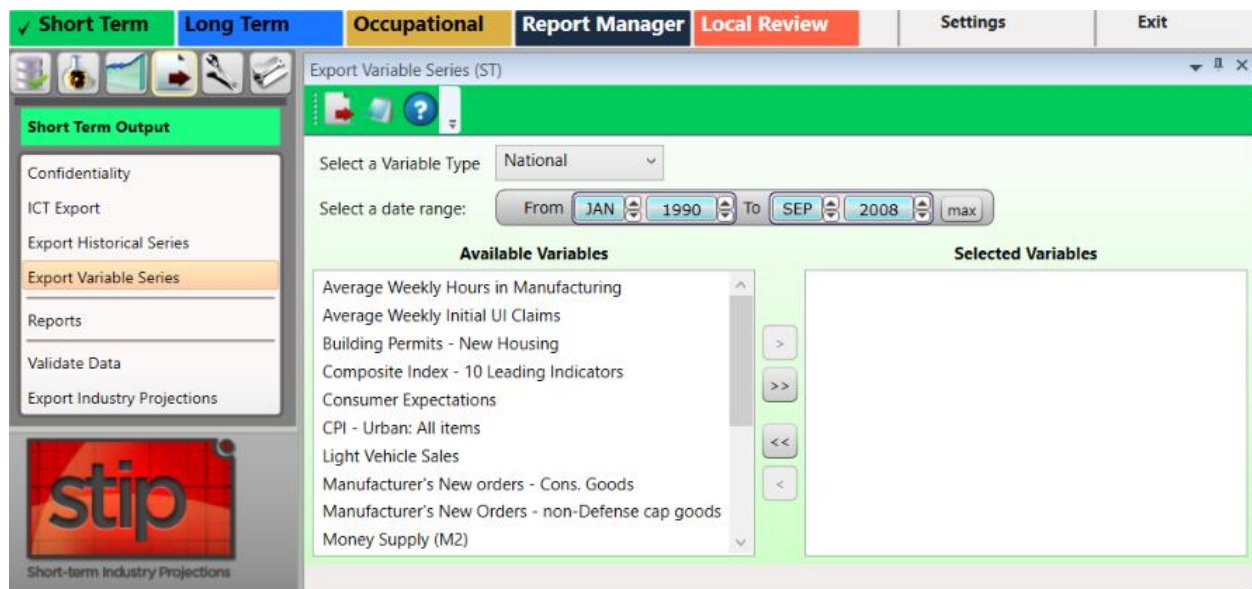



Figure 1: Export Variable Series module

Export Variable Data

1. **Select a Variable Type** from the drop-down menu.
2. **Select a date range** using the spinner controls.
3. Select variables from the **Available Variables** table and click the **Move**  button. The variable will be moved to the **Selected Variables** table.
 - Use the additional move and move all buttons to move variables from the Available Variables table to the Selected Variables table, and vice versa.

- Right-clicking any variable opens a context menu which allows you to Remove or Add Selected (depending on which table you've right-clicked into), Select All, or Unselect All variables.
4. Click the **Export** button on the Active Module Toolbar. A **Save As** dialog box will be displayed.
 5. Enter a file name and select the destination to save the file.
 6. Click **Save**.

Related Content

- [Variable Directory](#)
- [Review Variables](#)

Reports

Use the **Reports** module to export projected industry employment data to a spreadsheet, preview projections in a report format, or print the report.

Screen Controls

- **Select an Area** drop-down menu
- **Select a report** drop-down menu
- **View by Date** check box/spinner

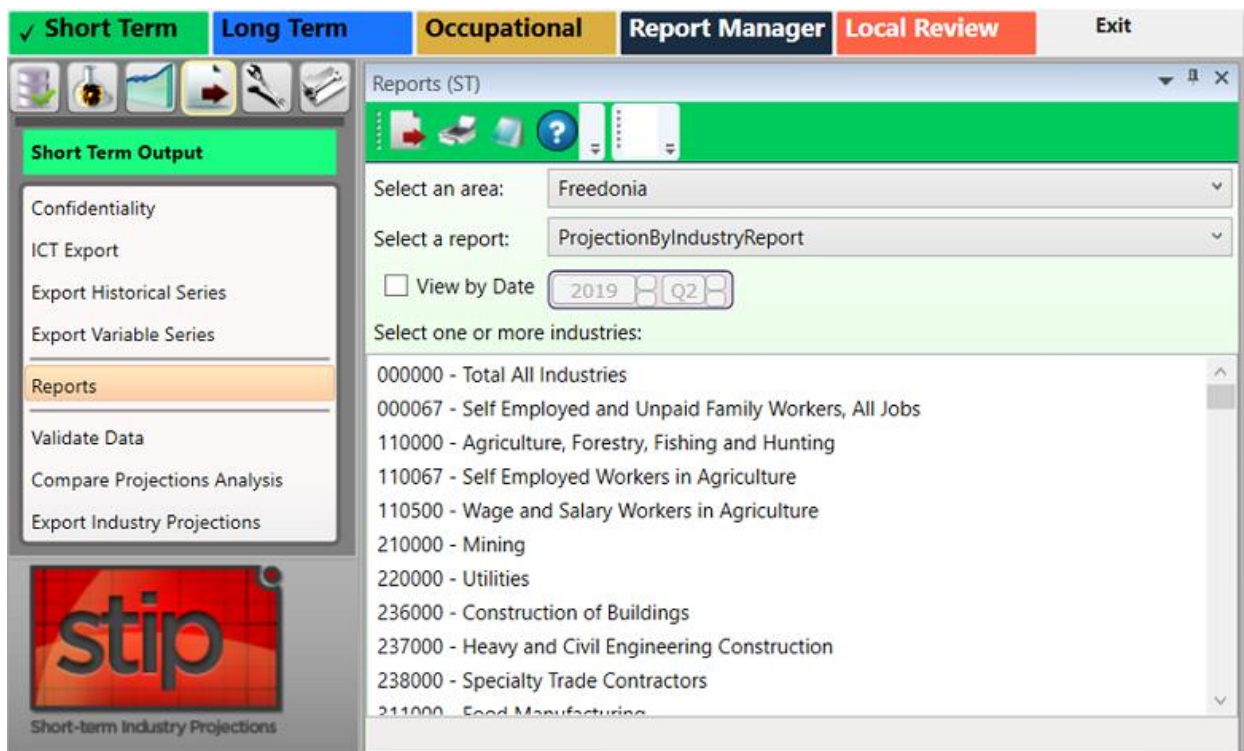


Figure 1: Reports module

Create and Export a Report

1. **Select an area** from the drop-down menu. The drop-down is populated with areas that contain Projections.
2. **Select a report** from the drop-down menu. Reports contain eight quarters of projected data for each selected industry. Choices are:
 - Projection By Industry
 - Projection By Industry With Growth
 - Quarterly Historical and Projections By Industry
 - Quarterly Projected and Non Projected Industries

Short-Term Industry Projections

3. Click the **View by date** check box and manipulate the date spinner to select a specific quarter for the report.
4. **Select one or more industries** from the table. For assistance with selecting multiple industries, click [here](#).
5. Click the **Export** button on the Active Module Toolbar. A **Save As** window will display.
6. Create a name and select a location for the file to be exported.
7. Click **Save**.

Print a Report

1. Select one or more industries to include in the report.
2. Click the **Print** icon on the Active Module Toolbar. The Print Preview window will display the generated report:

Projection By Industry Report

Area: Freedonia

	Industry	Year / Quarter	Projected Employment Level
210000	Mining	2008 Q4	9,900
		2009 Q1	9,288
		2009 Q2	9,922
		2009 Q3	9,901
		2009 Q4	9,674
		2010 Q1	9,042
		2010 Q2	9,660
		2010 Q3	9,626
211000	Oil and Gas Extraction	2008 Q4	9,900
		2009 Q1	9,288
		2009 Q2	9,922
		2009 Q3	9,901
		2009 Q4	9,674
		2010 Q1	9,042
		2010 Q2	9,660
		2010 Q3	9,626

Figure 2: Projection by Industry Report

3. Click the **Print** button in the Print Preview window to send the report to the printer.

Validate Data

Use the **Validate Data** module to validate and extract reports on the disposition of your data.

The Validate Data module is available in both Short-Term and Long-Term applications. The Short-Term application validates monthly data. The Long-Term Validate Data module allows you to validate annual data, and data for the entire United States.

Screen Controls

- **Select an Area** drop-down menu
- **Filter** drop-down menu
 - **All** selection
 - **Industry Has Monthly Employment Data** selection
 - **Sum of Child Monthly Employment Equals Parent** selection
 - **Industry Projection Equals Child Projections** selection
 - **Check For Missing Employment Data** selection
- **Validate** button

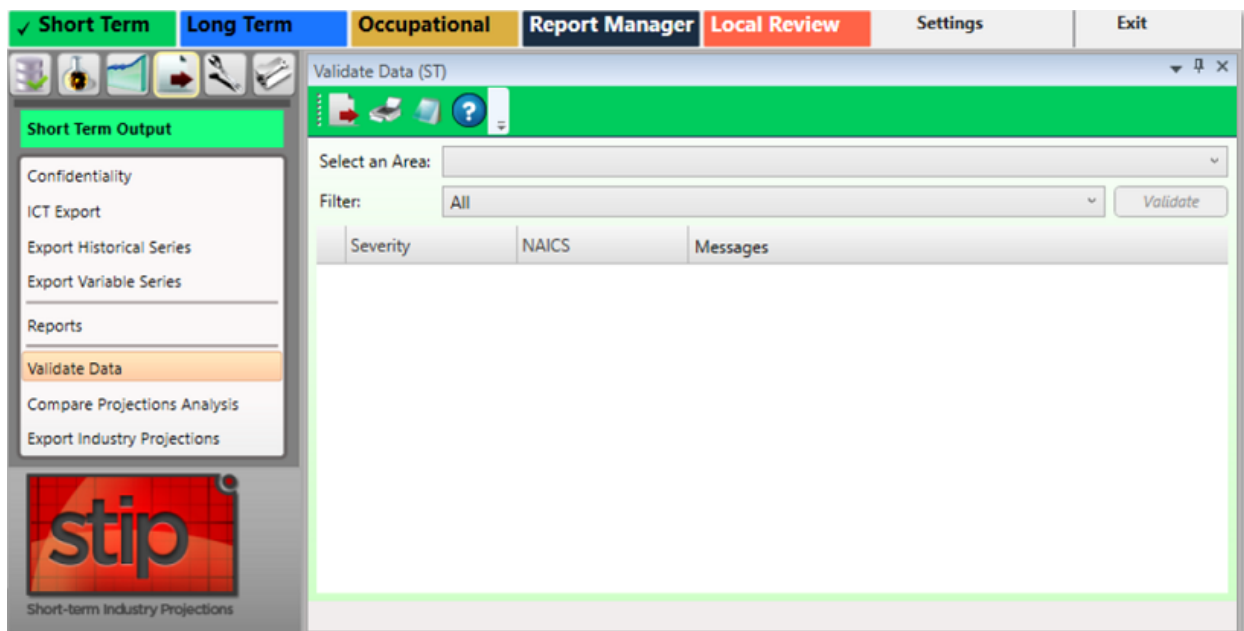
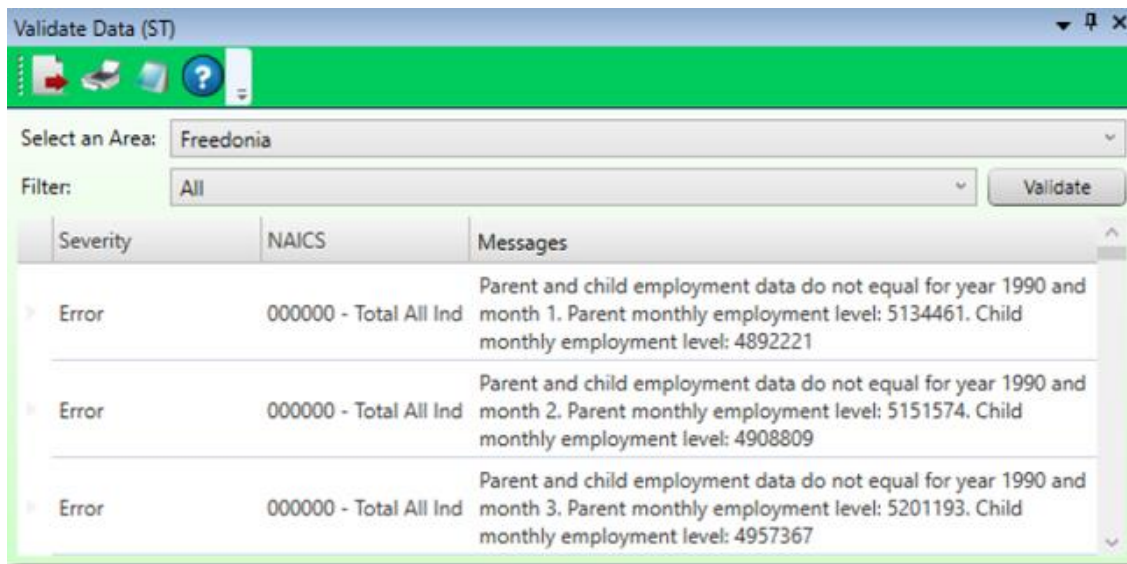


Figure 1: Validate Data module

Validate the Data

1. **Select an Area.**
2. Click the **Validate** button. The validation data errors will be displayed for **All** filters in this instance:



Severity	NAICS	Messages
Error	000000 - Total All Ind	Parent and child employment data do not equal for year 1990 and month 1. Parent monthly employment level: 5134461. Child monthly employment level: 4892221
Error	000000 - Total All Ind	Parent and child employment data do not equal for year 1990 and month 2. Parent monthly employment level: 5151574. Child monthly employment level: 4908809
Error	000000 - Total All Ind	Parent and child employment data do not equal for year 1990 and month 3. Parent monthly employment level: 5201193. Child monthly employment level: 4957367

Figure 2: Non-valid data for Freedonia

3. Select a **Filter** from the drop-down menu, then click the **Validate** button again.

After processing, you can the **Export** or **Print** options on the Active Module Toolbar to export or print the report. Use the **Notebook** to add any needed information.

Compare Projections Analysis

Compare Projections Analysis calculates the differences between 10, 5, and 2 year histories, the current base, Projection, rate, prior analyses, as well as alternates in Projections, bases, and rates. This module is used to compare differences between the statistics across a variety of times, current calculations, as well as alternatives in the outcomes.

Screen Controls

- **Select an Area** drop-down menu
- **Compare** button

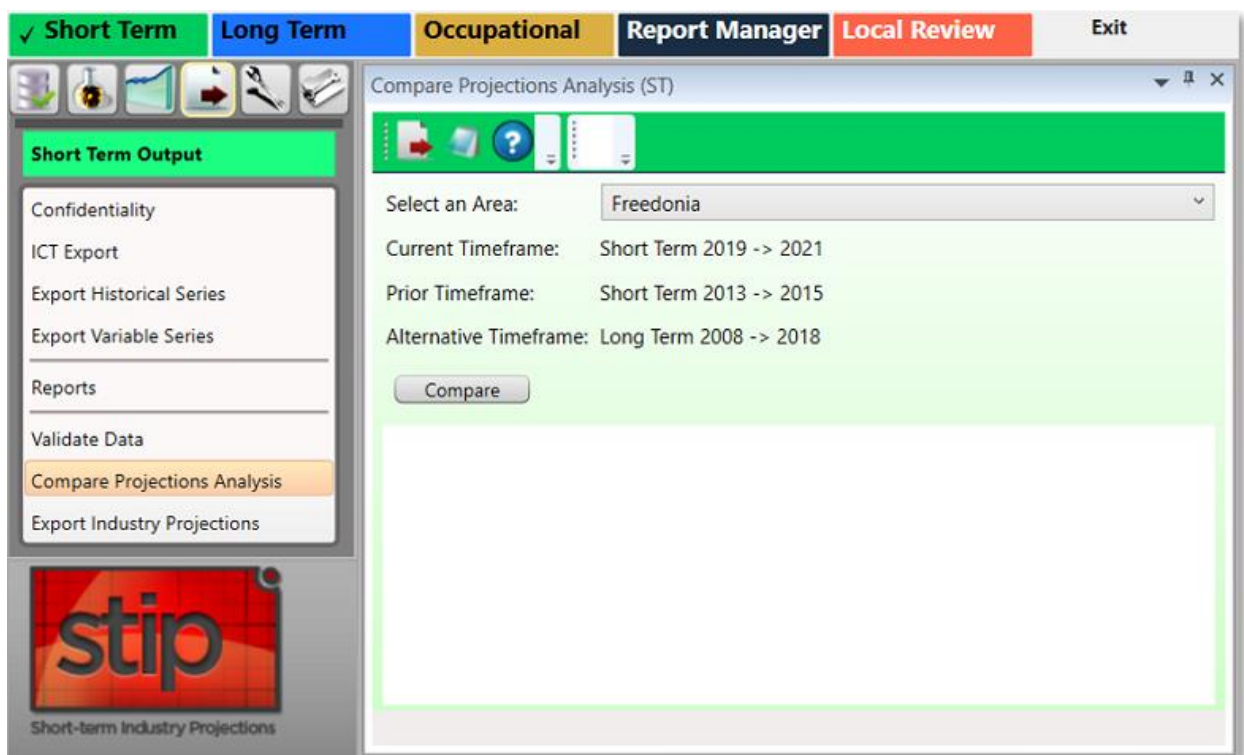


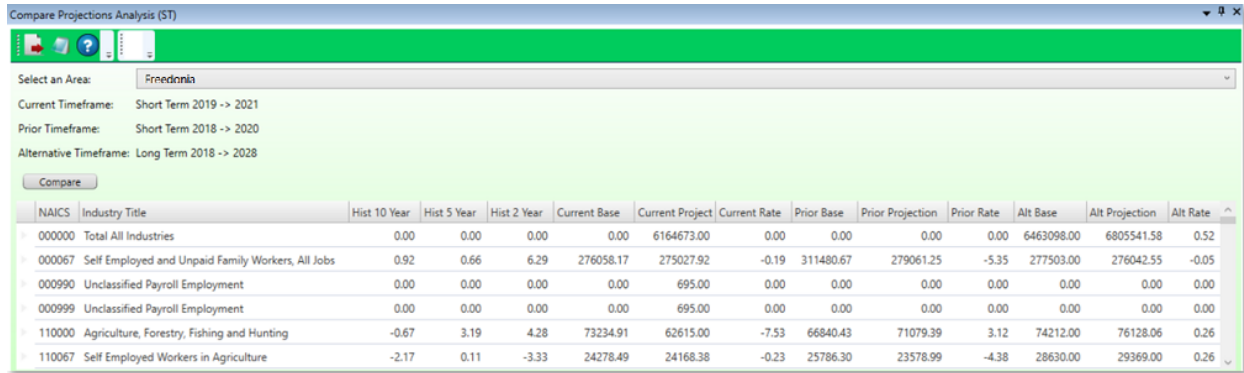
Figure 1: Compare Projections Analysis module

Compare Projections Analysis on an Area

1. **Select an Area** from the drop-down menu. **Project Single Region** or **Projection Multiple Regions** must be completed before an analysis can be completed in this module.
- ☞ The Current Timeframe, Prior Timeframe, and Alternative Timeframe versions are changed depending on which current round is selected in the [Manage](#)

[Rounds](#) module, under the **Short-Term Data** group menu.

2. Click the **Compare** button. Projections will retrieve the data for the analysis:



NAICS	Industry Title	Hist 10 Year	Hist 5 Year	Hist 2 Year	Current Base	Current Project	Current Rate	Prior Base	Prior Projection	Prior Rate	Alt Base	Alt Projection	Alt Rate
000000	Total All Industries	0.00	0.00	0.00	0.00	6164673.00	0.00	0.00	0.00	0.00	6463098.00	6805541.58	0.52
000067	Self Employed and Unpaid Family Workers, All Jobs	0.92	0.66	6.29	276058.17	275027.92	-0.19	311480.67	279061.25	-5.35	277503.00	276042.55	-0.05
000990	Unclassified Payroll Employment	0.00	0.00	0.00	0.00	695.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
000999	Unclassified Payroll Employment	0.00	0.00	0.00	0.00	695.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110000	Agriculture, Forestry, Fishing and Hunting	-0.67	3.19	4.28	73234.91	62615.00	-7.53	66840.43	71079.39	3.12	74212.00	76128.06	0.26
110067	Self Employed Workers in Agriculture	-2.17	0.11	-3.33	24278.49	24168.38	-0.23	25786.30	23578.99	-4.38	28630.00	29369.00	0.26

Figure 2: After Compare analysis is complete

3. After the **Compare** analysis is completed, the comparisons mentioned in this page's introduction are calculated and laid out in a table, listed by [NAICS](#) and Industry Title. The comparisons can be rearranged by clicking on the column header of each of the table's categories.

Export Industry Projections

The **Export Industry Projections** module allows the exporting of a specific area's industry Projections to a spreadsheet file or directly into [Report Manager](#).

The Export Industry Projections module is available in the Short-Term and Long-Term Projections applications. The Notebook is not available in the Long-Term Export Industry Projections module.

Screen Controls

- **Export Data to File - Local Review Format** radio button
- **Export Data to File - Projections Review** radio button
- **Transfer Data to Report Manager** radio button
 - **Source Timeframe** drop-down menu
- **Source Area(s)** drop-down menu

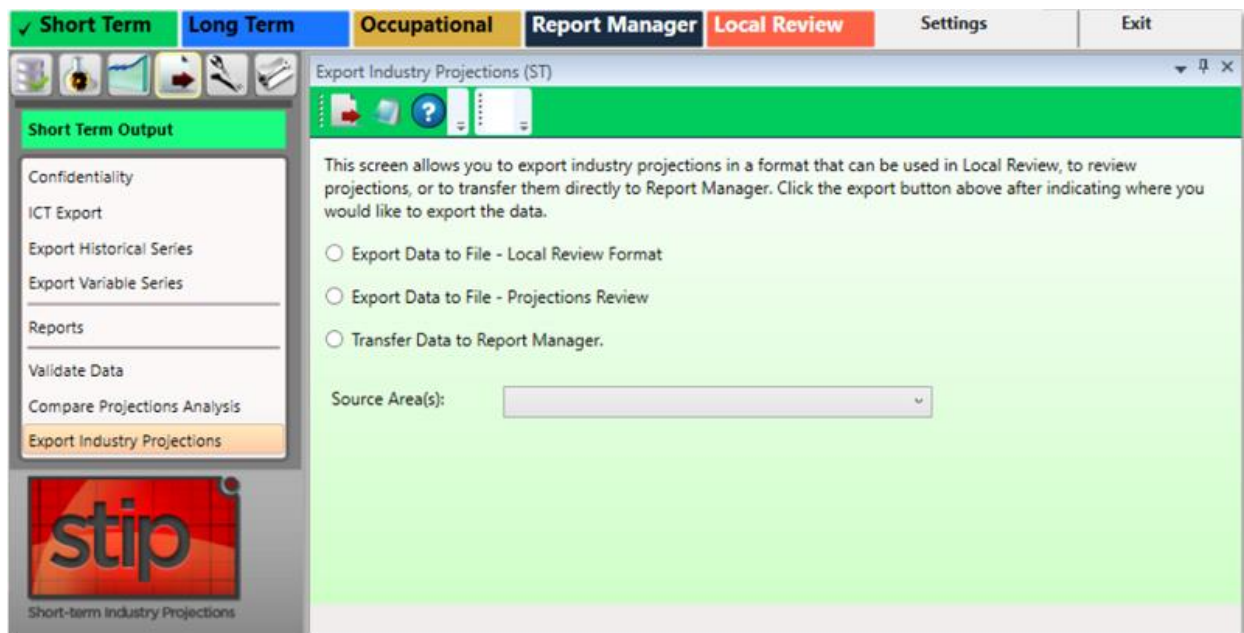


Figure 1: Export Industry Projections module

Export Industry Projections

1. Select a **Source Area(s)** from the drop-down menu.
 2. Select one of the three radio buttons, depending on the type of export required.
- Select the **Export Data to File - Local Review Format** or **Export Data to File - Projections Review** radio button.

Short-Term Industry Projections

- Click the **Export** button on the Active Module Toolbar. A **Save As** dialog box will be displayed.
- Enter a file name and select a location to save the file to.
- Click **Save**.

Or

- Select the **Transfer Data to Report Manager** radio button.
- Select the **Source Area(s)** and **Source Timeframe** from the drop-down menus.
- Click the **Export** button on the Active Module Toolbar.
- Use the [Browse Data](#) menu selection in **Report Manager** to view the data.

Short-Term Compare

Use the **Short-Term Compare** group menu to configure an Upload Area account, upload data, and create a geographical comparison.

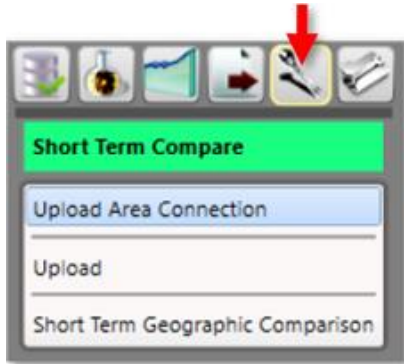


Figure 1: Short-Term Compare group menu

The **Short-Term Compare** group menu contains the following selections:

- [Upload Area Connection](#)
- [Upload](#)
- [Short-Term Geographic Comparison](#)

Upload Area Connection

Use the **Upload Area Connection** module to configure an Upload Area account. Contact the Projections [Technical Assistance](#) for help with setting up an Upload Area account. There should be only one Upload Area account registered for an analyst per state.

This module is available in the Short-Term, Long-Term, and Occupational Projections applications.

Screen Controls

- **Service URL** field
- **Email** field
- **Password** field
- **Connect** button

Figure 1: Upload Area Connection module

Login to Geographic Comparison Upload Area Account

1. Enter your **Projections Support Site email address** in the **Email** field.
2. Enter your **Projections Support Site password** in the **Password** field.
3. Click **Connect**. A Finished dialog box will be displayed if the connection is successful.
4. Click **OK** to return to the **Upload Area Connection** module.

☞ If the connection is unsuccessful, the following message will be displayed:

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Email / Password combination failed. It's possible your account has not yet been approved. Please check to make sure you entered everything correctly. If you have any questions, you can contact Brett Judd at bdjudd@utah.gov

Figure 2: Connection failure dialog

5. Check your email address and password combination and try again. If multiple failures occur, contact the Projections [Technical Assistance](#) for assistance.

Related Content

- [Validation](#)
- [State Self Publish](#)

Upload

Use the **Upload** module to select the source for your industry comparison. This module is available in the Short-Term and Long-Term applications.

Screen Controls

- **Projection Suite Data** radio button
 - **State** drop-down menu
 - **Export To Upload Area** radio button
 - **Export To File** radio button
 - **File** field
 - ... button
- **Import File** radio button
 - **Select file to import** field
 - **Browse** button
 - **Detected File Type** field
 - **Import** button

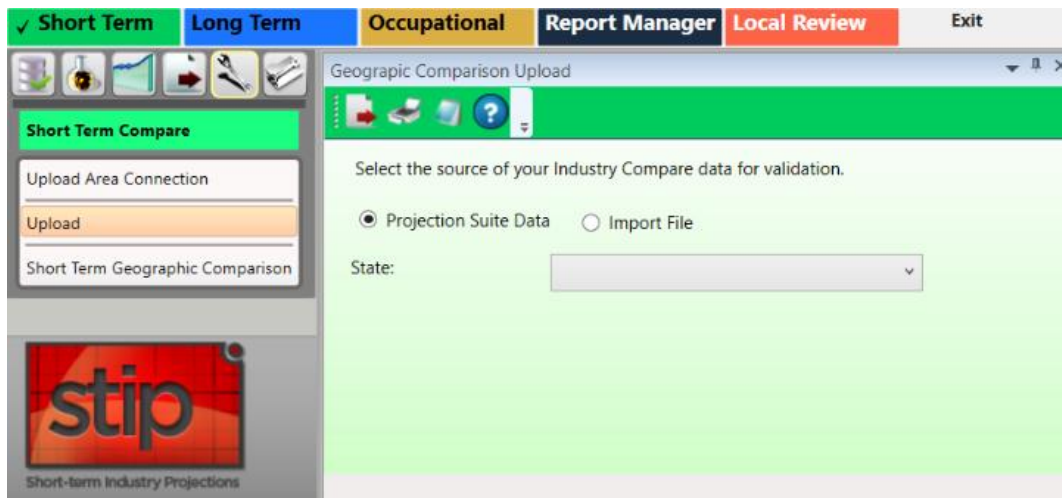


Figure 1: Upload module

Upload Industry Compare Data for Validation

1. Select the source.
 - Select **Projection Suite Data**.
 - Select a **State**. The data process and a validation dialog displays.
 - Select **Export To Upload Area** or **Export To File**. Export To Upload Area is not available if the validation fails.
 - If you selected **Export To Upload Area**, click **Send Compare Data**. A **Successfully Submitted all Projections** message displays.
 - Click **OK**.

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Or

- If you selected **Export To File**, select a File by clicking the ... button. A Save As dialog will be displayed.
- Select a name and location for the file, then click **Save**.
- Then, on the Active Module Toolbar, click **Export**.
- Click **Save**.

Or

- Select **Import File**.
- Click **Browse** and select a file to import.
- Click **Import**.
- Select **Export To Upload Area** or **Export To File**. Export To Upload Area is not available if the validation fails.
- If you selected **Export To Upload Area**, click **Send Compare Data**. A **Successfully Submitted all Projections** message displays.
- Click **OK**.

Short-Term Geographic Comparison

Use the **Short-Term Geographic Comparison** module to create comparisons. You can create comparisons for:

- Compare to States
- Region Compare
- Workforce Compare
- Services Compare
- Goods Compare

Data is stored in the Upload Area for all states which have submitted data. Short-Term Geographic Comparison requires data from at least three states.

The Short-Term Geographic Comparison module is available in the Short-Term and Occupational Projections applications. It is important to make the distinction: the Short-Term Geographic Comparison module compares *industry* data; the Short-Term Geographic Comparison module in the Occupational Compare group menu utilizes *occupational* data.

☞ If you do not have an Upload Area account, an error message displays. You are unable to make comparisons until you have the account set up. Reference the [Upload Area Connection](#) module for information on creating an account.

Screen Controls

- **Select the base state** drop-down menu
- **Geographic Comparison** button
- **Compare to States** radio button
 - **Available States** table
 - **Selected States** table
- **Region Compare** radio button
- **Workforce Compare** radio button
- **Services Compare** radio button
- **Goods Compare** radio button
- **Available States** screen
- **Selected States** screen
- **Move** buttons

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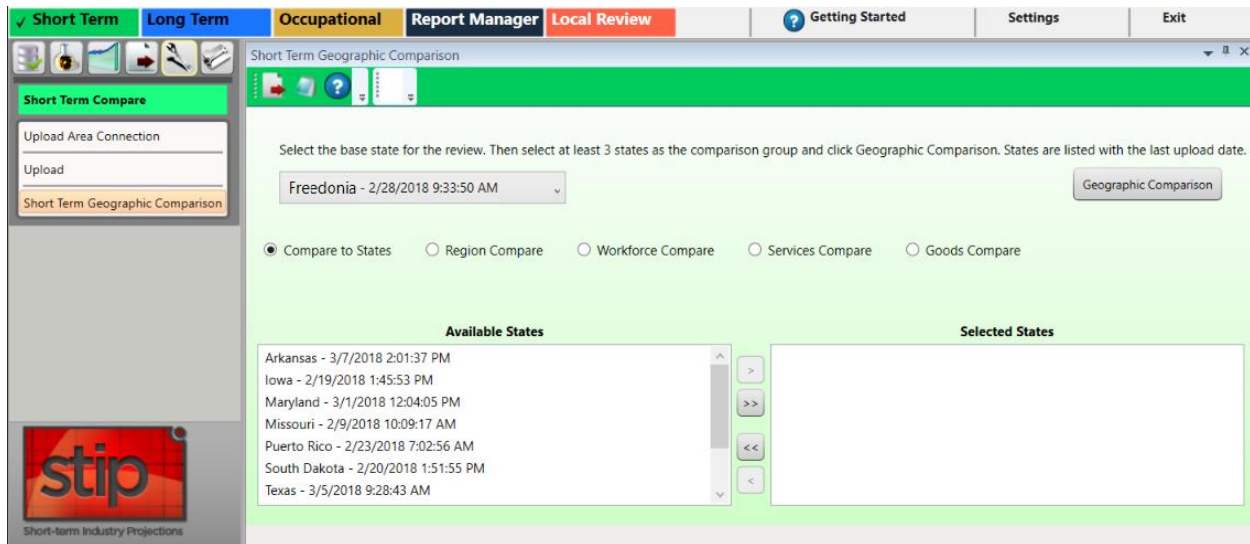


Figure 1: Short-Term Geographic Comparison module

To generate comparisons from the Short-Term Geographic Comparison module, select the type of comparison using the radio buttons. Submitted data includes the state name and submittal date and time. The date and time is used to ensure the compared data is the latest, most updated data.

Compare to States

1. Select the base state. The base state defaults to your state. You can select any state from the list as the base state for the comparison.
2. Select the states from the **Available States** box and move them to the **Selected States** box. Click the state, then click the arrow button. Or, click the double arrow button to move all **Available States** to the **Selected States** box.
3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the Active Module Toolbar.
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as type** then click **Save**.

Region Compare

1. Select the base state. The base state defaults to your state. You can select any state from the list as the base state for the comparison.
2. **Select the Region for the comparison.**
3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the tool bar.

6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as type** then click **Save**.

Workforce Compare

1. Select the base State.
2. **Select the Workforce Quartile for the comparison.**
3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the tool bar.
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as type** then click **Save**.

Service Compare

1. Select the base state.
2. **Select the Services Quartile for the comparison.**
3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the tool bar.
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as type** then click **Save**.

Goods Compare

1. Select the base state.
2. **Select the Goods Quartile for the comparison.**
3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the tool bar.
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as type** then click **Save**.

Related Content

- [Geographic Comparison File Format](#)

Short-Term Utilities

The menu items for **Short-Term Utilities** group menu allow a variety of maintenance and administrative functions within Short-Term Industry Projections.

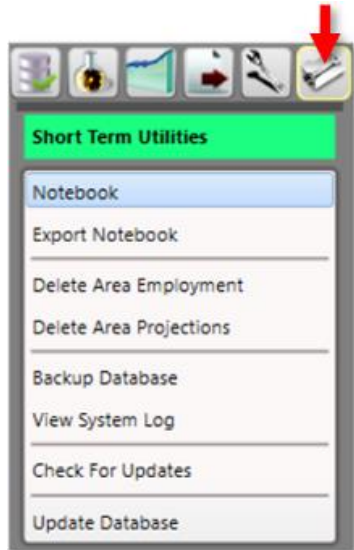


Figure 1: Short-Term Utilities group menu

The **Short-Term Utilities** group menu contains the following selections:

- [Notebook](#)
- [Export Notebook](#)
- [Delete Area Employment](#)
- [Delete Area Projections](#)
- [Backup Database](#)
- [View System Log](#)
- [Check for Updates](#)
- [Update Database](#)

Notebook

Use the **Notebook** module to record user and statistical notes and attach them to areas and industries. The Notebook can be helpful during the analysis and Projections process. It can also be used to keep historical records for industries, which can be helpful when state analysts leave and new analysts begin using the application. You can access the Notebook in all but a few **Short-Term Industry** and **Occupational Projections** modules.

- ☞ Notebook information is retained from round to round. It is up to the analyst to maintain (edit, remove) data as needed.

Screen Controls

- **Area** drop-down menu
- **Industry** drop-down menu
- **Save** button
- **Reload** button
- **Delete All Notes** button

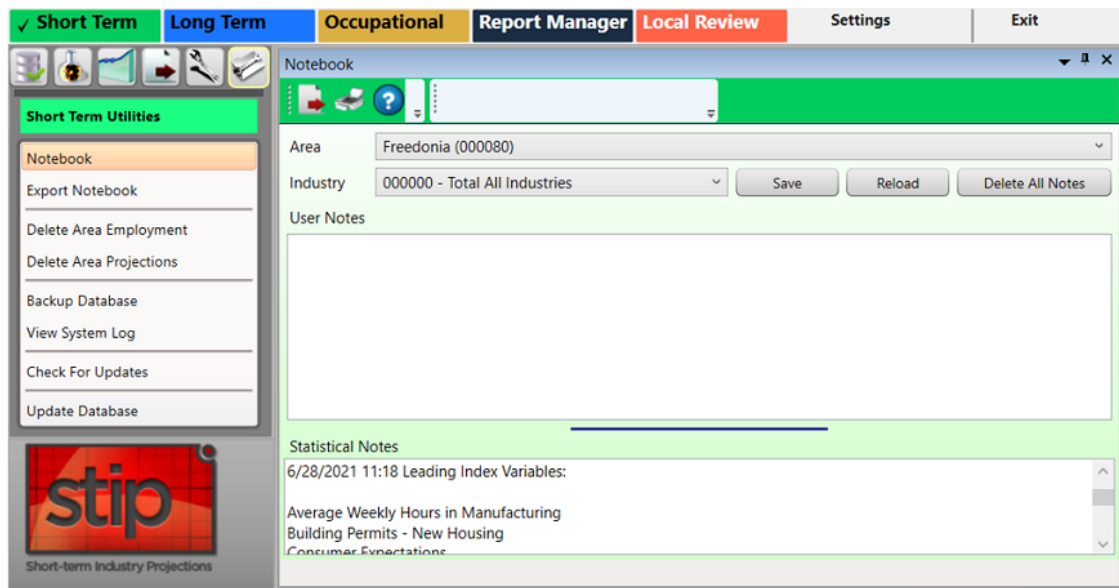


Figure 1: Notebook module

Record or Modify Notes

1. Click the **Notebook** module from the group menu. The **Notebook** screen will be displayed in its own undocked window.










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- ☞ View the [Screen Controls](#) for assistance in docking the module's window (as shown in Figure 1).
2. Select an area to record/modify notes about, with the **Area** drop-down menu.
 3. Select an industry to record/modify notes for, by clicking the **Industry** drop-down menu.
 4. **Type the notes** for the selected area and time frame.
 5. Click the **Save** button.

Export Notes

1. Click the **Export** button in the [Active Module Toolbar](#). A **Save As** dialog box will be displayed.
2. Select a name and location for the notebook file to be exported to.
3. Click the **Save** button.

Printing the Notes

1. Click the **Print**  button in the [Active Module Toolbar](#). The **Print Preview dialog box** will be displayed. The Print Preview dialog box contains seven icons to assist with the printing/confirmation process. From left to right, they are the:
 - **Print**  icon used to send the Notebook to the printer.
 - **Zoom In**  and **Zoom Out**  icons are used to make the text larger and smaller.
 - **View at 100%**  icon used to view the Notebook at 100% of its size.
 - **View at Page Width**  icon used to view the notebook so it fills the width of the page.
 - **View Whole Page**  icon used to view the entire Notebook page.
 - **View Two Pages**  icon used to view two pages of the Notebook at the same time.
2. Click the **Print**  icon after making all of the needed entries and adjustments. The Notebook data will print.

Export Notebook

The **Export Notebook** module enables exportation of **Notebook** data to a text file for a selected area/industry or all areas and industries.

Screen Controls

- **All Notes for an Area** check box
- **Area** drop-down menu
- **All Notes for an Industry** check box
- **Industry** drop-down menu
- **All** check box

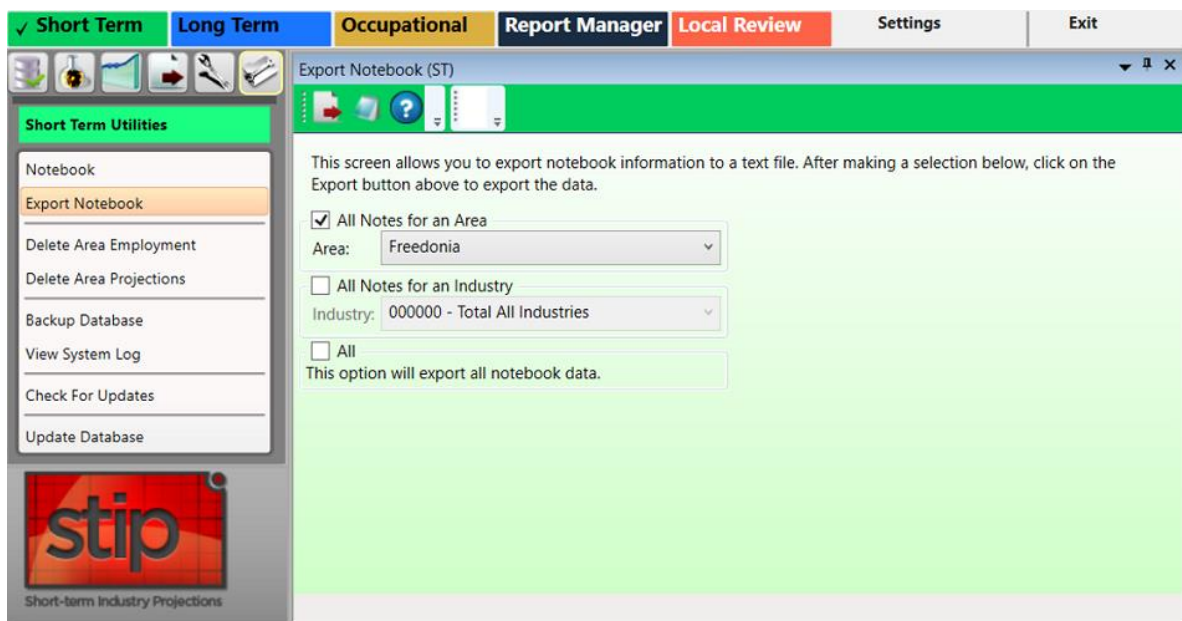


Figure 1: Export Notebook module

Export Notebook Data

1. Select one of the following:
 - **All Notes for an Area** check box, then select the **Area** from the drop-down menu.
 - **All Notes for an Industry** check box, then select the **Industry** from the drop-down menu.
 - **All** check box.
2. Click the **Export** button on the [Active Module Toolbar](#). The **Notebook** data for the area or industry will be exported.

Delete Area Employment

The **Delete Area Employment** module enables deletion of all employment records for a selected area.

The Delete Area Employment module is available in the Short-and Long-Term Projections applications. The Short-Term Delete Area Employment module deletes monthly data; the Long-Term module deletes annual data.

Screen Controls

- **Select an Area** drop-down menu
- **Delete all employment for area** button

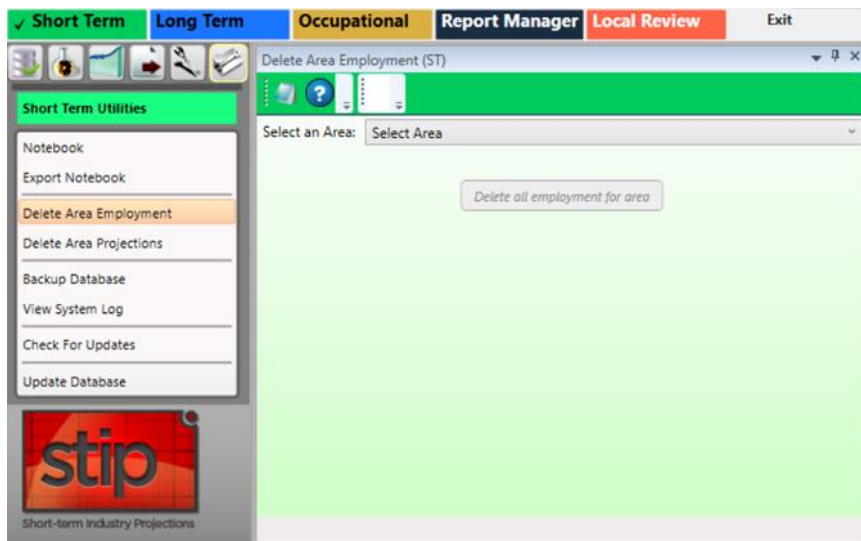


Figure 1: Delete Area Employment module

Delete Employment Records for a Specific Area

1. **Select an Area.**
2. Click the **Delete all employment for area** button. A **Delete area employment** dialog box will be displayed:



Figure 2: Verification of deletion of employment records

3. Click **Yes** to delete the records. Click **No** to keep the records.

Delete Area Projections

Compiled Projections for a selected area can be deleted in the **Delete Area Projections** module.

Screen Controls

- **Select Area** drop-down menu
- **Delete projections for the selected area** button

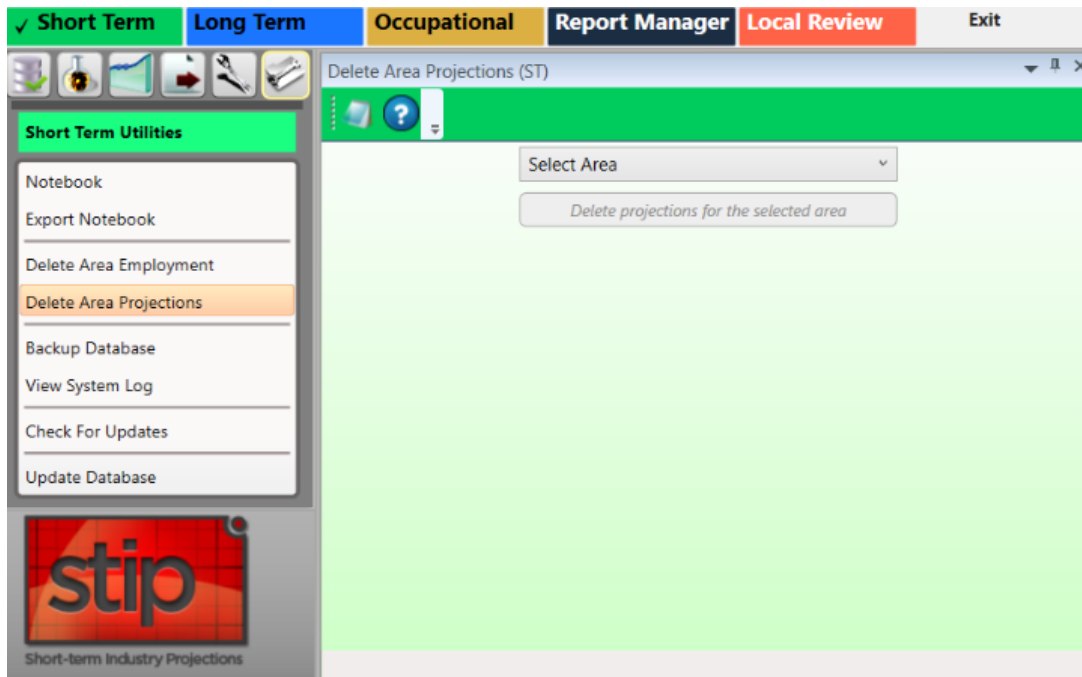


Figure 1: Delete Area Projections module

Delete Area Projections

1. Select an area from the **Select Area** drop-down menu.
2. Click the **Delete projections for the selected area** button. A dialog box will be displayed.
3. Click **Yes** to confirm the deletion of Projections from the selected area. Click **No** to keep the Projections for the selected area.

Backup Database

Use the **Backup Database** module to create a copy or archive the existing data in the database so the information can be restored if needed.

Backup Changes in the Database

1. Click the **Backup Database** menu choice from the **Short-Term Utilities** group menu. The backup process will begin immediately. When the backup is complete, the following screen will be displayed:

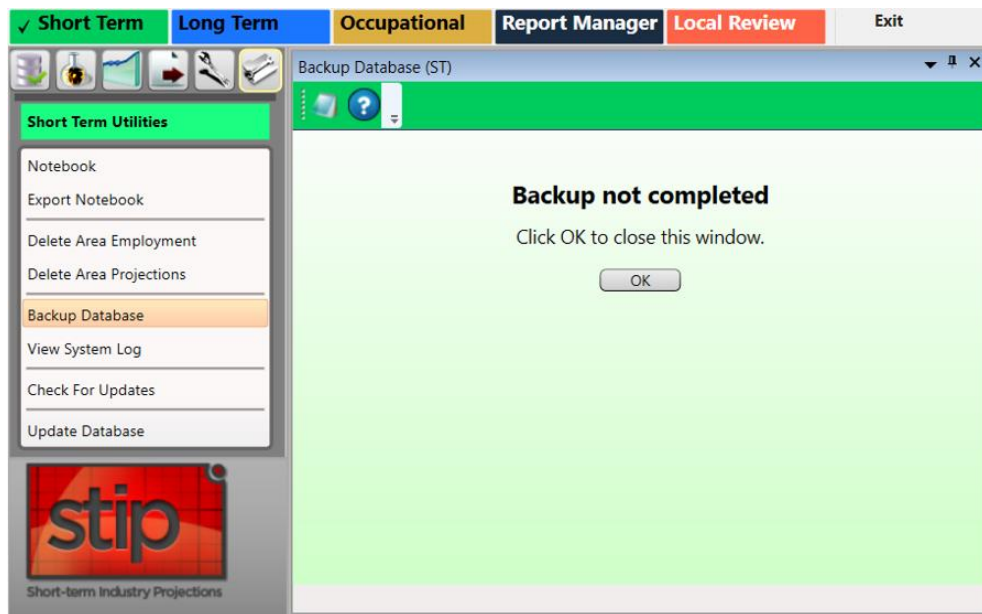



Figure 1: Backup Database dialog box

2. Click **OK**.

 In Figure 1, the **Backup not completed** dialog box was put into a **docked** position on the module's display; see [Screen Controls](#) for more information on that function. Click **OK** on the dialog box to close the window, whether it's docked or not.

Set a Backup Location

1. If there is no directory path for the backup folder, the following error will be displayed.

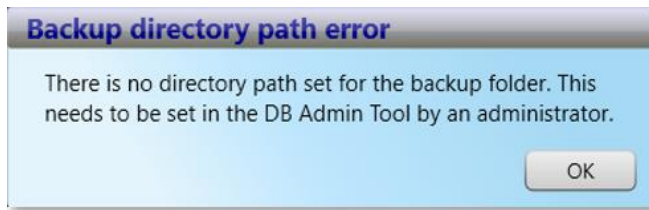


Figure 2: Backup directory path error Dialog Box

2. Visit the [Projections Suite Installation](#) page to see if everything was installed correctly.
3. If you've already done your **Projections Suite** calculations, **talk with your state administrator** to see if there's anything they can do to assist you without wiping your data through reinstallation.
4. If your state administrator isn't able to assist you, get in touch with the [Technical Assistance Contacts](#).

View System Log

The **View System Log** module is used in the event Projections Suite is not functioning properly. A copy of the **Projections Suite Log** may be required to troubleshoot your Projections Suite environment. This module is available in Short-Term, Long-Term, and Occupational Projections.

View the System Log

1. Click the **View System Log** module's menu choice. The **View System Log** instructions dialog box containing this message (in Figure 1, the **View System Log** dialog box has been docked into the window) will be displayed:

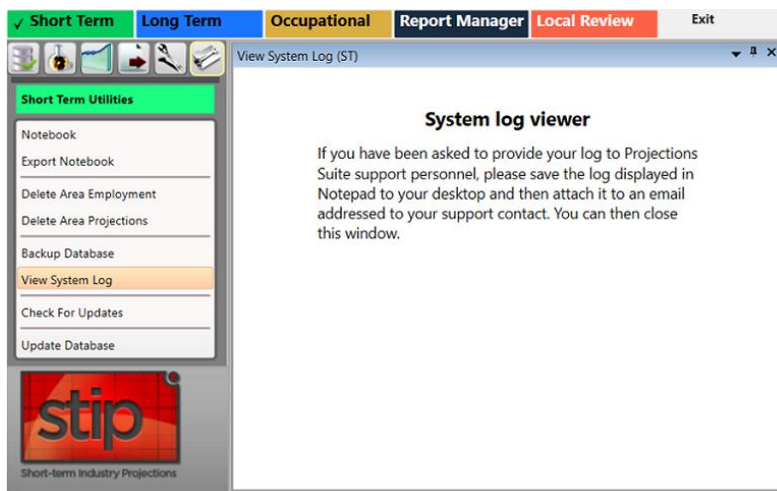


Figure 1: View System Log module, with the View System Log dialog box docked into the window

- ☞ To see how to **dock** the dialog box in the Projections Suite's window, see the [Screen Controls](#) page.
2. The **Projections Suite Log** file contains the following log information and will be displayed simultaneously when the **View System Log** module is selected in the group menu. The following information may be required by [Technical Assistance](#) needs to be contacted.

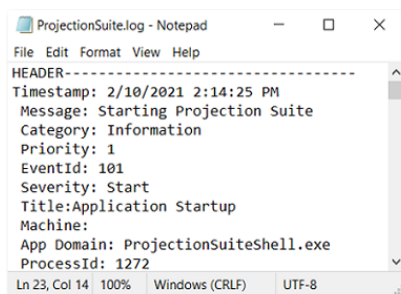


Figure 2: Projections Suite Log

Check For Updates

The **Check for Updates** module is available in **Short-Term**, **Long-Term**, and **Occupational Projections**. To check for updates to the Projections Suite application:

1. Select the **Check For Updates** module from the **Utilities** group menu.

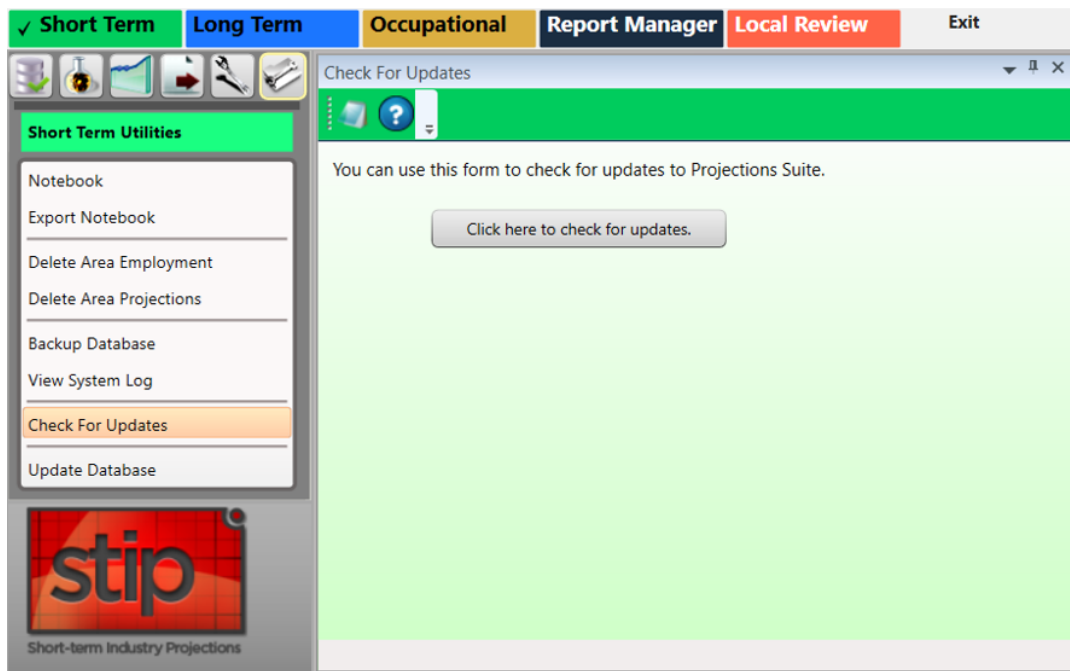


Figure 1: Check For Updates module

2. Select the **Click here to check for updates** button. If the application is up to date, the following message will be displayed:

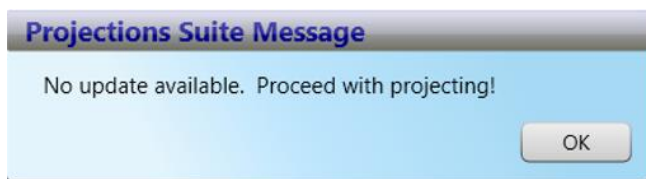


Figure 2: Projections Suite Message dialog box

Update Database

Use the **Update Database** module to update the Industry Directory with industries that are not in your directory. The Update Database module is the same in the Short-Term and Long-Term Projections applications. This module may have additional buttons to perform updates, from time to time.

Screen Controls

- **Update Industry Directory** button
- **Update Titles** check box

1. Select the **Update Database** module from the Long-Term Utilities group menu. The Update Database module will be displayed.

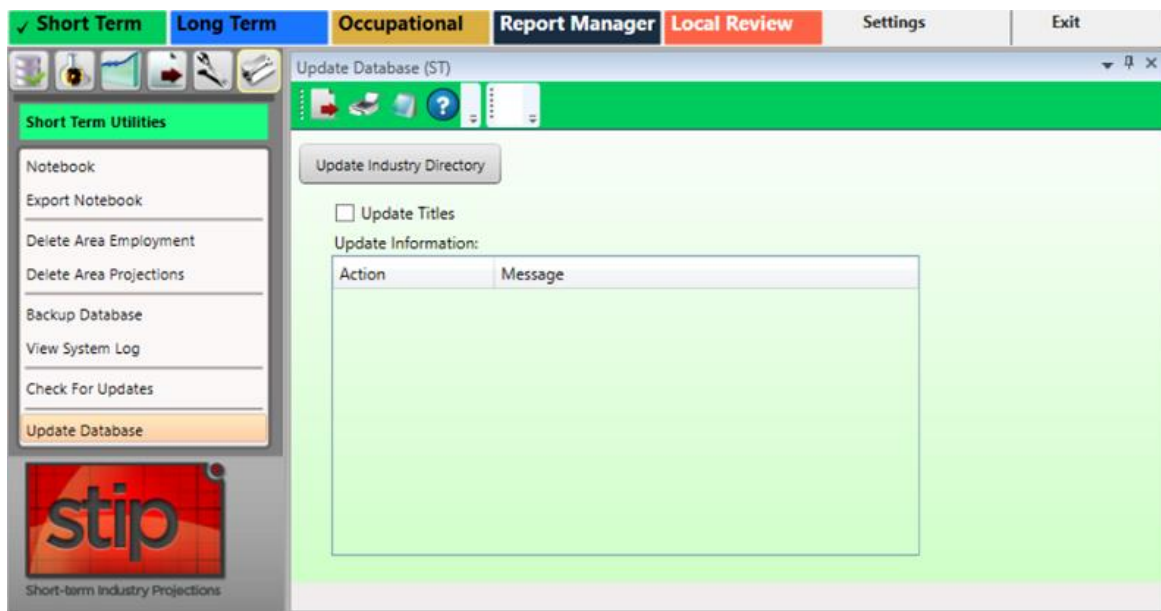


Figure 1: The Short-Term Update Database module

2. To update the titles of industries in your directory, click the **Update Titles** check box. **If you use your own titles, do not select Update Titles.**
3. Click on the **Update Industry Directory** button. The Update Information table will display any system messages, or the following dialog box will be displayed:

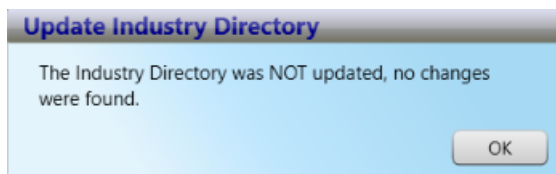


Figure 2: Update Industry Directory dialog

Long-Term Industry Projections



Long-Term Industry Projections (LTIP) examines the methods and models involved in forecasting 10-year industry employment projections for a state or sub-state area. The LTIP application helps state analysts develop industry employment projections for input into reports and into the Occupational Projections application. Projections show trends for industries and occupations, and provide information helpful to users in making education, job training, and career decisions.

Information about Long-Term Industry Projections is available on the Projections Central Support site, under [LTIP Resources](#). The LTIP Resources contains useful checklists, national employment time series data, national variables time series data, and preliminary instructions for loading this data. Use these resources to get started with Long-Term Industry Projections.



Figure 2: Long-Term Industry Projections application

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For an outline on how to [Create a Long-Term Industry Projection](#), follow the link.

The **Long-Term Industry Projections** application has the following group menus:

- [Long-Term Data](#) (F5)
- [Long-Term Analysis](#) (F6)
- [Long-Term Projections](#) (F7)
- [Long-Term Adjustments](#) (F8)
- [Long-Term Output](#) (F9)
- [Long-Term Compare](#) (F12)
- [Long-Term Utilities](#) (F11)

Create a Long-Term Industry Projection

This section is meant to be an end-to-end guide for creating a **Long-Term Industry Projection (LTIP)**. Visit the [LTIP Resources](#) page on this PMP website for additional, helpful information when producing Long-Term Projections.

Produce Long-Term Industry Projections

1. Pre-Projection Decisions and Adjustments

These decisions and adjustments should be made before starting to produce industry employment Projections or forecasts.

Use [Manage Areas](#) to set the Geographic Coverage:

- Area Set Up - predefined areas
 - States
 - Counties
 - Metropolitan Statistical Areas
 - Micropolitan Statistical Areas
- Area Set Up - user defined areas
- Area Groups - user defined grouping of existing areas

Directories

- [Industry Directory](#)
 - Matrix Industry Codes cross-walked from [NAICS](#) codes. Use to review or adjust industries.
- [Variable Directory](#)
 - Use to review or adjust variables for use in the Projections process.

2. Prepare and Import Data

- Use the [Import Spreadsheet](#) module to import annual employment data series and variable data. [National Data Instructions](#) is a help guide from [Projections Central Support](#) to get you started.
- You must have the state annual industry employment series. If you have monthly data, [Aggregate](#) by time to create an annual series. You will need annual employment data for each industry you plan to project.
- Import the National Annual Employment Series. This data is available under [LTIP Resources](#) on the [Projections Central Support](#) website.
- Import the National Economic Variable Spreadsheet. This data is available under [LTIP Resources](#) on the [Projections Central Support](#) website.

3. Review and Edit Data

- If you do not have state total all industries, you will need to create it. Use [Aggregate](#) and select By Industry, the Area(s), the Industry Levels option, and Roll up to Total.
- Use [Employment Series Analysis](#) to add, edit, or delete data.
- The [Data](#) category > Review modules, as well as the [Reconcile](#) module are optional.
- The [Analysis](#) category modules are also optional. They give you more information about your industries.

4. Develop Long-Term Industry Projections

There are three main projection models on the Projections category. You can use any or all of them, run multiple models on an industry, and save them.

[Batch Processing](#) runs all industries.

To create sub-state Projections, use [Project Multiple Regions](#). This process works like batch processing but for sub-state areas. If you are projecting sub-state, you must [Create Employment from Projections](#) in the Output category first.

The final step is the [Summary](#) module under the [Project Multiple Regions](#) module. You must select the Model you want to use for each industry. The Model select is the projection sent to Occupational Projections in the [ICT Export](#).

5. ICT Export

- Use ICT Export to transfer ICT data to [Occupational Projections](#).

Long-Term Data

Use the **Long-Term Data** group menu to manage areas, industries, and variables. Data importing, manipulation of data, and review tools are also available.

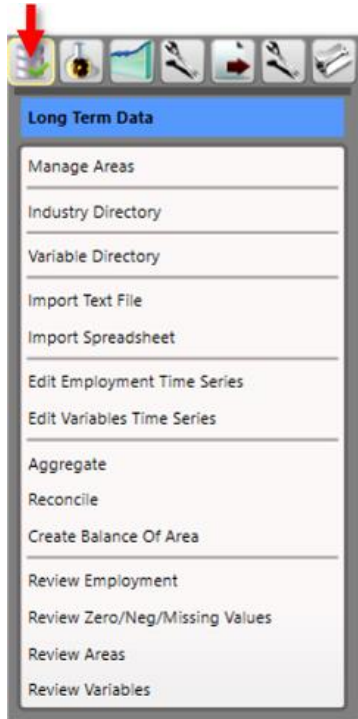


Figure 1: Long-Term Data group menu


The **Long-Term Data** group menu contains the following selections:

- [Manage Areas](#)
- [Industry Directory](#)
- [Variable Directory](#)
- [Import Text File](#)
- [Import Spreadsheet](#)
- [Edit Employment Time Series](#)
- [Edit Variables Time Series](#)
- [Aggregate](#)
- [Reconcile](#)
- [Create Balance of Area](#)
- [Review Employment](#)
- [Review Zero/Neg/Missing Values](#)
- [Review Areas](#)
- [Review Variables](#)

Manage Areas

Use the **Manage Areas** module to select and customize areas for Industry and Occupational Projections. Manage Areas organizes the basic geographical areas your projections will be calculated from. You can select your state, add or change area types, and create Area Groups. Area Groups are used in sub-state Projections and the Project Multiple Regions ([ST](#) and [LT](#)) modules.

The Manage Areas module is available in the Short-Term, Long-Term, and Occupational Projections applications. The changes you make in any of these modules populates throughout the applications.

 The **Notebook** module is not available in the Long-Term Industry Projections' Manage Areas module.

Screen Controls

Area Setup section (left side of display)

- **United States** context menu
 - **Show All States**
 - **Hide Unchecked States**
- **Area Type** context menu (typically a state)
 - **Show All Area Types**
 - **Show Area Types with Areas**
 - **Add Area Type**
 - **Create Area Group**
 - **Print Area Types**
 - **Print Areas**
 - **Print Area Groups**
- **Area** context menu (typically a sub-state)
 - **Add Area**
 - **Edit Area Type**
 - **Print Area Types**
 - **Delete Area**

Area Groups section (right side of display)

- **Area Groups** context menu
 - **Delete Area Group**
 - **Print Area Groups**
- **Area Group** (group member) context menu
 - **Delete Area Group Member**

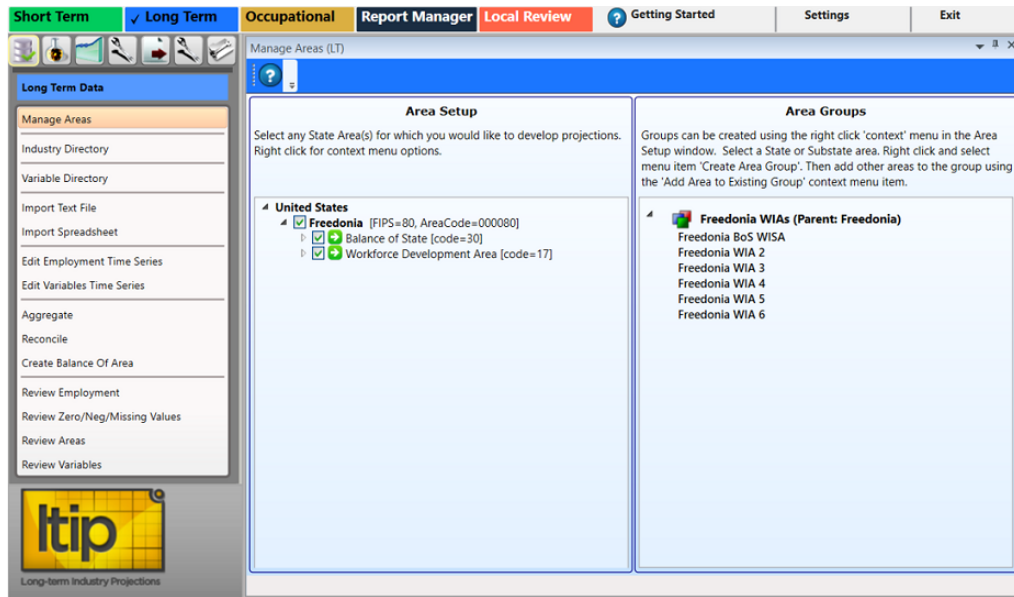


Figure 1: Manage Areas module

Area Setup Section of the Screen

1. **Right click** the an area you want to work with to open its context menu.

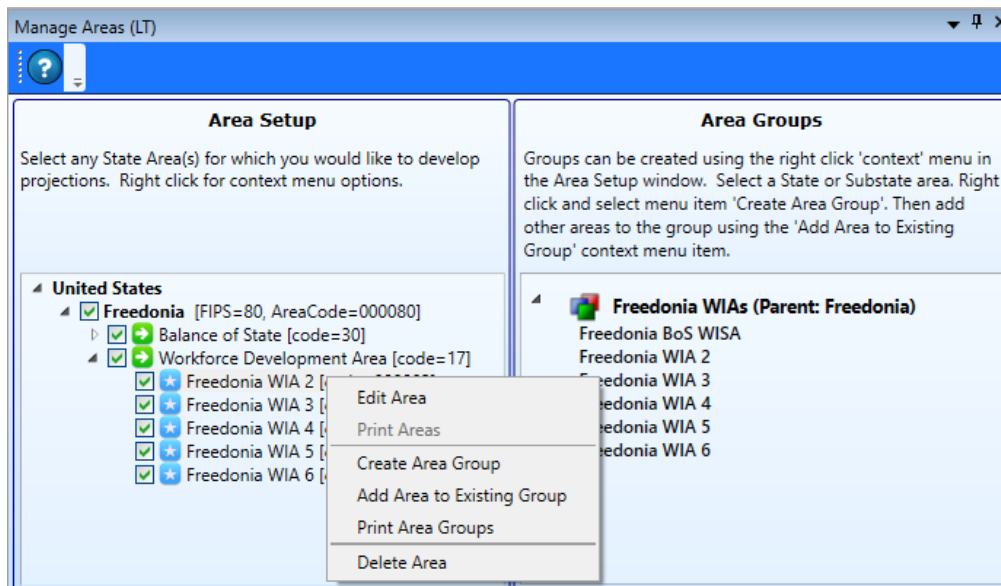


Figure 2: Context menu for working with areas

Depending on the changes needed to this area, click the appropriate option from the following:

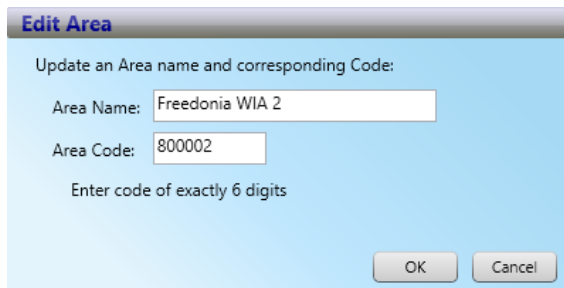
- **Edit Area**
- **Print Areas**
- **Create Area Group**

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- **Add Area to Existing Group**
- **Print Area Groups**
- **Delete Area**

Edit an Area

1. Click **Edit Area**. The Edit Area dialog box will display:



The 'Edit Area' dialog box is a light blue window with a title bar. It contains the text 'Update an Area name and corresponding Code:'. Below this, there are two input fields: 'Area Name:' with the value 'Freedonia WIA 2' and 'Area Code:' with the value '800002'. A note below the code field says 'Enter code of exactly 6 digits'. At the bottom right are 'OK' and 'Cancel' buttons.

Figure 3: Edit Area dialog box

2. Change the **Area Name** and/or **Area Code**.
3. Click **OK**.

Print Areas

1. Select **Print Area Groups** from the context menu. This menu choice is accessed by right-clicking the second highest level (Freedonia, in this example) in the **Area Setup** section. The **Print Preview** screen will be displayed.
2. Click the **Print** icon to print the area's data.

Create an Area Group

1. **Right click** on an area under a 2nd level in the **Area Setup** display.

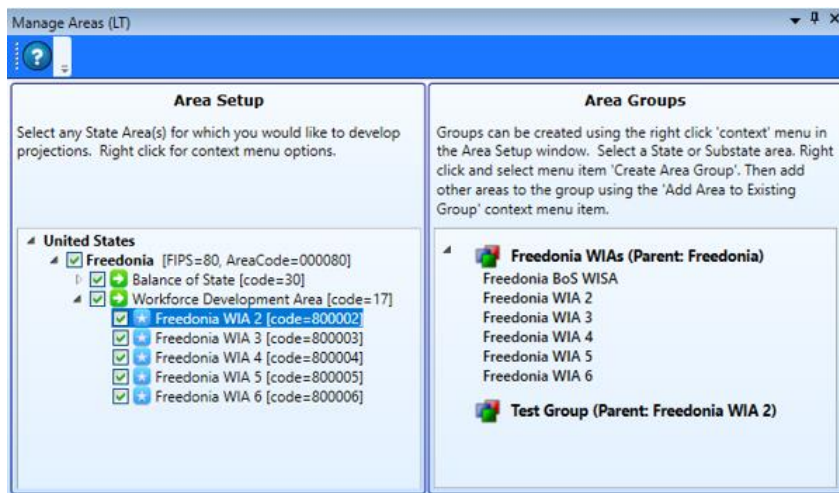


Figure 4: Create Area Group, to add to the Area Groups screen section

2. Click **Create Area Group**. The **Create Area Group** dialog box will be displayed:

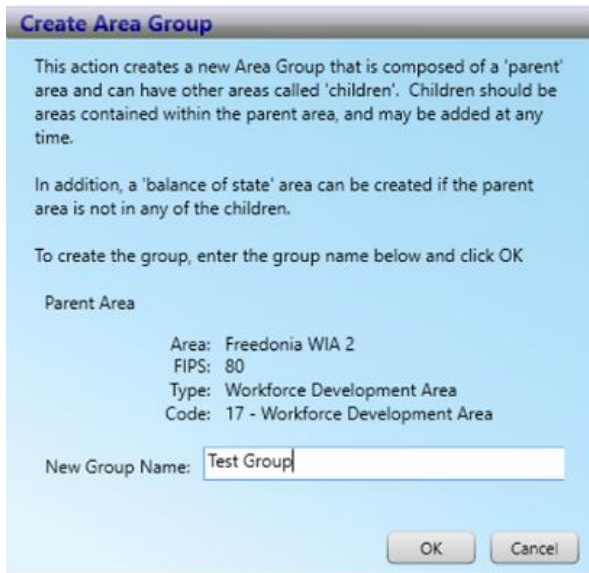


Figure 5: Create Area Group dialog box

3. Give the area a **New Group Name**.
4. Click **OK**. This will add the new Area Group (named Test Group, in this example) to the **Area Groups** section of the screen.

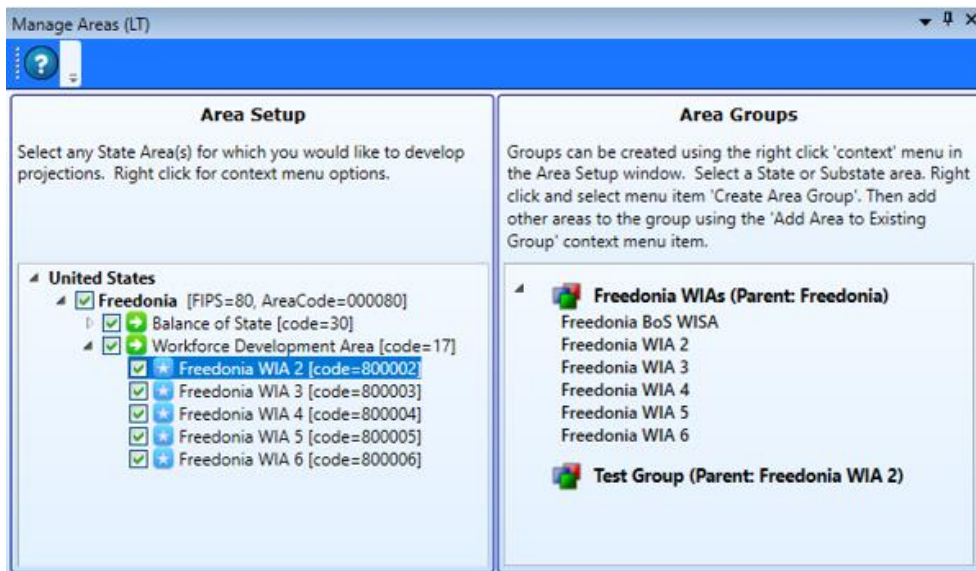


Figure 6: The new Area Group (Test Group) is added

5. Continue adding areas to the Area Group by **right-clicking** and selecting **Add Area to Existing Group** from the context menu. Select a group from the drop-down menu to add the area to the Area Group, then click **OK**.

Delete Area

1. **Right click** on the area and select **Delete Area** from the context menu. The following dialog box will be displayed:

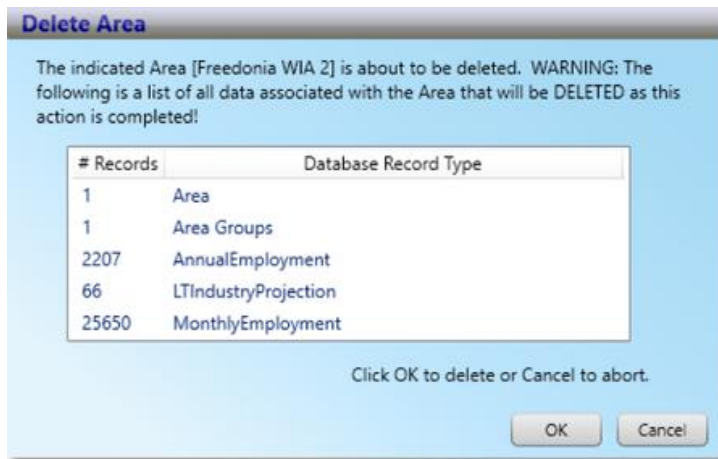


Figure 7: Delete Area dialog box

2. To delete the area, click **OK**. Click **Cancel** to keep the area.

Delete an Area Group

1. **Right click** the **Area Group** to select it for deletion.



Figure 8: Delete the Area Group, Test Group

2. Select **Delete Area Group** from the context menu. You will be prompted to confirm the deletion.
3. Click **OK** to confirm. Click **Cancel** to keep the Area Group.

View Area Types

It may be helpful to view the various area types when initially setting up your Projections software, to determine the best way to classify your areas. To view all area types:

1. **Right click** your state area and select **Show All Area Types**. This will list all of the area types and their associated codes in the Area Setup section.
2. When you are finished, close the list by **right-clicking** your state area and selecting **Hide Area Types With No Areas** from the context menu.

Related Content


- [Create Balance of Area](#)
- [Review Areas](#)
- Project Multiple Regions ([ST](#) and [LT](#))
- [Area Format](#)

Industry Directory

Use the **Industry Directory** as a resource for information about specific industries, listed by [NAICS](#). The Industry Directory lists all valid industry codes and titles in a tree view. All Projections applications use it for defining industries. A default Industry Directory is installed with the Projections Suite.

Analysts can modify the directory as needed for your state. However, the position of industries in the industry tree is critical. When adding or moving industries, ensure you place them correctly within the parent industry. Industry placement will affect aggregation of employment data in later projections steps.

The Industry Directory module is available in the Short-Term, Long-Term, and Occupational Projections applications. The same screen displays in each application.

 The **Notebook** is not available in the Long-Term Industry Directory.

Screen Controls

- **Print all industries** check box
- **Search for** field
- **Find** button
- **Expand/Collapse** arrows

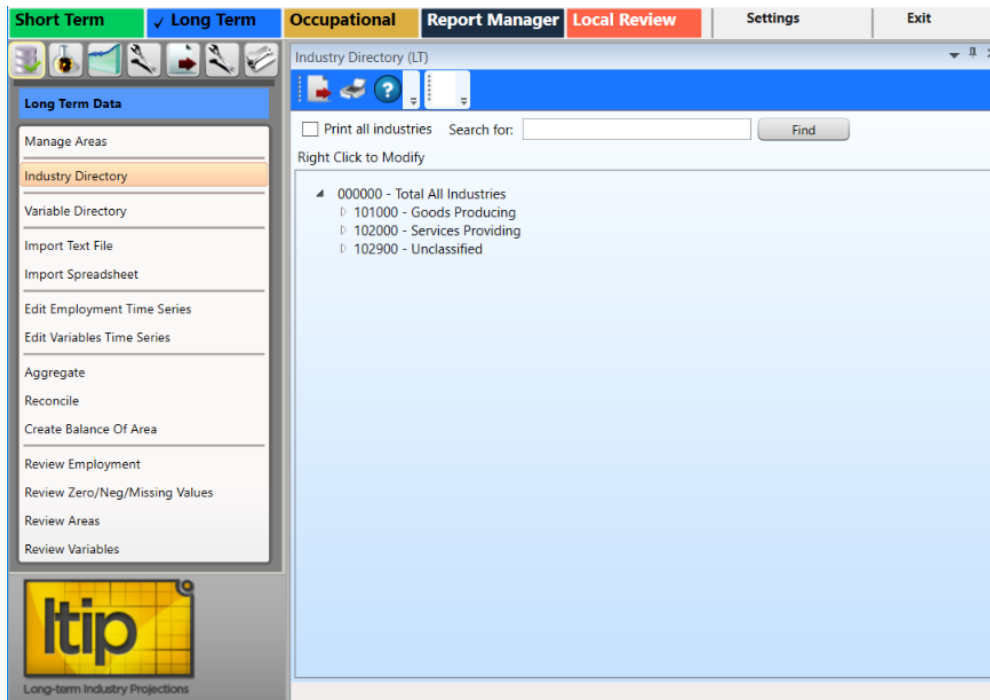




Figure 1: Industry Directory module

The **Total All Industries** code is displayed at the top of the tree. Beneath **Total All Industries** are the NAICS codes for Super-Sectors (2-digit), sectors (3-digit), and detailed industries (4 - 6 digit).

Manually Expand/Collapse the Industry Hierarchy

1. Click the **Expand**  icon next to the general category of the industry. The category will expand one level.
2. Continue clicking the expand icons in that category until the desired industry level is displayed.
3. Click the **Collapse**  icon on the category header to collapse to that level.

Use the Search Tool

1. Click into the **Search for** field.
2. Type an industry description or industry code.
3. Click the **Find** button or press **Enter**. The designated industry will be displayed if it is listed in the industry hierarchy.

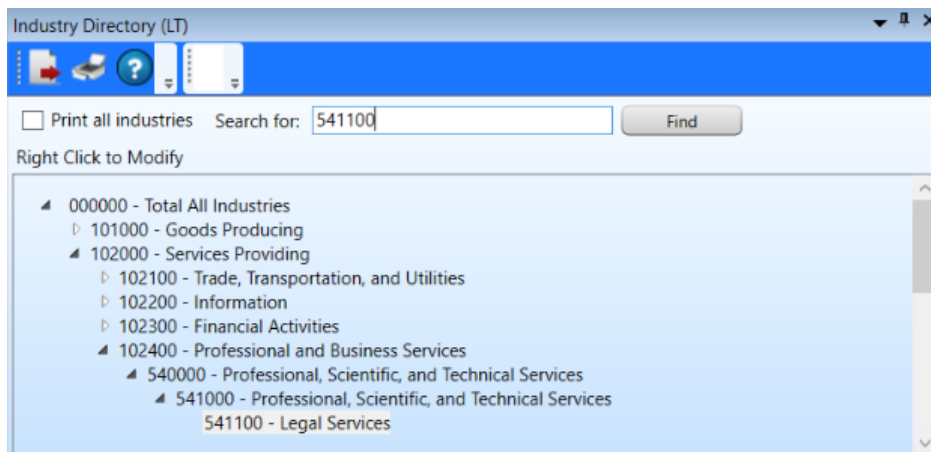


Figure 2: Using the Search for field

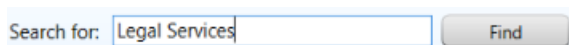


Figure 3: Use a description to find an industry

Additional Options in the Industry Directory

There are various options in the Industry Directory to help customize industries. To customize the Industry Directory:

1. **Right click** on an entry in the Industry Directory. Depending on which industry level you've selected, one of two context menus will be displayed.

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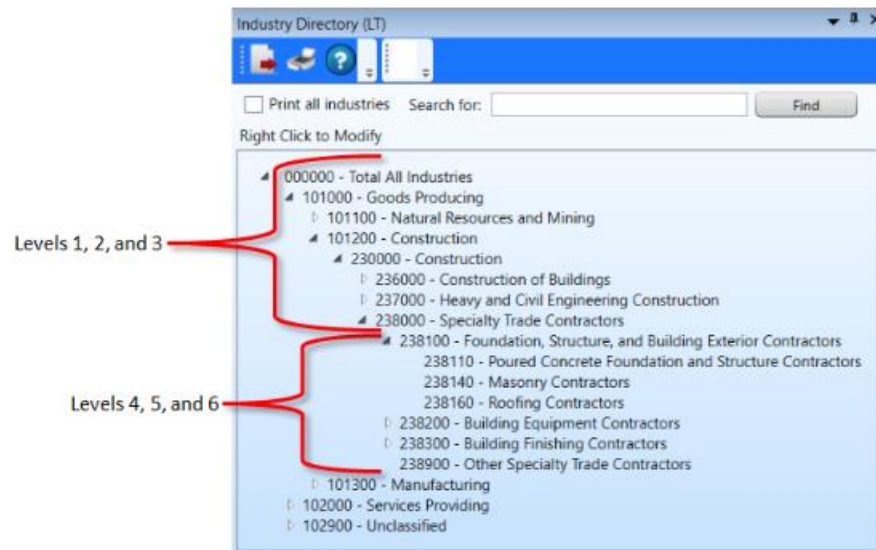


Figure 4: Industry Directory breakdown

The context menus contain the following items:

- **Expand all children** will expand the selected entry to the sixth level.
- **Collapse all children** will collapse all entries within the selected entry.
- **Add** enables the addition of new industries to the selected entry. Ensure their placement is correct to avoid future aggregation issues.
- **Cut** will remove the selected entry and copy it to the clipboard for pasting into another area.
- **Delete** will delete the selected entry.
- **Edit** enables editing of a selected entry.
- **Move** allows the selected entry to be moved to another location in the directory.
- **Paste** will paste a previously cut industry into another area in the hierarchy.

Variable Directory

The **Variable Directory** contains various area-specific and multiple-area variables used in Long-Term Projections. The Variable Directory displays all variables by area that were defined and are available for use. These variables can be edited, deleted, and new variables may be added, allowing customization to local needs.

Variable data can be [imported](#) as a spreadsheet. Match variable names on spreadsheets exactly; misspellings will cause a new variable to be created in the directory. View the variable file format example by clicking [here](#).

National variables are available under [LTIP Resources](#), **Supplemental Files (Long-Term National Variables Time Series NatVarsXXXX.zip)**.

- ☞ The "XXXX" portion of the **NatVarsXXXX.zip** file should be the year of the most current file. See the [Long-Term Industry Projections Resources](#) for additional information and a downloadable file. **State** and **multi-area** variables ([FIPS](#), area types, and areas) will uniquely identify each area and will need to be imported if they're needed.

Screen Controls

- **Select an Area** drop-down menu
- **Delete all variables in area** button
- **Delete projected values for area** button

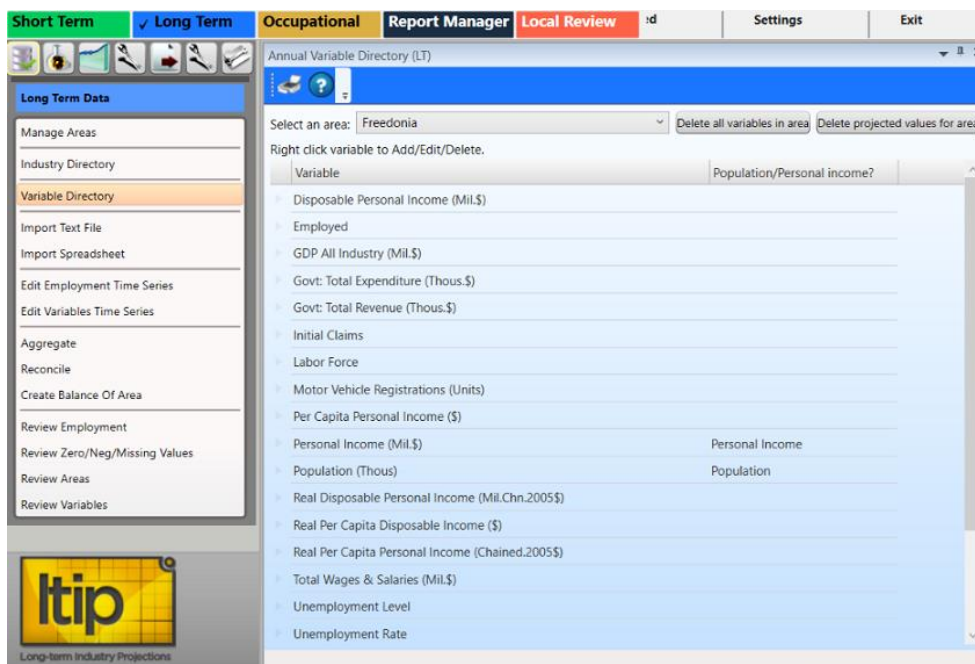


Figure 1: Variable Directory module

Add a Variable

1. **Select an area** from the drop-down menu. The variables for the selected area will be displayed.
2. **Right click** anywhere in the variable table to add a new variable.

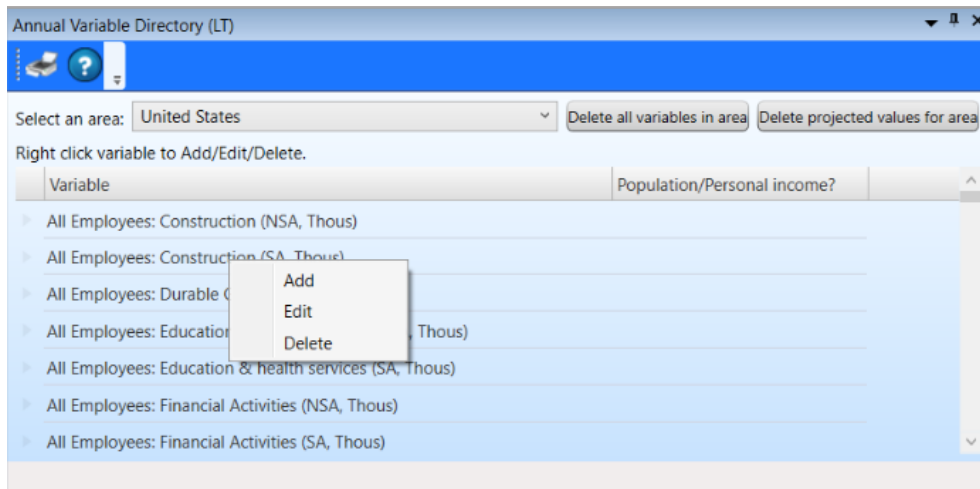


Figure 2: Annual Variable Directory context menu

3. Click the **Add** option. The **Add/Edit Variable** dialog box will be displayed.
4. Type the name of the new variable into the **Name** field.

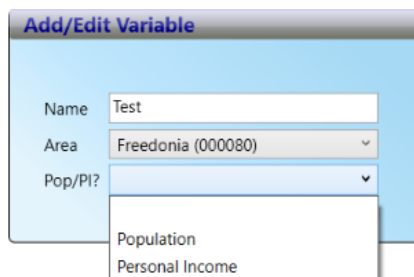


Figure 3: Add/Edit Variable dialog box

5. Select an area from the **Area** drop-down menu.
6. If the new variable is a population or personal income variable to be used in an OLS model, click the Pop/PI drop-down menu and select the Pop/PI status. You can also select neither.
7. Click **Save**. The variable will populate in the variable table.

Edit a Variable

1. **Right click** a variable to edit it. Select **Edit** from context menu.
2. Make any required changes.
3. Click **Save**.

Delete a Variable

1. **Right click** the variable to be deleted. Select **Delete** from the context menu. A confirmation dialog box will be displayed.
2. Click **Yes** to delete. Click **No** to keep the variable.

 Deleting a variable will cause any data associated with it to be lost.

Click the **Delete all variables in area** button to delete the variables in the selected area. Click the **Delete projected values for area** button to delete the projected values for the selected area.

Related Content

- [Long-Term Industry Projections Resources](#)
- [Import Spreadsheet](#)
- [Edit Variables Time Series](#)
- [Ratio Variables](#)
- [Standard Transformations](#)

Import Text File

The **Import Text File** module is only used to import **Quarterly Census of Employment and Wages (QCEW)** program data.

The file is created specifically for this import by running **QCEW** job **ES2J247D** (also known as job **247D**). Request the file from your **QCEW** analysts by providing the parameters for the specific data you need. To save time, it is very important to extract data from the QCEW job output specific to the industry employment and area data required.

For example:

- **NAICS Specifications**
 - 3 digit, 4 digit, etc.
- **Area Specifications**
 - Statewide, county, or other area designation
- **Timeframe**
 - Monthly for Short-Term (ST)
 - Annual for Long-Term (LT)

☞ **Monthly** (for Short-Term, or **STIP**) can be used to create **annual** values (in Long-Term, or **LTIP**); see [QCEW Data Extract Instructions](#).

The text file may have the needed data, but it may require importing into a spreadsheet file first to manipulate or clean up the data before importing it. If this is the case, use the [Import Spreadsheet](#) module to add the data to the database. Reference the **QCEW Data Extract** topic (linked above) for additional information.

The Import Text File module is available in the Short-Term and Long-Term Projections applications. The same screen displays in each application.

☞ The **Notebook** is not available in the Long-Term Import Text File module.

Screen Controls

- **Select File to Import** field
- **Browse** button
- **Import** button
- **Change Font Size** slider

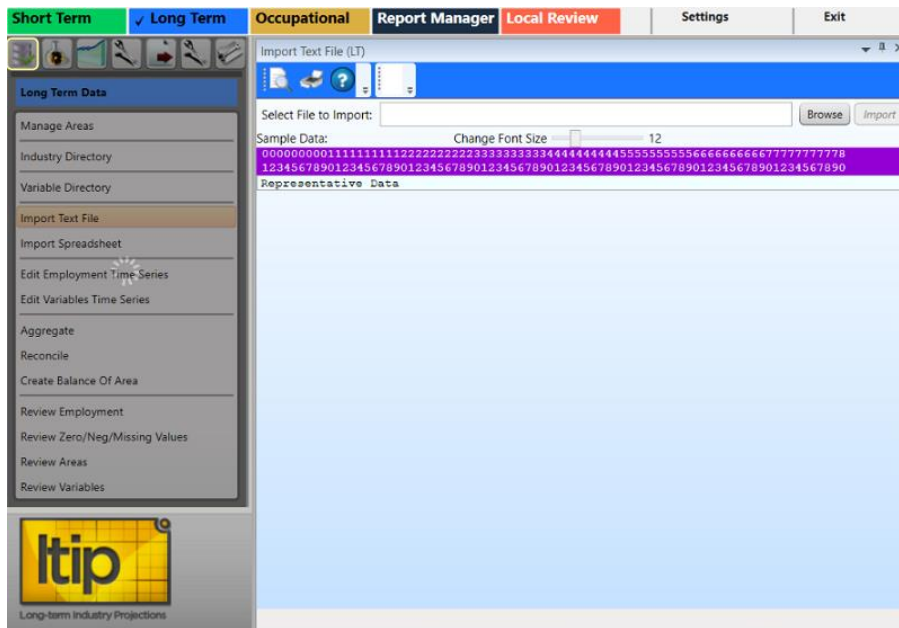



Figure 1: Import Text File module

 The format of the text file to be imported must have the data elements of the table into which it is imported. The valid table formats are below. Click the appropriate link to see details:

QCEW Text Format

The QCEW text file format consists of a fixed set of 42 or 43 required columns, depending on the QCEW type (Expo202 or Win202, respectively). If the text file has fewer or greater number of columns, the application will display errors. For additional information about this format, click [here](#).

Win202 / MSA Text Format

The Win202 / MSA format is similar to the standard QCEW format, except the area code has one additional column. The import software expects this format to have 43 columns. If the text file has fewer or greater number of columns, the application will display errors. For details about this format, click [here](#).

Import Text File

1. Click the **Browse** button.
2. Select the text file and click **Open**. The first row of data will appear below the purple bar.

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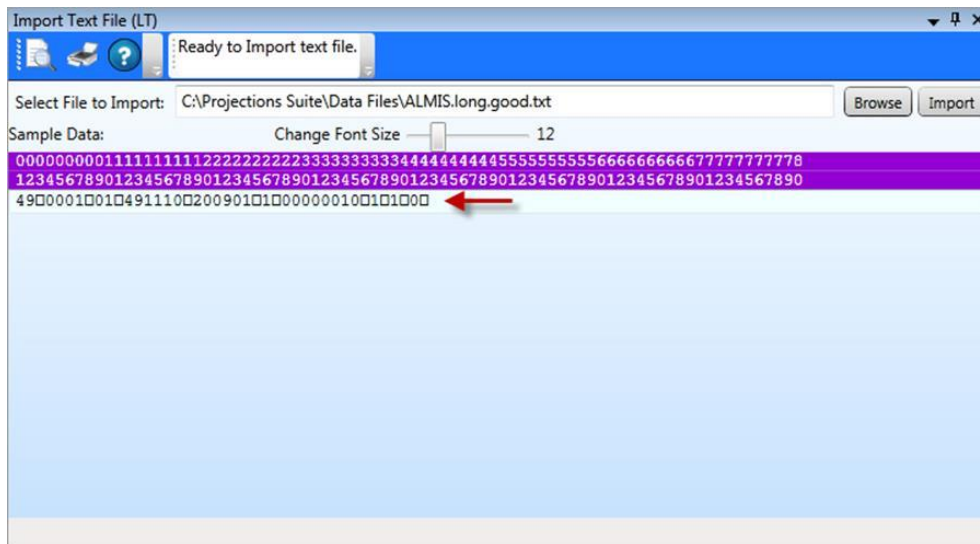


Figure 2: First row of data in a file

Numbers in the purple bar are read top to bottom to indicate the column position they represent. For example, 0 and 1 is the first column position. 1 and 0 is the tenth column position. 2 and 5 is the twenty-fifth column position, and so on. These column positions help in explaining the data elements of the text file.

Click the **Preview** button  on the Active Module Toolbar to preview the data in the text file.

- If you are satisfied with the file layout, click **Import**. There are two places import information displays (see Figure 3):
 - The Active Module Toolbar.
 - A detailed data validation message/confirmation will be displayed in the message grid. These messages will provide information to determine the cause of import errors.

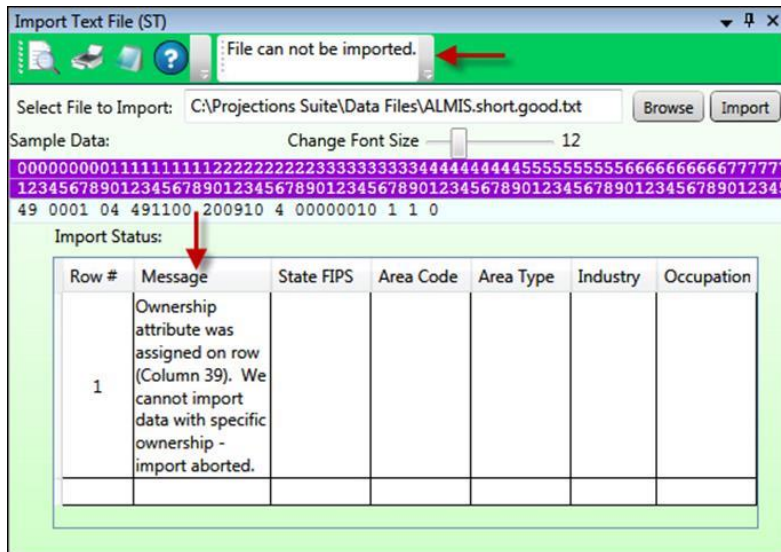


Figure 3: Data validation messages

4. If you are not satisfied with the file layout, click **Cancel**. The import will stop.
- ☞ Once the data is imported, you can view it in the [Review Employment](#) module to verify the information is correct or resolve any problems if it is not.
5. Click the **X** in the top right corner to close the Import Text File module to enable the other group menu selections.

Related Content

- [File Formats Introduction](#)
- [QCEW Output Text Format](#)
- [Win202 / MSA Text Format](#)
- [QCEW Data Extraction Instructions](#)

Import Spreadsheet

Use **Import Spreadsheet** to import various spreadsheet formats. This is the most common method for importing data. Spreadsheet file formats must be exact. For additional information and examples of file formats, reference the [File Formats Introduction](#) topic.

The Import Spreadsheet module is available in the Short-Term and Long-Term applications. The same general screen displays in each application, however, if you attempt to import data meant for use in the Long-Term application while using the Short-Term Import Spreadsheet module (and vice versa), you will be prompted to use the correct module for importation.

☞ The **Notebook** is not available in the Long Term Import Spreadsheet module.

Screen Controls

- **Select File to Import** field
- **Browse** button
- **Import** button
- **Detected file type** field

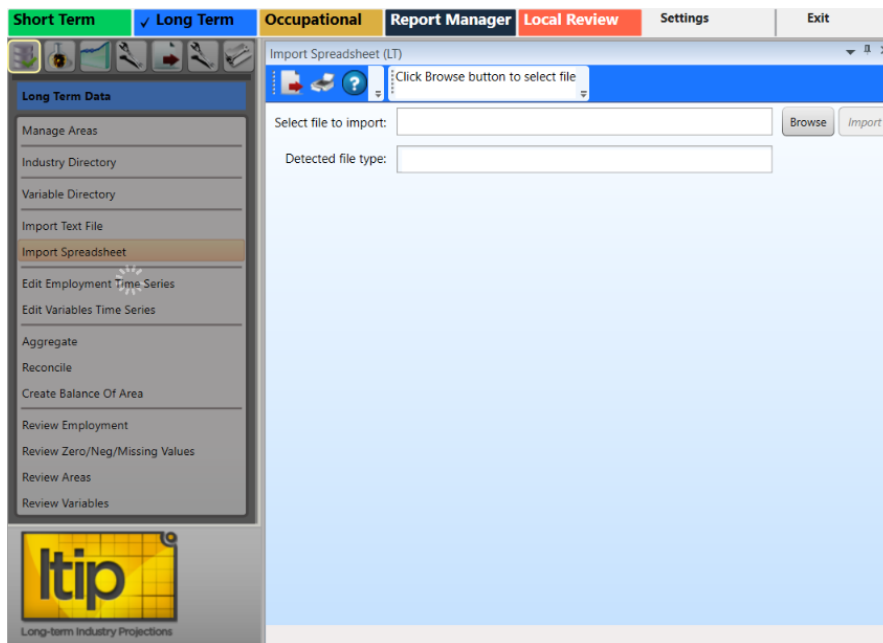


Figure 1: Import Spreadsheet module

Import a Spreadsheet

1. Click the **Browse** button.

2. Select the spreadsheet file and click **Open**. The system will validate the data and display the file type in the **Detected file type** field. Depending on the type of import, you will be prompted to classify variables and validation messages (if any) will display.
3. Click the **Import** button. An Import Spreadsheet dialog box will be displayed, indicating if the import was successful and how many usable rows will be imported.
4. Click **Yes** to import the valid records. Click **No** to stop importing the records. Clicking **Yes** will display the Import Spreadsheet dialog box:

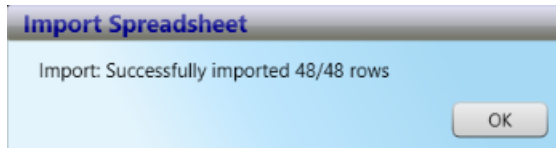


Figure 2: Successfully imported records

5. Click **OK**. **Import Status** messages will display in the message table. Evaluate the messages to verify data was imported correctly. Also use the **Review** modules (near the end of this [Long-Term Data](#) group menu) to verify the data.

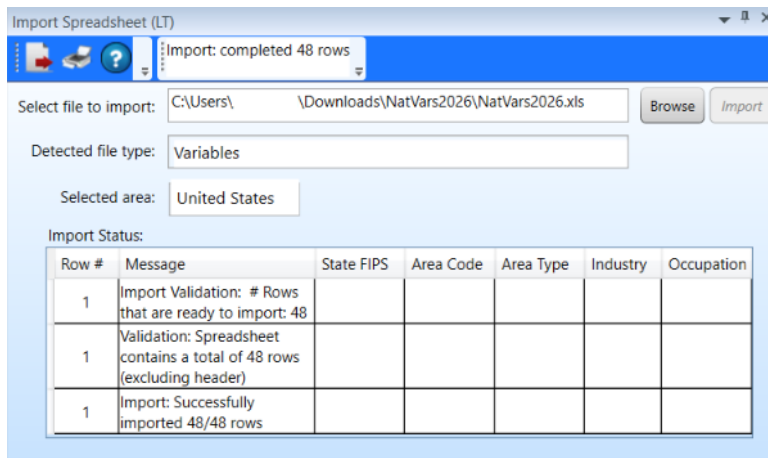


Figure 3: Import Status messages

6. Click the **X** in the top right corner to close the Import Spreadsheet module and enable the other group menu items.

Related Content

- [File Formats Introduction](#)
- [Variable Directory](#)

Edit Employment Time Series

Use the **Edit Employment Time Series** module to view and edit the historical pattern of an industry, for a specific time period.

Annual Employment data is imported into the Projections Suite database from an external file. Typically, changes are made prior to importing. However, there may be times when you need to make edits.

Screen Controls

- **Area** drop-down menu
- **Industry** drop-down menu
- **Delete Data Series** button
- **Display** date spinners
 - **Max** button

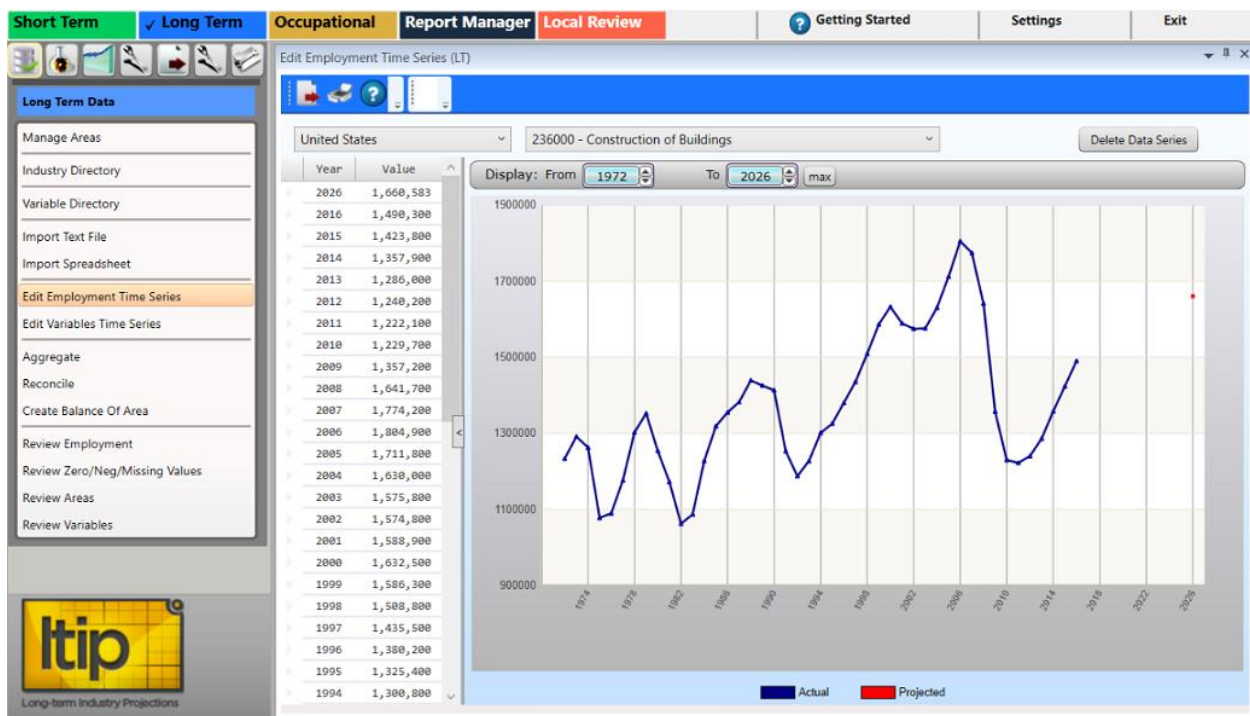


Figure 1: Edit Employment Time Series module

Edit the Employment Time Series

1. Select an area from the **Area** drop-down menu.
2. Select an industry from the **Industry** drop-down menu.
3. Select a time frame by using the [date spinner controls](#). The actual employment for the selected area, industry, and time frame will be displayed.

4. **Right click** the data table on the left. A contextual menu will be displayed.

- **Add** will allow you to add new values to the data series.
- **Edit** enables the editing of current values.
- **Delete** will delete data points from the series. Delete multiple rows by [selecting multiple items](#).

☞ Be cautious when deleting data points. Missing data points cause major problems because time-series and [OLS models](#) cannot project an employment series with data points missing.

Delete the Displayed Data Series

1. Select the area, industry, and date to navigate to the data series you want to delete.
2. Click the **Delete Data Series** button. A confirmation dialog box will be displayed.
3. Click **Yes** to delete the data series. Click **No** to keep the data series.

☞ The data series can be retrieved by reloading the database.

Edit Variables Time Series

Use the **Edit Variables Time Series** module to view and edit the annual pattern of the selected variable.

Variable data is imported into the Projections Suite database from an external file with the [Import Spreadsheet](#) module. Typically, any changes are usually made prior to importing. However, there may be times you need to make edits.

Screen Controls

- **Select an Area** drop-down menu
- **Select an Annual Variable** drop-down menu
- **Delete Data Series** button



Figure 1: Edit Variables Time Series module

Edit the Variables Time Series

1. **Select an Area** from the drop-down menu.
2. **Select an Annual Variable**. The variable time series for the selected area and annual variable will be displayed.
3. **Right click** the data table on the left to open a context menu.
 - **Add** will allow you to add new values to the data series.

☞ This is a method to add a single value. If you have many to enter, you can use the [Import Spreadsheet](#) module.

- **Edit** enables the editing of current values.
- **Delete** will delete data points from the series. Delete multiple rows by selecting multiple items.

☞ Be careful when deleting data points. Variables with missing data points cannot be used as inputs into the [OLS Regression Models](#) module.

Delete the Displayed Data Series

1. Select the area and variable to navigate to the variable series you want to delete.
2. Click the **Delete Data Series** button. A confirmation dialog box will be displayed.
3. Click **Yes** to delete the data series. Click **No** to keep the data series.

Related Content

- [Variable Directory](#)

Aggregate

The **Aggregate** module is a tool for creating industry employment series within the system, rather than importing data from external sources. With the aggregation tools, you can create total industry series from more detailed industries and ensure that state total records are the sum of sub-state records. The Aggregate module allows the user to rollup data across selected areas, industries, and time. For example, if employment information is imported for 3-digit industries, you can aggregate employment from the detailed 3-digit industries to sector (2-digit) industries. Also, aggregation by time can create an annual employment series from monthly employment series. You have the option of creating new records or supplementing already existing data.

The Aggregate module is available in the Short and Long-Term applications. Similar functions are available in each of these modules application.

☞ The **Notebook** is not available in the Long-Term Aggregate module.

Screen Controls

- **Select aggregation type** down-down menu
- **Industry** radio button
- **Industry Levels** radio button
- **Select an Industry** drop-down menu
- **Select an industry Level** drop-down menu
- **Roll up to** drop-down menu
- **Overwrite** radio button
- **Add** radio button
- **Aggregate Data** button
- **View Results Data/Graph** button

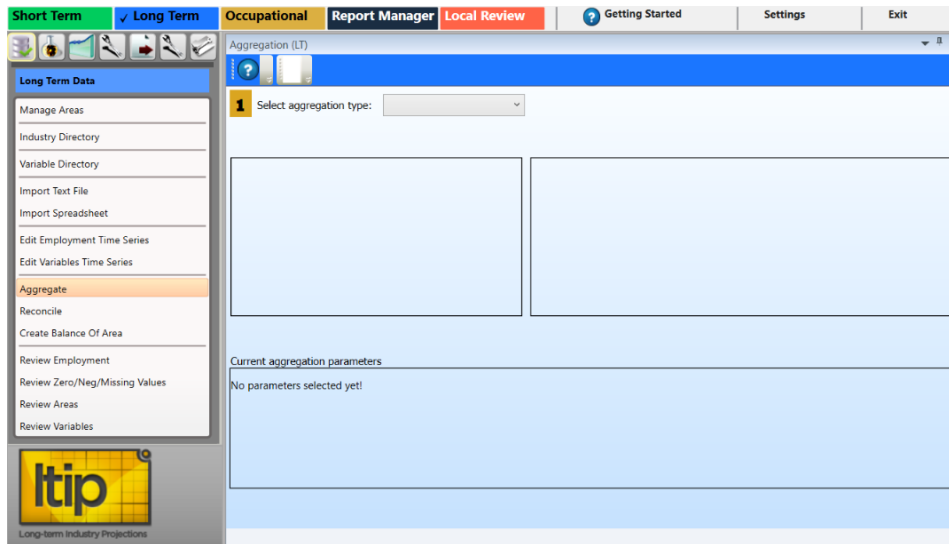


Figure 1: Aggregate module

The Aggregate module uses numeric step indicators to guide the process. After Step 1 (Select aggregation type), the other steps will be enabled.

Aggregate by Industry

Aggregating by Industry adds employment across various industry levels or groups of industries for a particular area or group of areas.

1. Select **Aggregate by Industry** from the **Select aggregation type** drop-down menu. The step guide buttons will be unlocked.

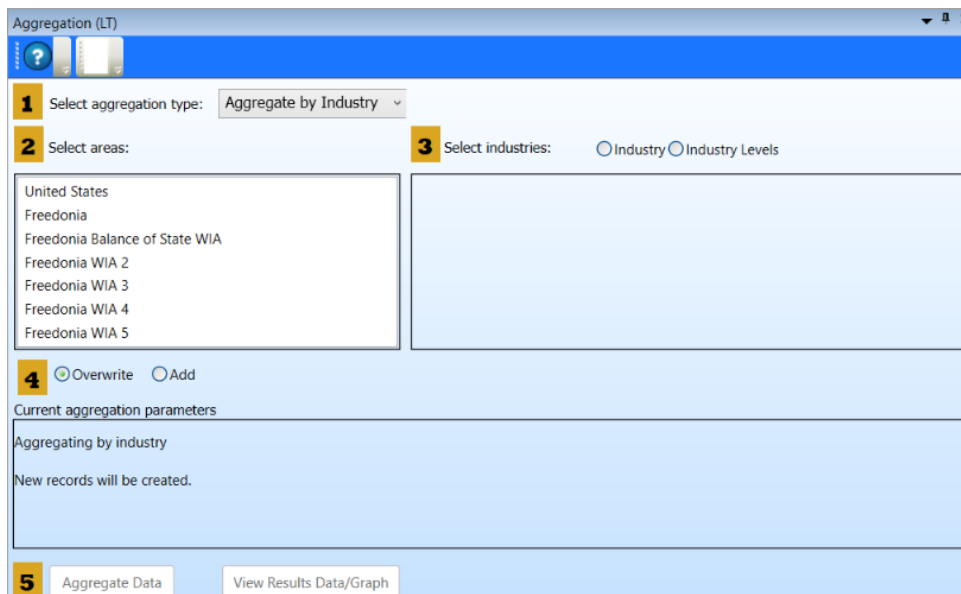


Figure 2: Aggregate by Industry selected

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2. **Select areas** to aggregate from the area list box. The list shows all areas with monthly employment in the database. For assistance with selecting multiple items, click [here](#).
3. Select the **Industry** or **Industry Levels** radio button.
 - When the **Industry** radio button is selected, the **Select an industry** drop-down menu becomes available. Selecting an industry will populate the **Select industries to sum** window. Select the industries to include in the aggregation from the **Select industries to sum** window and continue to the next step.
 - Selecting the **Industry Levels** radio button enables you to **Select an industry level** from the drop-down menu and select a level to **Roll up to** from the drop-down menu. Option combinations are available to aggregate data at various industry levels. The chosen industry level will select the next highest level to **Roll up to** automatically, but higher roll-up levels can be selected as well.

3 Select industries: ☒ Industry ☐ Industry Levels

Select an industry: 510000 - Information

Select industries to sum:

- ☒ 510000 - Information
- ☒ 511000 - Publishing Industries (except Internet)
- ☒ 512000 - Motion Picture and Sound Recording Industries
- ☒ 515000 - Broadcasting (except Internet)
- ☒ 517000 - Telecommunications
- ☒ 518000 - Data Processing, Hosting and Related Services
- ☒ 519000 - Other Information Services

3 Select industries: ☐ Industry ☒ Industry Levels

Select an industry level: ThreeDigit

Roll up to: Sector

Figure 3: Select industries option groups

☞ Each time selections are made, the **Current aggregation parameters** window will change to reflect the modifications.

4. Select an **Overwrite** or **Add** radio button option.
 - **Overwrite** will replace an existing data point with newly summed data. It will only do this on a year-by-year basis. Years not part of the rollup process will be left unaffected.
 - **Add** will add the new value to existing data, if that data is present. This is a way to supplement the aggregation process.

5. Click the **Aggregate Data** button to perform the rollup.
6. Click the **View Results Data/Graph** button. The **Aggregation Results** screen will activate to show the results of the aggregation. If other areas or industries were chosen in Step 2, they will be available from the drop-down boxes.

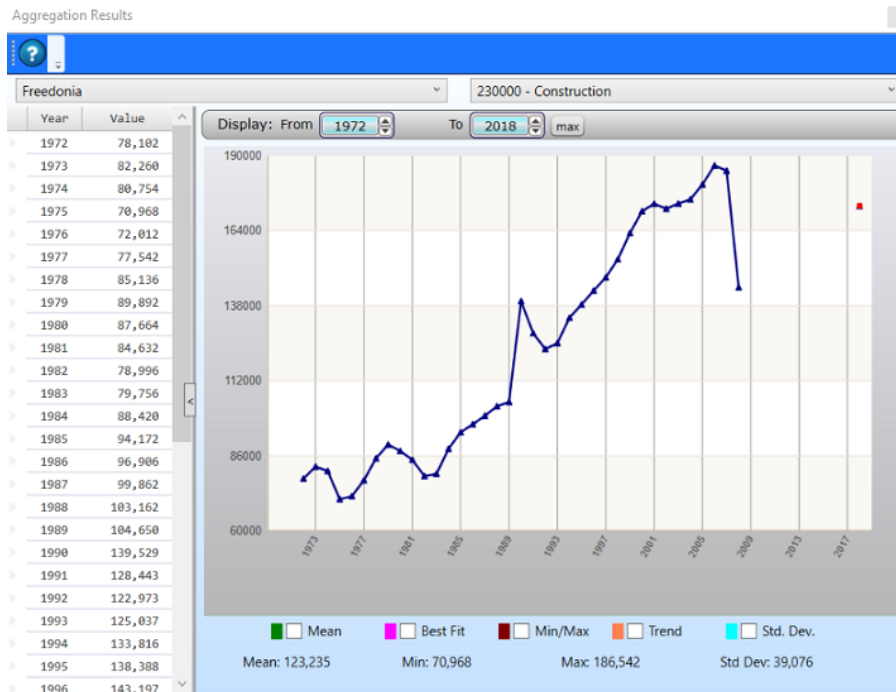


Figure 4: Aggregation Results

- ☞ To view statistical values overlaid on the data, select the [graph enhancement controls](#) at the bottom of the graph. Use the [date spinner controls](#) or [select chart dates](#) to examine the data.

Aggregate by Area

Aggregate by Area sums the employment for each child member of an Area Group and creates a new employment series for the parent area, for a particular industry or group of industries.

1. Click the **Select aggregation type** drop-down menu and select **Aggregate by Area**.
2. Select a group from the **Select area groups** list. More than one Area Group can be selected.
3. Select either the **Industry** or **Industry Levels** radio button option. Select specific industries from the industry list, or select an industry level.
4. Click the **Aggregate Data** button.

Aggregate by Time

Aggregation by Time will average monthly employment for a year to create annual employment for that year, for specific areas and industries.

1. Click **Aggregate** by Time from the **Select aggregation type** drop-down menu.
2. **Select areas** to include in the aggregation.
3. Select the **Industry** or **Industry Levels** radio button. Make a selection of which industries to include.
4. Click the **Aggregate Data** button.

Related Content

- [Industry Mix](#)
- [Create a Long-Term Industry Projection](#)

Reconcile

Use the **Reconcile** module to compare summed employment and actual employment for industries, areas, or times. Reconcile is a tool that helps you determine the consistency of industry employment in the database. It's important, for example, that employment in sub-state areas adds to employment at the state level for each industry, and that employment adds consistently across industry levels. It's also important that annual data be reflective of monthly data for the same industry and area. The Reconcile module provides diagnostic information for all of these scenarios.

The Reconcile module is available in the Short-Term and Long-Term applications. The same screen displays in each application.

 The **Notebook** is not available in the Long-Term Reconcile module.

Screen Controls

- **Select reconciliation type** drop-down box
- **Select areas** list box
- **Select industries** option group
 - **Industry** radio button
 - **Industry Levels** radio button
- **Select an industry** drop-down box
- **Select industries to sum** check boxes
- **Select an industry level** drop-down box
- **Roll up to** drop-down box
- **Reconcile Data** button
- **Off** radio button
- **Absolute difference greater than** radio button/spinner
- **Percent difference great than** radio button/spinner
- **Date Range** spinner
- **View Results Data/Graph** button

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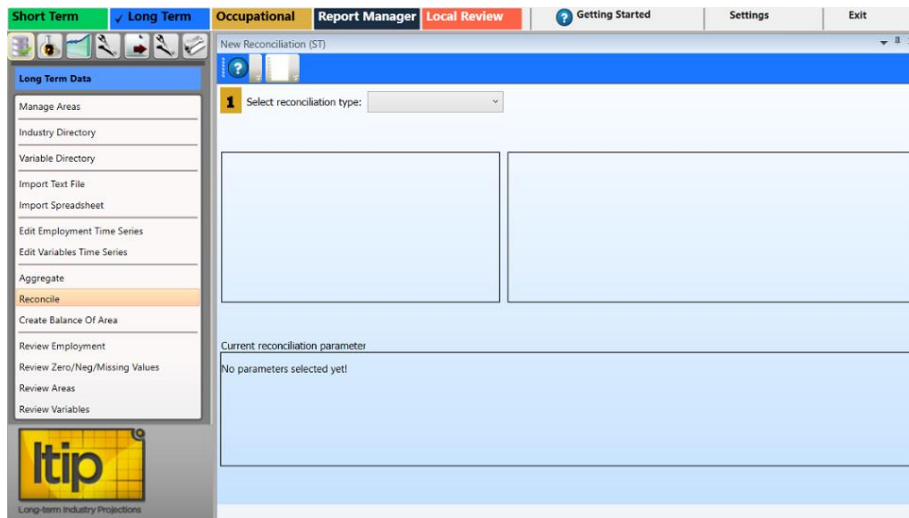


Figure 1: Reconcile module

- ☞ The Reconcile module uses numeric step indicators to guide the process. After Step 1 (select reconciliation type), the other steps will be enabled.

Reconcile by Industry

Reconcile by Industry compares employment between various industry levels or groups of industries, for a particular area or group of areas.

1. Select **Reconcile by Industry** from the **Select reconciliation type** drop-down.
2. **Select area(s)** to be included in the reconciliation.

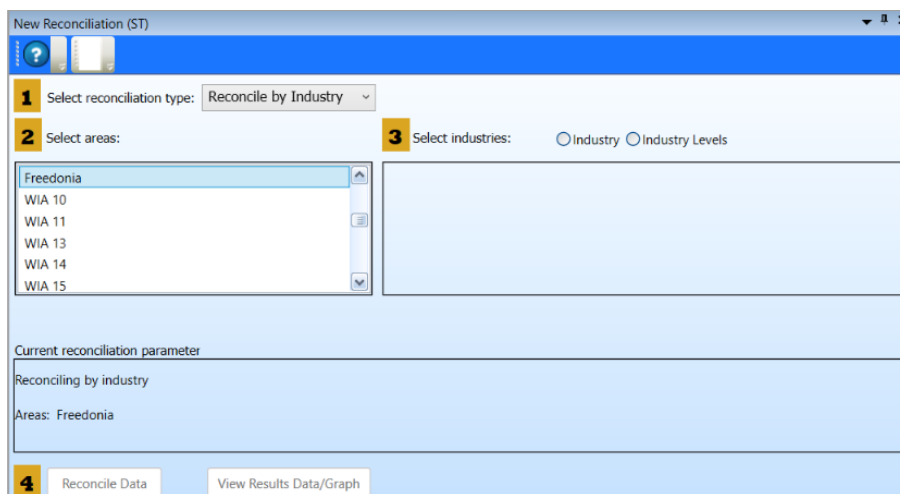


Figure 2: Select the area(s)

3. Select the **Industry** or **Industry Levels** radio button.
 - If the **Industry** radio button is selected, the **Select an industry** drop-down menu becomes available. After selecting an industry, the **Select**

industries to sum window will populate. Select the industries to include in the reconciliation from the **Select industries to sum** window and continue to the next step.

- Selecting the **Industry Levels** radio button will allow you to **Select an industry level** and **Roll up to** level from two drop-down menus. The selected Industry Level will choose the next highest level to **Roll up to** automatically, but higher roll-up levels can be selected from the menu.

The figure consists of two screenshots of a software window titled '3 Select industries:'.
 The top screenshot shows the 'Industry' radio button selected (highlighted with a red box). Below it, a dropdown menu 'Select an industry:' shows '334000 - Computer and Electronic Product Manufacturing'. Underneath, a list titled 'Select industries to sum:' contains several manufacturing categories, each with a checked checkbox: '334000 - Computer and Electronic Product Manufacturing', '334100 - Computer and Peripheral Equipment Manufacturing', '334200 - Communications Equipment Manufacturing', '334300 - Audio and Video Equipment Manufacturing', '334400 - Semiconductor and Other Electronic Component Manufacturing', '334500 - Navigational, Measuring, Electromedical, and Control Instruments Manufacturing', and '334600 - Manufacturing and Reproducing Magnetic and Optical Media'.
 The bottom screenshot shows the 'Industry Levels' radio button selected (highlighted with a red box). Below it, there are two dropdown menus: 'Select an industry level:' set to 'ThreeDigit' and 'Roll up to:' set to 'Sector'.

Figure 3: Select an Industry or Industry Levels

☞ Each time selections are made, the **Current reconciliation parameter** window will change to reflect the modifications.

4. Click the **Reconcile Data** button.
5. Click the **View Results Data/Graph** button. The **Review reconciliation results** screen will open in a new window to show the results of the reconciliation. If other areas or industries were chosen, they will be available from the drop-down boxes.

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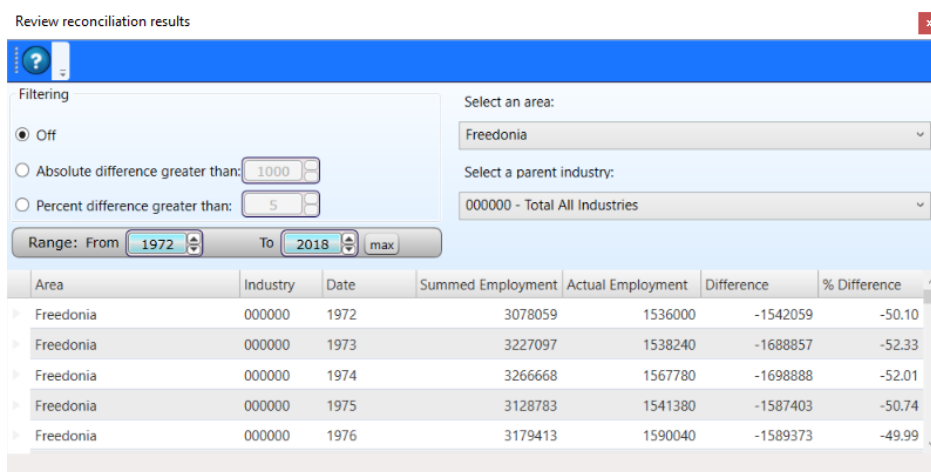


Figure 4: Review reconciliation results

- Other options are available to filter results. The filter defaults to off. One way to filter is the **Absolute difference greater than** spinner. The default value is 1000, but you can adjust this. Another filter is a **Percent difference greater than** spinner. A **Date Range** spinner is also available to view results within a specific time frame.

Reconcile by Area

Reconcile by Area compares employment in the members of an Area Group to the employment in the parent area for a particular industry or industries.

1. Select **Reconcile by Area** from the **Select reconciliation type** drop-down.
2. **Select area groups** to be included in the reconciliation.
3. Click a **Select Industries** radio button.
4. Click the **Reconcile Data** button.
5. Click the **View Results Data/Graph** button. The **Review reconciliation results** screen will display the results of the reconciliation.

Reconcile by Time

Reconcile by Time compares the average monthly employment for a year to the annual employment for that year, for specific areas and industries.

1. Select **Reconcile by Time** from the **Select reconciliation type** drop-down.
2. **Select area(s)** to be included in the reconciliation.
3. Click a **Select industries** radio button and make your selections.
4. Click the **Reconcile Data** button. The **Review reconciliation results** screen will activate to show the results of the reconciliation.

Related Content

- [Industry Mix](#)

Create Balance of Area

Create Balance of Area creates a new area consisting of all employment in a parent area that does not belong to the child members of the area group. For example, if a state is projecting employment in metropolitan statistical areas (MSAs), a state's balance of area would contain the remainder of the employment in the state that lies outside the MSAs. A Balance of Area is also known as a Balance of State (BOS).

The Create Balance of Area module is available in the Short-Term and Long-Term applications. The same screen displays in each application.

☞ The **Notebook** is not available in the Long-Term Create Balance of Area module.

Screen Controls

- **Select an Area Group** down-down menu
- **Provide a Name** input field
- **Area Code** input field
- **Process** button

The screenshot shows the 'Create Balance of Area (LT)' module docked in the Long-Term application. The top navigation bar includes 'Short Term', 'Long Term' (selected), 'Occupational', 'Report Manager', 'Local Review', 'Settings', and 'Exit'. The sidebar on the left lists 'Long Term Data' options: 'Manage Areas', 'Industry Directory', 'Variable Directory', 'Import Text File', 'Import Spreadsheet', 'Edit Employment Time Series', 'Edit Variables Time Series', 'Aggregate', 'Reconcile', 'Create Balance Of Area' (highlighted), 'Review Employment', 'Review Zero/Neg/Missing Values', 'Review Areas', and 'Review Variables'. The main window title is 'Create Balance of Area (LT)'. Below the title bar is a status bar that says 'Ready to process Balance of Area (Existing data will be overwritten.)'. The form contains three input fields: 'Select an Area Group' (dropdown menu showing 'Freedonia WIAs'), 'Provide a Name' (text field with 'Freedonia Balance of State WIA'), and 'Area Code' (text field with '800001'). A 'Process' button is located to the right of the 'Area Code' field. Below the form, a warning message states: 'Before processing, please delete any already existing balance of area employment for this area group! The following industries have employment greater than parent Area/Industry values and are excluded from Balance of Area:'. At the bottom left, there is a logo for 'Itip Long-term Industry Projections'.

Figure 1: Create Balance of Area module, docked

Create a Balance of Area

1. Click the **Create Balance of Area** menu option. The **Create Balance of Area** screen will open in an undocked window (which can be aligned if the display's arrows are aligned while the window is selected).
2. **Select an Area Group** from the drop-down menu.
3. Type a name for the new area in the **Provide a Name** input field.
4. Type a valid **Area Code** into the input field. The area code must be 6 digits in length. The **Process** button will be enabled.

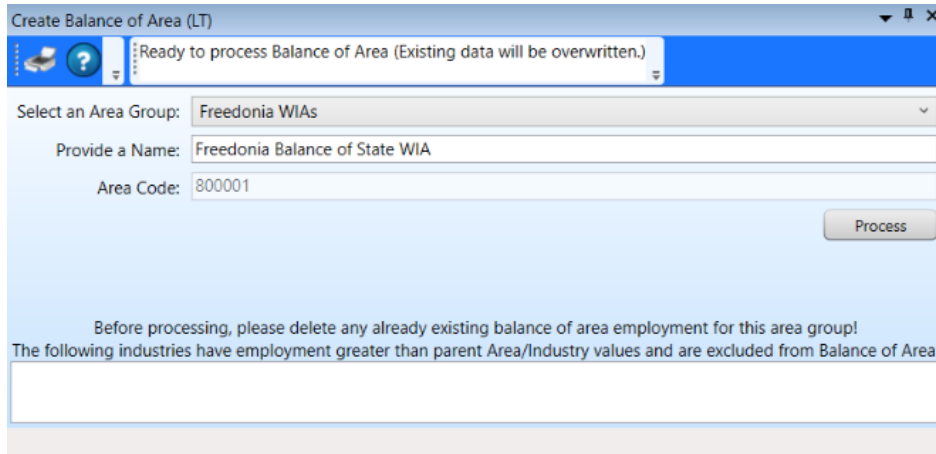


Figure 2: Preliminary information entered, Process button unlocked

5. Click the **Process** button. For each industry at the parent area level (for example, the state level), the software sums all of the employment in the industry in each of the sub-state areas that already exist in the group. It then subtracts that sum from the state employment and creates a new industry record. The record is the difference between the state employment and the sum of the non-balance of area sub-state employment. This new employment value is assigned to the Balance of Area. The system will do this for each year when accessed through Long-Term Industry Projections and for each month when accessed through Short-Term Industry Projections.

When processing is finished, the BOS Processed dialog box will be displayed:

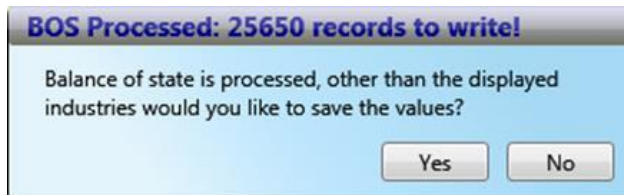


Figure 3: Number of records processed

- Click **Yes** to save the Balance of Area records to the database. Click **No** to cancel the save.

After the values have been saved, any industries with sums greater than the group total (which have been excluded from the saved values) are noted in the bottom section of the **Create Balance of Area** screen.

Create Balance of Area (LT)

Annual Balance of Area created.

Select an Area Group: Freedonia WIAs

Provide a Name: Freedonia Balance of State WIA

Area Code: 800001

Process

Before processing, please delete any already existing balance of area employment for this area group!
The following industries have employment greater than parent Area/Industry values and are excluded from Balance of Area:

- 101000 - Goods Producing
- 101100 - Natural Resources and Mining
- 111000 - Crop Production

Figure 4: All records saved; highlighted industries were not

You can view the new industry employment data in the Long-Term [Edit Employment Time Series](#) module.

Related Content

- [Manage Areas](#)

Review Employment

Use the **Review Employment** module to perform a quality check on the historical data series for industries in a specified area. With the quality check, you are able to identify potential problems in the data series.

Prerequisites that must be completed prior to using this module are:

- Run the area set up using the [Manage Areas](#) module.
- Import Monthly Employment Data using the [Import Text File](#) or [Import Spreadsheet](#) modules.

Screen Controls

- **Select an Area** drop-down menu
- **Show / print flagged records only** check box
- **Process** button
- **Employment Table** tab
- **Time Series Endpoints** tab
- **Missing Industries** tab
- **Missing Industries (Substate)** tab

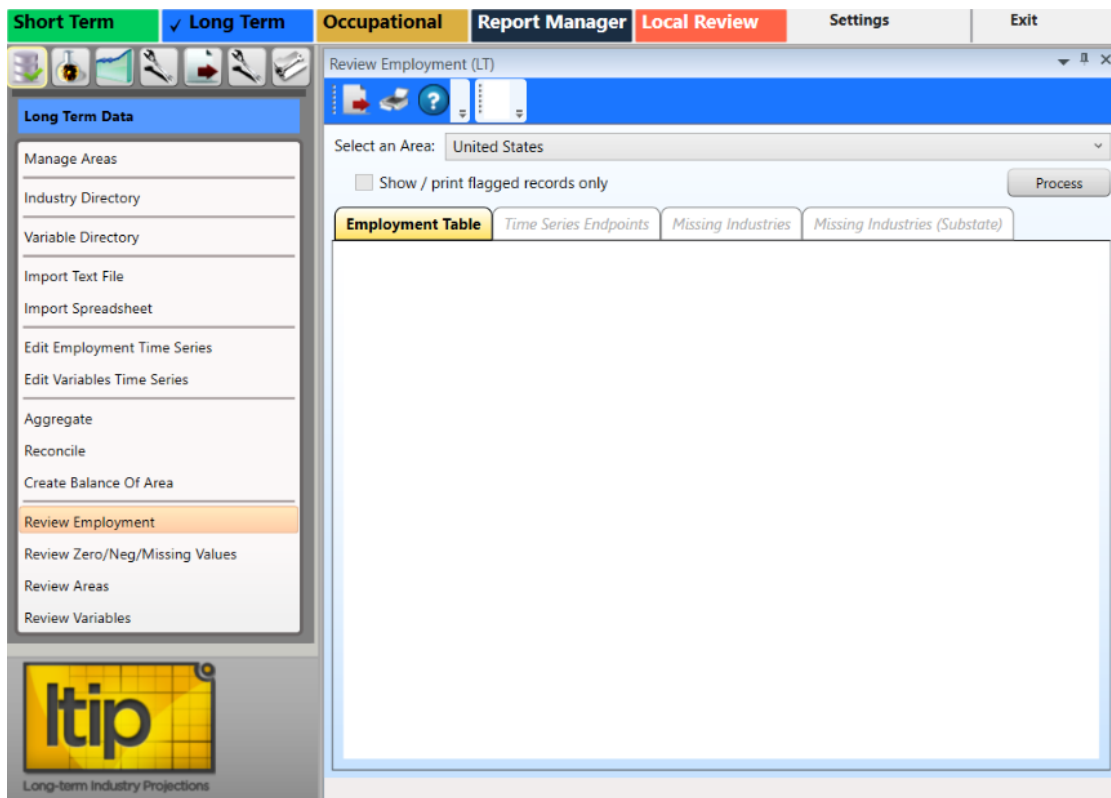


Figure 1: Review Employment module

Review Historical Data

1. **Select an Area** from the drop-down menu.
2. Click the **Process** button. You only need to click **Process** once for each selected area; information on all tabs processes simultaneously. When processing is complete, industry information displays in the **Employment Table**, **Time Series Endpoints**, **Missing Industries**, and **Missing Industries (Substate)** tabs. Select the tabs to review the information.

Code	Title	Start Date	End Date	Observations
333000	Machinery Manufacturing	1972	2008	37
334000	Computer and Electronic Product Manufacturi	1972	2008	37
335000	Electrical Equipment, Appliance, and Compon	1972	2008	37
336000	Transportation Equipment Manufacturing	1972	2008	37
❗ 337000	Furniture and Related Product Manufacturing	1990	2008	19
339000	Miscellaneous Manufacturing	1972	2008	37

Figure 2: Displaying data and flagged records

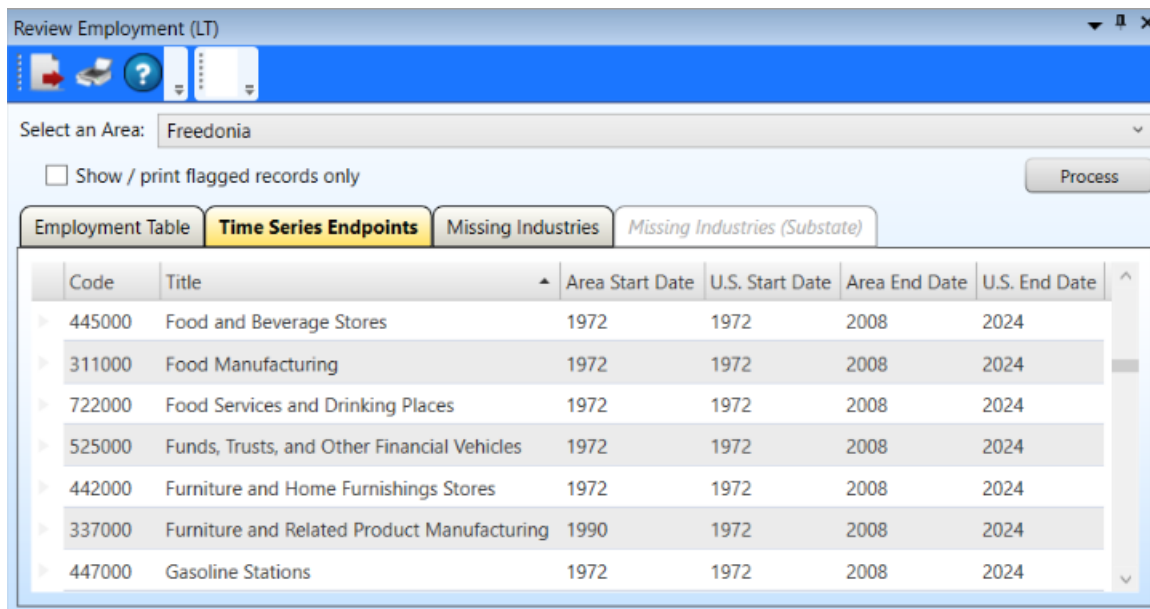
Flagged records ❗ contain data inconsistencies. To view only the flagged records, click the **Show / print flagged records only** check box. These records can be corrected using the [Edit Employment Time Series](#) module. Return to the **Review Employment** module and click **Process** to reprocess the data, or import any missing data and reprocess. Flags are used as a warning to identify potential problems, but do not necessarily need to be removed to continue.

☞ To sort the fields, click the field heading. For example, to sort by title, click the **Title** heading.

View the Time Series Endpoints

1. Click the **Time Series Endpoints** tab.

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Review Employment (LT)

Select an Area: Freedonia

☐ Show / print flagged records only

Process

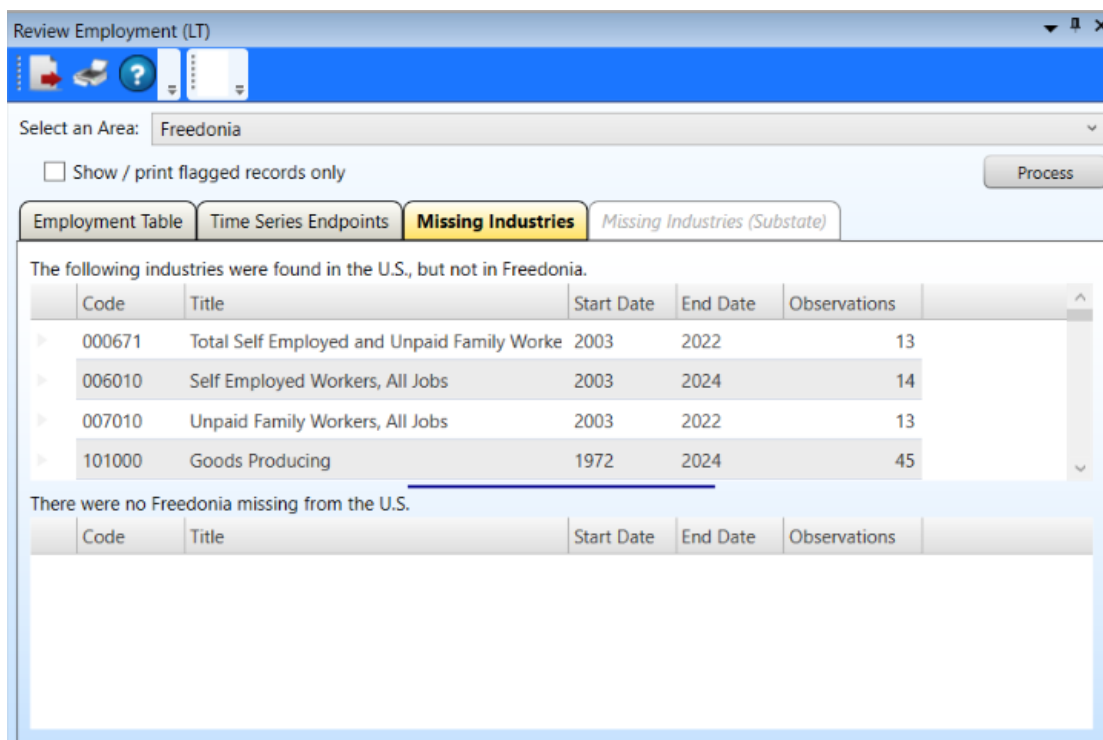
Employment Table **Time Series Endpoints** Missing Industries Missing Industries (Substate)

Code	Title	Area Start Date	U.S. Start Date	Area End Date	U.S. End Date
445000	Food and Beverage Stores	1972	1972	2008	2024
311000	Food Manufacturing	1972	1972	2008	2024
722000	Food Services and Drinking Places	1972	1972	2008	2024
525000	Funds, Trusts, and Other Financial Vehicles	1972	1972	2008	2024
442000	Furniture and Home Furnishings Stores	1972	1972	2008	2024
337000	Furniture and Related Product Manufacturing	1990	1972	2008	2024
447000	Gasoline Stations	1972	1972	2008	2024

Figure 3: Time Series Endpoints tab

View Missing State Industries

1. Click the **Missing Industries** tab. The Missing Industries tab will display a list of industries that are found in the U.S. but not in the selected area. This will help to identify potential problems.



Review Employment (LT)

Select an Area: Freedonia

☐ Show / print flagged records only

Process

Employment Table Time Series Endpoints **Missing Industries** Missing Industries (Substate)

The following industries were found in the U.S., but not in Freedonia.

Code	Title	Start Date	End Date	Observations
000671	Total Self Employed and Unpaid Family Worker	2003	2022	13
006010	Self Employed Workers, All Jobs	2003	2024	14
007010	Unpaid Family Workers, All Jobs	2003	2022	13
101000	Goods Producing	1972	2024	45

There were no Freedonia missing from the U.S.

Code	Title	Start Date	End Date	Observations
------	-------	------------	----------	--------------

Figure 4: Missing Industries within the selected area

Display Missing Industries in a Sub-state Area

1. **Select an Area** from the drop-down menu. The selected area must be a sub-state area or the **Missing Industries (Substate)** tab will not be available.
2. Click the **Process** button.
3. Click the **Missing Industries (Substate)** tab.

Review Employment (LT)

Select an Area: Freedonia Balance of State WIA

☐ Show / print flagged records only Process

Employment Table Time Series Endpoints Missing Industries **Missing Industries (Substate)**

The following industries were found in Freedonia, but not in Freedonia Balance of State WIA.

Code	Title	Start Date	End Date	Observations
236000	Construction of Buildings	1972	2008	37

There were no Freedonia Balance of State WIA industries missing from Freedonia.

Code	Title	Start Date	End Date	Observations
------	-------	------------	----------	--------------

Figure 5: Missing Industries (Substate) tab

- ☞ The **Missing Industries (Substate)** tab will display a list of industries found in the state, but not found in the selected sub-state area.

Related Content

- [Edit Employment Time Series](#)

Review Zero/Negative/Missing Values

The **Review Zero/Negative/Missing Values** module allows the viewing of industries, in the selected area, which have employment levels that are zero, negative, or are missing values. This identifies errors in an employment data series.

Prerequisites that must be completed prior to using this module are:

- Run the area set up using the [Manage Areas](#) module.
- Import the **Monthly Employment Data** using the [Import Text File](#) or [Import Spreadsheet](#) modules.

Screen Controls

- **Select an area** drop-down menu
- **Beginning Date** spinner
- **Base Year** field
- **Show only exceptions from base period** check box
- **Process** button

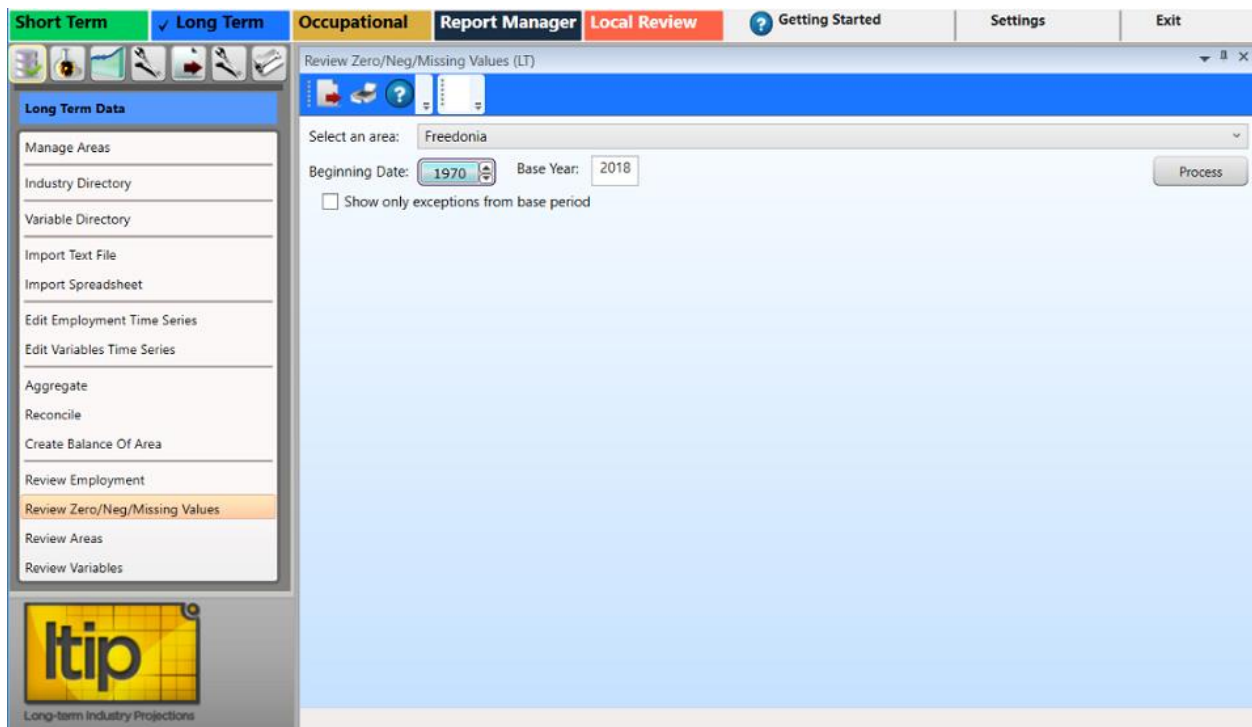


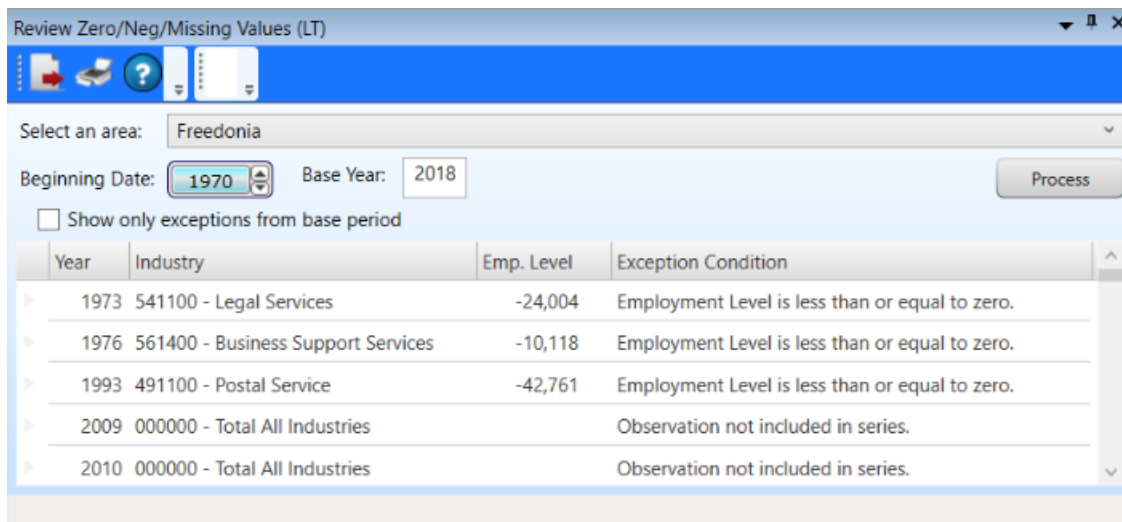
Figure 1: Review Zero/Negative/Missing Values module

Review Zero/Negative/Missing Values

1. **Select an Area** from the drop-down menu.
2. Click the **Beginning Date** [spinner](#) to set the **Beginning Year** and **Base Year**.

Long-Term Industry Projections

- In Long-Term Projections, the **Base Year** field is available. The Base Year should be the projected year, minus 10 years. To change this setting, click **Settings** (in the Projections software), then go to the **Long-Term** section. Change the **Base Year** and click **Save Changes**. Alternatively, double-click in the field and enter a new value.
3. Click the **Show only exceptions from base period** check box to filter results from the base period only.
 4. Click the **Process** button. Industries with zero, negative, or missing values for the selected area and date are displayed.



Year	Industry	Emp. Level	Exception Condition
1973	541100 - Legal Services	-24,004	Employment Level is less than or equal to zero.
1976	561400 - Business Support Services	-10,118	Employment Level is less than or equal to zero.
1993	491100 - Postal Service	-42,761	Employment Level is less than or equal to zero.
2009	000000 - Total All Industries		Observation not included in series.
2010	000000 - Total All Industries		Observation not included in series.

Figure 2: Zero/Negative/Missing Values displayed

To edit employment data, use the [Edit Employment Time Series](#) module. Then come back to the **Review Zero/Neg/Missing Values** screen and click **Process** to reprocess the data. You can also import any missing data and reprocess.

Related Content

- [Manage Areas](#)
- [Import Text File](#)
- [Import Spreadsheet](#)
- [Edit Employment Time Series](#)


Review Areas

The **Review Areas** module compares Area Group information to identify potential problems found in the employment data series.

Prerequisites that must be completed prior to using this module are:

- Run the area setup and set up an Area Group using the [Manage Areas](#) module. Creating Area Groups allows for the comparison of information between a parent and child areas. This will help to determine if there are data problems.
- Import the **Monthly Employment Data** using the [Import Text File](#) or [Import Spreadsheet](#) screens.

The Review Areas module is available in the Short-Term and Long-Term applications. The same screen displays in each application.

 The **Notebook** is not available in the Long-Term Review Areas module.

Screen Controls

- **Select an Area Group** drop-down menu
- **Process** button
- **Show / print flagged records only** check box

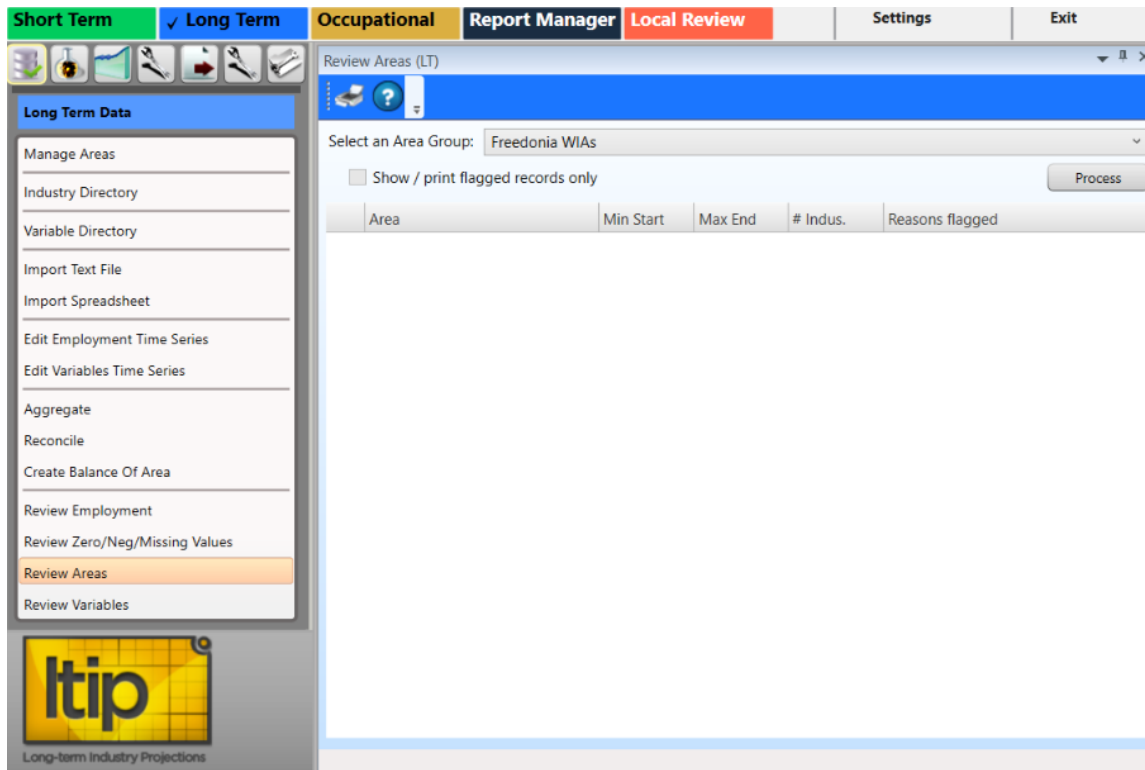
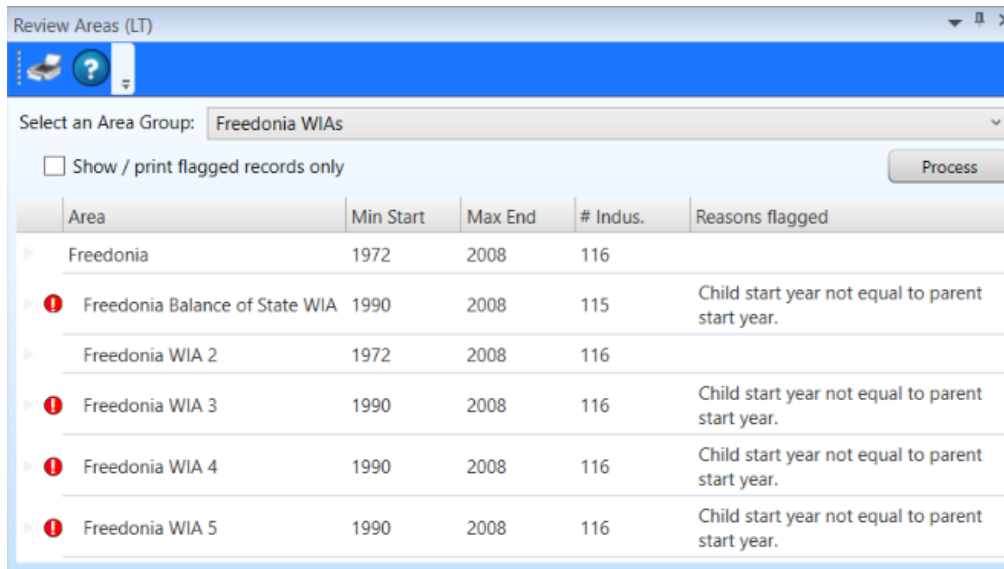


Figure 1: Review Areas module

Review Areas

1. **Select an Area Group.**
2. Click the **Process** button. When processing is complete, the results display.



Area	Min Start	Max End	# Indus.	Reasons flagged
Freedonia	1972	2008	116	
❗ Freedonia Balance of State WIA	1990	2008	115	Child start year not equal to parent start year.
Freedonia WIA 2	1972	2008	116	
❗ Freedonia WIA 3	1990	2008	116	Child start year not equal to parent start year.
❗ Freedonia WIA 4	1990	2008	116	Child start year not equal to parent start year.
❗ Freedonia WIA 5	1990	2008	116	Child start year not equal to parent start year.

Figure 2: Discrepancies are listed in the Reasons Flagged column

Review starting dates, ending dates, and number of observations to make certain they are what is expected. A flag indicates there are issues with the record. For example, in Figure 2, Freedonia WIA 3 contains more observations than the other areas. Information like this can help identify possible discrepancies.

Modify data as needed either using the [Preview Employment](#) module or by re-importing a corrected spreadsheet. When the number of industries is different in child areas than the parent area, the Review Employment ([ST](#) and [LT](#)) module can then be used to determine specifics of the discrepancies. Industries can be identified that are found in the parent area but not in a child area, and vice versa.

Once you have corrected any issues, return to this module and click **Process** to reprocess the data and verify there are no exceptions or that there is no concern for the exception.

Related Content

- [Manage Areas](#)
- [Import Text File](#)
- [Import Spreadsheet](#)

Review Variables

Use the **Review Variables** module to review area-specific variables for any inconsistencies in the data series.

Prerequisites that must be completed prior to using this module are:

- Run the area setup using the [Manage Areas](#) module.
- Import the Monthly Variable data using the [Import Spreadsheet](#) module.

Screen Controls

- **Select Area** drop-down menu
- **Show / print flagged records only** check box
- **Process** button

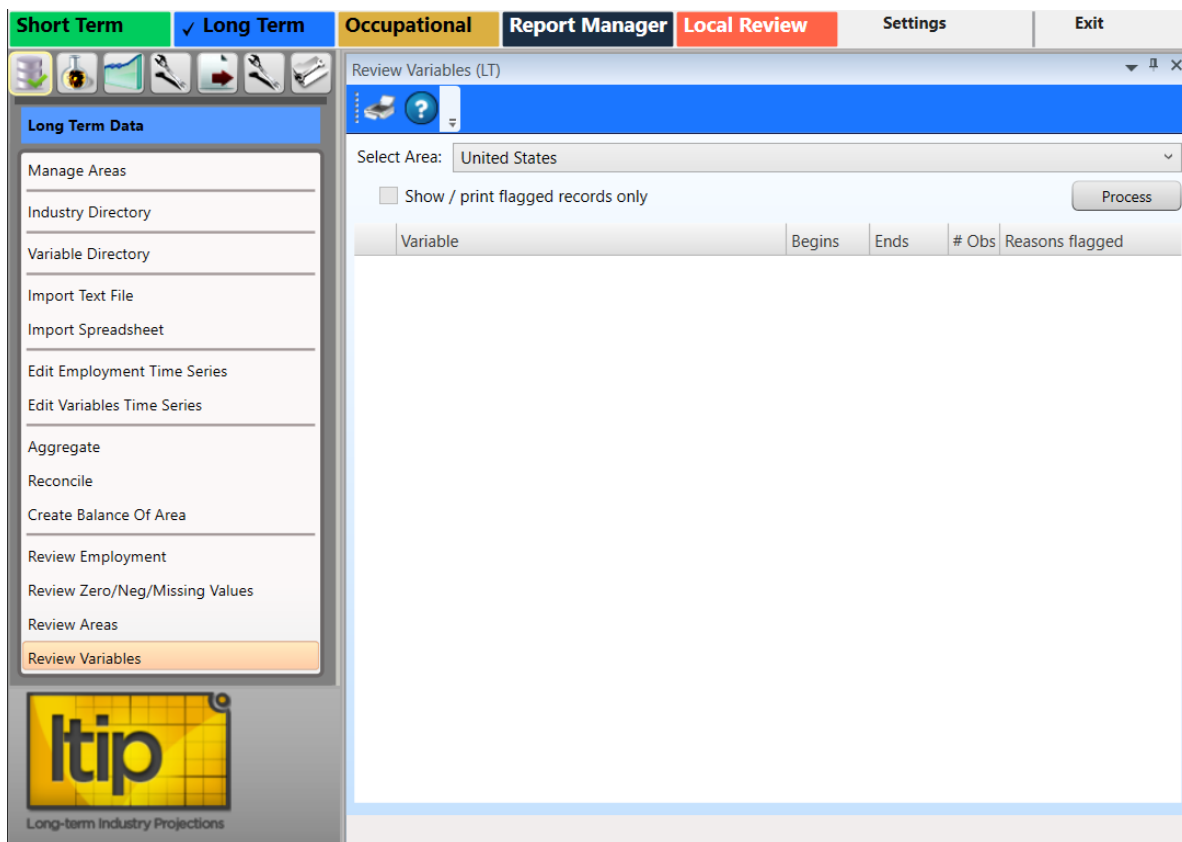



Figure 1: Review Variables module

Review Area-Specific Variables

1. **Select Area** from the drop-down menu.

2. Click **Process**. Variables for the selected area display. Flagged records contain data inconsistencies and their discrepancies listed in the **Reasons flagged** column.

 To view only flagged records, click the **Show / print flagged records only** check box.

Related Content

- [Dummy Variables](#)
- [Manage Areas](#)
- [Import Spreadsheet](#)

Long-Term Analysis

The **Long-Term Analysis** group menu allows the analyzing of data for industry and employment statistical reports.

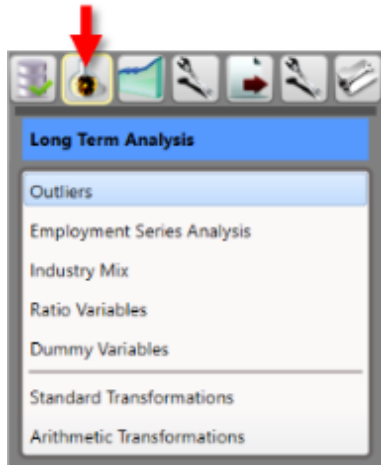


Figure 1: Long-Term Analysis group menu

The **Long-Term Analysis** group menu contains the following selections:

- [Outliers](#)
 - [Time Series Plot Tab](#)
 - [Transformed Time Series Plot Tab](#)
- [Employment Series Analysis](#)
- [Industry Mix](#)
- [Ratio Variables](#)
- [Dummy Variables](#)
- [Standard Transformations](#)
- [Arithmetic Transformations](#)

Outliers

Outliers are data that deviate from normal seasonal fluctuations. An outlier is a point in a time series that has a value different enough from the points immediately surrounding it to raise questions about that point's validity.

Outliers may occur for several reasons:

- Errors in the data.
- Very small data values causing relative fluctuations.
- Economic upturns or downturns reflected in employment values rising or falling suddenly.

It is the analyst's responsibility to decide the cause of a particular outlier's presence in an employment series. The software cannot make that decision. However, the Outlier module provides the tools to search for possible outliers and to suggest possible alternative values.

The Outlier module is duplicated in the Short and Long-Term applications. The only difference is Short-Term displays monthly data in addition to yearly data. The Long-Term Outliers module will calculate yearly data only.

Screen Controls

- **Settings** tab
 - **Select Areas** drop-down
 - **Analyze All Areas** check box
 - **Three times the interquartile range or greater** radio button
 - **Two standard deviations from the differenced mean or greater** radio button
 - **Absolute magnitude difference of 1200 or greater** radio button
 - **Top 100 by absolute difference from the differenced median** radio button
- [Time Series Plot](#) tab
- [Transformed Time Series Plot](#) tab
- **What's an outlier** button
- **Change Default Outlier Magnitude** button
- **Change Default Outlier Count** button
- **Find Outliers** button

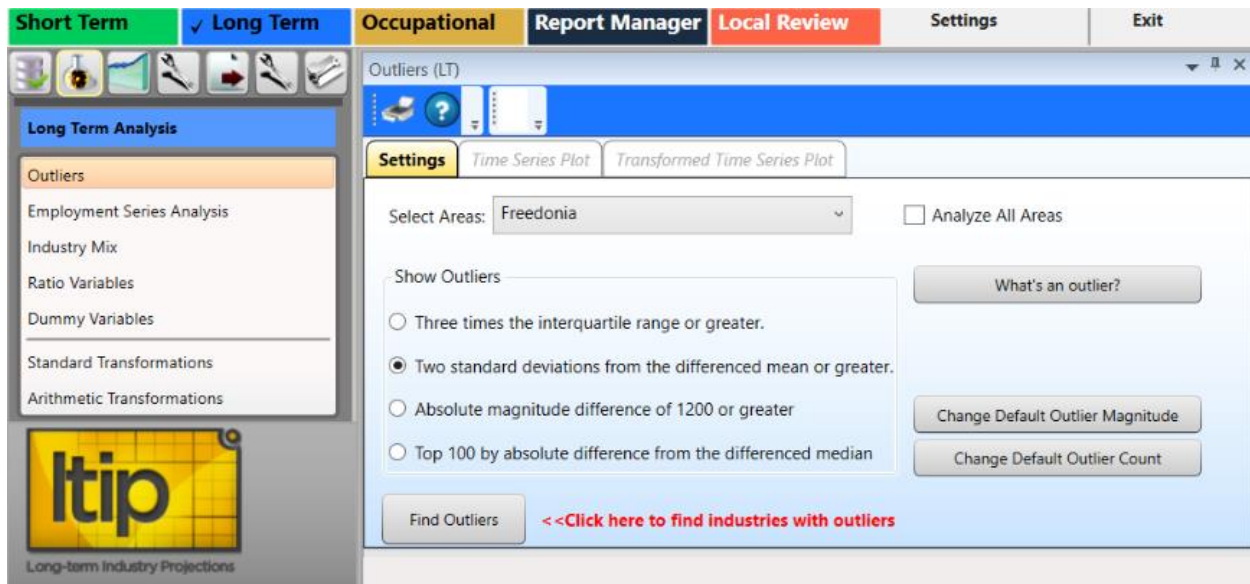


Figure 1: Outliers module

Prepare Outlier Processing

1. Select an area from the **Select Areas** drop-down menu, or check **Analyze All Areas** box.
2. Select a **Show Outliers** radio button.

☞ To display the **Outlier Detection Methodologies** explanation, click the **What's an outlier?** button.

Outliers to show include:

- **Three times the interquartile range or greater.**
 - This option calculates quartiles for the differenced series at the 25th, 50th, and 75th percentile. The difference between the 75th and 25th percentile is called the interquartile range. The system flags any industries with points on the differenced series that are more than three times the interquartile range, above the 75th percentile or below the 25th percentile.
- **Two standard deviations from the differenced mean or greater.**
 - This calculates the standard deviation from the mean of the differenced series, then flags any industries with points on the differenced series that are more than two standard deviations above or below the mean.
- **Absolute magnitude difference of 1200 or greater.**
 - This flags any industries with points on the differenced series that have an absolute value above a specific setting. The default magnitude to compare against is 1,200.

☞ Click the **Change Default Outlier Magnitude** button to set a different absolute magnitude difference.

- **Top 100 by absolute difference from the differenced mean.**

- This ranks all differenced points for all industries by the absolute value of their differences from the median of the differenced series, then flags any industries that have points in the top portion of the list. By default, the top 100 points measured by absolute difference are selected.

☞ Click the **Change Default Outlier Count** button to set a different number of points to return.

3. Click the **Find Outliers** button. When the outlier calculations are complete, the view will be switched to the **Time Series Plot** tab to display the results.

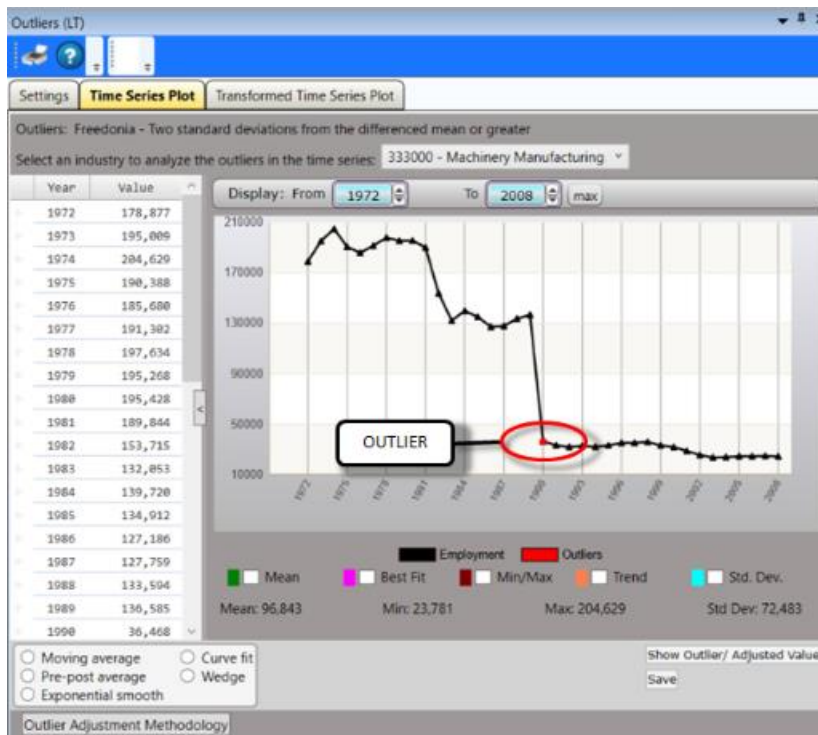


Figure 2: The Time Series Plot tab displays

Red dots indicate the calculated locations of outliers. If there are no outliers within the chosen criteria, the **Time Series Plot** tab will not display.

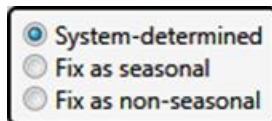
The **Transformed Time Series Plot** tab will also be unlocked after clicking the **Find Outliers** button.

Time Series Plot Tab

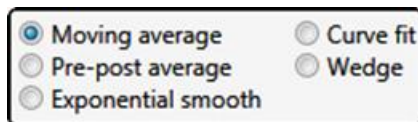
The **Time Series Plot** tab displays the outlier information you initially selected in the Outlier module. At the top of the screen, the area and type of outlier is displayed.

Screen Controls

- **Select an industry** drop-down menu
- **Display date** spinner
 - **Max** button
- **Graph Enhancement Controls**



- **System-determined** radio button
- **Fix as seasonal** radio button (selecting this option will unlock the **Seasonality Plot** tab)
- **Fix as non-seasonal** radio button



- Adjustment Options
 - **Moving average** radio button - This option takes the average of the preceding three months (default) as the new value for an outlier point. It will display a **green dot** on the graph as the suggested value.
 - **Select number of months (or years in Long Term)** drop-down
 - **Pre-post average** radio button - This option averages the values of the points immediately before and after the outlier points.
 - **Exponential smooth** radio button - This option displays the [R-Squared](#) value of the smoothing equation, which can help determine the validity of the adjusted values.
 - **Curve fit** radio button - This option displays the R-Squared value for use in fitting a first-degree linear equation to the time series or a second-degree polynomial equation.
 - **Select degree of equation** drop-down
 - **Wedge** radio button - This option requires two outlier points for calculation. The system draws a straight line between the point immediately before the first outlier and immediately after the last outlier. This causes the interpolation of the outlier points as well as the intermediate values.
 - **Start point (anchor)** date spinner
 - **End point (value)** date spinner

- **Show Outlier/ Adjusted Values** button
- **Outlier Adjustment Methodology** button - opens a document which explains the moving average, pre-post average, exponential smooth, curve fit, and wedge methodologies/adjustments in more detail.
- **Save** button - This button replaces the outlier values with new values, based on the methodology chosen.

Configure Outlier Data on the Time Series Plot Tab

1. Select an industry from the **Select an industry to analyze the outliers in the time series** drop-down menu.
2. Check one or more of the [Graph Enhancement Controls](#), if desired.

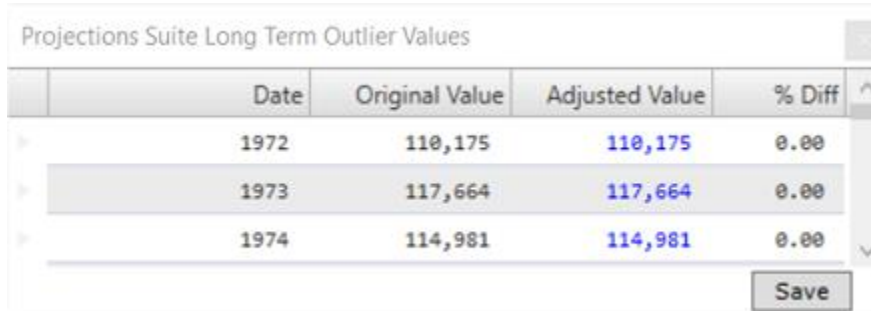


Figure 1: Time Series Plot tab

To create this **Time Series Plot**, **Freedonia** was selected as the area, **Absolute magnitude different of 1200 or greater** was chosen from the **Show Outliers** definitions (on the previous tab), and the **334000 NAICS** industry was displayed. Each of these factors can be changed to view **Outliers** over your selected time plots and are displayed in this module.

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3. Set the time frame using the **Display date** spinner. Years are available in Long-Term. Click the **Max** button to automatically set the longest time frame possible. It is also possible to [select chart dates](#) to examine them in greater detail.
4. When choosing either the **Fix As Seasonal** or **Fix As Non-Seasonal** radio buttons, a dialog box will be displayed asking if the outlier points for this industry should be recalculated or not. Select the appropriate response.
5. Select an **Adjustment Option** radio button (if desired).
6. Click the **Show Outlier/Adjusted Values** button to view detailed information about the chosen industry. The outlier values will be opened in a new window:



	Date	Original Value	Adjusted Value	% Diff
>	1972	110,175	110,175	0.00
>	1973	117,664	117,664	0.00
>	1974	114,981	114,981	0.00

Save

Figure 2: Outlier/Adjusted Values

7. Click the **Save** button.

☞ Click the **Outlier Adjustment Methodology** button to view how the adjustments were calculated. The **Outlier Adjustment Methodologies** document will open in a new window.

Edit the Data Grid

The data grid displays the data series dates and values in a column to the left of the graph. To edit the data grid:

1. Highlight the row you want to adjust.
2. **Right click** and select **Add**, **Edit**, or **Delete** to adjust the values in the graph.

Transformed Time Series Plot Tab

The **Transformed Time Series Plot** tab displays the outlier information you selected in the **Outlier** module. It graphs the differenced series and shows where differenced points lie outside the outlier definition. The Transformed Time Series Plot tab displays two red lines indicating the value based on the **Show Outlier** definition chosen on the **Settings** tab. Any points where two values rise well above or below the red line are marked as outlier points on the **Time Series Plot** tab.

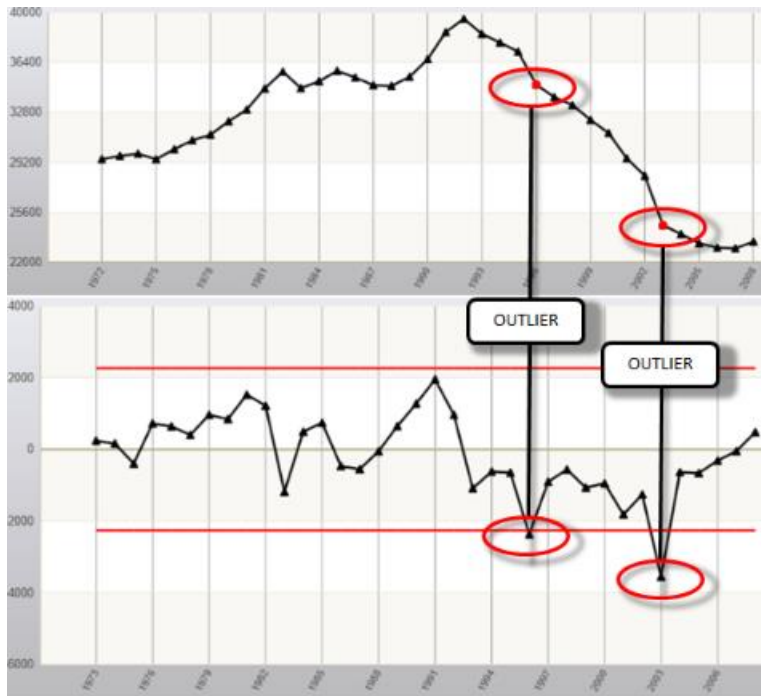


Figure 1: Time Series Plot (top) and Transformed Time Series Plot (bottom) outlier correlations

At the top of the page, the area and type of outlier is displayed. The date and Value display in the data grid on the left. The graph displays the industry data.

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Figure 2: Transformed Time Series Plot tab

1. Set the time frame using the **Display** [date spinners](#). Click the **max** button to automatically set the longest time frame possible.

☞ **Outliers** are highlighted in red in the data grid on the left.

Employment Series Analysis

The **Employment Series Analysis** module provides a statistical overview of historical employment for an industry and area, including location quotients, [R-Squared](#) values, and various graphical analyses.

Screen Controls

- **Select an Area** drop-down menu
- **Select an Industry** drop-down menu
- **Employment vs. Time** tab
- **Area/National Ratio** tab
- **Area vs. National Employment** tab
 - **Show All** button
- **Display date** spinner
 - **Max** button
- **Reference area** control group (appears **only** when a sub-state area is selected)
 - **U.S.** radio button
 - **State** radio button
- **Batch** button
- **Graph Enhancement** controls

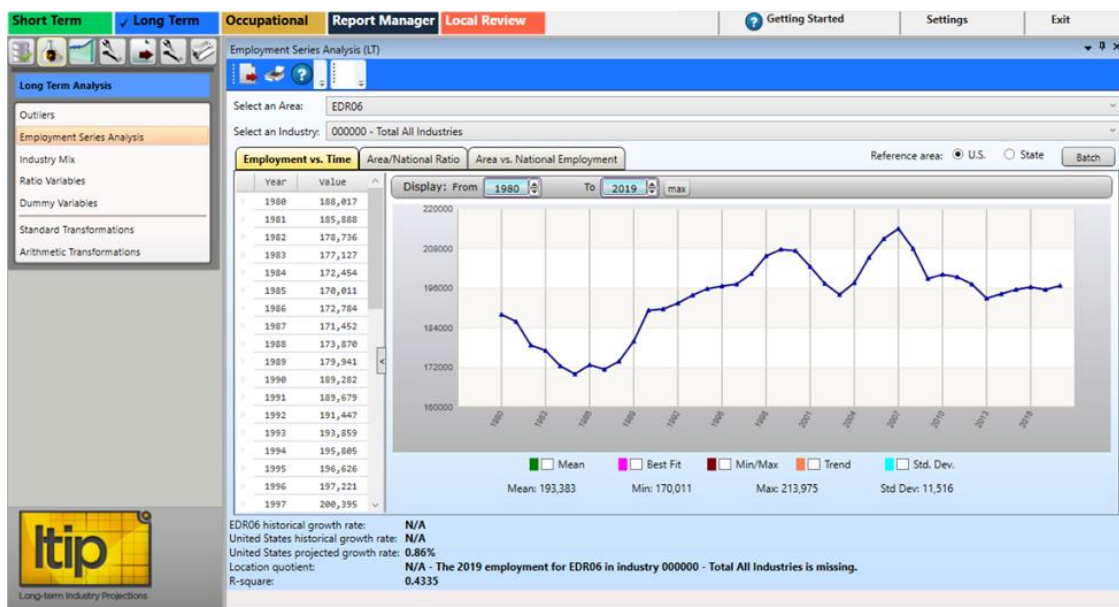


Figure 1: Employment Series Analysis module

Analyze Employment Series

1. **Select an Area** from the drop-down menu.
2. **Select an Industry.** The graph displays analysis for the industry, in the selected area.

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- Set the time frame by using the **Display** date spinners. You can [select chart dates](#), to view the information in more detail. Use the [Graph Enhancement Controls](#), if desired.
 - Click the **Max** button to view the maximum possible time frame.

Information displays below the graph. The bar contains:

- Historical growth rate** of the selected area
 - United States historical growth rate**
 - United States projected growth rate**
 - Location quotient**
 - [R-square](#)
- Click the **Batch** button to export the Employment Series Analysis Batch. You can export a **Printed report** or by **Excel spreadsheet**. This will produce a printable document or spreadsheet that lists industries, area historical growth rate, U.S. historical growth rate, U.S. projected growth rate, location quotient, and R-square values.

Area/National Ratio Tab

- Click the **Area/National Ratio** tab. The corresponding graph will display the ratio that the selected industry for the area represents, when compared with the national employment for the selected industry.

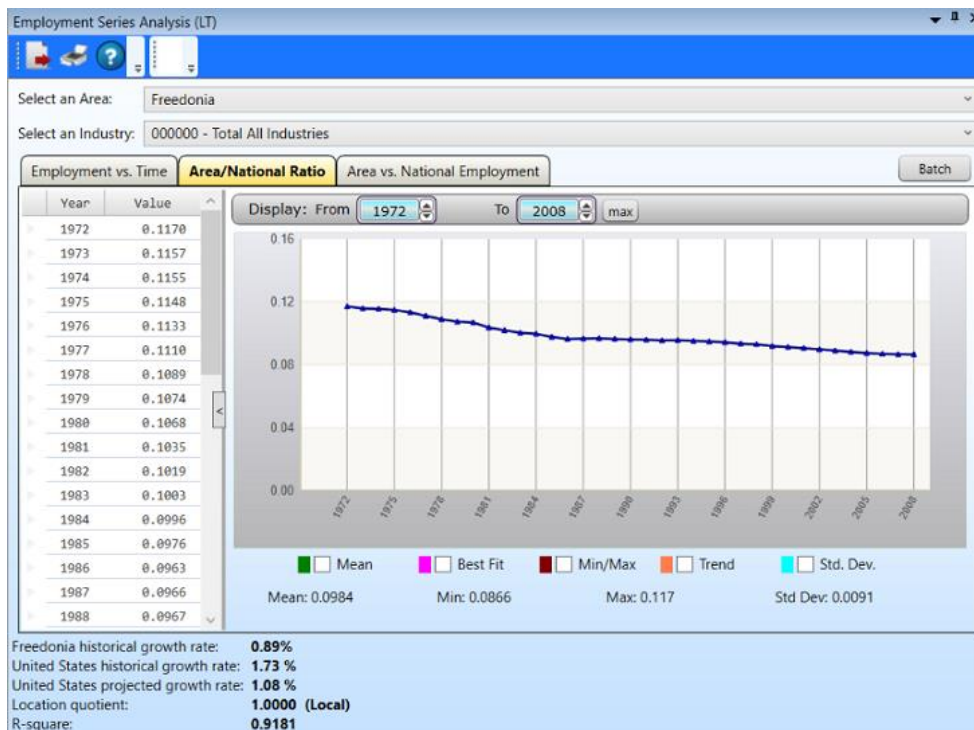


Figure 2: Area/National Ratio tab

Area vs. National Employment Tab

1. Click the **Area vs. National Employment** tab. The corresponding scatter plot displays the employment values for the selected industry/area, and the value for the national employment for the selected industry. The scatter plot will show the extent of correlation between points of the selected industry/area versus national or state, depending on which options are selected. If no correlation exists between the points, the points appear randomly scattered on the coordinate plane. If a large correlation exists, the points concentrate on a straight line. The scatter plot will help visualize the trend to see if the area trend is similar to the national or state employment for the selected industry.

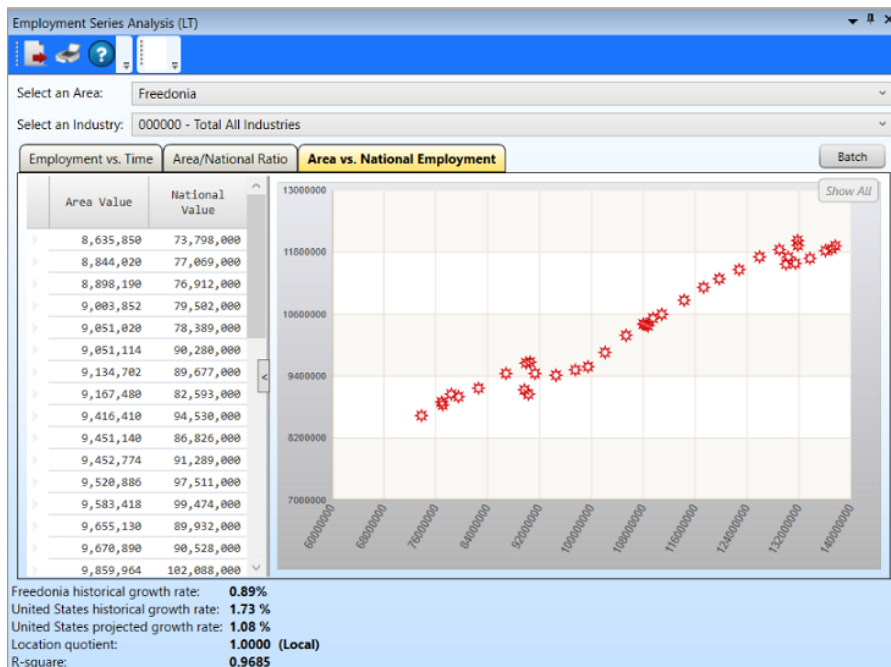


Figure 3: Area vs. National Employment tab

2. Hover your cursor over a point on the graph to display its corresponding values.



Figure 4: Hovering mouse on a plotted point

3. Click a point on the graph to display the data from the start of the value pairs to the point selected. Click the **Show All** button to display all of the data.

Industry Mix

Use the **Industry Mix** module to view comparisons of the distribution of employment within an industry sector, for an area with employment in that same industry family, against the United States. The performance of this module depends on the presence of sector (2-digit) and/or four-digit (industry group) historical data series in your database.

Screen Controls

Select an Area drop-down menu

- **Select an Industry Level** radio buttons
 - **2-digit (Sector)** radio button
 - **3-digit** radio button
- **Select a year** spinner
- **Select an Industry** drop-down menu

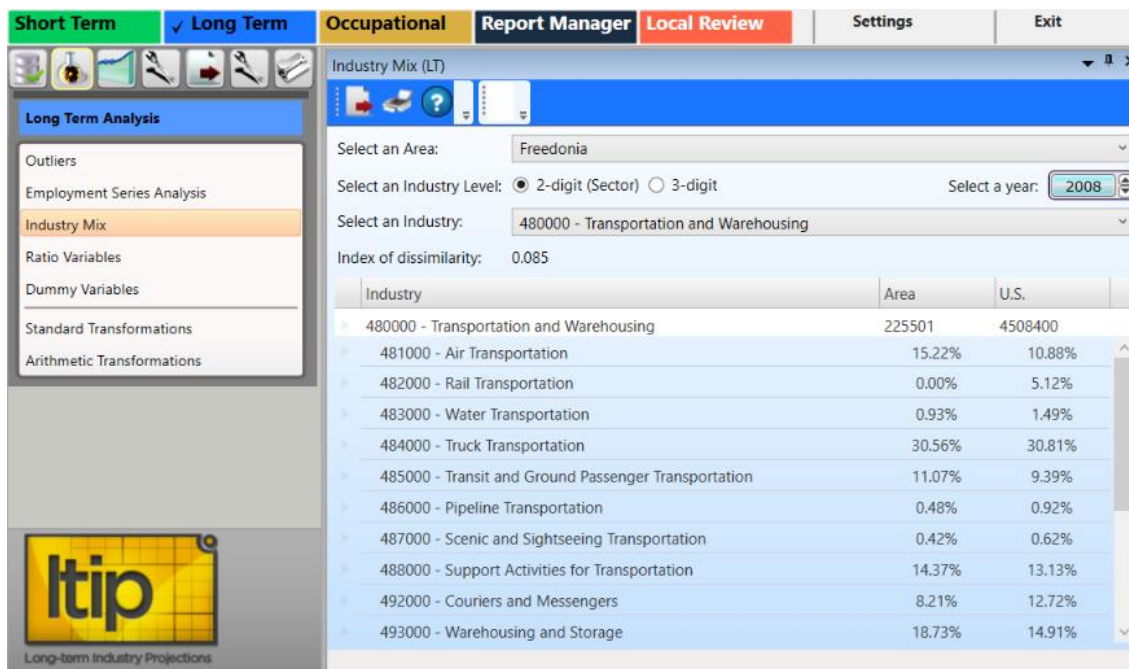


Figure 1: Industry Mix module

Compare the Distribution of Employment

1. **Select an Area** from the drop-down menu.
2. Use the **Select an Industry Level** radio button to select the NAICS level to use in the comparison.
 - 2-digit (sector) - used to analyze three-digit industry breakdowns within sectors.

- 3-digit (sub-sector) - used to analyze four-digit industries within three-digit industries.
3. **Select a year** with the [spinner](#).
 4. **Select an Industry** from the drop-down menu.

The **Index of dissimilarity** displays above the table. This is a number between zero and one. A value of zero means that the industry breakdowns at the area and national level are identical. A value of one means they are completely dissimilar. In practice, a value of one is almost never achieved.

Related Content

- [Reconcile](#)
- [NAICS](#)

Ratio Variables

The **Ratio Variables** module allows the analysis of five preset variable and/or employment ratios used in [OLS](#) predefined models. The ratio is a historical time series created by dividing the data values in one variable by the values in a second variable (displayed in the Ratio Variable drop-down menu). This creates a new time series for which each data value is the ratio of two variable data values for equivalent years.

For example, you could create a per capita income variable by dividing the variable for total income by the value for population. The predefined OLS regression models supplied with the Long-Term Industry Projections application depend, in part, on system-defined ratio variables. This module allows you to review these variables.

Configuring your [Variable Directory](#) is a prerequisite to running the Ratio Variables module, to prevent error generation. You must set valid Population and Personal Income (Pop/PI) variables. If these variables are not set, the Ratio Variables module will not run correctly.

Screen Controls

- **Select an area** drop-down menu
- **Ratio Variable** drop-down menu
- **Grid column to graph** drop-down menu
- **Show Projected Value** check box
- **Display** date spinners
 - **Max** button
- **Graph Enhancement** controls

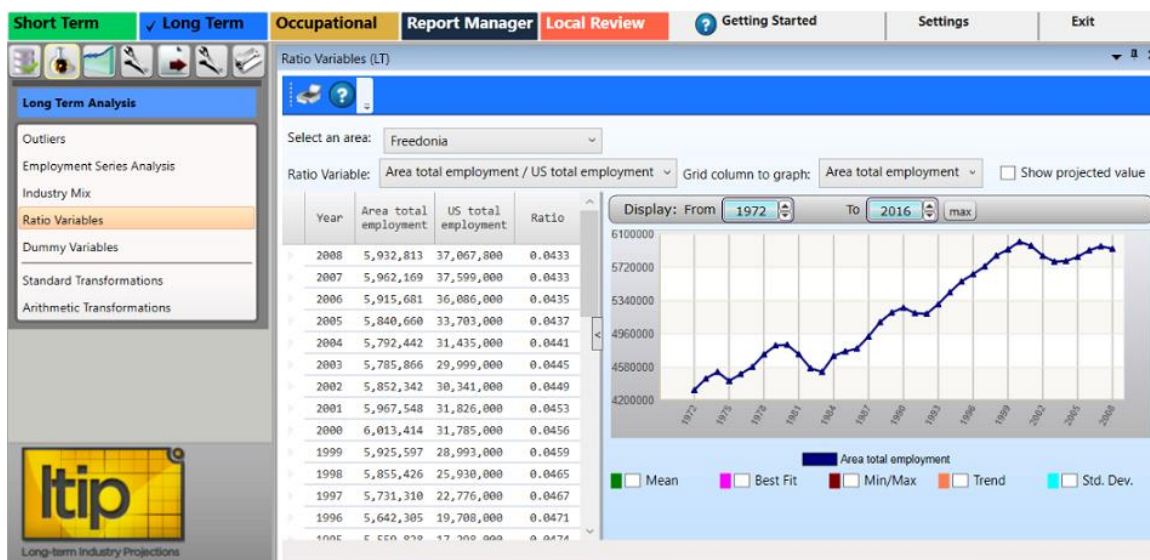


Figure 1: Ratio Variables module

View Ratio Variables

1. **Select an area** from the drop-down menu.
2. Select a **Ratio Variable**. The options are:
 - Area total employment / US total employment
 - Area population / US population
 - Area personal income / US personal income
 - US industry employment / US total employment
 - US industry employment / US population
3. Select a **Grid column to graph** from the drop-down menu. This will alternate the metric used on the y-axis of the graph.
4. Select a time frame using the **Display [date spinners](#)**. Selecting a value for an area, Ratio Variable (and optionally, Select an Industry), Grid column to graph, and time frame displays their data in the chart.
 - Click the **Max** button to restore the full range of the graph.
5. Click the **Show projected value** check box to include projected values in the chart and data grid.
6. Utilize the [Graph Enhancement Controls](#), if desired.

Edit Ratio Variables

1. **Right click** the table on the left to open a context menu.
 - Add values by selecting **Add** from the context menu. Type the values and press **Enter** to save them. Right click to **Cancel Add**.
 - Edit values by selecting **Edit**. All fields are able to be edited except for the Ratio field.
 - Delete a value by selecting **Delete**.

Related Content

- [Variable Directory](#)

Dummy Variables

Use the **Dummy Variables** module to create, modify, or delete dummy variables. Dummy Variables are used to compensate for unusual events that affect an historical series.

Dummy Variables are used when there is a major discontinuity in a data series. For example, if there were a coding change at a specific time, the Dummy Variable would represent the change in that point in time. Create Dummy Variables to represent key events at a point in time or to represent a series of data points for a specific period. For example, an analyst may want to contrast differences in the economy after a new tax law was passed, during hurricane recovery efforts, or after a major business center was built in an MSA. Dummy Variables are available for use by some models to affect the projected values for industries.

The LTIP application includes a Dummy Variable to distinguish a 1990 break in the Industry Employment Time Series, resulting from the conversion from Standard Industrial Classification (SIC) to [NAICS](#).

Screen Controls

- **Associated Area** drop-down
- **Select Variable** drop-down
- **Add** button
- **Delete** button
- **Save** button
- **Cancel** button
- **Date Spinner Controls**
- **Wrap mode** check box
- **Add Values** button
- **Add Projected** button
- **Add Custom** button
- **ON** button
- **OFF** button
- **All ON** button
- **All OFF** button
- **Remove Value** button

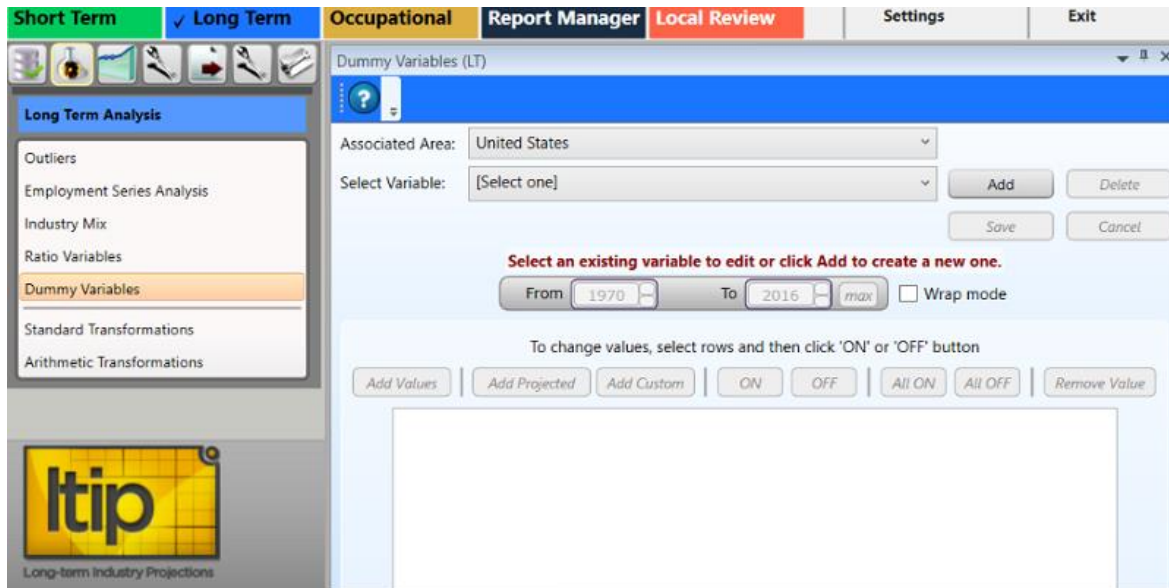


Figure 1: Dummy Variables module

View Variable Values

1. Select an area from the **Associated Area** drop-down menu.
2. Select a variable from the **Select Variable** drop-down menu. The values associated with that variable will be displayed.
3. Click the **Wrap mode** check box to view all the variable values in wrap mode. Wrap mode lists the values in rows and columns, instead of a single column.

Add a New Variable

1. Select an area you want to add the variable to from the **Associated Area** drop-down.
2. Click the **Add** button next to the **Select Variable** drop-down menu. The **Annual Dummy Variable** dialog box will be displayed.
3. Type a descriptive **Variable Name** for the new Dummy Variable.
4. Click **OK**. The new variable will be displayed in the **Select Variable** drop-down menu.

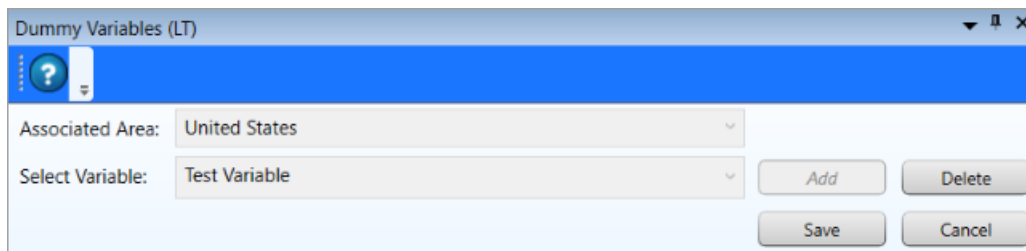


Figure 2: The new variable (Test Variable) displays

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5. Set the time frame using the [Date Spinner Controls](#). Click the **max** button to automatically set the longest time frame possible.
6. Click the **Add Values** button. A list of zero value variables will be added, reflecting the dates chosen with the date spinners.

Change Variable Values

1. **Dummy Variables** have two values, either a zero (0) or a one (1).
 - **0** is the default value.
 - **1** corresponds to (or is used to "mark") some event or value that needs to be displayed for a specific month/year.

To turn the values on or off, or remove the values:

- Click the **ON** button to turn the variable on (1) for that year. On values indicate the period of the key event.
- Click the **All ON** button to turn the variables on for all years.
- Click the **OFF** button to turn the variable off (0) for the selected year.
- Click the **All OFF** button to turn the variables off for all years.
- Click **Remove Value** to remove a selected value from the list.

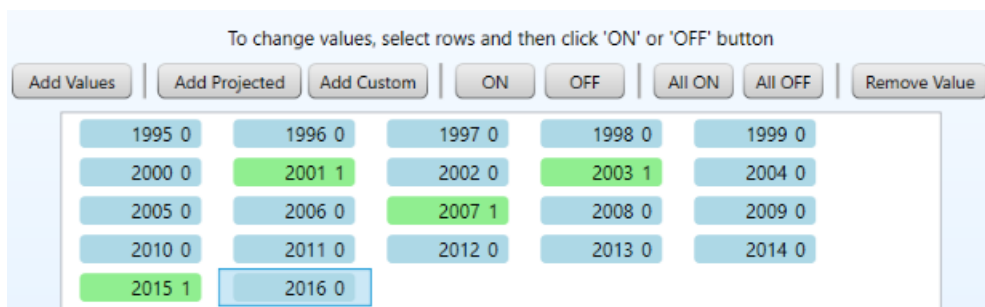


Figure 3: OFF values are blue, ON values are green

- ☞ Multiple values can be selected at once. For assistance with selecting multiple variables at a time, click [here](#).

2. When you are finished changing the variable's values, click the **Save** button. Click **Cancel** to cancel the creation of the Dummy Variable.

Add a Projected Value

1. Click the **Add Projected** button. A value will be added which corresponds to the value selected in the [Settings](#) menu (the option among the main menu at the top of the Projections Suite software display), under the Long-Term settings.

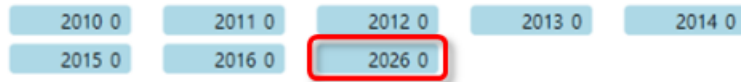


Figure 4: Projected value added

Add a Custom Value

To add a year not included in the dates initially created with the **Add Values** button:

1. Click the **Add Custom** button. The **Add Custom Date** dialog box will be displayed.
2. Type the **Year**.
3. Click **OK**. The date will be added to the values.

Remove a Variable Value

1. Select the value to delete.
2. Click the **Remove Value** button.

Delete a Variable

1. Select the **Associated Area** and **Select Variable** from the drop-down menus.
2. Click the **Delete** button. The **Delete Annual Variable** dialog box will be displayed.
3. Select **Yes** to delete the variable. Click **No** to keep the variable.

Related Content

- [OLS Regression Models](#)
- [Review Variables](#)

Standard Transformations

Use the **Standard Transformation** module to modify variables for a specific area and time frame. You can create a new variable from any kind of annual series in the system, from another variable, or from an employment series. This module allows the transformation of variables and/or employment in various industries.

Screen Controls

- **Select an area** drop-down menu
- **Select a variable to transform** drop-down menu
- **Transform** control group
 - **Variable** radio button
 - **Employment** radio button
- **Date Spinner Controls**
- **Select a transformation** control group
 - **Lag 1** radio button
 - **Lag 2** radio button
 - **Log** radio button
 - **Quadratic** radio button
 - **Reverse Quadratic** radio button
- **What would you like to graph?** control group
 - **Series** check box
 - **Transformed series** check box
- **Save transformed series** button
- **Graph Enhancement Controls**



Figure 1: Standard Transformations module

Modify Variables

1. **Select an area** from drop-down menu.
2. Select a **Transform** radio button from the control group. There are two choices in the **Transform** radio button group:
 - **Variable**
 - **Employment**

The second drop-down menu will perform *one of two* functions, based on which **Transform** control group radio button choice is made. Selecting the **Variable** radio button causes the second drop-down menu to become a **Select a variable to transform** drop-down menu. Selecting the **Employment** radio button causes the second drop-down menu to become a **Select an employment series to transform** drop-down menu.

The figure consists of two screenshots of a web interface. The top screenshot shows a 'Transform:' control group with two radio buttons: 'Variable' (selected) and 'Employment'. A red box highlights the 'Variable' button, and a red arrow points from the box to the label 'Select a variable to transform:'. Below the label is a drop-down menu showing 'Annual Percent Change of Real Disposable Income'. The bottom screenshot shows the same 'Transform:' control group, but the 'Employment' radio button is selected. A red box highlights the 'Employment' button, and a red arrow points from the box to the label 'Select an employment series to transform:'. Below the label is a drop-down menu showing '000000 - Total All Industries'.

Figure 2: Select an option from the Transform control group

- ☞ For most non-US employment series, you will not have a projected value. [OLS Regression Models](#) need a projected value for each input variable.
3. After selecting a **Transform** radio button, either **Select a variable to transform** or **Select an employment series to transform** from the drop-down menu.
 4. For the transformation to be valid, a time frame must be set by using the [Date Spinner Controls](#).
- ☞ [Select Chart Dates](#) to examine them in further detail.

By selecting an **area**, a **Variable** or **Employment** series option, and time frame, the data will be displayed in the graph:

Projections Suite 2022

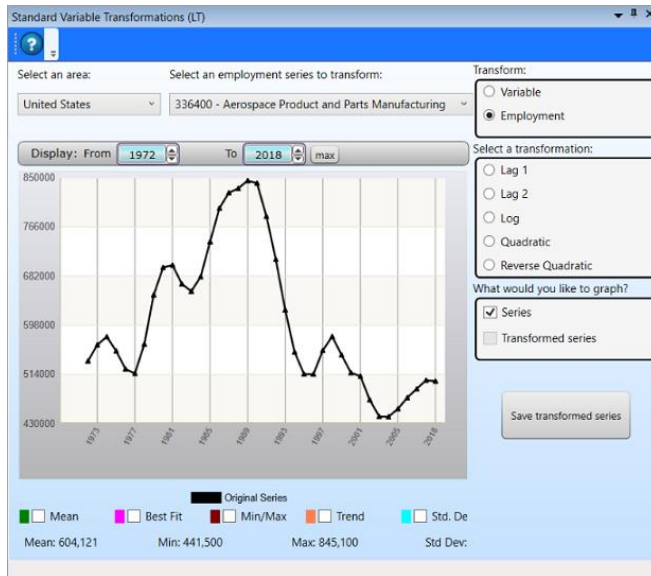


Figure 3: Selected criteria are displayed

Use the [Graph Enhancement Controls](#), if desired.

1. When selecting transformations, use the **What would you like to graph?** control group to view the **Series**, **Transformed series**, or the two together.

Select a Transformation

1. **Select a transformation** from the control group.

Lag 1 - Moves the value from a particular year to the following year.

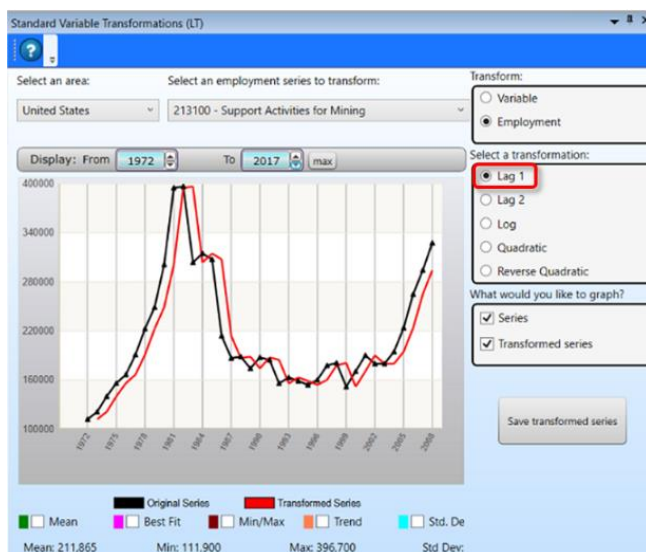


Figure 4: Employment lagging the original series by 1 year

Lag 2 - Moves the value from a particular year forward two years.

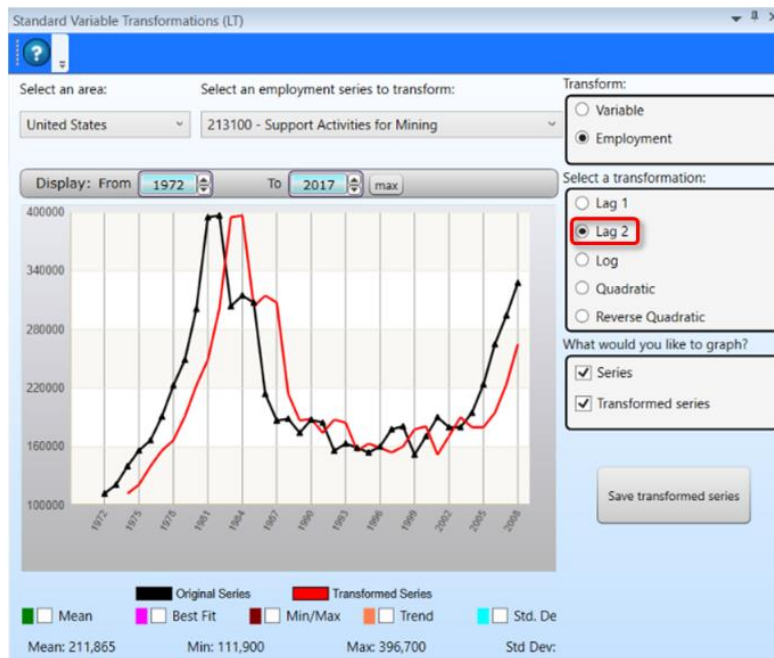


Figure 5: Employment lagging the original series by 2 years

☞ A lagged series is shortened by the amount of the lag.

Log

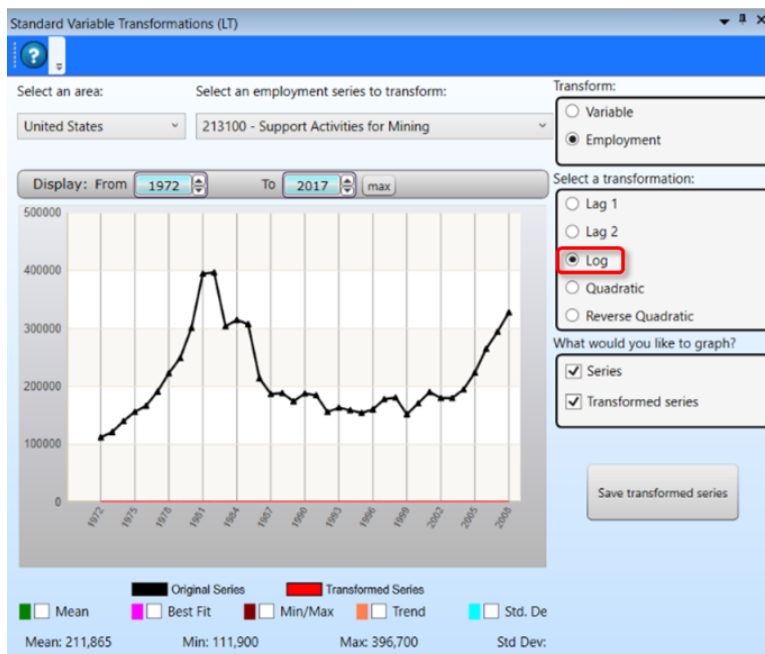


Figure 6: Employment Log transformation

Projections Suite 2022

Quadratic

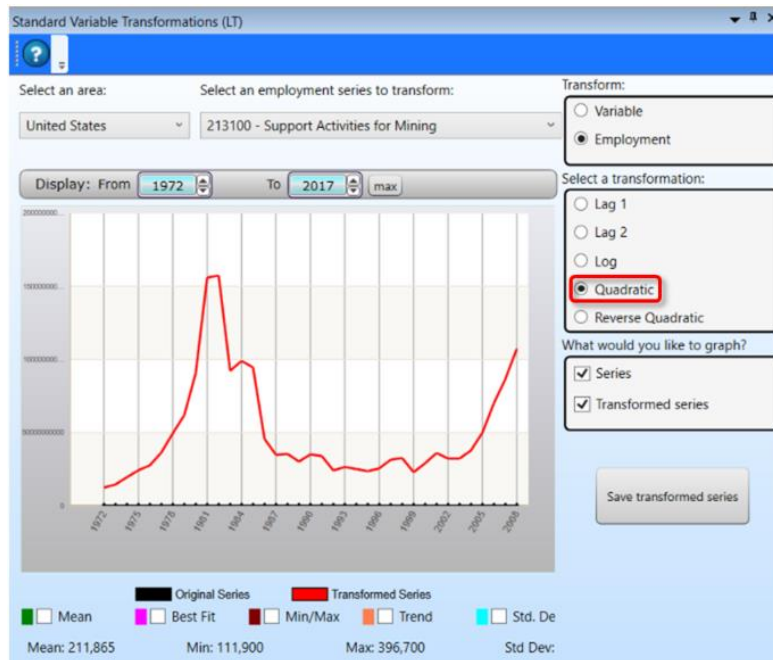


Figure 7: Employment Quadratic transformation

Reverse Quadratic

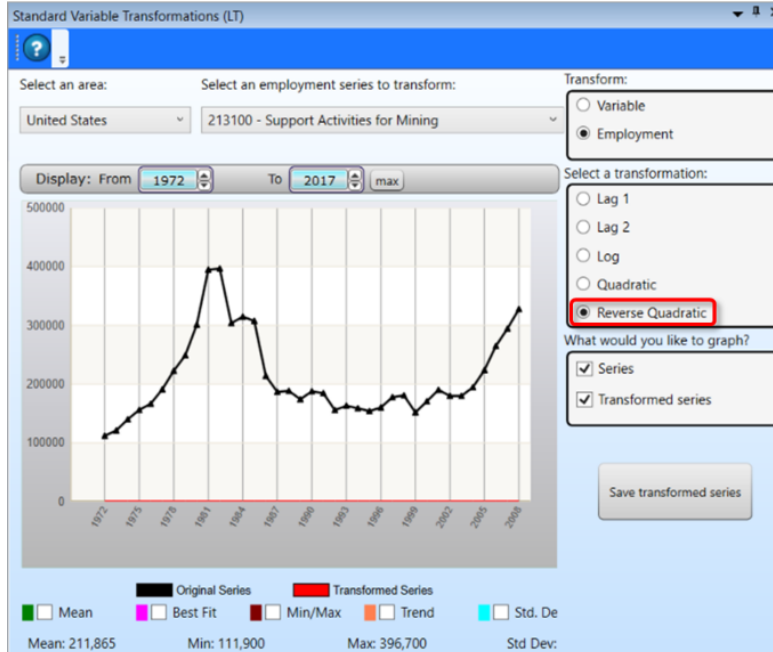


Figure 8: Employment Reverse Quadratic transformation

Save the Transformation Series

1. When you are satisfied with the transformation, click the **Save Transformed Series** button. The **LTIP Message** dialog box will be displayed.
2. Either accept or change the **Transformed variable name**.
3. Click **OK** to save the series. Click **Cancel** to discard the transformation.

Related Content

- [Variable Directory](#)
- [Edit Variables Time Series](#)
- [Review Variables](#)

Arithmetic Transformations

Use the **Arithmetic Transformations** module to create new or artificial variables based on other variables or employment data used with [OLS](#) Projections.

Screen Controls

- **Series 1 selector** drop-down menu
 - **Area 1 selector** drop-down menu
- **Series 2 selector** drop-down menu
 - **Area 2 selector** drop-down menu
- **Date Spinner Controls**
- **Series 1 type** control group
 - **Variable** radio button
 - **Employment** radio button
- **Series 2 type** control group
 - **Variable** radio button
 - **Employment** radio button
- **Arithmetic Process** control group
 - **Addition (+)** radio button
 - **Subtraction (-)** radio button
 - **Multiplication (x)** radio button
 - **Division (/)** radio button
- **What would you like to graph?** control group
 - **Line 1 (Black)**
 - **Series 1** radio button
 - **Series 2** radio button
 - **Transformed** radio button
 - **Line 2 (Blue)**
 - **Series 1** radio button
 - **Series 2** radio button
 - **Transformed** radio button
- **Save transformed variable** button
- **Graph Enhancement Controls**

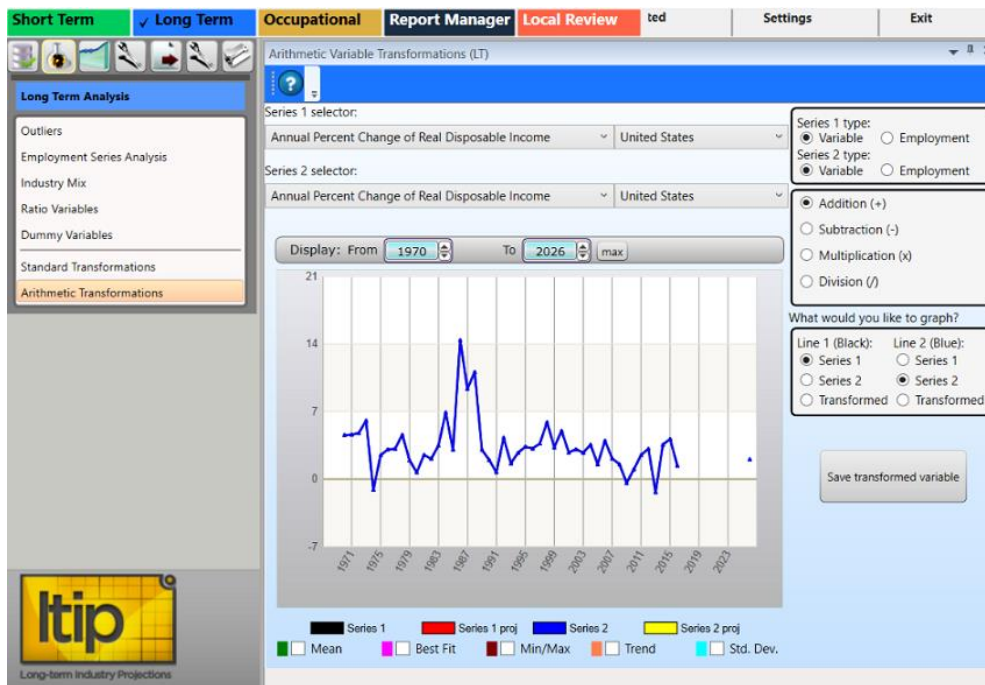


Figure 1: Arithmetic Transformations module

Create Variables

1. Select a **Series 1 type (Variable or Employment)** radio button. The **Series 1 selector** options change with the **Series 1 type** selected (see Figure 2).
2. Select an area from the **Area 1 selector** drop-down menu.
3. Select a series from the **Series 1 selector** drop-down menu.
4. Select a **Series 2** radio button. The Series 2 selector options change with the Series 2 type selected (see Figure 2).



Figure 2: Series type selection options

5. Select an area from the **Area 2 Selector** drop-down menu.
6. Select a series from the **Series 2 selector** drop-down menu.
7. Select a time frame using the [Date Spinner Controls](#).
When **Area (1 and 2)**, **Series (1 and 2)**, and the time frame are selected, their data will be displayed in the chart.

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8. Use the [Graph Enhancement Controls](#), if desired. These overlaid statistics only apply to the first series (the black line on the graph).
9. Select an option from the **Arithmetic Process** control group. The Arithmetic Process (**Addition**, **Subtraction**, etc.) determines the type of calculation used in the transformation.
10. Make radio button selections for **Line 1** and **Line 2** in the **What would you like to graph?** control group. These selections assign the **Series** and/or **Transformed Values** to the black and blue chart lines

Save Transformed Variable

1. Click the **Save transformed variable** button. An **LTIP Message** dialog box will be displayed.
2. Enter a **Transformed variable name** before saving the variable.
3. Click **OK** to save the transformed variable. Click **Cancel** to discard the transformation.

Related Content

- [Variable Directory](#)
- [Edit Variables Time Series](#)
- [Review Variables](#)

Long-Term Projections

The **Long-Term Projections** group menu allows the projecting of annual historical employment into the future, for industry and employment statistical reports and for use in Occupational Projections. There are three main projection models in the Projections category. You can use any or all of them, and can run multiple models on an industry and save them.

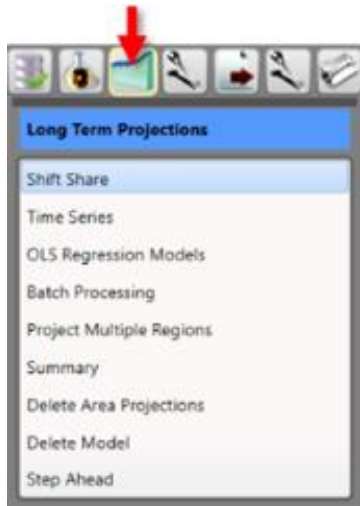


Figure 1: Long-Term Projections group menu

The **Long-Term Projections** group menu contains the following selections:

- [Shift Share](#)
- [Time Series](#)
- [OLS Regression Models](#)
 - [Model Definition Tab](#)
 - [Projection Results Tab](#)
 - [Graphs/Tables Tab](#)
- [Batch Processing](#)
- [Project Multiple Regions](#)
 - [Industry View Tab](#)
 - [Area View Tab](#)
- [Summary](#)
- [Delete Area Projections](#)
- [Delete Model](#)
- [Step Ahead](#)

Shift Share

Use the **Shift Share** module to compare different shift-share models to project specific industries and areas. Shift Share models differ in that they do not take a historical series into account. Shift Share uses one or two single points on one or more [related industries](#) series to generate a projection.

Shift share models depend on other time series being present besides the one being projected. These include the state Total All Industries series, the national industry series, and the national Total All Industry series. If any points needed for a formula are missing, the system displays an error message, the projected value displays as N/A, and the graph displays only the historical series without a projection.

Screen Controls

- **Select an industry** drop-down menu
- **Select an area** drop-down menu
- **Select a shift-share model** drop-down menu
 - **Constant Share**
 - **Reference area** control group
 - **U.S.** radio button
 - **State** radio button
 - **Share** field
 - **Reset ratio** button
 - **Constant Share of Aggregate Industry Employment**
 - Aggregation level control group
 - **Total** radio button
 - **Sector** radio button
 - **3-Digit** radio button
 - **Employment-to-Population Ratio**
 - **Constant Location Quotient**
 - **Implicit Shift-share**
 - **Reference area** control group
 - **U.S.** radio button
 - **State** radio button
 - **Modified Implicit Shift-share**
 - **Enter/change projected industry ratio** button
 - **Classical Shift-share**
 - **Constant Regional Rate**
- **Date Spinner Controls**
- **Save projection** button
- **Show saved projections** button
- **Show U.S. unemployment** rate button
- **Graph Enhancement Controls**

Long-Term Industry Projections

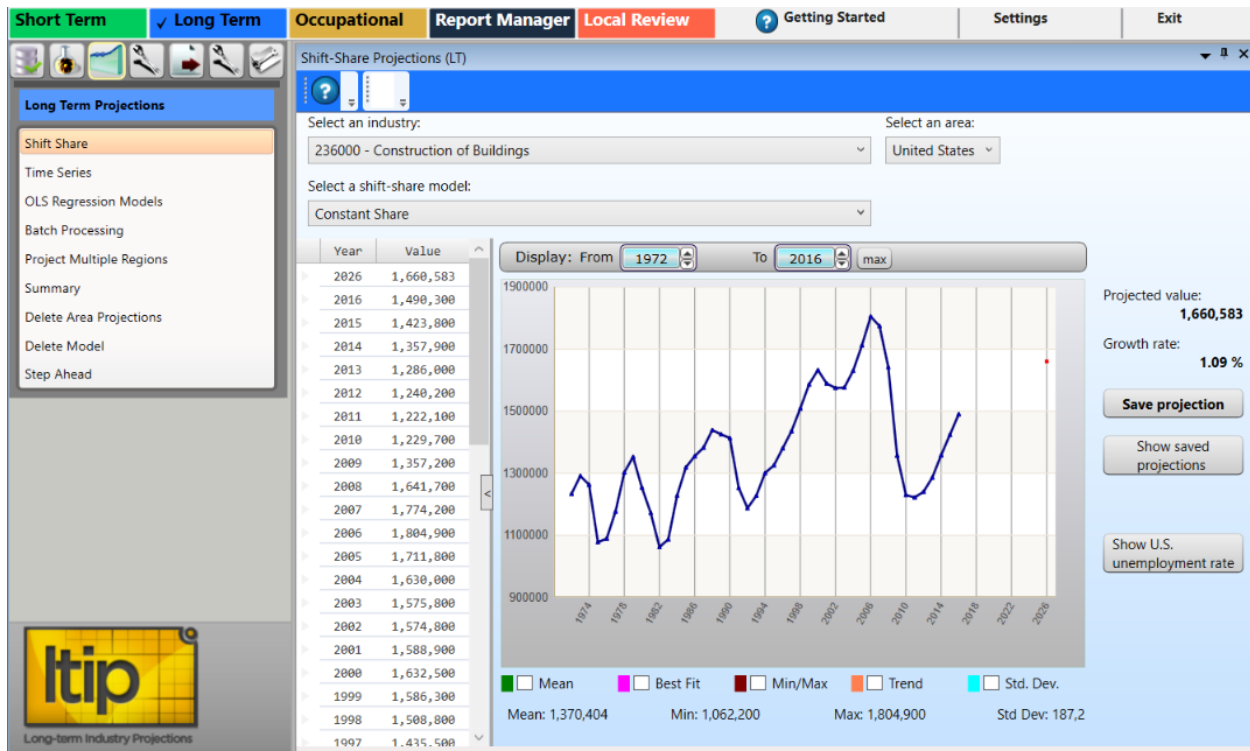


Figure 1: Shift Share module

Use Shift-share Models

1. **Select an area** from the drop-down menu (on the right).
2. **Select an industry** from the drop-down menu (on the left).
3. **Select a shift-share model** from the drop-down menu. Options are:
 - Constant Share
 - Constant Share of Aggregate Industry Employment

If you select **Constant Share of Aggregate Industry Employment**, you can select an **Aggregation level** radio button. The selectable options are:

- **Total**
- **Sector**
- **3-Digit**

This model depends on there being a time series and projected value for an aggregate level to which the projected industry belongs. If the aggregate level series or projection does not exist, the projection cannot be calculated.

- Employment-to-Population Ratio. The area selected must have a population variable defined.
- Implicit Shift-share

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- Modified Implicit Shift-share. Selecting Modified Implicit Shift-Share enables the **Enter/change projected industry** ratio button.
- Classical Shift-share. If you select **Classical Shift-share**, the **Shift-Share Projections** dialog box displays. Enter the **Projected industry share** as a number between 0 and 1, then click **OK**. The **Projected ind. ratio** entered displays to the right of the graph. Click **Enter/change projected industry ratio** to edit the value.
- Constant Regional Rate

☞ If you select a sub-state area, the shift-share model options change. The **Constant Share** and **Modified Implicit Shift-share** models include a **Reference area**. Options are U.S. and State. If you choose State, you must have a statewide projected value for the industry in the employment table or the model will not run.

4. Select a time frame using the **Display** date spinner. By selecting an industry, area, shift-share model, and time frame, data is displayed in the chart. Note that the projected value changes when the [Date Spinner Controls](#) are manipulated.

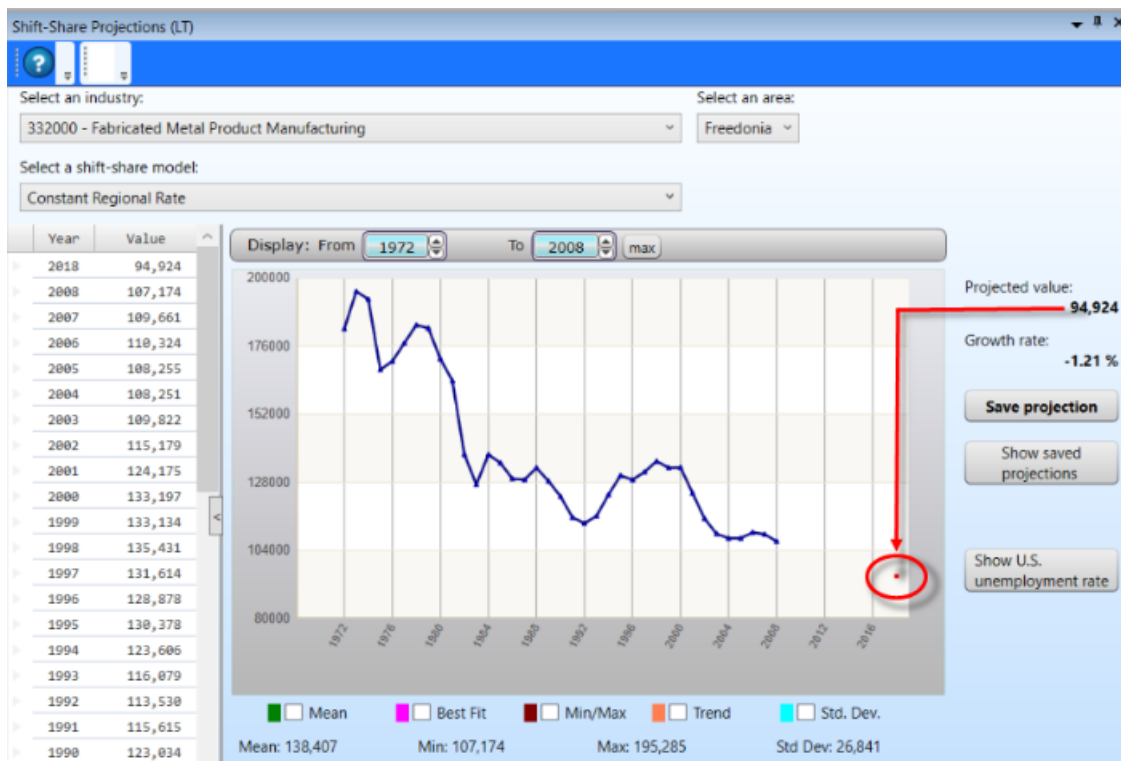


Figure 2: Data charted for the selected variables

The table and graph display the historical series along with the projected value. The projected point is shown on the graph in red (highlighted in Figure 2). The Projected value and Growth rate display to the right of the graph.

☞ Use the [Graph Enhancement Controls](#), if desired.

Display the Unemployment Rate

To display the **U.S. Unemployment Rate**, click the **Show U.S. Unemployment Rate** button. This value is distributed with the Projections Suite software. On the U.S. Unemployment Rate window, you can view data for a specific time frame by manipulating the **Display** date spinner. The **Max** button sets the longest time frame possible.

Save Projection

To save projected data, click the **Save projection** button.

Show Saved Projections

To display saved Projections, click the **Show Saved Projections** button. The saved Projections will display in a separate window.

Time Series

Use the **Time Series** module to set up Projections for specific industries and areas. Time Series Projections do not use any explanatory variables, nor any input other than the historical series. The historical series must be complete. If there are missing data points, you cannot calculate the projection.

Screen Controls

- **Select an industry** drop-down menu
- **Select an area** drop-down menu
- **Select a time series model** drop-down menu
- **Date Spinner Controls**
- **Save projection** button
- **Show saved projections** button
- **Graph Enhancement Controls**

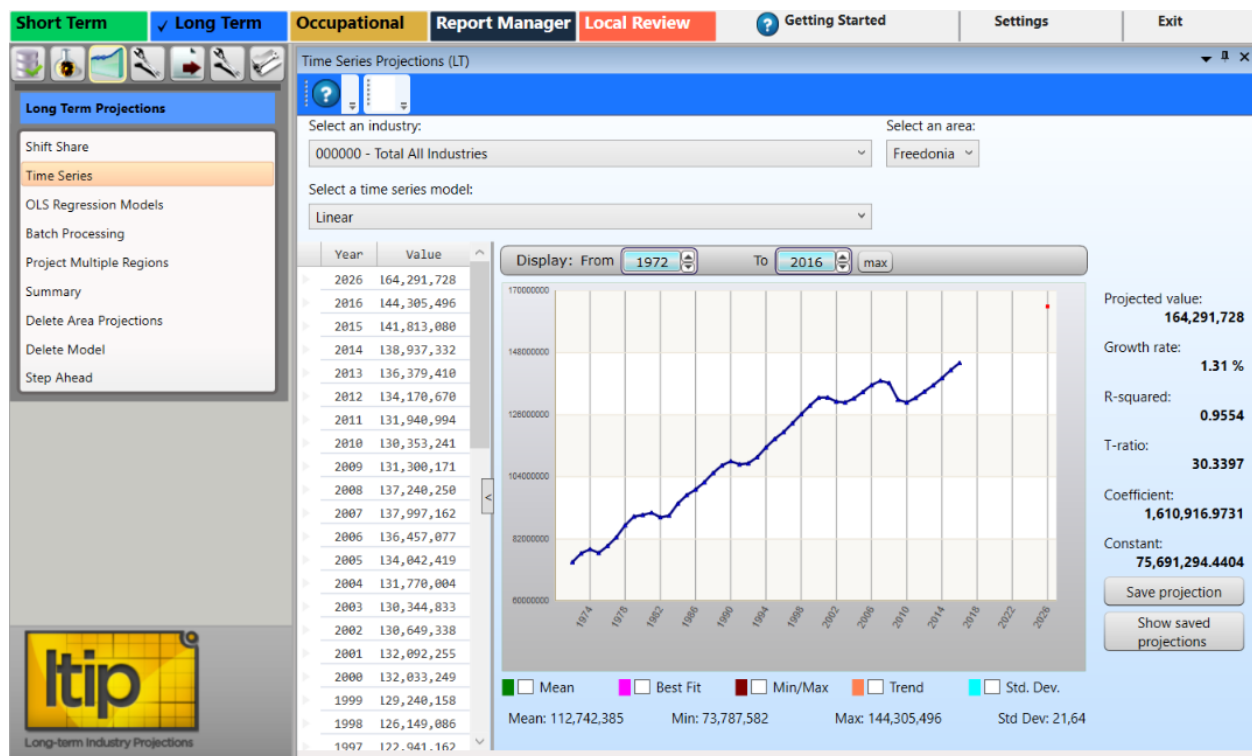


Figure 1: Time Series module

Display Time Series Models for Specific Industries and Areas

1. **Select an Area** from the drop-down menu.
2. **Select an Industry.**
3. **Select a Time Series Model.** The options are:

- **Linear**
- **Logarithmic** - calculates a regression equation based on the log of year rather than the year itself.
- **Exponential (Semi-log)** - the inverse of the logarithmic model. It is based on exponentiation of the year, or conversely, the logarithm of the employment value.
- **Polynomial** - attempts to fit a quadratic regression line to the historical series. The equation has two terms: a squared term and a linear term. Because of this, there are two Coefficients and two T-ratios in the explanatory statistics.

☞ The **Best Fit** and **Trend** check boxes in the [Graph Enhancement Controls](#) calculate lines based on the **Linear** and **Polynomial** models. If you choose the Linear model then click Best Fit, the statistical line should line up with your projection. The same is true of the Polynomial model and the Trend Line.

4. Use the [Date Spinner Controls](#) to set the time frame. The associated data will be displayed in the chart. The **Projected value**, **Growth rate**, **R-squared**, **T-ratio**, **Coefficient**, and **Constant** statistics display to the right of the graph. If any data points are missing, the values to the right of the graph display as **N/A** and the graph displays only the historical series without a projection.

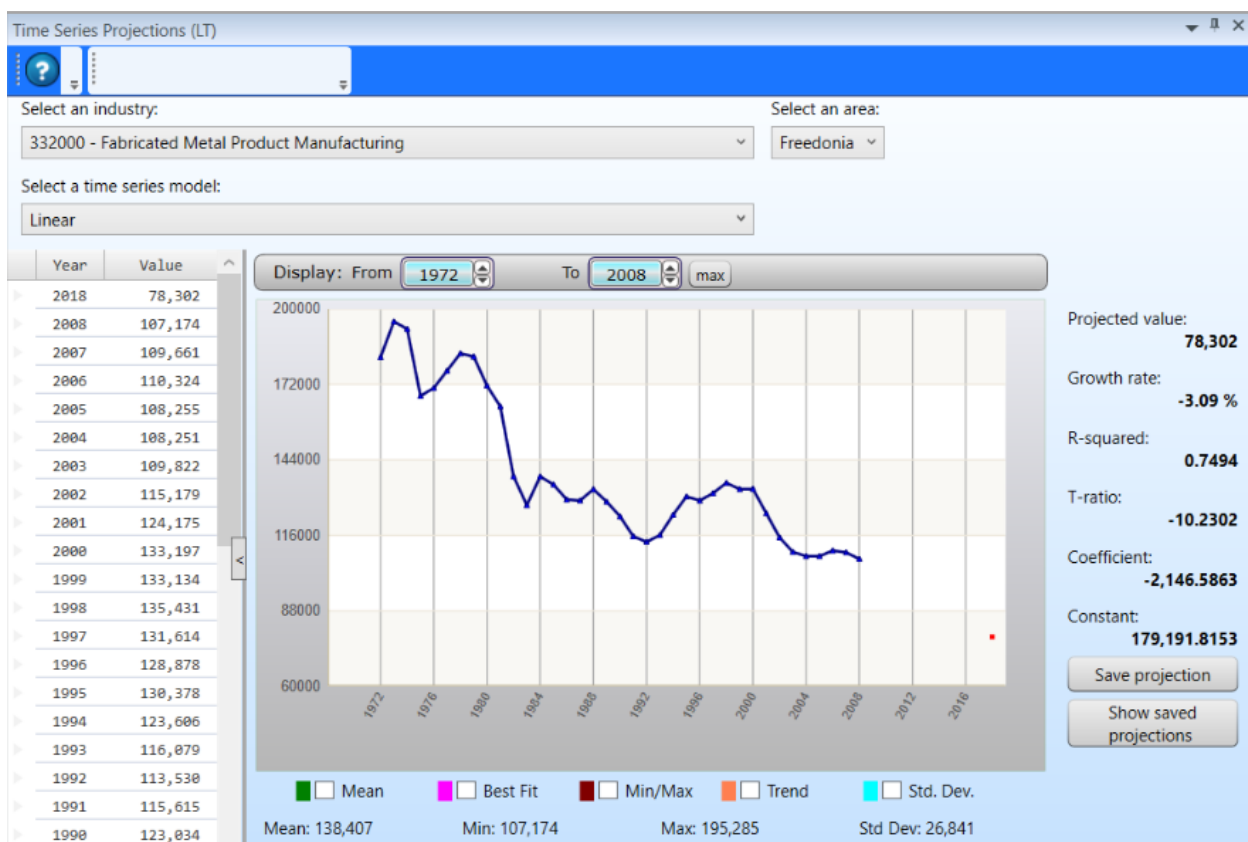


Figure 2: Charted data for the selected variables

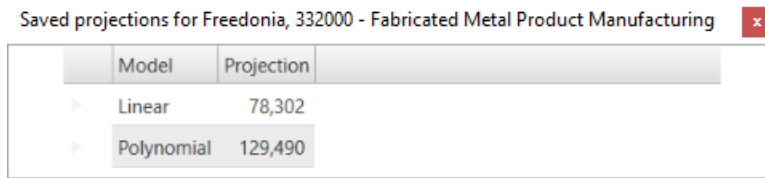
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Save Projection

To save projected data, click the **Save projection** button. The projected values are stored in the database along with the explanatory statistics. You can save as many Projections for the same industry as you like.

Show Saved Projections

To display the saved Projections, click the **Show saved projections** button. The saved Projections will be displayed in their own window:



Saved projections for Freedonia, 332000 - Fabricated Metal Product Manufacturing

	Model	Projection
▶	Linear	78,302
▶	Polynomial	129,490

Figure 3: Saved Projections

OLS Regression Models

Use the **OLS Regression Models** module to set up options for projecting different scenarios for specific industries, areas, and time frames. The result of the calculation is a regression equation that is used to project a value for the dependent variable, the industry historical series.

Screen Controls

- **First year** and **Last year** spinners
- **Select an industry** drop-down menu
- **Select an area** drop-down menu
- **Model selection** tab
 - **Export** model radio button
 - **Export** check boxes
 - **Local** model radio button
 - **Local** check boxes
 - **User-defined** model radio button
- [Model definition](#) tab
- [Projection results](#) tab
- [Graphs/Tables](#) tab
- **Use dummy variable** check box and spinner
- **Correction for serial correlation** check box
- **# of Theil-U forecast years** input field
- **Save Comments** button

Figure 1: OLS Regression Models module

Set Up Options for Projections

1. Select the **First year** and **Last year** for your time frame, using the [date spinners](#).
2. **Select an Industry** from the drop-down menu.
3. **Select an Area**.

☞ The **Model selection**, **Model definition**, **Projection results**, and **Graphs/Tables** tabs represent different stages of the model definition and Projections process. The Projection results and Graphs/Tables tabs are inactive until you select or define a valid model.

4. On the **Model selection** tab, select the model type:
 - **Export**
 - **Local**
 - **User-defined** - models defined by selecting an Export or Local model and adding variables or other model options on the **Model definition** tab.
- ☞ You can select any of the ten predefined [OLS models](#) in the system or any user-defined models that have been saved previously.
- Select a model by checking the listed boxes. When you select a model, the model definition and any saved comments display, the model is listed in the current model field, and the Projections results and Graphs/Tables tabs become active. You can enter new comments about the model you are using, then click **Save comments**.

OLS Projections (LT)

First year: 1972 Last year: 2008 Current model: Local #2 Location quotient: 1.0000 Local

Select an industry: 000000 - Total All Industries Select an area: Freedonia

Model selection Model definition Projection results Graphs/Tables

☐ Export ☒ Local ☐ User-defined

	Variables in Local #2:	Comments:
<input type="checkbox"/> Local #1		
<input checked="" type="checkbox"/> Local #2	US industry employment Area personal income	
<input type="checkbox"/> Local #3		
<input type="checkbox"/> Local #4		
<input type="checkbox"/> Local #5		
<input type="checkbox"/> Local #6		

☐ Use dummy variable 1990

☐ Correction for serial correlation

4 # of Theil-U forecast years

Save comments

Figure 2: After the Local #2 option is checked, variables used in that selection are displayed

- Optionally, select **Use dummy variable** and select the **year** (a runtime option only).
 - Select **Correction for serial correlation** for the model to [correct for a serial correlation](#), if applicable.
 - Optionally, enter a number for the **# of Theil-U forecast years**. The [Theil-U](#) forecast years default is 4.
5. Click the **Model Definition** tab or go directly to **Projection results** (if the tab is enabled).

Related Content

- [Delete Model](#)
- [Dummy Variables](#)

Model Definition Tab

The **Model Definition** tab allows modifications to existing [OLS models](#), or the definition of a model from scratch. When you select a model on the Model selection tab, the values display on the Model definition tab. You can add options to the model or click **Clear model settings** to clear the current selections.

Screen Controls

- **Independent variables** check boxes
- **Other model options** check boxes
- **Runtime options** control group
- **Use an employment series as a variable** button
- **Save settings as user-defined model** button
- **Clear model settings** button

The screenshot displays the 'OLS Projections (LT)' window with the 'Model definition' tab selected. The interface includes the following elements:

- Top Bar:** 'First year: 1972', 'Last year: 2016', 'Current model: Local #2', and 'Location quotient: 1.0000 Local'.
- Selections:** 'Select an industry: 000000 - Total All Industries' and 'Select an area: United States'.
- Tabs:** 'Model selection', 'Model definition' (active), 'Projection results', and 'Graphs/Tables'.
- Select one or more independent variables:** A list of variables with checkboxes, including 'Initial Claims', 'Govt: Total Expenditure (Thous.\$)', 'Govt: Total Revenue (Thous.\$)', 'Personal Income (Mil.\$)', 'Real Personal Income (Mil.Chn.2005\$)', 'Population (Thous)', 'Per Capita Personal Income (\$)', 'Real Per Capita Personal Income (Chained.2005\$)', 'Real Per Capita Disposable Income (\$)', 'Total Wages & Salaries (Mil.\$)', 'Disposable Personal Income (Mil.\$)', and 'Real Disposable Personal Income (Mil.Chn.2005\$)'.
- Other model options:**
 - Ratio variables:**
 - ☐ Area total employment/U.S. total employment
 - ☐ Area population/U.S. population
 - ☐ Area personal income/U.S. personal income
 - ☐ U.S. industry employment/U.S. total employment
 - ☐ U.S. industry employment/U.S. population
 - ☐ Use area population as an independent variable
 - ☒ Use area personal income as an independent variable
 - ☒ Use national employment for this industry as an independent variable
 - ☐ Use time (year) as an independent variable
- Runtime options:**
 - ☐ Use dummy variable (1990 Breakpoint year)
 - ☐ Correction for serial correlation
 - # of Theil-U forecast years:
- Employment series to be used as variables:** An empty text box.
- Buttons:** 'Use an employment series as a variable', 'Save settings as user-defined model', and 'Clear model settings'.

Figure 1: OLS Regression Models module, Model definition tab

Create or Customize a Model

1. **Select one or more independent variables**
2. Select **Other model options** such as:

- Ratio variables
- Runtime options

☞ The **Use dummy variable** option is not stored as part of the model definition but is an optional parameter at the time of the projection calculation.

3. Click the **Use an employment series as a variable** button. A series of OLS Projections dialogs will display.
4. Select the **Area** and click **OK**.
5. Select an Industry and click **OK**. The employment series displays in the **Employment series to be used as variables** table. To remove the employment series, right click the industry in the box and select **Remove**.
6. Repeat these steps to add additional industries. Selected industries are listed in the **Employment series to be used as variables** table. Right click the variable and select **Remove** to remove it.
7. Click the **Save settings as user-defined model** button. You will be prompted to enter a model name.
8. Enter a **Model name** and click **OK**. The model is now available for use on the **Model selection** tab, by selecting the **User-defined** radio button.

To start over with different variables, click the **Clear model settings** button to clear the selected options.

Related Content

- [Ratio Variables](#)
- [Dummy Variables](#)

Projection Results Tab

The **Projection results tab** displays the results of the OLS Regression Model, with the selected options.

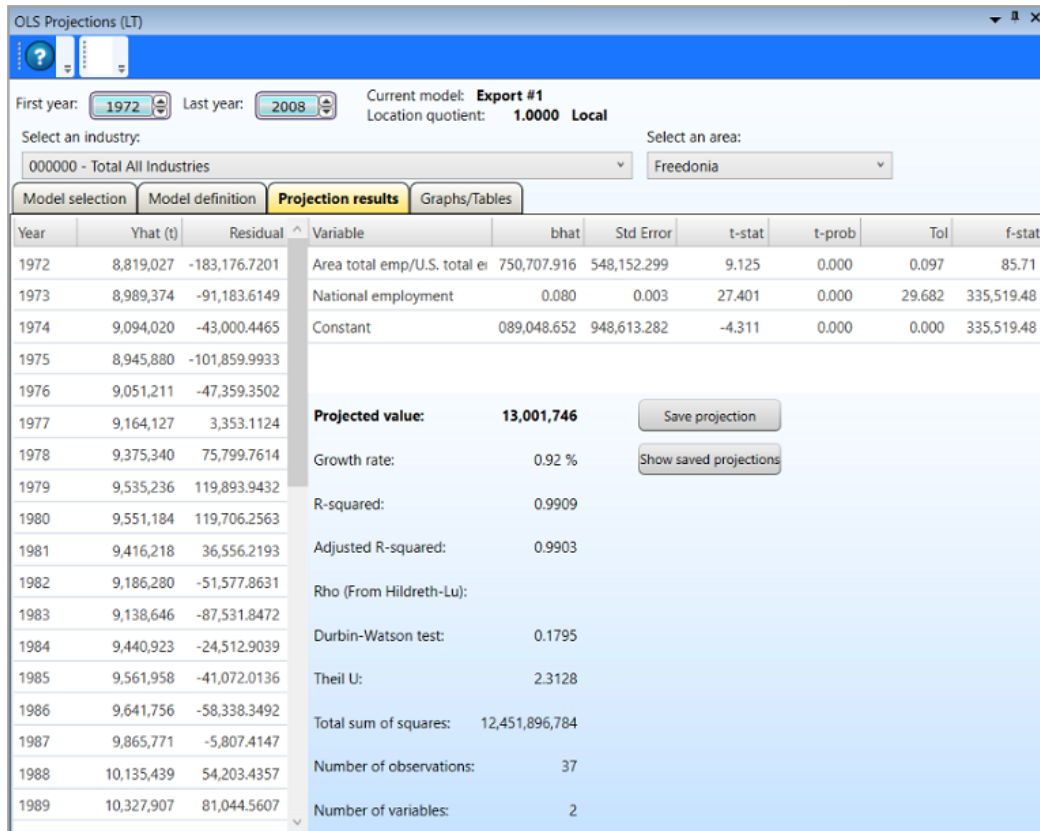


Figure 1: Projection Results tab

The **Projected value** is in bold text. Beneath it are explanatory statistics:

- Compound annual Growth rate
- [R-squared](#)
- [Adjusted R-squared](#)
- Rho value that is computed using the Hildreth-Lu algorithm if you selected [Correction for serial correlation](#) as part of the model definition
- [Durbin-Watson](#) test
- [Theil-U](#)
- Total [sum of squares](#)
- [Number of Observations](#) and Variables in the OLS regression matrix

Above these statistics is a table displaying statistics related to the variables making up the model. There is one row for each variable, plus a row for the regression equation's constant term. The statistics in the table are:

Long-Term Industry Projections

- b-hat or beta value, which is the coefficient of the variable in the equation
- [Std Error](#)
- [t-stat](#)
- t-prob
- Tol
- [f-stat](#)

On the left side of the screen, the table displays a row for each year in the historical series. The total number of rows should match the observation count. The $\hat{Y}(t)$, the value of the historical series predicted by the model, and the [Residual](#) (the difference between the \hat{Y} and the actual value of the historical series for the year) are displayed.

You can **Select an industry** to project a value for another industry.

Click **Save projection** to save the model you want to keep. The projected value is saved in the database along with all of the associated statistics as well as the beta and \hat{y} tables. You can save as many model results for the same industry as you want.

Click **Show saved projections** to view a pop up with currently saved Projections.

Graphs/Tables Tab

The **Graphs/Tables** tab displays the results of the OLS Regression Model. You can see a graph of the historical series and all of the variables that make up the model.

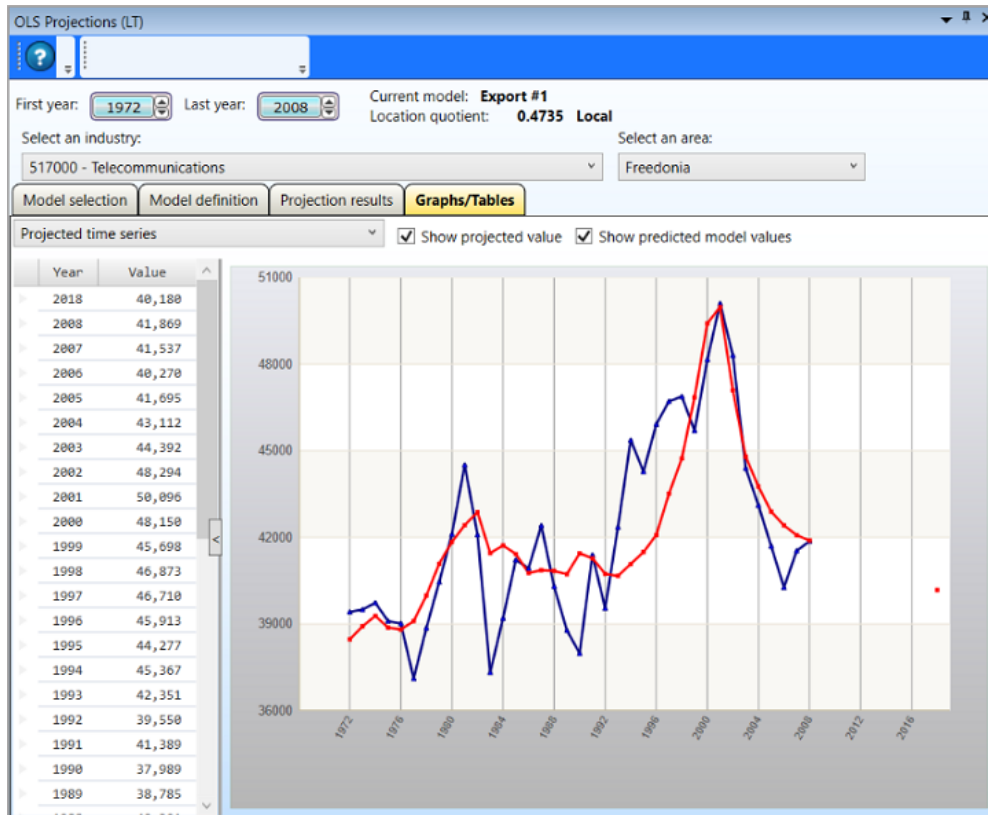


Figure 1: Graphs/Tables tab

Adjust Data View

1. Select a **First year** and **Last year**.
2. **Select an industry** to view the selected model's data for that industry.
 - **Projected time series**
 - **Selected area**
 - **Residuals**
3. **Select an area** to view the selected model's data for the industry in the selected area.
4. Optionally:
 - Click **Show projected value** to include the dot indicator (to the right of the graph in Figure 1), which is the projected value based on your selections.

- Click **Show predicted model values**, which displayed points and a connecting graph (in red), only available if a projected time series is selected from the drop-down menu.

Related Content

- [OLS Regression Models](#)
- [Model Definition](#) tab
- [Projection Results](#) tab

Batch Processing

Use the **Batch Processing** module to process multiple industries at the same industry level using one or more existing models. Options are available to customize the settings used when batch processing multiple industries.

Screen Controls

- **User settings** tab
 - **Select an Area** drop-down menu
 - **Select Industry Level** drop-down menu
 - **Correction for serial correlation** check box
 - **Reference area** radio buttons
 - **National** radio button
 - **State** radio button
 - **# Theil U forecast years** spinner
 - **Add dummy variable** check box
 - **Breakpoint year for dummy variable** spinner
 - **Run Projections** button
 - **Save Projections** button
- **Projection Results** tab
- **OLS Details** tab
- **Error Report** tab
- **Use as first year for shift-share/time series** check box and spinner
- **Model** tabs
 - **Shift Share** tab
 - **Time Series** tab
 - **OLS Regression** tab

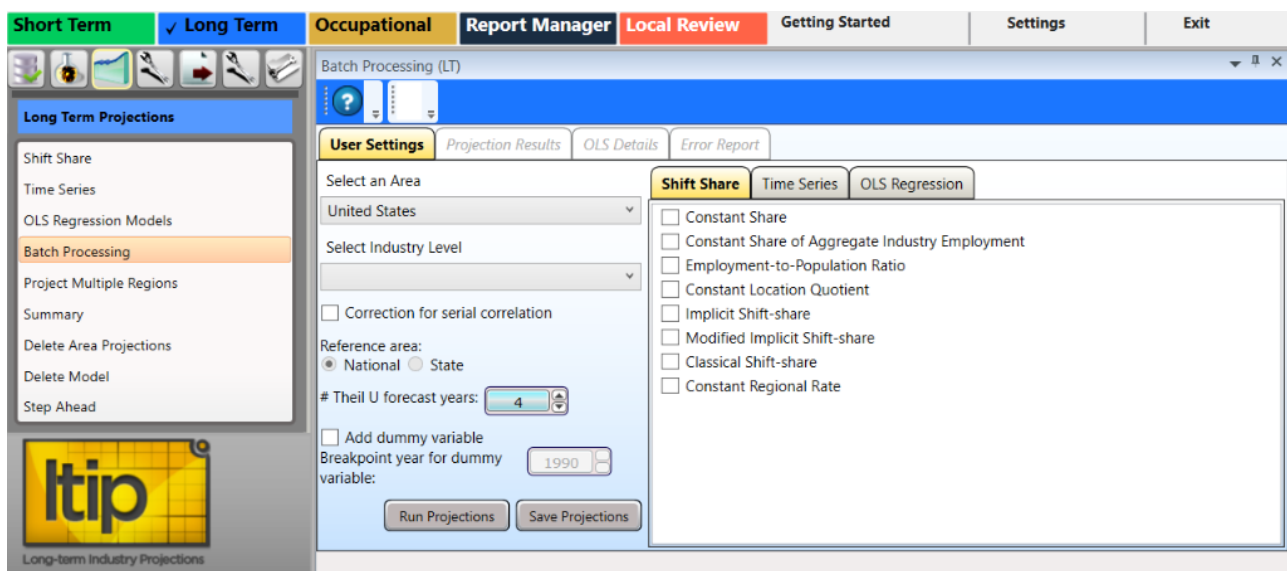
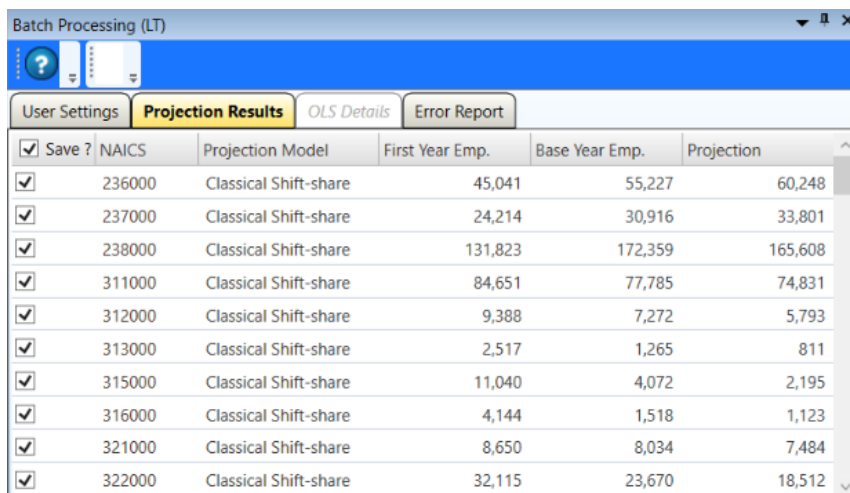


Figure 1: Batch Processing module

Batch Processing Multiple Industries

1. **Select an Area** from the drop-down menu.
2. **Select an Industry Level** from the drop-down menu.
3. Optionally, select any of the following controls:
 - Select [Correction for serial correlation](#).
 - Select a **Reference area** - this option is only available if you selected a sub-state area.
 - Select the # [Theil U](#) forecast years.
 - Select **Add dummy variable**.
 - If using a dummy variable, select the **Breakpoint year** for dummy variable using the spinner. A Breakpoint year is a place in the time series (year) where values change significantly. It is set to 1990 by default, the year of the [NAICS](#) code change, but it can be set to any year.
4. Click one or more check boxes in any of the **Shift Share**, **Time Series**, or **OLS Regression** model tabs. The **Run Projections** button becomes available after selecting model options.
5. Click the **Run Projections** button. Projection results based on the selected models will be displayed on the **Projection Results** tab.



Save?	NAICS	Projection Model	First Year Emp.	Base Year Emp.	Projection
<input checked="" type="checkbox"/>	236000	Classical Shift-share	45,041	55,227	60,248
<input checked="" type="checkbox"/>	237000	Classical Shift-share	24,214	30,916	33,801
<input checked="" type="checkbox"/>	238000	Classical Shift-share	131,823	172,359	165,608
<input checked="" type="checkbox"/>	311000	Classical Shift-share	84,651	77,785	74,831
<input checked="" type="checkbox"/>	312000	Classical Shift-share	9,388	7,272	5,793
<input checked="" type="checkbox"/>	313000	Classical Shift-share	2,517	1,265	811
<input checked="" type="checkbox"/>	315000	Classical Shift-share	11,040	4,072	2,195
<input checked="" type="checkbox"/>	316000	Classical Shift-share	4,144	1,518	1,123
<input checked="" type="checkbox"/>	321000	Classical Shift-share	8,650	8,034	7,484
<input checked="" type="checkbox"/>	322000	Classical Shift-share	32,115	23,670	18,512

Figure 2: Projection results

The **Projection Results** tab displays the **NAICS** code, the **Projection Model** used in the calculation, the **First Year Employment**, **Base Year Employment**, and the **Projection**. In the **Save?** column, deselect the Projections you do not want to save. On the **User Settings** tab, click **Save Projections**.

- ☞ By default, all projections are saved when you exit the **Projections Results** tab. You must deselect the projection if you do not want it saved.

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6. Click the **Save?** check box to mark all records to be saved or click the individual record check boxes to select specific records to be saved.
7. Return to the **User Settings** tab and click the **Save Projections** button to save the projected values.

OLS Details Tab

The **OLS Details** tab is similar to the Projection Results tab under the [OLS Regression Models](#) module. Reference the [Projection Results](#) tab for additional information and definitions relating to the OLS Details tab.

- ☞ To enable the **OLS Details** tab you must select a line with an [OLS model](#) on the **Projection Results** tab.

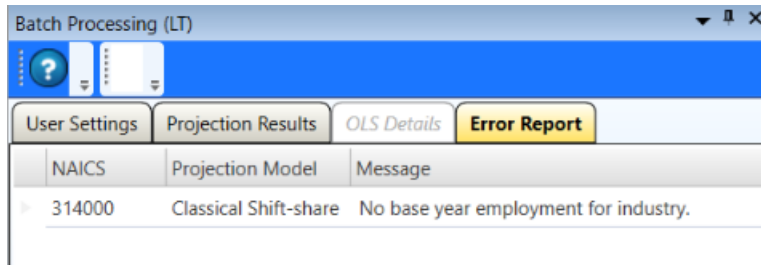
Year	Yhat (t)	Residual	Variable	bhat	Std Error	t-stat	t-prob	Tol	f-stat
1973	45,473	3,705.3636	Area total employment/U	38,888.709	04,900.439	0.371	0.713	0.416	0.14
1974	44,466	1,713.7585	US industry employment	0.035	0.004	7.881	0.000	48.817	7,275.45
1975	37,915	3,251.2020	Constant	-4,535.203	15,532.938	-0.292	0.772	0.000	0.00
1976	38,269	1,767.2207							
1977	41,237	-276.7599							
1978	45,594	-1,559.2720	Projected value:	68,688					
1979	47,306	-3,095.5950	Growth rate:	2.21 %					
1980	43,803	-2,599.6460	R-squared:	0.8079					
1981	40,813	-2,949.1825	Adjusted R-squared:	0.7963					
1982	36,864	-1,457.6066	Rho (From Hildreth-Lu):						
1983	37,672	-6,584.7002	Durbin-Watson test:	0.3373					
1984	42,613	-6,274.7485	Theil U:	1.93					
1985	45,743	-8,594.3077	Total sum of squares:	12,017,269					
1986	46,965	-4,538.1777	Number of observations:	36					
1987	47,940	-548.3111	Number of variables:	2					
1988	49,944	-776.2944							
1989	49,447	-1,035.4460							
1990	49,004	3,053.3379							

Figure 3: OLS Details tab

Error Report Tab

The **Error Report** tab displays any errors in the Projections caused by any of the selected options. The **NAICS** code, **Projection Model**, and error **message** describe any issues.

Long-Term Industry Projections



Batch Processing (LT)		
User Settings Projection Results OLS Details Error Report		
NAICS	Projection Model	Message
> 314000	Classical Shift-share	No base year employment for industry.

Figure 4: Data errors under the Error Report tab

Use the **User Settings** tab to make adjustments to the options and models to run other projections. When you click the **Run Projections** button again, before **Save Projections**, an **Unsaved Projections** message will display. Click **Yes** to clear any unsaved projections and rerun the process. Click **No** to exit the process without rerunning the projection.

Project Multiple Regions

Use the **Project Multiple Regions** module to create Projections across multiple industries for all members of an area group. The Projections generated for an industry in sub-state areas add up to the state projection.

Screen Controls

- **Select an Area Group** drop-down menu
- **Analyze** button
- **Calculate** button
- **Load** button
- **Load from summary** button
- **Initial Processing** tab
- **Industry View** tab
- **Area View** tab

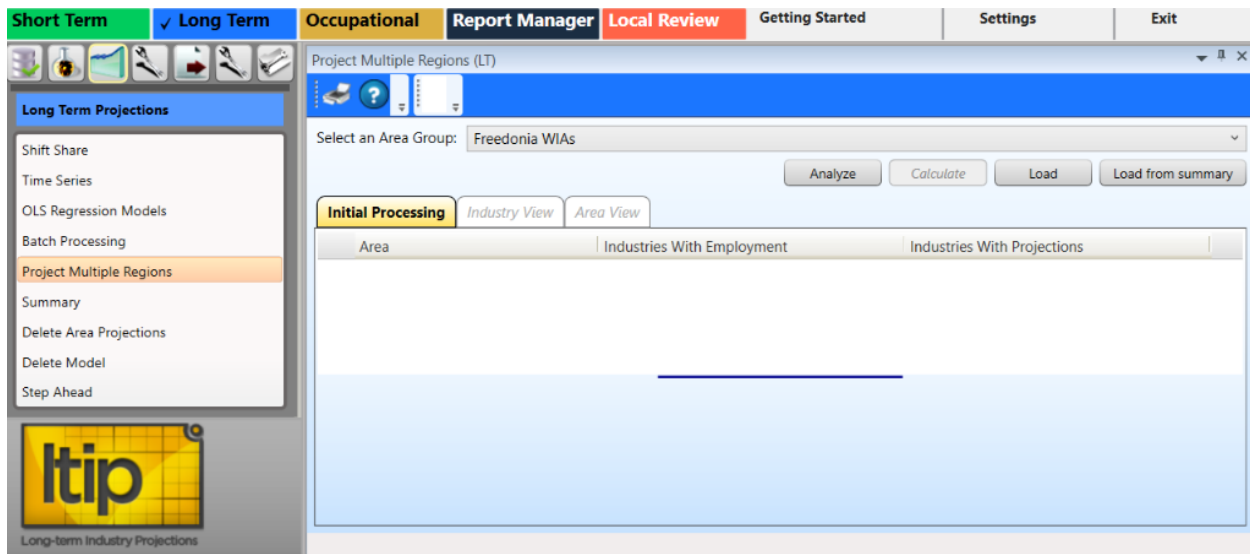


Figure 1: Project Multiple Regions module

Begin Initial Processing

1. **Select an Area Group** from the drop-down menu. The listed areas are defined under the **Data** group menu category, [Manage Areas](#) module. Once an **Area Group** is selected, the **Analyze** button will be enabled.
2. Click the **Analyze** button. When the data is calculated, the results will be displayed. You must have a statewide projection for an industry to project that industry at the sub-state level. The **Industries With Projections** are the industries available for sub-state processing.
3. Click the **Calculate** check boxes for the industries to calculate. Click the **Select all** button to select all industries. Click the **Deselect all** button to deselect all industries.

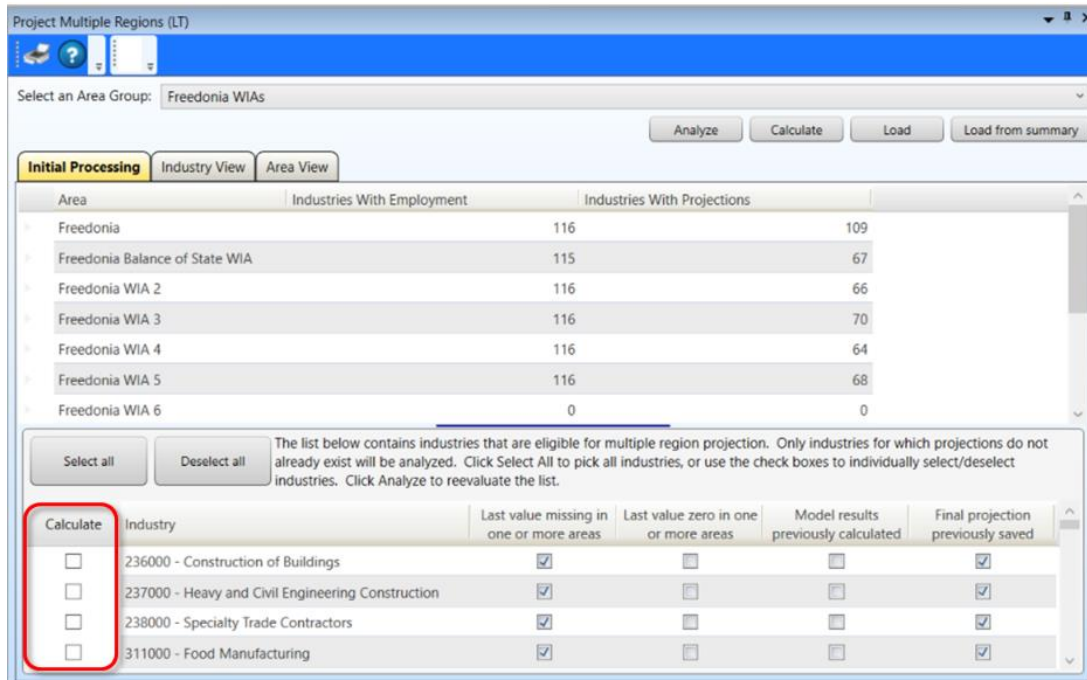



Figure 2: Results of analyzing Freedonia WIAs

Industries are automatically selected for calculation unless one of four conditions exists:

- The first condition, **Last value missing in one or more areas**, is a serious problem in Long-Term Industry Projections and usually means there is an issue with the data. You can check the box to select the industries, but the model results will not be consistent with other industries.
- Next, the **Last value zero in one or more areas** column often means that employment for the industry has disappeared and there is no reason for the industry to be projected. The industry should be investigated before continuing.
- The third condition, **Model results previously calculated**, means there is no need to recalculate.
- The last column on the far right, **Final projection previously saved**, means multiple region result already exists for this industry. Despite the warnings, you can select any flagged industry for multiple region projecting.

4. Click the **Load** button to load any values that were previously calculated in the **Project Multiple Regions** module.

 You can [close](#) the **Project Multiple Regions** module and the Projections Suite. Then, if you navigate back to the Project Multiple Regions module, click **Load** to reload the data and pick up where you left off.

5. Click the **Load from summary** button to load results calculated and selected in the [Summary](#) module, if applicable.

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6. Click the **Calculate** button. When the calculations are complete, the module will automatically switch to the **Industry View** tab.

Related Content

- [Industry View](#) tab
- [Area View](#) tab

Industry View Tab

On the **Industry View** tab, you can view Information about all the industries that were calculated on the **Initial Processing** tab. There are 5 models used in the Long-Term (LT) calculations for [Project Multiple Regions](#): Export#1, Implicit, Employment/Population, Linear, and Log. **Model** values can be saved as **Final** values, either by column or cell.

☞ See the [Statistical & Technical Terms](#) section for more information on the types of calculations produced in Projections Suite.

Screen Controls

- **Select an Industry** drop-down menu
- **Select** control group
 - **Unforced** radio button
 - **Forced** radio button
- **Select data type** control group
 - **Level** radio button
 - **Share** radio button
 - **Growth** radio button
- **Save Results** control group
 - **Preliminary** button
 - **Final** button

Project Multiple Regions (LT)

Select an Area Group: Freedonia WIAs

Analyze Calculate Load Load from summary

Initial Processing **Industry View** Area View

Select an Industry: 334000 - Computer and Electronic Product Manufacturing

Select: ☒ Unforced ☐ Forced

Select data type: ☒ Level ☐ Share ☐ Growth

Save Results: Preliminary Final

Area	Base	Final	Export #1	Implicit	Emp/Pop	Linear	Log
▶ Freedonia Balance of State \	33,104	0	14,776	26,545	0	7,385	34,706
▶ Freedonia WIA 2	1,032	0	656	832	0	0	792
▶ Freedonia WIA 3	1,031	0	371	832	0	294	999
▶ Freedonia WIA 4	2,502	0	1,816	2,017	0	686	2,872
▶ Freedonia WIA 5	2,962	0	2,225	2,389	0	1,424	3,641
▶ Freedonia WIA 6	0	0	0	0	0	0	0
▶ Sum	40,631	0	19,844	32,614	0	9,788	43,009
▶ Freedonia	40,631	29,079					

Figure 1: Industry View tab

View and Save Data

1. **Select an Industry** with the drop-down menu.
2. **Select the data type** you want to view:
 - Employment **Level** (Level is the only option available for moving and editing values).
 - Percent **Share** for the area. Share converts each area's portion of the sum to a percentage. The shares for each area will sum to 100%.
 - Compound **Growth** rate for the ten-year period.
3. Select **Unforced** or **Forced**.
 - **Unforced** is the default.
 - **Forced** forces the **Sum** to equal the area group's total in the **Final** column. Do not use **Forced** until the initial analysis by **Level** is complete.

Enter and Save Final Values

The **Final** column contains values selected by moving the level from the other columns and will be the final saved value for the industry.

☞ Remember that the **Level** radio button needs to be selected from the **Select data type** control group, for the following function to work correctly.

1. **Right click** in a model's column.
2. Select **Move Cell** or **Move Column**.
 - **Move Cell** moves only that model's cell value to the **Final** column.
 - **Move Column** moves all values in that model to the **Final** column.
3. To edit a value in the **Final** column **double click** the cell, edit the value, and press **Enter**.
4. In the **Save Results** control group, select a button to save results.
 - **Preliminary** will save model calculations as preliminary data for review (click **Load** on the **Initial Processing** tab to load your preliminary data).
 - The **Final** button saves the data in the Final column as a final projection for the current industry.
 - Saving using **Final** only saves the current industry. This creates a record in the projections table for each sub-state area and uses the value in the final column as the projection. The model type is set to Multiple Region and the selected flag is turned on so that the results

can go straight to ICT creation. If the **Forced** option is selected, the forced value is used for the projection.

Related Content

- [Project Multiple Regions](#)
- [Area View](#)

Area View Tab

After calculating the industry information on the Initial Processing tab of Project Multiple Regions, the **Area View** tab becomes available. Use the Area View tab to display calculated industry data for the selected area and sector.

Industry	Base	Final	Export #1	Implicit	Emp/Pop	Linear	Log
230000 - Construction	173,834	0	193,436	207,013	0	217,215	194,052
310000 - Manufacturing	494,046	0	404,489	453,811	0	382,462	519,354
420000 - Wholesale Trade	281,294	0	284,693	290,732	0	281,126	283,712
440000 - Retail Trade	557,274	0	552,293	581,974	0	572,673	573,920

Figure 1: Area View tab

Display Calculated Information

1. **Select an Area** from the drop-down menu.
2. **Select a Sector**.

☞ Select **Total All Sectors** from the **Select a Sector** drop-down, to view all of the sectors together. This is useful to find gaps in any data you might have been purposely calculating, but didn't show up correctly. Previous Projections Suite modules, procedures, or datasets may be required to correct any issues.

3. Click the **Level** or **Growth** radio button.
 - **Level** - employment level
 - **Growth** - compound growth rate for the ten-year period

Related Content

- [Project Multiple Regions](#)
- [Industry View](#) tab

Summary

Use the **Summary** module to evaluate all the models that may have been run for an area and industry. **This is the main module to save projections.** The **Selected** column will be selected for one and only one model and the value will represent the final **LT** projected value for the area/industry and will be the value passed to the [Industry Control Total \(ICT\)](#) file for use in the **Occupational Projections**. You can also observe the different statistical values for each of the models.

Screen Controls

- **Projection Year** drop-down menu
- **Select an area** drop-down menu
- **Select an industry** drop-down menu
- **Auto Industry Select** check box
- **Summary Report Print Options**
- **Print** button
- **To Excel** button

Long Term Projection Summary

Projection Year: 2018 Select an area: Freedonia Select an industry: 312000 - Beverage and Tobacco Product Manufacturing

Model Statistics Matrix

Model	Projection	Selected	Adjusted?	Compound Growth Rate	Rho	Total Sum Of Squares	R-squared	Adjusted R-squared	Durbin-Watson	Theil U	Observations	Variables	T-ratio	Coefficient	Constant	Betas	Residuals
Constant Share	6,611	<input type="checkbox"/>	<input type="checkbox"/>	-0.95 %													
Employment-to-Population Ratio	7,635	<input type="checkbox"/>	<input type="checkbox"/>	0.49 %													
Classical Shift-share	5,793	<input type="checkbox"/>	<input type="checkbox"/>	-2.25 %													
Linear	6,354	<input type="checkbox"/>	<input type="checkbox"/>	-1.34 %		0.8287							-13.0121	-107.2963	11397.2793		
Logarithmic	7,851	<input type="checkbox"/>	<input type="checkbox"/>	0.77 %		0.7734							-15.8065	-1293.3990	12830.9219		
Export #1	6,346	<input type="checkbox"/>	<input type="checkbox"/>	-1.35 %		112.260	0.9349	0.9310	1.3676	2.53	37	2					View View

Summary Report Print Options

Print statistics for which NAICS?
☒ Just the Selected NAICS?
☐ All NAICS?

Print statistics for which models?
☒ Just this model?
☐ All shift-share models?
☐ All models?

Print which statistics?
☒ Basic model summary?
☐ All available statistics?

Include for regression models
☐ Beta table
☐ Residuals table

[Print](#) [To Excel](#)

Figure 1: Summary module

The **Model Statistics Matrix** displays every previously saved projection for the selected parameters. Columns include:

- **Model** name
- **Projection** value
- **Selected** - this check box indicates the final selected **LT** value for the area/industry. Selecting a model also makes it available upon clicking the **Load from summary** button in the [Project Multiple Regions](#) module.
- **Adjusted?** - a check box indicating whether or not this projection was saved in the Across Industries or Across Areas Adjustments modules.

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- The remaining columns of the matrix display figures like **Compounded Growth Rate** and miscellaneous statistics from various models. Many are listed and defined under the [Statistical & Technical Terms](#) section of this documentation, or mentioned under modules where they're are calculated or used for information during analysis.
- ☞ For example, the [R-squared](#) statistic applies to both OLS and time series models. For [OLS models](#), the columns for **Betas** and **Residuals** contain a **View** button. Click **View** to display a table with the associated statistics for the model on this table's row.

Create a Summary Report

1. Select a **Projection Year** from the drop-down menu.
2. **Select an area.**
3. **Select an Industry** from the drop-down menu.
4. Click the **Selected** check box for the desired model.
5. Click the wanted **Report Print Options**.
6. Select the desired **Regression Models** check box.
7. Click the **Print** button. Selecting Print displays a **Print Preview** pop up. Adjust the view as needed and click the **Print** icon in the Print Preview window (or press **Ctrl+P**).

Export Summary Data

1. Select the **Projection Year**.
2. **Select an area.**
3. **Select an industry.**
4. Select any necessary **Summary Report Print Options**.
5. Click the **To Excel** button. Selecting To **Excel** displays a **Save As** dialog box. Select the location where you want to save the Excel file, enter a **File name**, and click **Save**.

Only one model can be selected for further processing. Click the **Selected** check box next to select the model.

Click the **Auto Industry Select** check box to display the current list of industries for the model you selected for processing.

Related Content

- [Project Multiple Regions](#)
- [Across Industries](#)
- [Across Areas](#)

Delete Area Projections

Use the **Delete Area Projections** module to delete the Projections for a specified area and year. This allows you to clear any saved data and start your Projections over with fresh data.

Screen Controls

- **Select an Area** drop-down menu
- **Select a Year** drop-down menu
- **Delete Projections** button

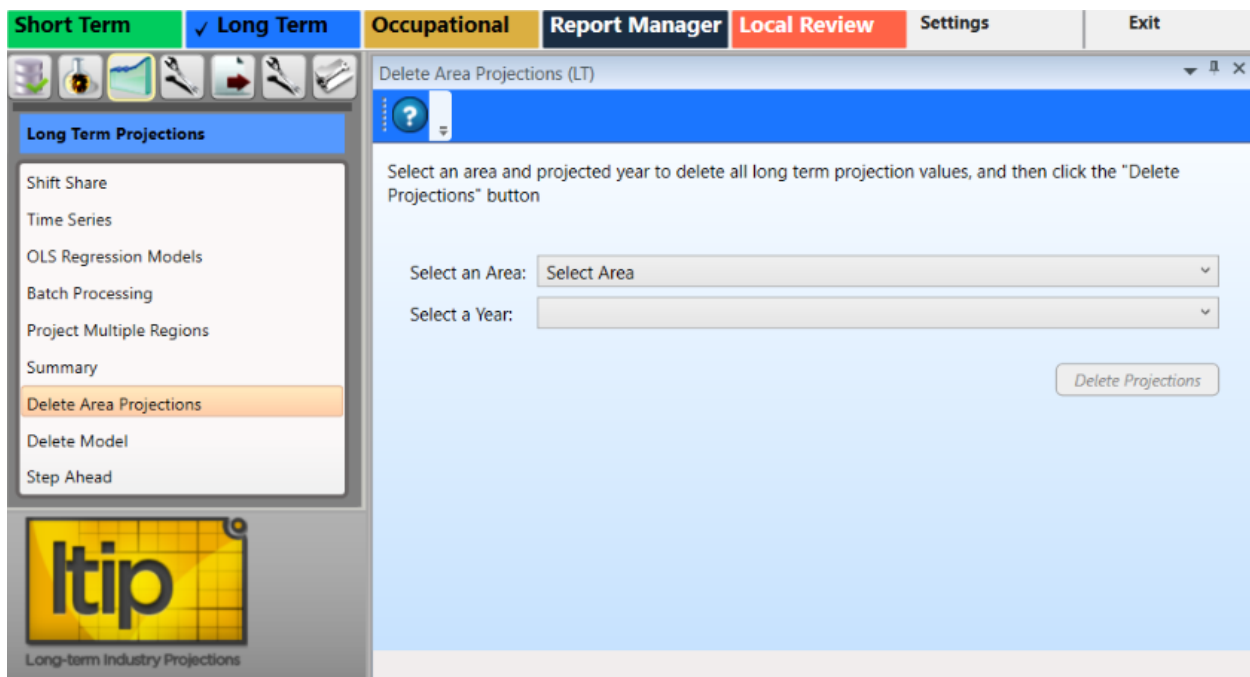


Figure 1: Delete Area Projections module

Delete Area Projections

1. **Select an Area** from the drop-down menu.
2. **Select a Year**.
3. Click the **Delete Projections** button. A **Delete Long Term Projections** dialog box will be displayed.
4. Click **Yes** to delete the data. Click **No** to keep the data.

Delete Model

Use the **Delete Model** module to delete user-defined [OLS models](#). When you delete a model, any Projections associated with the model are also deleted. The Delete Model module displays the previously created user-defined models created in the [OLS Regression Models](#) module.

Screen Controls

- **Delete Model** button

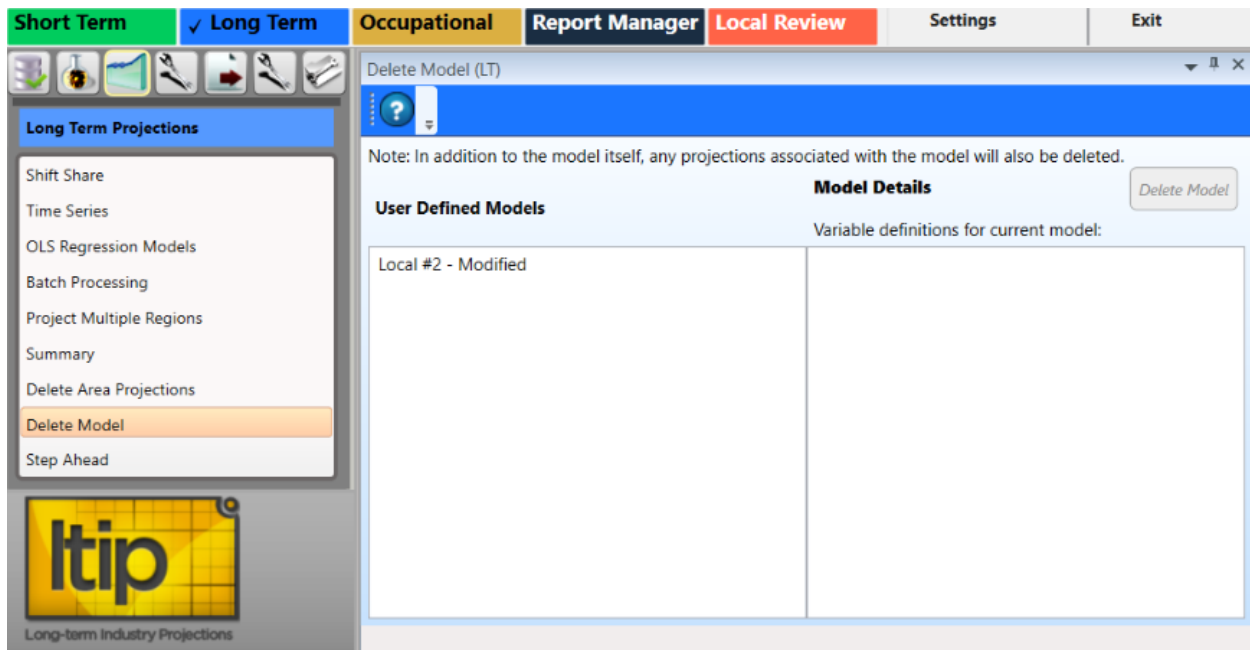


Figure 1: Delete Model module

Delete a Model

1. Select the model to be deleted from the **User Defined Models** table. The **Model Details** will be displayed. Only one model can be selected at a time.
2. Click the **Delete Model** button. The **Are you sure?** dialog box will prompt you to confirm deletion of the model.
3. Click **Yes** to delete the model. Click **No** to keep the model.

Related Content


- [OLS Regression Models](#)

Step Ahead

One of the criticisms of 10 year Projections is that by the time the Projections are complete, the base year has already been passed by 1 - 2 years. The **Step Ahead** module enables analysts to create alternative base year values for either the 9 years or 8 years. For example, in completing the 2016 - 2026 10-year Projections, the base is 2016 but is completed in 2018. Therefore, when publishing these results, data is already 2 years behind and don't appear to be "current." The new base year that Step Ahead can create is either 2017 or 2018 (a 9- or 8-year value). This module enables the user to create a new base year value using three different methods which are explained below.

Prerequisites for the Step Ahead model includes completing the Long and Short-Term Industry Projections. The base year for both sets of Projections must be the same or data will not be displayed correctly in the tabs. STIP system [round](#) selection must be set for the same base year time-frame as the LTIP base year (i.e., annualized ST base covering the same base time period as the LT Projections base year). For example, if LT base is 2016, the ST round must be set to the round that covers all of 2016 (ST Base period ending Dec 2016 or Mar 2017, June 2017, etc.).

It is recommended that the industry structure must be the same for STIP and LTIP, but not required. **Only industries with data will be processed** in the Step Ahead module.

 The instructions and explanations included on each of the Step Ahead module's tabs are useful for clarification and procedures.

Screen Controls

- **1-Prepare Data** tab
 - **Prepare Data For Review** button
- **2-Compare LT and ST Base Employment** tab
 - **Process Alternative Base Values** button
- **3-Compare LT vs. ST Base and Projections** tab
- **4-Evaluate 1-year Step Ahead** tab
- **5-Evaluate 2-year Step Ahead** tab
- **6-Review/Edit/Save Alternative Base Values** tab
 - **Load Saved Alternative Base Values** button
 - **Save Alternative Base Year Values** button

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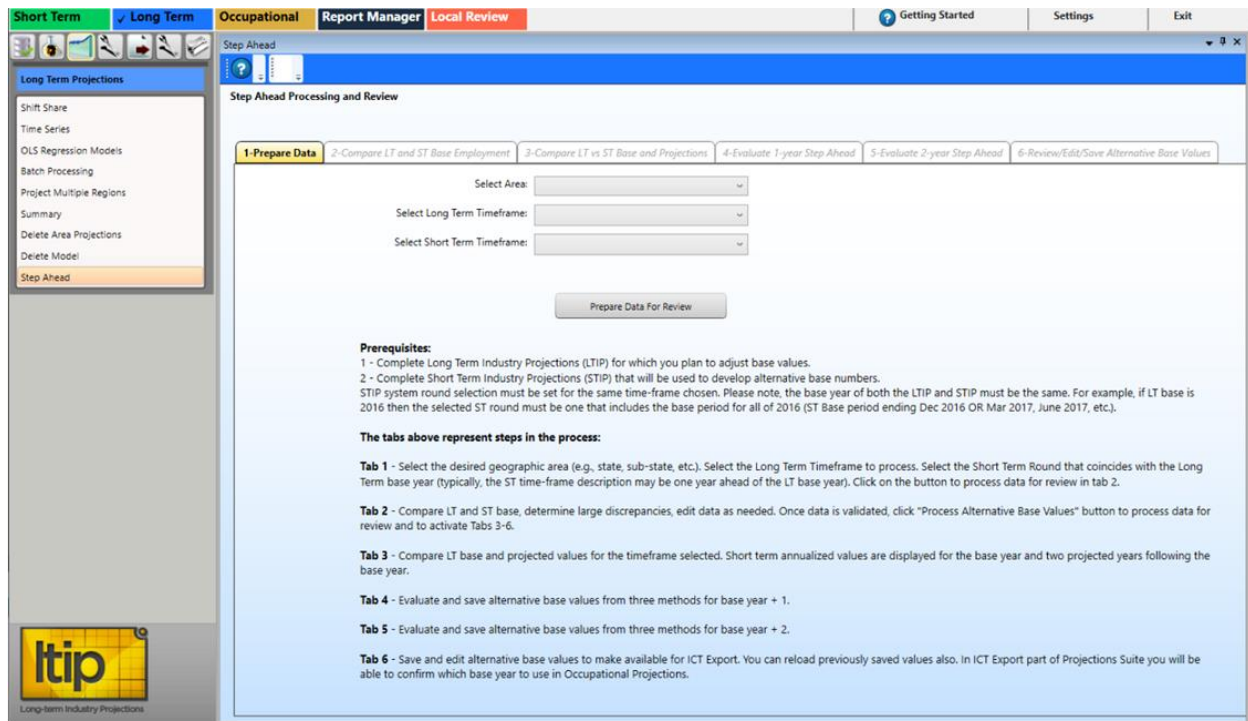


Figure 1: Step Ahead module

1-Prepare Data Tab

1. Choose a geographic area (e.g., state, sub-state, etc.) from the **Select Area** drop-down menu.
2. **Select** a **Long Term Timeframe** to process, used to adjust base values.
3. **Select** a **Short Term Timeframe** that coincides with the **Long Term** base year. The ST timeframe may typically be one year ahead of the LT base year.

☞ The Step Ahead instructions state that if the Long-Term (LT) base is 2016, then the selected Short-Term round (see [Manage Rounds](#)) must be one that includes the base period for all of 2016. The Short-Term (ST) base period ending Dec 2016 **or** Mar 2017, **or** June 2017, etc. This indicates that Manage Rounds should be reviewed before calculating in Step Ahead, to verify the ST base period is paired with a LT base *within* a year of the Long-Term period.

4. Click on the **Prepare Data For Review** button to process data, which will provide comparable data under tab 2 (**Compare LT and ST Base Employment**).

2-Compare LT and ST Base Employment

1. Tab 2 will display the Industry Titles (based on the [NAICS](#) codes), base year, values, differences, and percentage differences in columns.

Long-Term Industry Projections

1-Prepare Data 2-Compare LT and ST Base Employment 3-Compare LT vs ST Base and Projections 4-Evaluate 1-year Step Ahead 5-Evaluate 2-year Step Ahead 6-Review/Edit/Save Alternative Base Values						
Compare Long-Term and Short-Term Annual Employment. Evaluate differences. If large discrepancies are found, return to data editing outside of this module and reprocess projections as needed. Then return to this module to continuing to process alternative base values. Industries with blank values will be ignored in processing. Industries that have not been saved or processed may not be displayed.						
Process Alternative Base Values						
Code	Industry Title	Base Year	LT Base Value	ST Base Value	Base Difference	% Diff
000000	Total All Industries		6,414,888		0	0.00
000067	Self Employed and Unpaid Family Workers, All Jobs	2017	262,468	262,468	0	0.00
110000	Agriculture, Forestry, Fishing and Hunting	2017	73,621	73,621	0	0.00
110067	Self Employed Workers in Agriculture	2017	28,402	28,402	0	0.00
110500	Wage and Salary Workers in Agriculture	2017	45,219	45,219	0	0.00
210000	Mining	2017	7,791	7,791	0	0.00
220000	Utilities	2017	24,506	24,506	0	0.00
236000	Construction of Buildings	2017	44,916	44,916	0	0.00
237000	Heavy and Civil Engineering Construction	2017	27,423	27,423	0	0.00
238000	Specialty Trade Contractors	2017	148,062	148,026	-36	-0.02
311000	Food Manufacturing	2017	83,030	83,030	0	0.00
312000	Beverage and Tobacco Product Manufacturing	2017	7,727	7,727	0	0.00
313000	Textile Mills	2017	1,069	1,069	0	0.01
314000	Textile Product Mills	2017	2,990	2,990	0	0.00
315000	Apparel Manufacturing	2017	3,370	3,370	0	0.00
316000	Leather and Allied Product Manufacturing	2017	1,078	1,078	0	0.04
321000	Wood Product Manufacturing	2017	6,432	6,432	0	0.01
322000	Paper Manufacturing	2017	18,900	18,900	0	0.00
323000	Printing and Related Support Activities	2017	26,812	26,812	0	0.00

Figure 2: 2nd tab, named 2-Compare LT and ST Base Employment

2. Clicking column headers can organize them in logically different alphabetic and numerical values, for your use.
3. Use the **Process Alternative Base Values** button to calculate the remaining values and unlock the other Step Ahead tabs.

3-Compare LT vs. ST Base and Projections

Tab **3** compares Long-Term base and Projections alongside Short-Term annualized base and Projections, as an initial comparison and a reference.

4-Evaluate 1-year Step Ahead

Tab **4** is used to evaluate the values to compare, as well as **select**, **move** (a cell or column), and **edit Long-Term (LT) Alternative Base** values to save on tab **6**. To select a value:

1. *From left to right in Figure 3, right click* a value to display a context menu with the options to **Move Cell** or **Move Column** to an **LT Alternative Base** cell or the column (on the far right).

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1-Prepare Data2-Compare LT and ST Base Employment3-Compare LT vs ST Base and Projections4-Evaluate 1-year Step Ahead5-Evaluate 2-year Step Ahead6-Review/Edit/Save Alternative Base Values

Compare alternative base values. Right click one of the three Method value columns or cells to move value(s) to last column. Double click last column cell to edit value. Go to tab 6 to save or restore previously saved alternative base values.

Code	Industry Title	LT Compound Annual Growth Method			ST Quarterly Projected Compound Annual Growth Method			ST Compound Annual Growth Method		
		2018 LT Base	2028 LT Projection	2019 LT Growth	2019 LT Alternative Base	2019 ST Qtr Growth	2019 LT Alternative Base	2019 ST Growth	2019 LT Alternative Base	2019 LT Alternative Base
000067	Self Employed and Unpaid Family Work	277,503	276,043	-0.05%	277,357	-0.19%	276,976	-1.99%	271,983	
110000	Agriculture, Forestry, Fishing and Huntin	74,212	76,128	0.26%	74,401	-7.53%	68,624	0.04%	74,240	
110067	Self Employed Workers in Agriculture	28,630	29,369	0.26%	28,703	-0.23%	28,564	-3.6%	27,599	
110500	Wage and Salary Workers in Agriculture	45,582	46,759	0.26%	45,698	-1.77%	45,459	-3.6%	43,941	45,698
210000	Mining	7,836	8,303	0.58%	7,881		7,877	2.61%	8,040	
220000	Utilities	24,626	25,153	0.21%	24,676		24,685	-0.73%	24,447	
230000	Construction of Buildings	47,083	47,952	0.18%	47,169	0.56%	47,347	0.71%	47,418	
237000	Heavy and Civil Engineering Constructio	28,459	28,917	0.16%	28,504	0.5%	28,601	0.75%	28,672	
238000	Specialty Trade Contractors	150,338	152,881	0.17%	150,590	0.66%	151,330	0.85%	151,615	
310000	Food Manufacturing	84,049	86,162	0.25%	84,258	1.26%	85,108	1.58%	85,373	
312000	Beverage and Tobacco Product Manufac	7,721	7,676	-0.06%	7,716	2.93%	7,947	2.87%	7,942	
313000	Textile Mills	1,054	1,016	-0.37%	1,050	-0.05%	1,053	-0.57%	1,048	
314000	Textile Product Mills	2,929	2,822	-0.37%	2,918	-0.42%	2,917	-1.74%	2,878	
315000	Apparel Manufacturing	3,557	3,428	-0.37%	3,544	0.35%	3,569	0.52%	3,575	
316000	Leather and Allied Product Manufacturir	986	953	-0.34%	983	-2.02%	966	-2.72%	959	
321000	Wood Product Manufacturing	6,559	6,637	0.12%	6,567	0.44%	6,588	2.07%	6,695	
322000	Paper Manufacturing	18,900	18,803	-1.17%	18,679	-0.62%	18,783	-1.08%	18,695	
323000	Printing and Related Support Activities	26,793	24,663	-0.82%	26,572	-0.62%	26,627	-1.02%	26,519	

Figure 3: Evaluate 1-year Step Ahead tab alternative base movement process

2. **Double click** on an individual cell in the far right **LT Alternative Base** column to edit moved values or an empty cell. Type an adjusted value and click anywhere else on the table to set the value.

2019 ST Growth	2019 LT Alternative Base	2019 LT Alternative Base
-1.99%	271,983	
0.04%	74,240	
-3.6%	27,599	
-3.6%	43,941	45,698
2.61%	8,040	

Figure 4: Example of editing an LT Alternative Base Cell

5-Evaluate 2-year Step Ahead

Use tab **5** to evaluate the Long-Term base, calculated into growth and alternative based values, based on projected values. Use similar procedures from tab **4** to move and edit selected values in the (far right) LT Alternative Base column.

6-Review/Edit/Save Alternative Base Values

Tab **6** utilizes both tabs **4** and **5**, to display Long-Term alternative bases migrated from 1 and 2-year **Step Ahead** analysis. From Tab **6**, these alternative values can be **Loaded** and **Saved** for additional uses. To Project further year derivatives, use the [Mid Term Projections](#) module.

Related Content

- [Mid Term Projections \(LT & OP\)](#)
- [ICT Export](#)
- [Add Step Ahead Table](#)
- [Step Ahead Calculation](#)

Long-Term Adjustments

The **Long-Term Adjustments** group menu enables the adjusting of Industry Projections data for regional requirements.

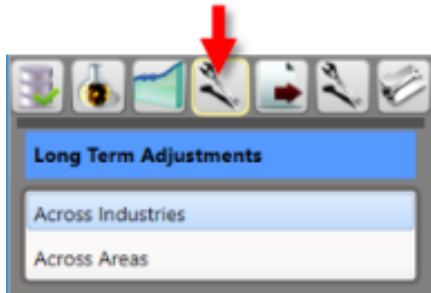


Figure 1: Long-Term Adjustments group menu

The **Long-Term Adjustments** group menu contains the following selections:

- [Across Industries](#)
- [Across Areas](#)

Across Industries

Use the **Across Industries** module to process adjustments over specific industry levels. You can use a variety of techniques to adjust the employment projections when summing to an industry total. Also, you can ensure that sub-sector values sum to the total. You can make final edits to the projected industry values before publication or inclusion in the [Industry Control Total](#) (ICT) file.

Screen Controls

- **Select an Area** drop-down menu
- **Select a Year** drop-down menu
- **Adjust** button
- **Reload** button
- **Undo** button
- **Save** button
- **Selected Industry Levels** control group
 - **Load** list
 - **Process** list
- **Adjustment Mode** control group
 - **Top-down** radio button
 - **Bottom-up** radio button

Short Term | **Long Term** | Occupational | Report Manager | Local Review | Settings | Exit

Adjust Across Industries

Select levels to display by checking at least 2 boxes under 'Load' on right side of form

Select an Area: Freedonia

Select a Year: 2018

Adjust | Reload | Undo | Save

Status	NAICS	Level	Projection	Constrain
--------	-------	-------	------------	-----------

Selected Industry Levels

Load	Process
<input type="checkbox"/> Total (1)	<input type="checkbox"/>
<input type="checkbox"/> Domain (2)	<input type="checkbox"/>
<input type="checkbox"/> SuperSector (3)	<input type="checkbox"/>
<input type="checkbox"/> Sector (4)	<input type="checkbox"/>
<input type="checkbox"/> 3-Digit (5)	<input type="checkbox"/>
<input type="checkbox"/> 4-Digit (6)	<input type="checkbox"/>
<input type="checkbox"/> Sub-Detail (7)	<input type="checkbox"/>

Adjustment Mode

☐ Top-down

☒ Bottom-up

Itip
Long-term Industry Projections

Figure 1: Across Industries module


Adjust Projections Across Industries

1. **Select an Area** from the drop-down menu.
2. **Select a Year**.

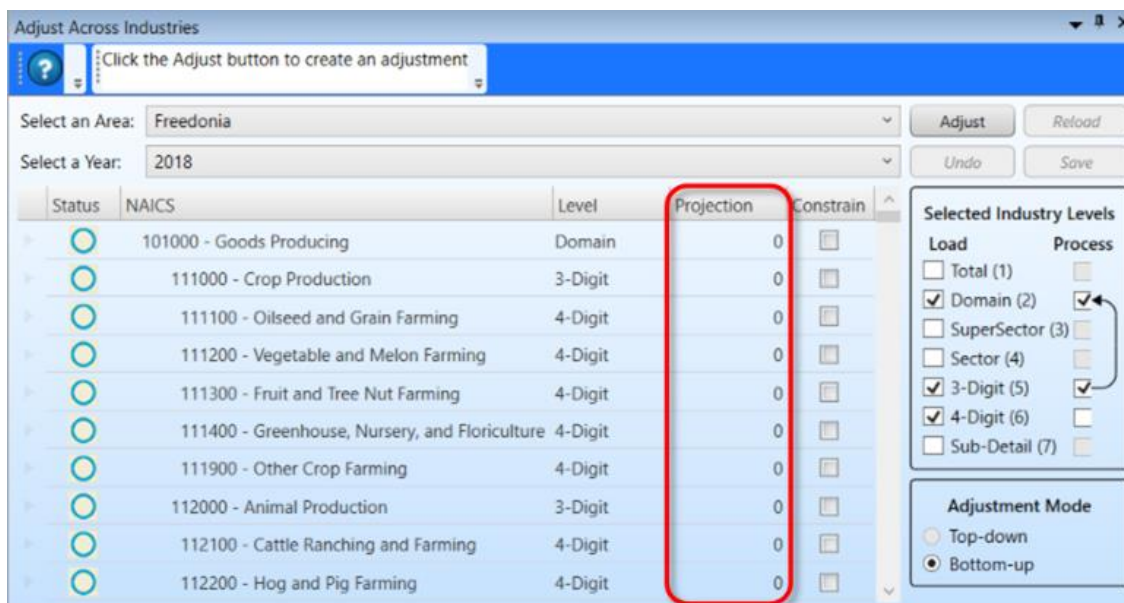
3. Select at least two boxes from the **Select Industry Levels** control group, under the **Load** column. The **Adjust** button will activate when two selections from both the **Load** and the **Process** columns within the **Selected Industry Levels** control group are made. A selection in the **Process** column requires the same selection in the **Load** column. Selection of **Load** column choices are not limited by a selection in the **Process** column.

With selections made in the **Selected Industry Levels** control group, [NAICS](#) codes and associated projections (or zero-filled holding cells) will populate in the table. After running the adjustment, the **Projection** column value will change from its original value.

- ☞ **Bottom-up** will be automatically selected in the **Adjustment Mode** control group because it is the first step. This forces all the industry levels to be additive. The **Top-down** option is not available until you make an edit in the **Projection** column.

- ☞ To edit the **Projection** column, **right click** and select **Edit**. A pencil icon  will display in the **Status** column of the industry projection that was edited. The projection edits roll (from the bottom) up to the parent industry. Editing a value in the **Projection** column will enable the Top-down adjustment mode.

- ☞ Click the **Constrain** check box to keep the projection value. If you constrain a projection, the additivity of the table may be compromised.



Adjust Across Industries

Click the Adjust button to create an adjustment

Select an Area: Freedonia

Select a Year: 2018

Adjust Reload

Undo Save

Status	NAICS	Level	Projection	Constrain
	101000 - Goods Producing	Domain	0	<input type="checkbox"/>
	111000 - Crop Production	3-Digit	0	<input type="checkbox"/>
	111100 - Oilseed and Grain Farming	4-Digit	0	<input type="checkbox"/>
	111200 - Vegetable and Melon Farming	4-Digit	0	<input type="checkbox"/>
	111300 - Fruit and Tree Nut Farming	4-Digit	0	<input type="checkbox"/>
	111400 - Greenhouse, Nursery, and Floriculture	4-Digit	0	<input type="checkbox"/>
	111900 - Other Crop Farming	4-Digit	0	<input type="checkbox"/>
	112000 - Animal Production	3-Digit	0	<input type="checkbox"/>
	112100 - Cattle Ranching and Farming	4-Digit	0	<input type="checkbox"/>
	112200 - Hog and Pig Farming	4-Digit	0	<input type="checkbox"/>

Selected Industry Levels

Load **Process**

☐ Total (1) ☐

☒ Domain (2) ☒

☐ SuperSector (3) ☐

☐ Sector (4) ☐

☒ 3-Digit (5) ☒

☒ 4-Digit (6) ☐

☐ Sub-Detail (7) ☐

Adjustment Mode

☐ Top-down

☒ Bottom-up

Figure 2: Selected NAICS codes with zero-filled holding cells

4. Click the **Adjust** button. Adjusted projections display in the **Projection** column.

Projections Suite 2022

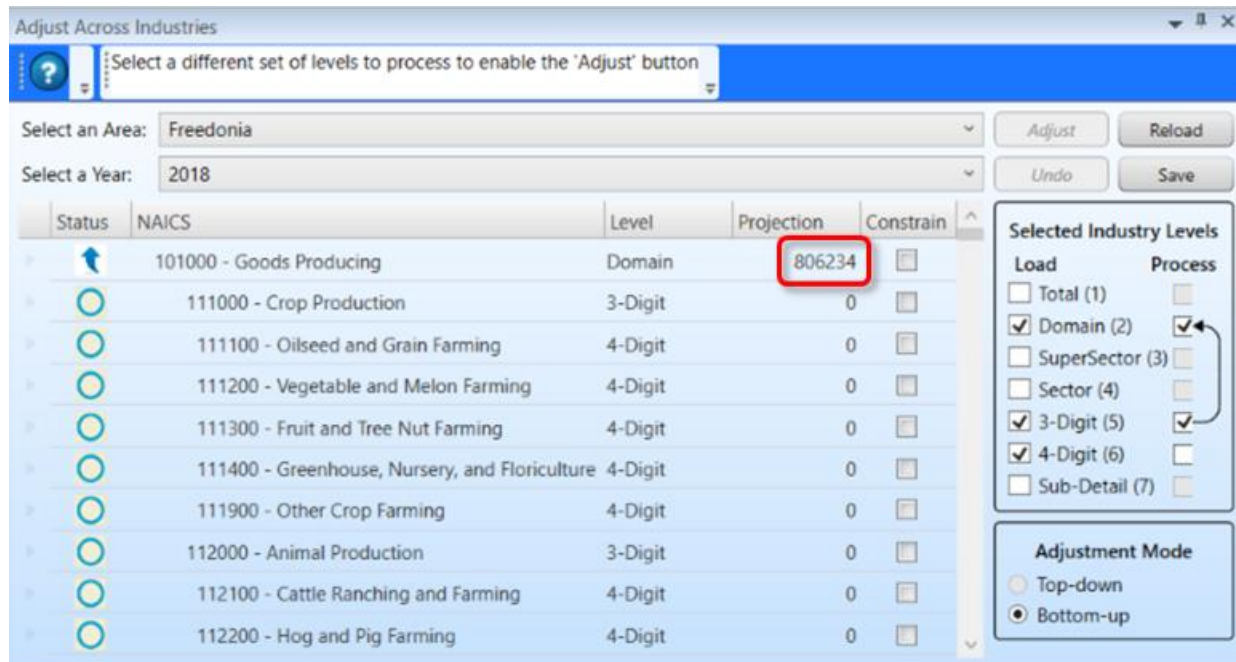


Figure 3: Adjusted Industry Projections display in the Projection column

5. To cancel an adjustment, click **Undo**. To start over, click the **Reload** button. All adjustments are canceled and the projections are restored to the original values in the database.
6. To save the adjusted data, click the **Save** button. A new projections record is created with an adjusted model type and this projection has its selected flag for the area turned off.

Related Content

- [Summary](#)

Across Areas

Use the **Across Areas** module to process projection adjustments for specific industries and years, across area groups. This ensures employment projections for individual sub-state areas are consistent, additive, and synchronized with the state totals.

Screen Controls

- **Select an Area Group** drop-down menu
- **Select an Industry** drop-down menu
- **Select a Year** drop-down menu
- **Adjust** button
- **Reload** button
- **Undo** button
- **Save** button
- **Selected Area Levels** control group
 - **Parent Area** check box
 - **Child Area** check box
- **Adjustment Mode** control group
 - **Top-down** radio button
 - **Bottom-up** radio button
- **Constrain** check boxes

Figure 1: Across Areas module

Adjust Projections Across Areas

1. **Select an Area Group** from the drop-down menu.
2. **Select an Industry.**
3. **Select a Year.**

Projections Suite 2022

4. Use the **Selected Area Levels** control group to select the **Parent Area**, **Child Areas**, or both. The **Adjust** button will activate when both the **Parent Area** and the **Child Areas** check boxes from the **Selected Area Levels** control group are selected. As boxes are checked in the Selected Area Levels control group, values for the **Area**, **Level**, and **Projection** will populate in the table.

To perform adjustments on an area group, select both **Parent Area** and **Child Area**.

Status	Area	Level	Projection	Constrain
	Freedonia (000080)	Parent Area	27563	<input type="checkbox"/>
	Freedonia Balance of State WIA	Child Area	0	<input type="checkbox"/>
	Freedonia WIA 2 (800002)	Child Area	553	<input type="checkbox"/>
	Freedonia WIA 3 (800003)	Child Area	683	<input type="checkbox"/>
	Freedonia WIA 4 (800004)	Child Area	959	<input type="checkbox"/>
	Freedonia WIA 5 (800005)	Child Area	155	<input type="checkbox"/>
	Freedonia WIA 6 (800006)	Child Area	0	<input type="checkbox"/>

Figure 2: Adjustments across Areas

- ☞ The **Adjustment Mode** control group is set to **Bottom-up** by default. To make a **Top-down** adjustment, you must edit at least one number in the **Projection** column.
- ☞ To edit the **Projection** column, right click and select **Edit**. A pencil icon will display in the **Status** column of the industry projection that was edited and the **Top-down** adjustment mode will be enabled.
- ☞ Click the **Constrain** check box to keep the projection value from being adjusted. If you constrain a projection, the additivity of the table may be compromised.

5. Click the **Adjust** button.

Adjust Across Areas

Click the Adjust button to create an adjustment, to do Top-Down make a change to Projection column

Select an Area Group: Freedonia WIAs

Select an Industry: 221000 - Utilities

Select a Year: 2018

Adjust Reload

Undo Save

Status	Area	Level	Projection	Constrain
	Freedonia (000080)	Parent Area	2350	<input type="checkbox"/>
	Freedonia Balance of State WIA	Child Area	0	<input type="checkbox"/>
	Freedonia WIA 2 (800002)	Child Area	553	<input type="checkbox"/>
	Freedonia WIA 3 (800003)	Child Area	683	<input type="checkbox"/>
	Freedonia WIA 4 (800004)	Child Area	959	<input type="checkbox"/>
	Freedonia WIA 5 (800005)	Child Area	155	<input type="checkbox"/>
	Freedonia WIA 6 (800006)	Child Area	0	<input type="checkbox"/>

Selected Area Levels

☒ Parent Area

☒ Child Areas

Adjustment Mode

☐ Top-down

☒ Bottom-up

Figure 3: Adjustments have been made

6. Click the **Undo** button to cancel the adjustments to the data. To start over, click **Reload**. All adjustments are canceled and the projections are restored to the original values in the database.
7. Click the **Save** button to save the adjusted data. A new projections record is created with an adjusted model type and this projection has its selected flag set on, with the other selected flag for the area industry turned off.

Related Content

- [Summary](#)

Long-Term Output

The **Long-Term Output** group menu allows creation of reports or exportation of data from the Long-Term Industry Projections application.

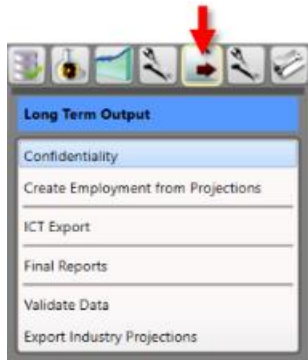


Figure 1: Long-Term Output group menu

The **Long-Term Output** group menu contains the following selections:

- [Confidentiality](#)
- [Create Employment from Projections](#)
- [ICT Export](#)
- [Final Reports](#)
- [Validate Data](#)
- [Compare Projections Analysis](#)
- [Mid Term Projections](#)
- [Export Industry Projections](#)

Confidentiality

Use the **Confidentiality** module to flag industries as confidential. This helps prevent releasing industry data to the public where data could potentially identify employers or their information.

A similar version of this module is available in the **Output** group menus under Long-Term (this page), [Short-Term Confidentiality](#), and **Occupational Projections** also has a [Confidentiality](#) module, but uses different settings.

Screen Controls

- **Select an Area** drop-down menu
- **Confidential** check boxes

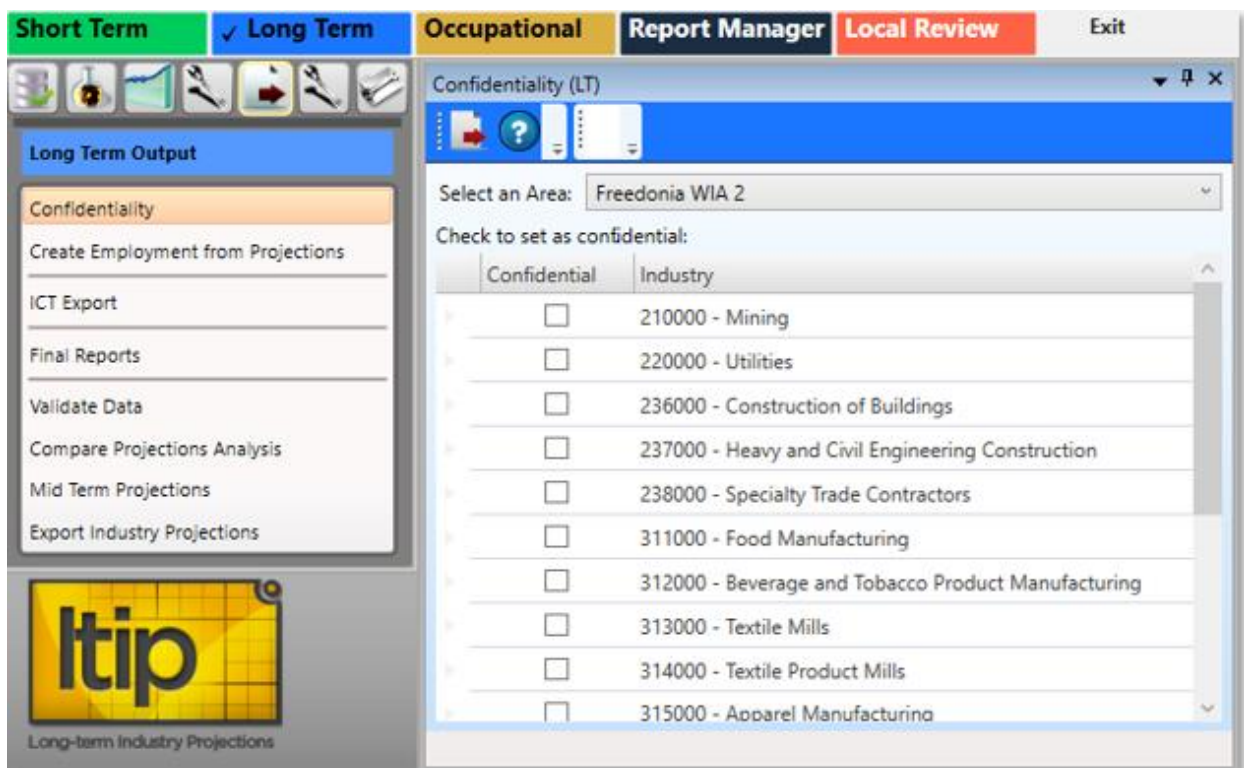


Figure 1: Confidentiality module

Mark an Industry as Confidential

1. **Select an Area** from the drop-down menu. The industries with completed projections within the selected area will display.
2. Check the confidentiality box next to each industry you want to identify as confidential. Or, right click the check box or the industry and select the Toggle Confidentiality button. Clicking the **Toggle Confidentiality** button will change the current setting to the opposite setting.

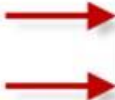
Projections Suite 2022

- ☞ All industries with selected check boxes are treated as confidential. The Industry Projections software does not directly deal with confidentiality, but the checked industry flags carry forward into the ICT records in the Occupational Projections and Report Manager applications.

Create a Report of Confidential Industries

1. Click the **Export** button from the Active Module Toolbar. A **Save As** dialog box will be displayed.
2. Select a save location and type a name for the report.
3. Click **Save**.

The data exports into an Excel spreadsheet. The spreadsheet will contain the list of industries and display whether or not they're confidential.



	A	B
1	confidentiality	industry
2	FALSE	000000 - Total All Industries
3	FALSE	210000 - Mining
4	FALSE	230000 - Construction
5	TRUE	236000 - Construction of Buildings
6	FALSE	237000 - Heavy and Civil Engineering Construction
7	TRUE	238000 - Specialty Trade Contractors

Figure 2: Exported confidentiality report

Alternatively, click the **Print** button in the Active Module Toolbar to print a report of industries and their confidentiality.

Create Employment from Projections

Create Employment from Projections allows the projections for a selected area and year to be included in the employment historical series. Instead of manually adding values to the state historical series one by one, use the Create Employment from Projections module to copy your selected projections into the employment table. One record is created in the employment table for each projection.

Screen Controls

- **Select an Area** drop-down menu
- **Select a Year** drop-down menu
- **Create Employment Records** button

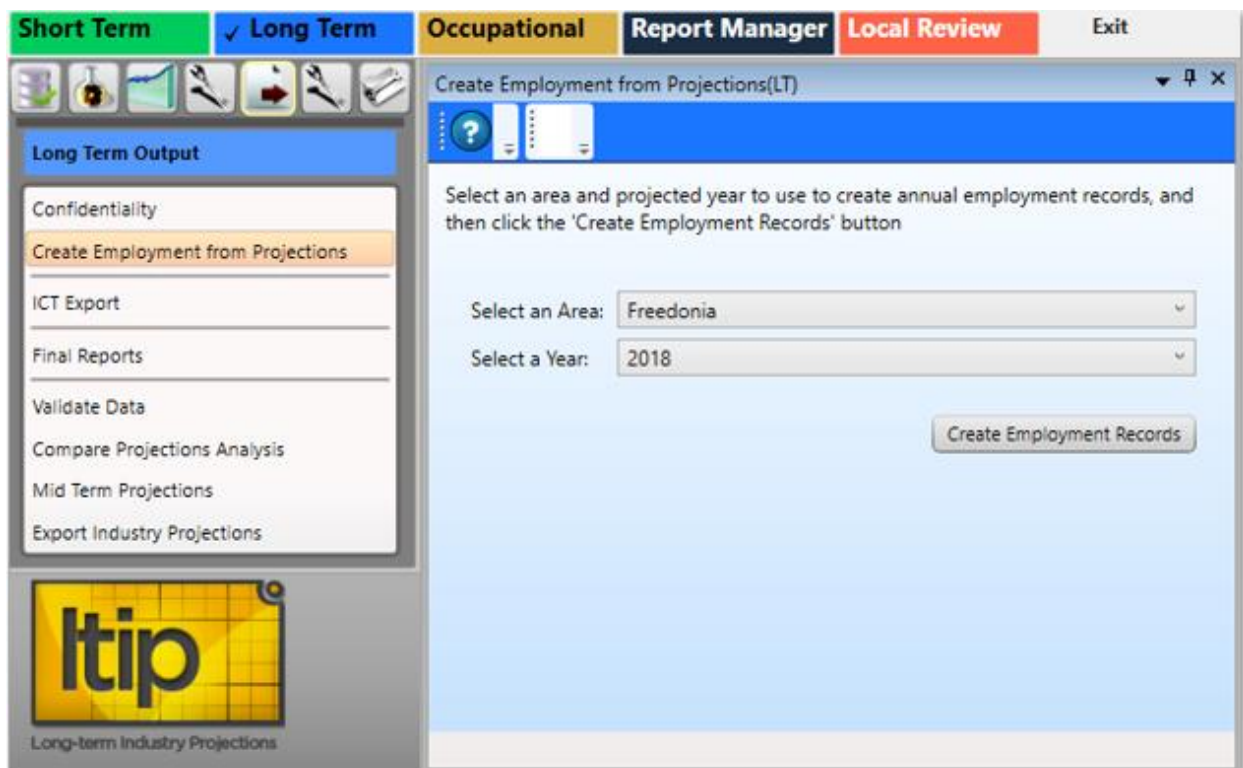


Figure 1: Create Employment from Projections module

Create Employment from Projections

1. **Select an Area** from the drop-down menu.
2. **Select a Year.**
3. Click the **Create Employment Records** button. A dialog will display asking you to confirm updating of annual employment records.
4. Click **Yes** to continue. Click **No** to cancel.

Projections Suite 2022

When complete, a message will be displayed in the Active Module Toolbar. The employment table will contain records for the projected year, for each industry with a selected projection.

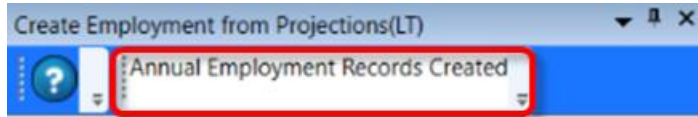


Figure 2: Annual Employment Records Created

ICT Export

Use the **Industry Control Total (ICT) Export** module to export projected industries to the internal ICT table for use in the **Occupational Projections** application or to a file for use in other applications or reports. The values exported to the spreadsheet and to the [ICT file](#) are the last annual employment value and the last annual projected value for each industry.

A **Base Year** is determined from the last year of employment, and the **Projected Year** is determined from the last projected year. The only industries exported to the ICT table or to the spreadsheet file are the industries on the list. If the **Selected Industries** list needs modification, modify the list and export the industries again. Previously saved ICT projections for the area change to the new listed industries.

Screen Controls

- **Select an Area** drop-down menu
- **Transfer ICT data to Occupational Projections** check box
- **Use Step Ahead** check box
 - **9 Year Horizon Base** radio button
 - **8 Year Horizon Base** radio button
- **Available Industries** table
- **Selected Industries** table
- **Move** buttons

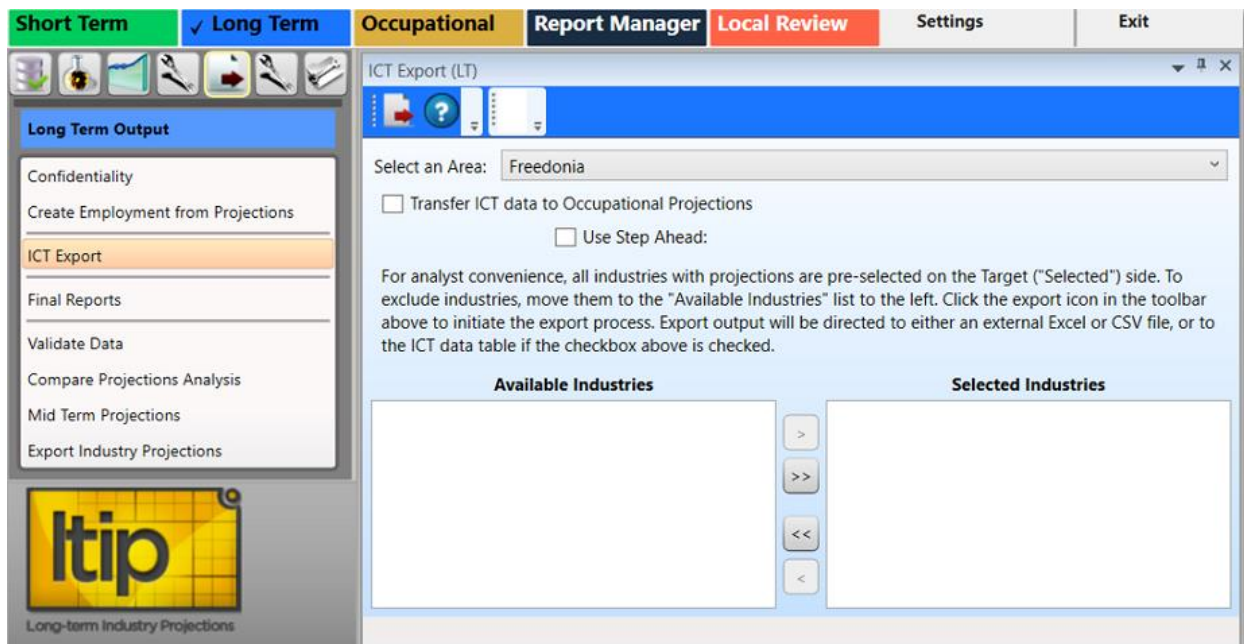


Figure 1: ICT Export module

Utilize ICT Export

1. **Select an Area** and a list of industries with projections will be displayed in the **Selected Industries** table. Industries that *should not* be exported should be moved to the **Available Industries** table. However, exporting all of the industries is usually typical.
2. To move industries into the **Available Industries** table (and exclude them from exportation), select an industry and click the **Move left** button.
 - Manipulate the additional **move** and **move all** buttons to move industries from the **Selected Industries** table to the **Available Industries** table, and vice versa.
 - **Right-clicking** any industry opens a context menu which allows you to **Remove** or **Add Selected** (depending on which table you've right-clicked into), **Select All**, or **Unselect All** industries.

☞ Multiple industries can be moved at a time. For help with selecting multiple industries, click [here](#).

Export Data to Occupational Projections

1. To transfer ICT data to the Occupational Projections application, check the **Transfer ICT data to Occupational Projections** box prior to exporting the data.
2. When the list of selected industries is ready, click the **Export** button on the [Active Module Toolbar](#).
3. A **Finished** message will display, letting you know the ICT data from the **Selected Industry** table was exported to the ICT table in **Occupational Projections**. Click **OK**.

Export Data to a Spreadsheet

1. Ensure the **Transfer ICT data to Occupational Projection** box is unchecked.
2. Click the **Export** button. A **Save As** window will display.
3. Select a location and type the name of the file to be exported.
4. Click **Save**.

Use Step Ahead

To use data prepared in the Step Ahead module:

1. Click the **Use Step Ahead** check box. When you click the **Use Step Ahead** check box it will activate two radio buttons: one for **9 Year Horizon Base** and one for an **8 Year Horizon Base**. Checking the **Use Step**

Ahead check box requires you to select either **9 Year** or **8 Year** radio buttons before exporting.

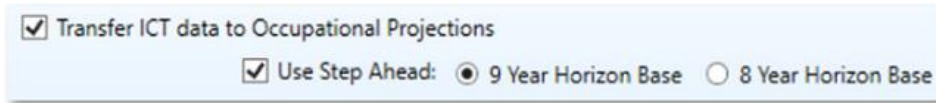


Figure 2: Use Step Ahead check box (with other options selected)

2. Select either the **9 Year Horizon Base** radio button or the **8 Year Horizon Base** radio button.
3. Click the **Transfer ICT data to Occupational Projections** check box.
4. Click the **Export** icon on the Active Module Toolbar to export the **Step Ahead** data to **Occupational Projections**.

Related Content

- [Step Ahead](#)
- [Edit ICT](#)

Final Reports

The **Final Reports** module enables temporary adjustment, printing, and exporting of industry data within a selected area, base year, and projection year.

Screen Controls

- **Select an area** drop-down menu
- **Select the projection year** drop-down menu
- Missing base year records control group
 - **Print the report with '0' in the base year column for these records** radio button
 - **Remove these records from the report** radio button
- **Preview Report Data** button
- **Hide Preview** button

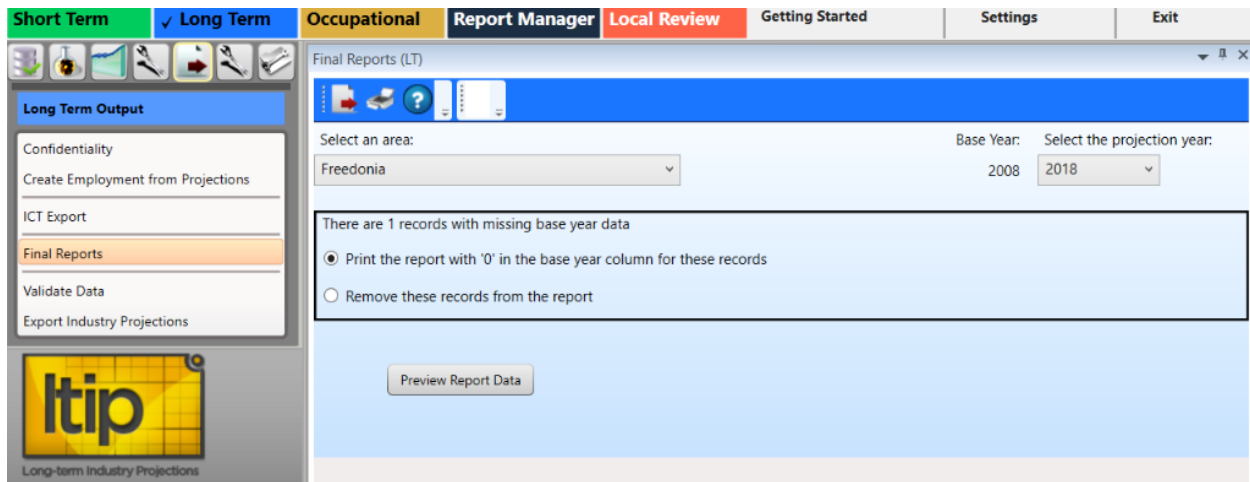


Figure 1: Final Reports module

Create Final Reports

1. **Select an area** from the drop-down menu.
2. **Select the projection year**. Upon selecting an area and projection year, a message will be displayed stating if the selected combination of area and projection year data contains any **records with missing base year data** (see Figure 1).
3. Select the **Print the report with '0' in the base year column for these records** or the **Remove these records from the report** radio button.

View and Edit the Report

1. Click the **Preview Report Data** button. A data grid will be displayed with industry data from the selected area and projection year.

Long-Term Industry Projections

2. **Right click** a field and select **Edit** or **Delete** from the context menu. The Industry Title and any of the employment values are able to be edited.

NAICS Code	Industry Title	Base Year Employment	Projected Employment	Change In Employment	Percent Change
▶ 314000	Textile Product Mills	0		1,344	N/A
▶ 511100	Newspaper, Periodical, Book, and Directory Publishers	33,158		10,328	31.1 %
▶ 511200	Software Publishers	4,325	4,513	188	4.3 %
▶ 541100	Legal Services	57,163	76,487	19,324	33.8 %
▶ 541200	Accounting, Tax Preparation, Bookkeeping, and Payroll S	49,281	61,226	11,945	24.2 %
▶ 541300	Architectural, Engineering, and Related Services	48,520	59,644	11,124	22.9 %
▶ 541400	Specialized Design Services	8,125	10,468	2,343	28.8 %

Figure 2: Data displays for viewing and editing

3. If **Edit** was selected, enter the desired value and **Tab** into other fields in the record if necessary.
4. Click on another record or press **Enter** to save changes.

☞ Any changes are temporary and will not be saved to the database. They apply only to the current instance of the Final Report.

To hide the data grid, click the **Hide Preview** button.

To export the data, click the **Export** button on the Active Module Toolbar. To print the data, click the **Print** button.

Validate Data

Use the **Validate Data** module to validate and extract reports on the disposition of your data.

The Validate Data module is available in both Short-Term and Long-Term applications. The Short-Term application validates monthly data. The Long-Term Validate Data module allows you to validate annual data, and data for the entire United States.

☞ The **Notebook** is not available in the Long-Term Validate Data module.

Screen Controls

- **Select an Area** drop-down menu
- **Filter** drop-down menu
- **Validate** button

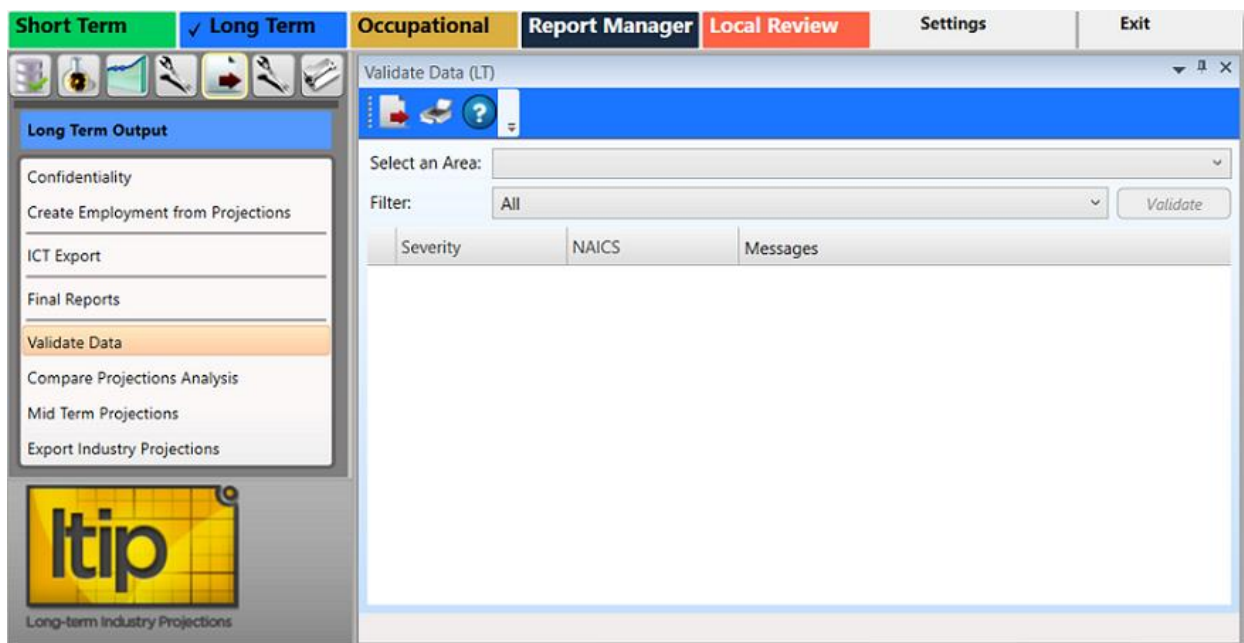


Figure 1: Validate Data module

Validate the Data

1. **Select an Area.**
2. Click the **Validate** button. The validation data errors will be displayed for **All** filters in the displayed table.



Severity	NAICS	Messages
Error	000000 - Total All Ind	Parent and child employment data do not equal for year 1972. Parent annual employment level: 1000. Child annual employment level: 4115198
Error	000000 - Total All Ind	Parent and child employment data do not equal for year 1973. Parent annual employment level: 3205094. Child annual employment level: 4239286
Error	000000 - Total All Ind	Parent and child employment data do not equal for year 1974. Parent annual employment level: 3243292. Child annual employment level: 4354455

Figure 2: Errors listed for Illinois

3. Select a **Filter** from the drop-down menu and click the **Validate** button again. Filter options are:
 - **All**
 - **Industry has Annual Employment Data**
 - **Sum of Child Annual Employment Equals Parent**
 - **Industry projection Equals Child Projections**
 - **Check for Missing Employment Data**

After processing, you can the **Export** or **Print** options on the Active Module Toolbar.

Compare Projections Analysis

The **Compare Projections Analysis** module is used to compare statistical differences across a variety of times, the current calculations, as well as alternative outcomes. It uses the differences between 10, 5, and 2 year histories and current bases, projections, and rates. Compare Projections Analysis also displays prior conducted analyses, as well as alternative bases, projections, and rates.

Screen Controls

- **Select an Area** drop-down menu
- **Compare** button

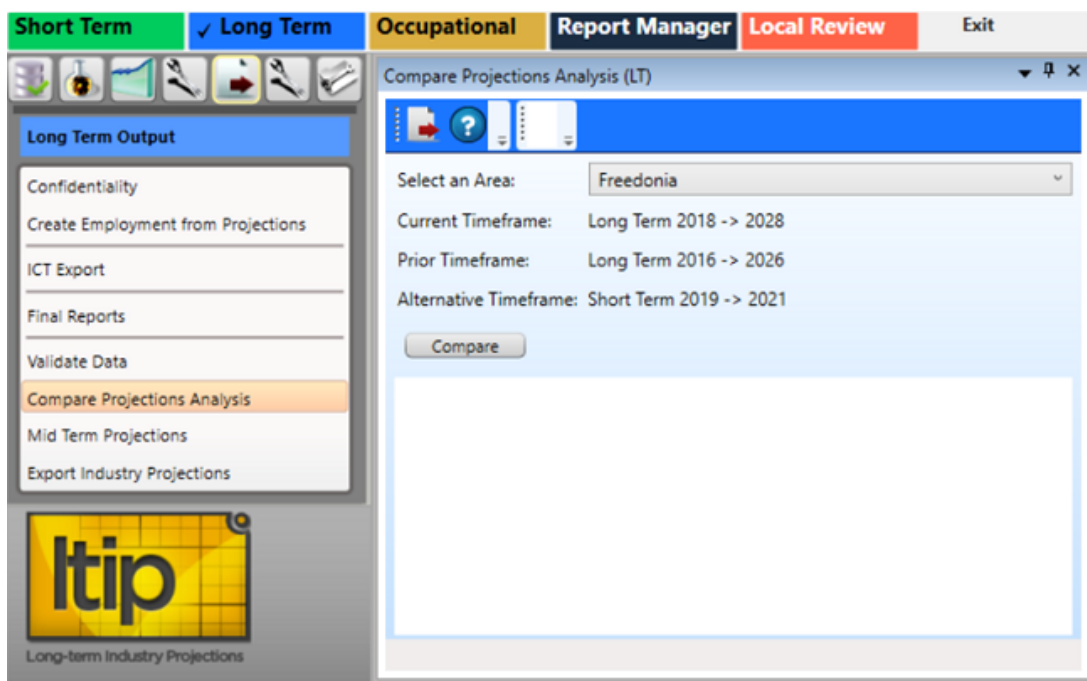


Figure 1: Compare Projections Analysis module

Compare Projections Analysis on an Area

1. **Select an Area** from the drop-down menu. [Project Single Region](#) or [Project Multiple Regions](#) must be completed before an analysis can be conducted in this module.
2. Click the **Compare** button. Projections Suite will collect the calculated data for analysis.

Long-Term Industry Projections

Compare Projections Analysis (LT)

Select an Area: **Freedonia**

Current Timeframe: Long Term 2018 -> 2028

Prior Timeframe: Long Term 2016 -> 2026

Alternative Timeframe: Short Term 2019 -> 2021

Compare

NAICS	Industry Title	Hist 10 Year	Hist 5 Year	Hist 2 Year	Current Base	Current Projection	Current Rate	Prior Base	Prior Projection	Prior Rate	Alt Base	Alt Projection	Alt Rate
000000	Total All Industries	0.18	0.82	0.61	6463098.00	6805541.58	0.52	0.00	0.00	0.00	0.00	6164673.00	0.00
000067	Self Employed and Unpaid Family Workers, All Jobs	-0.06	-0.51	0.94	277503.00	276042.55	-0.05	272375.00	272233.26	-0.01	276058.17	275027.92	-0.19
110000	Agriculture, Forestry, Fishing and Hunting	-0.63	-0.15	-0.58	74212.00	76128.06	0.26	75085.00	74812.46	-0.04	73234.91	62615.00	-7.53
110067	Self Employed Workers in Agriculture	-0.63	-0.15	-0.58	28630.00	29369.00	0.26	28967.00	28862.00	-0.04	24278.49	24168.38	-0.23
110500	Wage and Salary Workers in Agriculture	-0.63	-0.15	-0.58	45582.00	46759.00	0.26	46118.00	45950.00	-0.04	38653.56	38446.52	-0.27

Figure 2: After Compare analysis is complete

- After the **Compare** analysis is completed, the comparisons mentioned in this page's introduction are calculated and laid out in a table, listed by [NAICS](#) and Industry Titles. The comparisons can be rearranged by clicking on the column header of each of the categories.

Mid Term Projections

In **Mid Term Projections**, using the basis of the existing Short-Term (2-year) and Long-Term (10-year) employment projections processes, states can choose to produce industry and occupational employment projections for any one year from 2 through 9 years. The following steps enable states to produce that Mid Term Projection.

- ☞ Mid Term Projections is useful to calculate statistics between the Short and Long-Term projections, [Step Ahead](#) capabilities, and bridge the data gaps between these applications and associated modules.

Complete Short-Term and Long-Term Projections for your state and area(s) using the same base period. **The base year of both the Short-Term and Long-Term source timeframe inputs must be similar.** For example, if the Long-Term base is 2016, then the selected Short-Term round must be one including the base period for **all of 2016** (a Short-Term base period ending **Dec 2018** or **Mar 2017**, etc.).

Screen Controls

- **Select an Area** drop-down menu
- **Short-Term Source Timeframe** drop-down menu
- **Long-Term Source Timeframe** drop-down menu
- **Compute** button

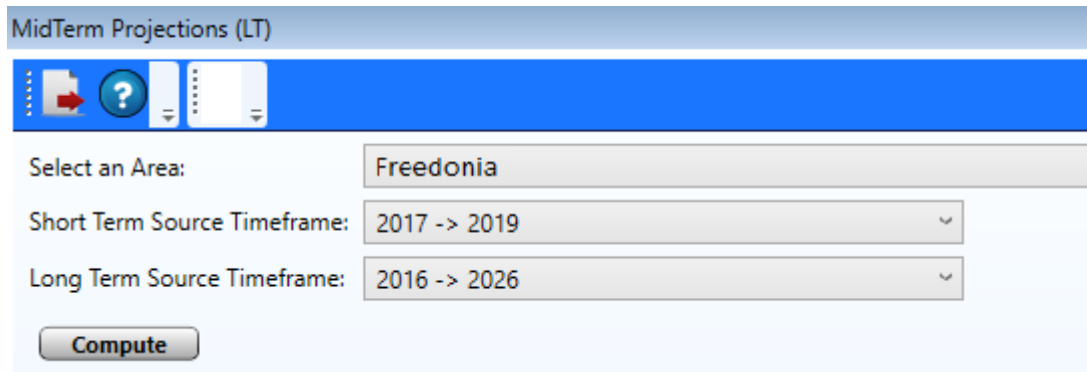
The screenshot shows the 'MidTerm Projections (LT)' window. At the top, there is a navigation bar with tabs: 'Short Term', 'Long Term' (selected), 'Occupational', 'Report Manager', 'Local Review', 'Getting Started', 'Settings', and 'Exit'. Below the navigation bar, on the left, is a sidebar with a 'Long Term Output' section containing links: 'Confidentiality', 'Create Employment from Projections', 'ICT Export', 'Final Reports', 'Validate Data', 'Compare Projections Analysis', 'Mid Term Projections' (highlighted), and 'Export Industry Projections'. Below the sidebar is the 'Itip' logo and the text 'Long-term Industry Projections'. The main area of the window has a blue header bar with a question mark icon. Below this, there are three input fields: 'Select an Area:' with a dropdown menu showing 'Freedonia', 'Short Term Source Timeframe:' with a dropdown menu, and 'Long Term Source Timeframe:' with a dropdown menu. Below these fields is a 'Compute' button. At the bottom of the main area, there is a table with columns: 'NAICS', 'Industry Title', 'LT Base', 'LT Projections', 'ST Base', 'ST Projections', 'Year 3', 'Year 4', 'Year 5', 'Year 6', 'Year 7', 'Year 8', and 'Year 9'. The table is currently empty.

Figure 1: Mid Term Projections module

Select Options For Mid Term Calculations To Compute

1. **Select an Area** to develop Mid Term Projections.
2. Select a **Short Term Source Timeframe** to use as a base period.

3. Select a **Long Term Source Timeframe** to use, which uses the *same base period* as the **Short Term Source** selection.



MidTerm Projections (LT)

Select an Area: Freedonia

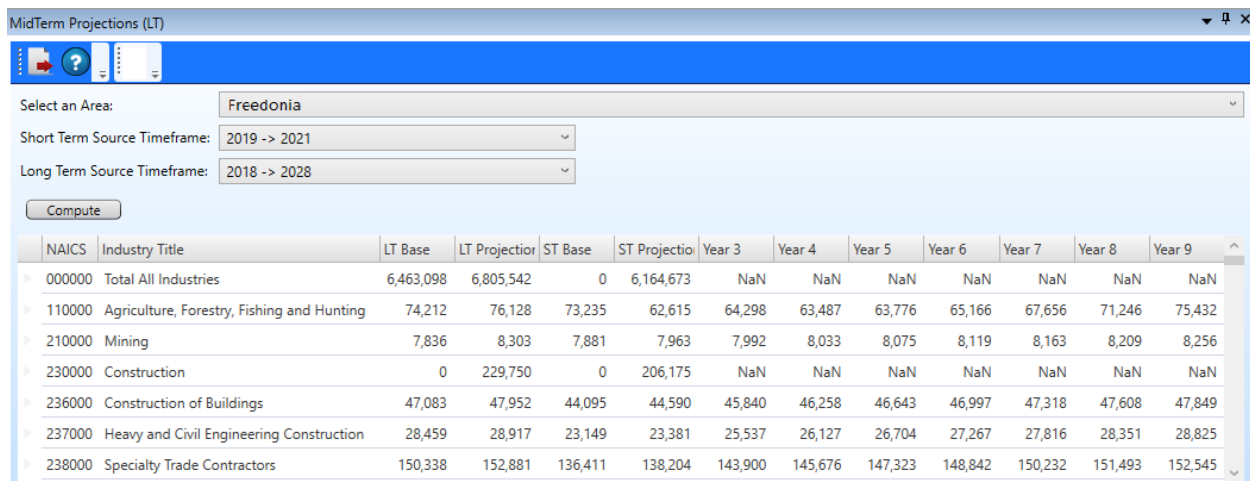
Short Term Source Timeframe: 2017 -> 2019

Long Term Source Timeframe: 2016 -> 2026

Compute

Figure 2: The options used for the calculation of Mid Term Projections

4. Press the **Compute** button to calculate projections for all Mid Term years. The projected results are displayed in the table below.



MidTerm Projections (LT)

Select an Area: Freedonia

Short Term Source Timeframe: 2019 -> 2021

Long Term Source Timeframe: 2018 -> 2028

Compute

NAICS	Industry Title	LT Base	LT Projection	ST Base	ST Projection	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
000000	Total All Industries	6,463,098	6,805,542	0	6,164,673	NaN	NaN	NaN	NaN	NaN	NaN	NaN
110000	Agriculture, Forestry, Fishing and Hunting	74,212	76,128	73,235	62,615	64,298	63,487	63,776	65,166	67,656	71,246	75,432
210000	Mining	7,836	8,303	7,881	7,963	7,992	8,033	8,075	8,119	8,163	8,209	8,256
230000	Construction	0	229,750	0	206,175	NaN	NaN	NaN	NaN	NaN	NaN	NaN
236000	Construction of Buildings	47,083	47,952	44,095	44,590	45,840	46,258	46,643	46,997	47,318	47,608	47,849
237000	Heavy and Civil Engineering Construction	28,459	28,917	23,149	23,381	25,537	26,127	26,704	27,267	27,816	28,351	28,825
238000	Specialty Trade Contractors	150,338	152,881	136,411	138,204	143,900	145,676	147,323	148,842	150,232	151,493	152,545

Figure 3: Mid Term Projections table displayed after pressing the Compute button

5. The **LT Base** and **LT Projection** (as well as the Short-Term derivatives), as well as the calculated years (**Year 3** through **Year 9**) organized by the **NAICS** and **Industry** Titles are displayed.

For an explanation of how the Mid Term Projections module was developed and a mathematical formula example for 5-year projections, visit the **Related Content**.

Related Content

- [About the Mid-Term Numbers](#)

Export Industry Projections

The **Export Industry Projections** module allows the exporting of a specific area's industry projections to a spreadsheet file or directly into [Report Manager](#).

The Export Industry Projections module is available in the Short-Term and Long-Term Projections applications.

- ☞ The **Notebook** is not available in this Long-Term Export Industry Projections module.

Screen Controls

- **Export Data to File - Local Review Format** radio button
- **Export Data to File - Projections Review** radio button
- **Transfer Data to Report Manager** radio button
 - Clicking this radio button will display another drop-down (not shown in Figure 1) named **Source Timeframe**.
- **Source Area(s)** drop-down menu.



Figure 1: Export Industry Projections module

Export Industry Projections

1. Select a **Source Area(s)** from the drop-down menu.
2. Select one of the three radio buttons, depending on the type of export required.
Either:

- Select the **Export Data to File - Local Review Format** or **Export Data to File - Projections Review** radio button.
- Click the **Export** button on the Active Module Toolbar. A **Save As** dialog box will be displayed.
- Enter a file name and select a location to save the file to.
- Click **Save**.

Or

- Select the **Transfer Data to Report Manager** radio button.
- Select the **Source Area(s)** and **Source Timeframe** from the drop-down menus.
- Click the **Export** button on the Active Module Toolbar.
- Use the [Browse Data](#) menu selection in **Report Manager** to view the data.

Long-Term Compare

Long-Term Compare is the initial group menu used to analyze and make comparisons between your projected statistics. The Compare group menu tests the Upload Area Connection, allows you to upload your data, and make initial geographic comparisons between other states, regions, the national calculations, among a set of other categorized options.

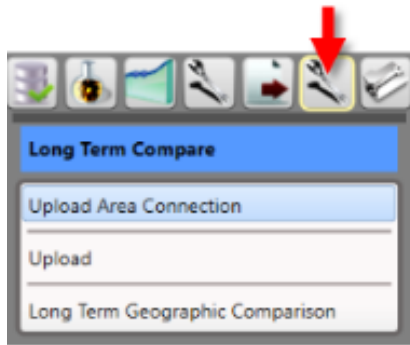


Figure 1: Long-Term Compare group menu

The **Long-Term Compare** group menu contains the following selections:

- [Upload Area Connection](#)
- [Upload](#)
- [Long Term Geographic Comparison](#)

Upload Area Connection

Use the **Upload Area Connection** module to configure an Upload Area account. Contact the Projections [Technical Assistance](#) if you need assistance in setting up an Upload Area account. There should be only one registered analyst per state.

This module is available in the Short-Term, Long-Term, and Occupational Projections applications.

☞ The **Notebook** is not available in the Long-Term Upload Area Connection module.

Screen Controls

- **Service URL** field
- **Email** field
- **Password** field
- **Connect** button

Figure 1: Upload Area Connection module

Login to Geographic Comparison Upload Area Account

1. Enter the **Service URL** (shown in Figure 1) if it is not automatically placed in this field.
2. Enter your **Projections Support Site email address** in the **Email** field.
3. Enter your **Projections Support Site password** in the **Password** field.
4. Click **Connect**. A **Finished** dialog box will be displayed if the connection is successful.
5. Click **OK** to return to the **Upload Area Connection** module.

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- ☞ If the connection is unsuccessful, the following **combination failed** message will be displayed:

Email / Password combination failed. It's possible your account has not yet been approved. Please check to make sure you entered everything correctly. If you have any questions, you can contact Brett Judd at bdjudd@utah.gov

Figure 2: Connection failure dialog

6. If the **combination failed** dialog is displayed, check your email address and password combination and try again. If multiple failures occur, contact the Projections [Technical Assistance](#).

Related Content

- [Validation](#)
- [State Self Publish](#)

Upload

Use the **Upload** module to select the source for your industry comparison. This module is available in the **Short-Term** and **Long-Term** applications.

Screen Controls

- **Projection Suite Data** radio button
 - **State** drop-down menu
 - **Export To Upload Area** radio button
 - **Export To File** radio button
 - **File** field
 - ... button
- **Import File** radio button
 - **Select file to import** field
 - **Browse** button
 - **Detected File Type** field
 - **Import** button

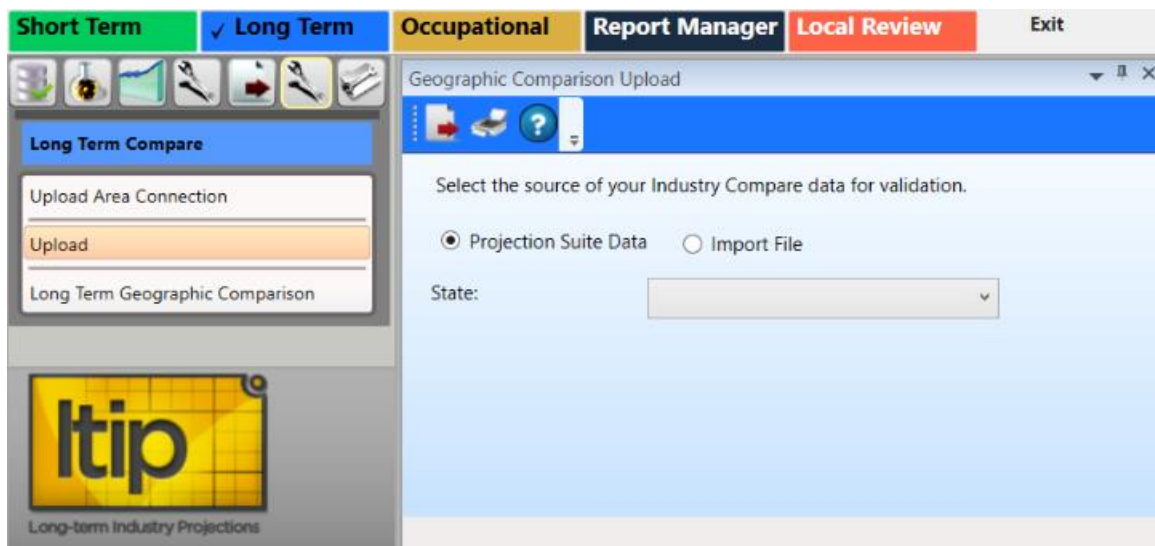


Figure 1: Upload module

Upload Industry Compare Data for Validation

Select your Industry Compare data by choosing from the following:

1. Select **Projection Suite Data**.
2. Select a **State**. The data process and a **Validation** dialog displays, along with an error table at the bottom of the window.
3. Select **Export To Upload Area** or **Export To File**. The Export To Upload Area is not available if the validation fails.

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4. If you selected **Export To Upload Area**, click **Send Compare Data**.
A **Successfully Submitted all Projections** message displays.
5. Click **OK**.

Then

1. If you selected **Export To File**, select a **File** by clicking the ... button. A **Save As** dialog will be displayed.
2. Select a name and location for the file, then click **Save**.
3. Then, on the Active Module Toolbar, click **Export**.
4. Click **Save**.

Or

1. From the beginning of the process, select **Import File**.
2. Click **Browse** and select a file to import.
3. Click **Import**.
4. Select **Export To Upload Area** or **Export To File**. **Export To Upload Area** is not available if the validation fails.
5. If you selected **Export To Upload Area**, click **Send Compare Data**.
A **Successfully Submitted all Projections** message displays.
6. Click **OK**.

Long Term Geographic Comparison

Use the **Long Term Geographic Comparison** module to compare geographic data. You can create comparisons for:

- **States**
- **Regions**
- **Workforce**
- **Services**
- **Goods**
- **Nation**

Data is stored in the Upload Area for all states which have submitted data. Long Term Geographic Comparison requires data from at least three states.

This module is available in the Long-Term and Occupational Projections applications. It is important to make the distinction: the Long Term Geographic Comparison module under the Long Term application compares *industry* data; the Long Term Geographic Comparison module in the Occupational Compare group menu utilizes *occupational* data.

☞ If you do not have an Upload Area account, an error message displays. You are unable to make comparisons until you have the account set up. Reference the [Upload Area Connection](#) module for information on creating an account.

Screen Controls

- **Select the base state** drop-down menu
- **Geographic Comparison** button
- **Compare to States** radio button
- **Region Compare** radio button
- **Workforce Compare** radio button
- **Services Compare** radio button
- **Goods Compare** radio button
- **Compare to Nation** radio button
- **Available States** screen
- **Selected States** screen
- **Move Right** button
- **Move Left** button
- **All Right** button
- **All Left** button

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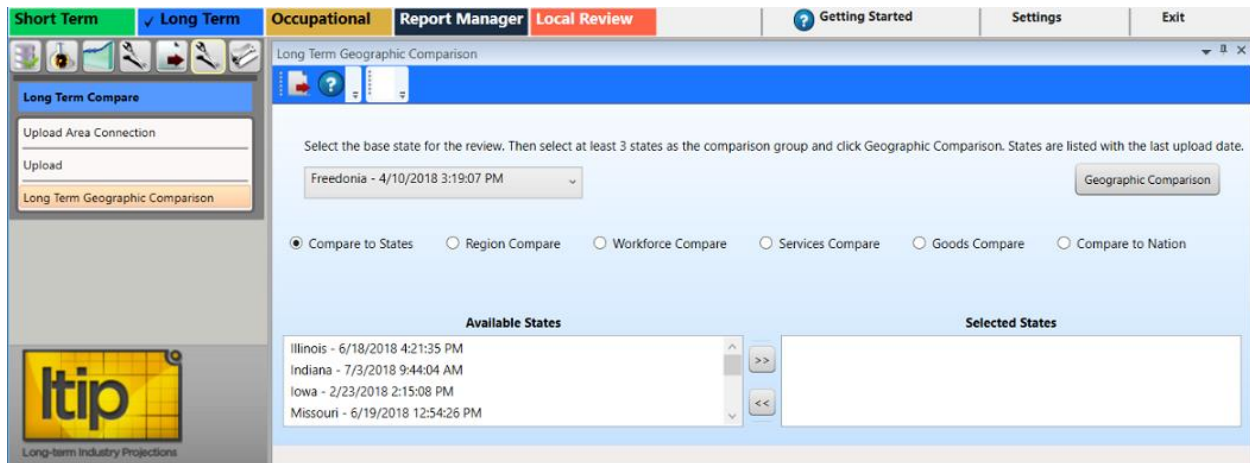


Figure 1: Long Term Geographic Comparison module

To generate comparisons from the **Long Term Geographic Compare** module, select the type of comparison using the radio buttons. Submitted data includes the state name and submittal date and time. The date and time is used to ensure data compared is the latest, most updated data.

In the following procedures **select the base state** (which usually defaults to the state you're projecting for), then select any state who's data is available (in the **Available States** area, moved to **Selected States**) to conduct your comparison.

Compare to States

1. This option defaults to your **base state**. You can select any state from the list as the base state for the comparison.
2. Select the states from the **Available States** box and move them to the **Selected States** box. Click the state then click the arrow button. Or, click the double arrow button to move all **Available States** to the **Selected States** box.
3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the Active Module Toolbar.
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as type** then click **Save**.

Region Compare

1. This option defaults to your **base state**. You can select any state from the list as the base state for the comparison.
2. **Select the Region for the comparison.**
3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.

5. Click the **Export** icon in the Active Module Toolbar.
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as type** then click **Save**.

Workforce Compare

1. Select the **base state**.
2. **Select the Workforce Quartile for the comparison.**
3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the Active Module Toolbar.
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as type** then click **Save**.

Service Compare

1. Select the **base state**.
2. **Select the Services Quartile for the comparison.**
3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the Active Module Toolbar.
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as type** then click **Save**.

Goods Compare

1. Select the **base state**.
2. **Select the Goods Quartile for the comparison.**
3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the Active Module Toolbar.
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as type** then click **Save**.

Compare to Nation

1. Select the **base state**.
2. Click **Geographic Comparison**. When the comparison is complete, a message displays.
3. Click **OK**.
4. Click the **Export** icon in the Active Module Toolbar.
5. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as type** then click **Save**.

Projections Suite 2022

Related Content

- [Geographic Comparison File Format](#)

Long-Term Utilities

The **Long Term Utilities** group menu enables a variety of maintenance functions within Long-Term Industry Projections.



Figure 1: Long-Term Utilities group menu

The **Long-Term Utilities** group menu contains the following selections:

- [Export Employment Series](#)
- [Export Variable Series](#)
- [Notebook](#)
- [Export Notebook](#)
- [Delete Area Employment](#)
- [Backup Database](#)
- [View System Log](#)
- [Check For Updates](#)
- [Update Database](#)
- [Add Step Ahead Table](#)

Export Employment Series

Use the **Export Employment Series** module to create importable spreadsheets containing employment series data.

Screen Controls

- **Select an area** drop-down menu
- **Select a date range** spinners
 - **Max** button
- **Move** buttons

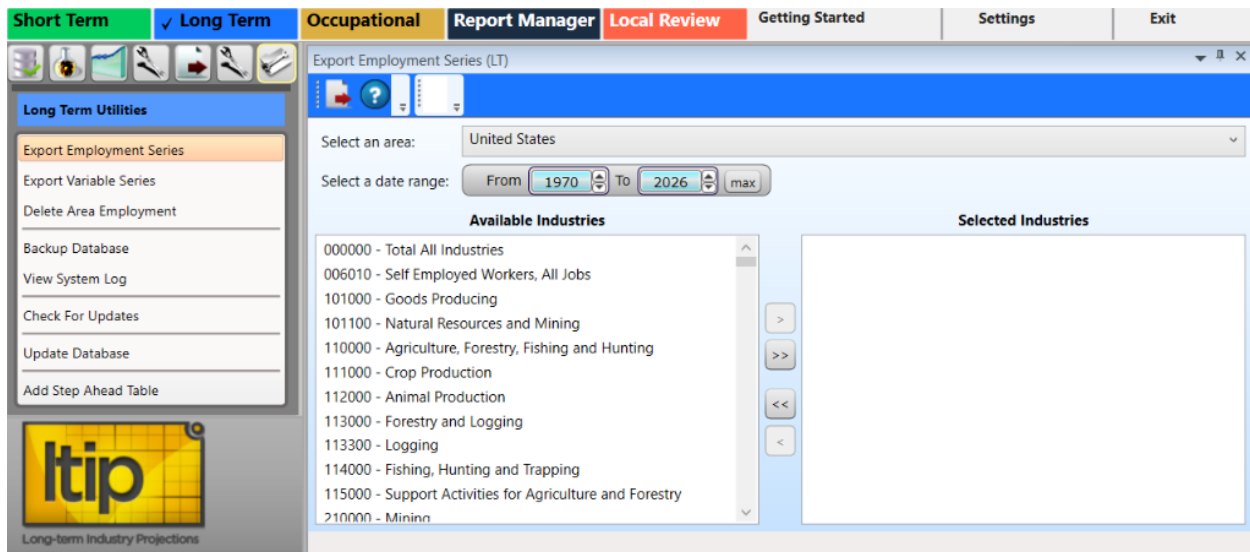


Figure 1: Export Employment Series module

Create an Employment Series Spreadsheet

1. **Select an area** from the drop-down menu.
2. **Select a date range** using the spinners.
 - Click **max** to add the longest time frame possible.
3. Select industries from the **Available Industries** table to add to the **Selected Industries** table.
 - Select the **Available Industry**, then **right click** with the mouse to add the industry to the **Selected Industries** table.
 - You can also use the move buttons to manipulate the contents of each table.
4. When you have finalized the list of **Selected Industries**, click the **Export** button in the [Active Module Toolbar](#).
5. In the **Save As** pop up window, select a location for the file and enter a file name.

6. Click **Save**.

The spreadsheet contains the FIPS county code, area code, area type, date, and employment values for each industry selected.

Related Content

- [Employment Spreadsheet Format 2](#) - Industries as Columns

Export Variable Series

Use the **Export Variable Series** module to export historical variable data. This module creates importable spreadsheets containing variable time series data. Variable data for areas is exported in this Long-Term application.

Screen Controls

- **Select Area** drop-down menu
- **Select a data range** spinner
 - **Max** button
- **Available Variables** table
- **Selected Variables** table
- **Move** buttons

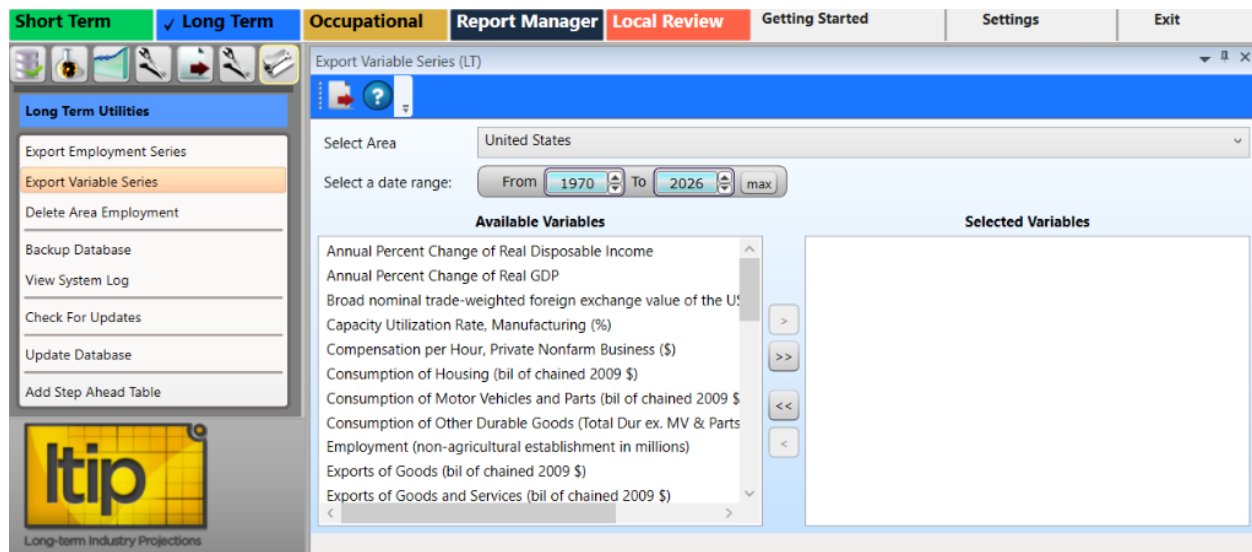


Figure 1: Export Variable Series module

Export Variable Data

1. Select an area from the **Select Area** drop-down menu.
2. **Select a date range** using the spinner controls.
 - Click the **Max** button to automatically select the longest time frame possible.
3. Select variables from the **Available Variables** table and click the **Move** button. The variable will be moved to the **Selected Variables** table.
 - Use the additional move and move all buttons to move variables from the **Available Variables** table to the **Selected Variables** table, and vice versa.

- Right-clicking any variable opens a context menu which allows you to **Remove** or **Add Selected** (depending on which table you've right-clicked into), **Select All**, or **Unselect All** variables.
4. Click the **Export** button on the [Active Module Toolbar](#). A **Save As** dialog box will be displayed.
 5. Enter a file name and select the destination to save the file.
 6. Click **Save**.

Related Content

- [Variable Directory](#) (LT)
- [Review Variables](#) (LT)

Notebook

Use the **Notebook** module to record user and statistical notes and attach them to areas and industries. The Notebook can be helpful during the analysis and Projections process. It can also be used to keep historical records for industries, which can be helpful when state analysts leave and new analysts begin using the application. You can access the Notebook in all but a few **Short-Term Industry**, **Long-Term Industry**, and **Occupational Projections** modules.

Screen Controls

- **Area** drop-down menu
- **Industry** drop-down menu
- **Save** button
- **Reload** button
- **Delete All Notes** button

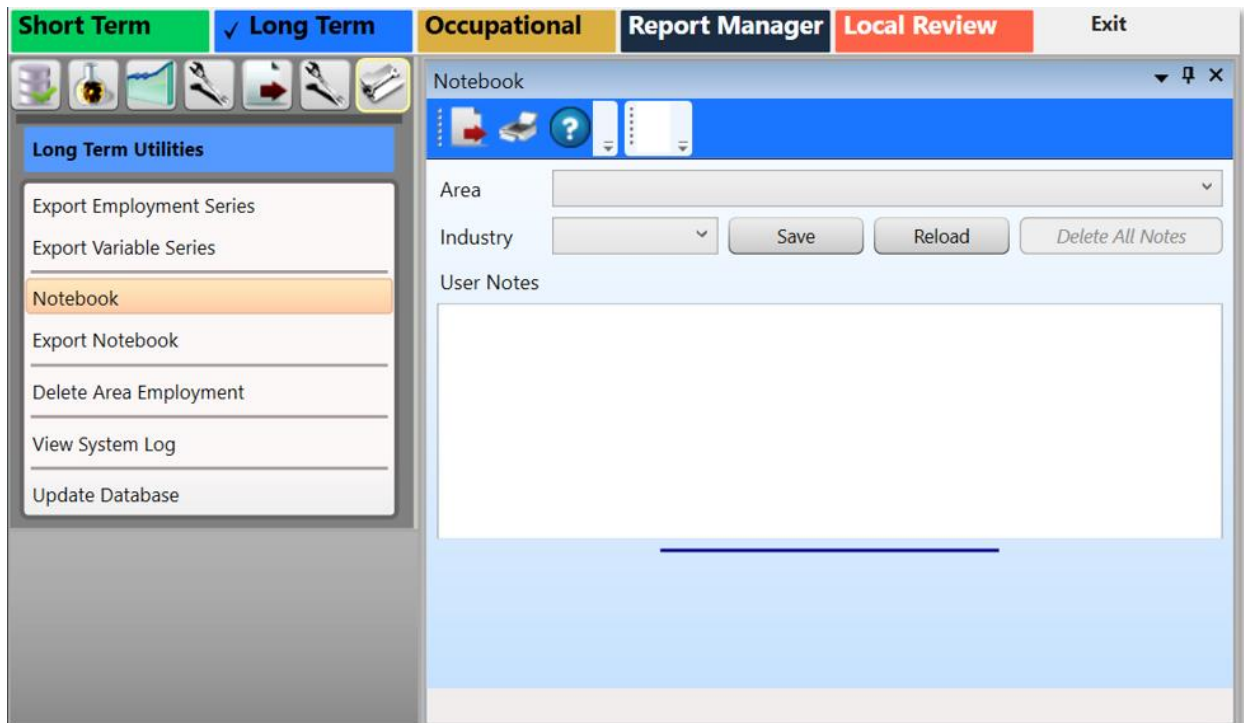


Figure 1: Notebook module

Record or Modify Notes










1. Click the **Notebook** module from the group menu. The **Notebook screen** will be displayed in its own undocked window.
- ☞ View the [Screen Controls](#) for assistance in docking the module's window (as shown in Figure 1).

2. Select an area to record/modify notes about, with the **Area** drop-down menu.
3. Select an industry to record/modify notes for, by clicking the **Industry** drop-down menu.
4. **Type the notes** for the selected area and time frame.
5. Click the **Save** button.

Export Notes

1. Click the **Export** button in the [Active Module Toolbar](#). A **Save As** dialog box will be displayed.
2. Select a name and location for the notebook file to be exported to.
3. Click the **Save** button.

Printing the Notes

1. Click the **Print**  button in the [Active Module Toolbar](#). The **Print Preview dialog box** will be displayed. The Print Preview dialog box contains seven icons to assist with the printing/confirmation process. From left to right, they are the:
 - **Print**  icon used to send the Notebook to the printer.
 - **Zoom In**  and **Zoom Out**  icons are used to make the text larger and smaller.
 - **View at 100%**  icon used to view the Notebook at 100% of its size.
 - **View at Page Width**  icon used to view the notebook so it fills the width of the page.
 - **View Whole Page**  icon used to view the entire Notebook page.
 - **View Two Pages**  icon used to view two pages of the Notebook at the same time.
2. Click the **Print**  icon after making all of the needed entries and adjustments. The Notebook data will print.

Export Notebook

The **Export Notebook** module enables exportation of **Notebook** data to a text file for a selected area/industry or all areas and industries.

Screen Controls

- **All Notes for an Area** check box
- **Area** drop-down menu
- **All Notes for an Industry** check box
- **Industry** drop-down menu
- **All** check box

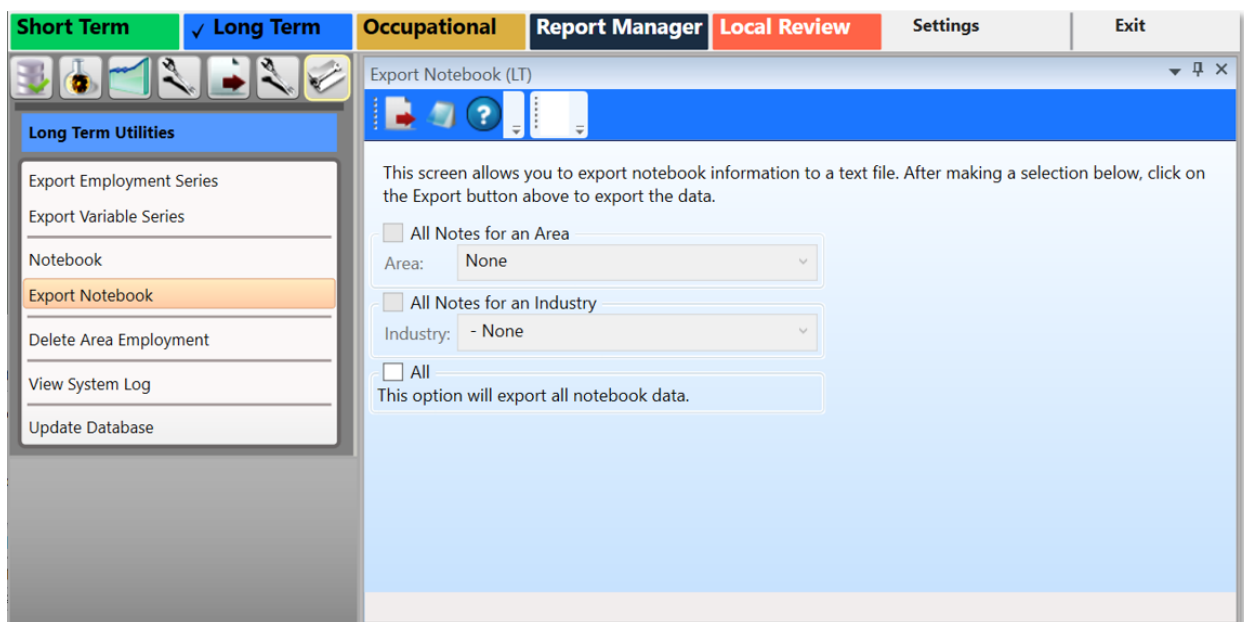


Figure 1: Export Notebook module

Export Notebook Data

1. Select one of the following:
 - **All Notes for an Area** check box, then select the **Area** from the drop-down menu.
 - **All Notes for an Industry** check box, then select the **Industry** from the drop-down menu.
 - **All** check box.
2. Click the **Export** button on the [Active Module Toolbar](#). The **Notebook** data for the area or industry will be exported.

Delete Area Employment

The **Delete Area Employment** module enables deletion of all employment records for a selected area.

The Delete Area Employment modules are available in the **Short** and **Long-Term Projections** applications. The Short-Term [Delete Area Employment](#) module deletes monthly data; the Long-Term module deletes annual data.

Screen Controls

- **Select an Area** drop-down menu
- **Delete all employment for area** button

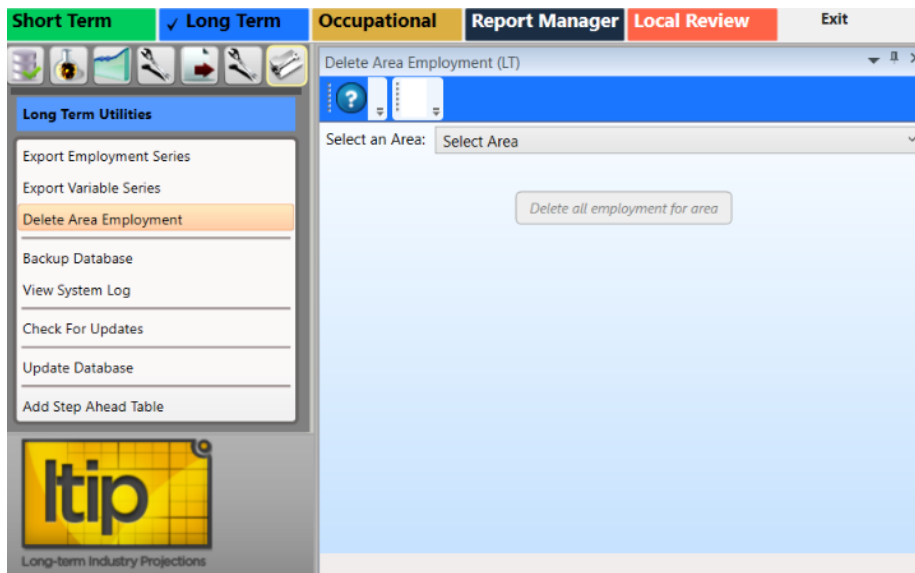


Figure 1: Delete Area Employment module

Delete Employment Records for a Specific Area

1. **Select an Area.**
2. Click the **Delete all employment for area** button. A **Delete area employment** dialog box will be displayed:



Figure 2: Verification of deletion of employment records

3. Click **Yes** to delete the records. Click **No** to keep the records.

Backup Database

Use the **Backup Database** module to create a copy or archive the existing data in the database so the information can be restored if needed.

Backup Changes in the Database

1. Click the **Backup Database** menu choice from the **Short-Term Utilities** group menu. The backup process will begin immediately. When the backup is complete, the following screen will be displayed:

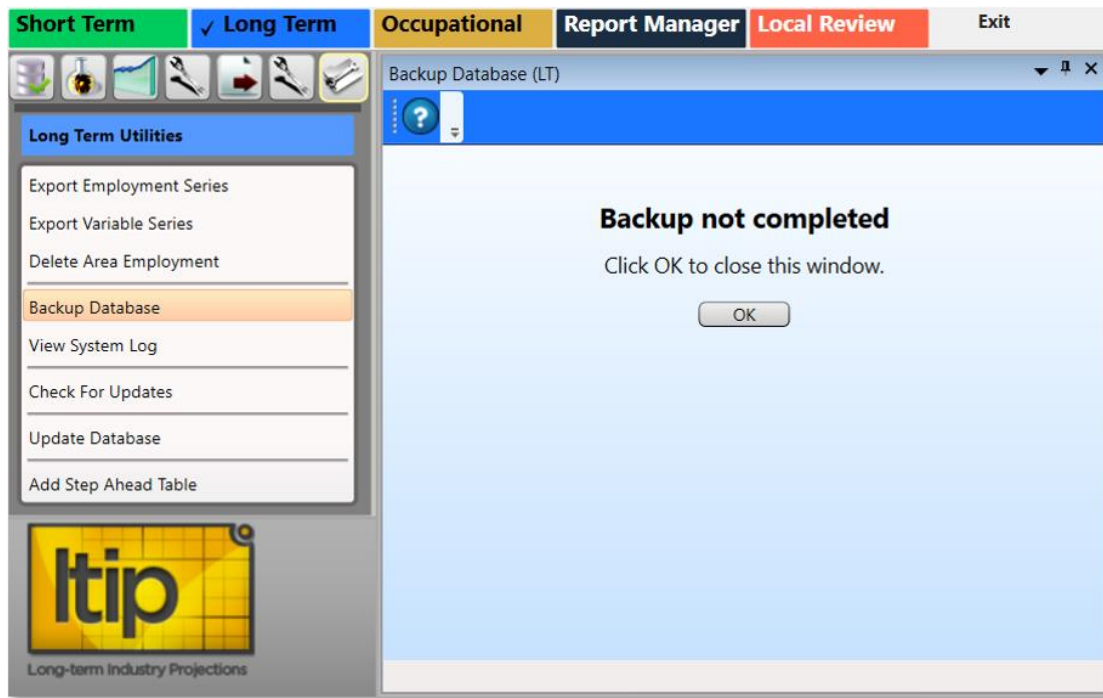



Figure 1: Backup Database dialog box

2. Click **OK**.

 In Figure 1, the **Backup not completed** dialog box was put into a **docked** position on the module's display; see [Screen Controls](#) for more information on that function. Click **OK** on the dialog box to close the window, whether it's docked or not.

Set a Backup Location

1. If there is no directory path for the backup folder, the following error will be displayed.

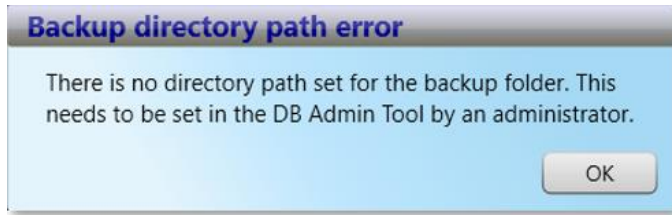


Figure 2: Backup directory path error dialog box

2. Visit the [Projections Suite Installation](#) page to see if everything was installed correctly.
3. If you've already done your **Projections Suite** calculations, **talk with your state administrator** to see if there's anything they can do to assist you without wiping your data through reinstallation.
4. If your state administrator isn't able to assist you, get in touch with the [Technical Assistance Contacts](#).

View System Log

The **View System Log** module is used in the event Projections Suite is not functioning properly. A copy of the **Projections Suite Log** may be required to troubleshoot your Projections Suite environment. This module is available in Short-Term, Long-Term, and Occupational Projections.

View the System Log

1. Click the **View System Log** module's menu choice. The **View System Log** instructions dialog box containing this message (in Figure 1, the **View System Log** dialog box has been docked into the window) will be displayed:

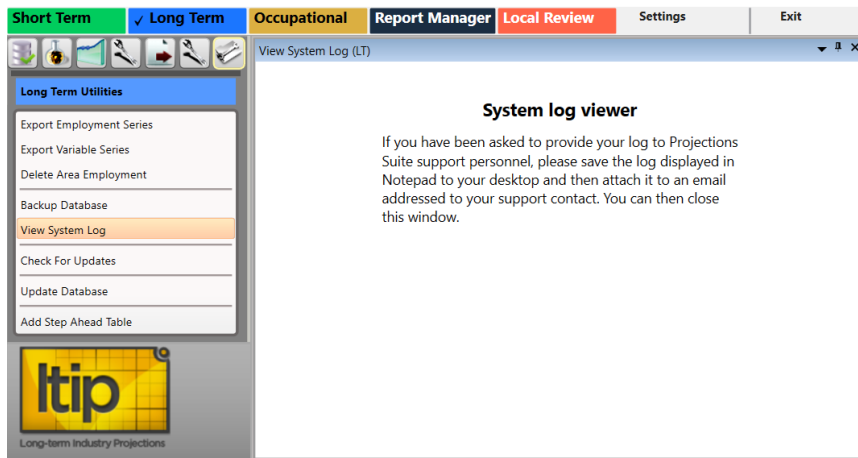


Figure 1: View System Log module, with the View System Log dialog box docked into the window

- ☞ To see how to **dock** the dialog box in the Projections Suite's window, see the [Screen Controls](#) page.
2. The **Projections Suite Log** file contains the following log information and will be displayed simultaneously when the **View System Log** module is selected in the group menu. The following information may be required by [Technical Assistance](#) needs to be contacted.

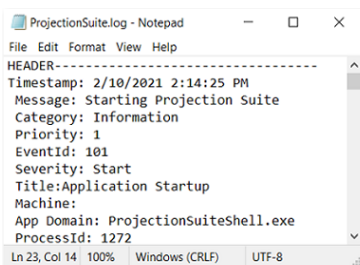


Figure 2: Projections Suite Log

Check For Updates

The **Check for Updates** module is available in **Short-Term**, **Long-Term**, and **Occupational Projections**. To check for updates to the Projections Suite application:

1. Select the **Check For Updates** module from the **Utilities** group menu.

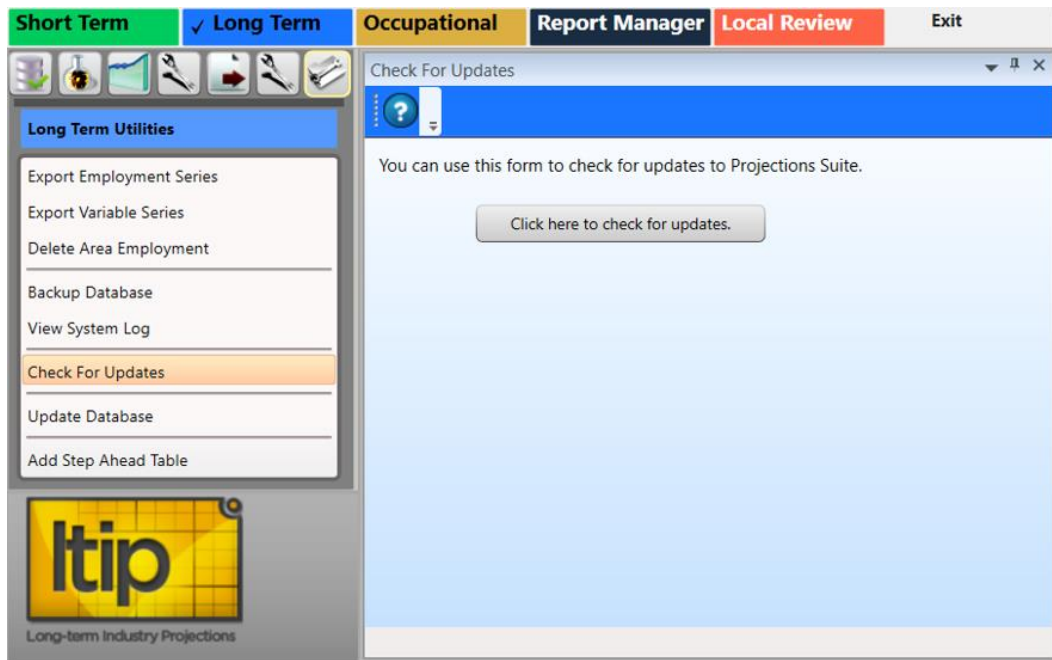


Figure 1: Check For Updates module

2. Select the **Click here to check for updates** button. If the application is up to date, the following message will be displayed:

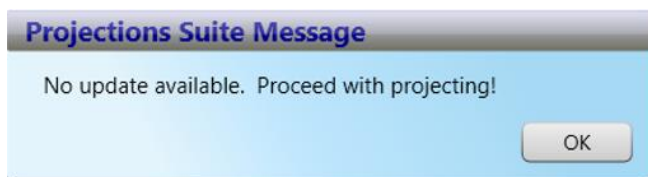


Figure 2: Projections Suite Message dialog box

Update Database

Use the **Update Database** module to update the [Industry Directory](#) with industries that are not in your directory. The Update Database module is the same in the Short-Term and Long-Term Projections applications. This module may have additional buttons to perform updates, from time to time.

Screen Controls

- **Update Industry Directory** button
- **Update Titles** check box

1. Select the **Update Database** module from the Long-Term Utilities group menu. The Update Database module will be displayed.

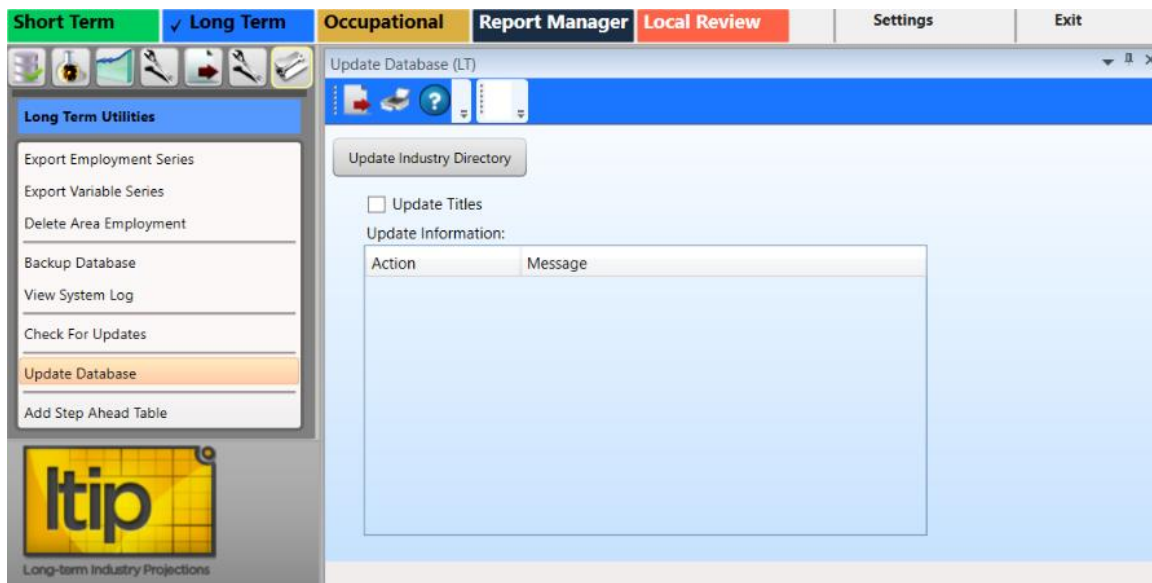


Figure 1: The Long-Term Update Database module

2. To update the titles of industries in your directory, click the **Update Titles** check box. **If you use your own titles, do not select Update Titles.**
3. Click on the **Update Industry Directory** button. The Update Information table will display any system messages, or the following dialog box will be displayed:

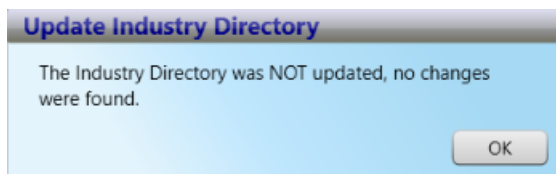


Figure 2: Update Industry Directory dialog

Add Step Ahead Table

The **Add Step Ahead Table** module creates a **Step Ahead** table for use in the Projections database.

Screen Controls

- **Create Step Ahead Table** button

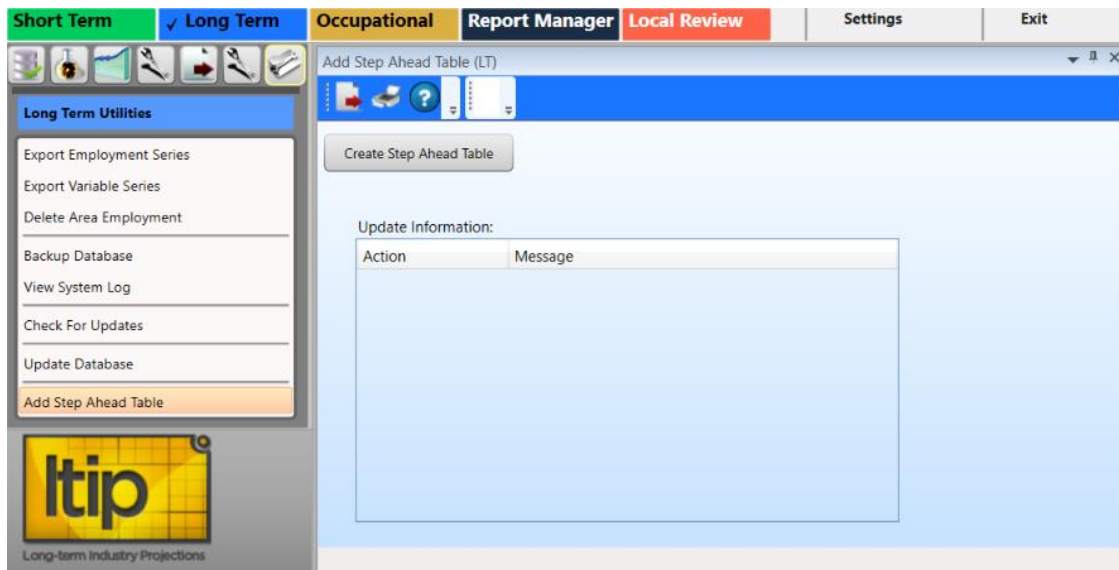


Figure 1: Add Step Ahead Table module

Create Step Ahead Table

1. Click the **Create Step Ahead Table** button. The Step Ahead table will be created.
2. **If the Step Ahead table is already created**, the following dialog box will be displayed:

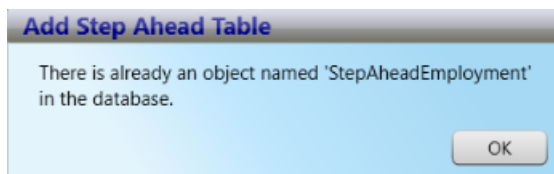


Figure 2: Add Step Ahead Table dialog box

3. Click **OK**.

Related Content

- [Step Ahead](#)

Occupational Projections



Occupational Projections (OP) provides analysts with information to make rational decisions regarding job training, education, and careers. The information is used by career counselors, students, job seekers, career changers, educators, and training officials. Projected staffing patterns are applied to industry projections, resulting in Occupational Projections.

Information on Occupational Projections is available on the Projections Central Support site, under [Occupational Projections Resources](#). The OP Resources contains calculation procedures, national data files, and other helpful information. Use these resources to get started with Occupational Projections.

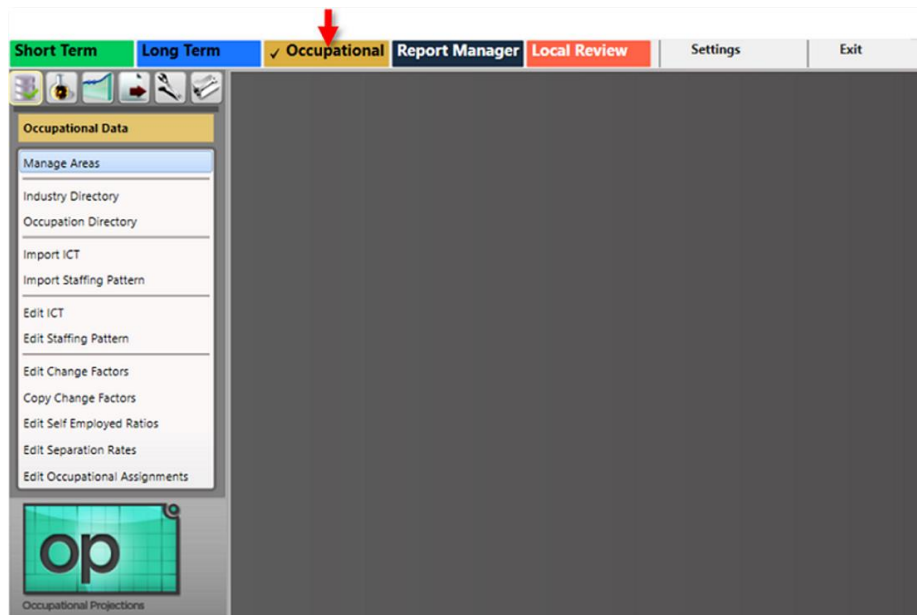


Figure 2: Occupational Projections application

There are seven concepts used to calculate Occupational Projections:

- Occupational **estimates by industry** for the base year are used as the starting point.
- Occupational **estimates of self-employed workers** are added.
- Occupational estimates are then converted to a percent within each industry to **create a staffing pattern**.
- The **forecasts of changes** in occupational staffing patterns, known as change factors, are applied to the base year staffing patterns to calculate a projected year staffing pattern.
- State **industry projections** are then multiplied by the projected year staffing pattern, resulting in a projection for each occupation.
- Occupational **openings**, due to the need to replace workers leaving an occupation, are added to the projected change in the openings, resulting in the final estimate for separation rates.

For an outline on how to [Create an Occupational Projection](#), follow the link.

The **Occupational Projections** application has the following group menuss:

- [Occupational Data](#) (F5)
- [Occupational Analysis](#) (F6)
- [Occupational Projections](#) (F7)
- [Occupational Output](#) (F9)
- [Occupational Compare](#) (F12)
- [Occupational Utilities](#) (F11)

Create an Occupational Projection

This section is meant to be an end-to-end guide for creating **Occupational Projections (OP)**. Visit the [OP Resources](#) page on this PMP website for additional, helpful information when producing Occupational Projections.

- For a printable checklist that follows the format of the following steps, click [here](#).

Produce Occupational Projections

1. Pre-Projection Decisions and Adjustments

These decisions and adjustments should be made before starting to produce Occupational Projections or forecasts.

Adjust Industry Employment to Match Industry and Ownership of OES Industries:

- **Postal Service** is classified by Industry and Federal Government Ownership. There may be small amounts of contracted Private Ownership Postal Services employment.
 - 491 Postal Service
 - 4911 Postal Service
- **Educational Services** are classified by Industry and Private, State Government, and Local Government Ownership. Educational Services is the sum of Private, State, and Local Educational Services employment. Subtract State and Local Government Educational Services from State and Local Government and add to Private Education Services.
 - 611 Educational Services
 - 6111 Elementary and Secondary Schools
 - 6112 Junior Colleges
 - 6113 Colleges, Universities, and Professional Schools
 - 6114 Business Schools, and Computer and Management Training
 - 6115 Technical and Trade Schools
 - 6116 Other Schools and Instruction
 - 6117 Educational Support Services

The Occupational Projections application uses the following to produce Occupational Projections and calculate annual average job openings:

- **National Files**
 - [Change Factors](#), by Industry and Occupation
 - [Self Employed Ratios](#), by Occupation
 - Separation Rates, by Occupation
 - [Occupational Assignments](#) for Education, Work Experience, and Job Training, by Occupation

- The links listed above usually navigate to the first module of each of these factors and sometimes have additional modules to edit or copy their functions. To view the entire list of documentation and navigate to the module you'd like to see an explanation of them, use the [Occupational Projections Documentation](#) link.
- Long or Short-Term Industry **Based Year Employment Estimates** and **Projected Year Employment**
- **Staffing Patterns**

The following files are pre-loaded in the Occupational Projections application under Occupational Data:

- Geographic, Industry, and **Occupation Directories**
- **National Staffing Patterns** - Run the [Update Database](#) module to populate when new national data is available.
- **National Files**
- [Manage Areas](#)
 - Area Set Up - predefined areas
 - States
 - Counties
 - Metropolitan Statistical Areas
 - Micropolitan Statistical Areas
 - Area Set Up - user defined areas
 - Area Groups - user defined grouping of existing areas
- **Directories**
 - [Industry Directory](#)
 - Industry Codes cross-walked from [NAICS](#) codes. Use to review or adjust industries.
 - [Occupation Directory](#)
 - Occupational Codes cross-walked from [SOC](#) codes. Use to review or adjust occupations.
- **National Files**
 - Changes can be made to these files but it is not recommended. If changes are made to the national files, the changes are used for every area that Occupational Projections are produced.
- **National Change Factor File**
 - Accounts for shifting occupational composition within an industry
 - National calculation for a 10-year period
 - If no factor is found, the factor defaults to 1.0
 - Applied to base year staffing pattern matrix
 - Apply resulting matrix to industry projection

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- **National Self Employment Ratios File**
 - Includes primary and secondary workers
 - Ratio is applied to occupation total across all industries for base and projected years
- **National Separations Rates File**
 - Calculated for occupation total across all industries
 - Movement in and out of an existing occupation
- **National Occupational Education and Training Assignments File**
 - Education - 8 categories
 - Training - 6 categories
 - Work Experience - 3 categories
- **National Staffing Patterns**
 - National Matrix

2. Data Quality Check

- Before starting the Occupational Analysis module, run a [Data Quality Check](#) on both the Industry and Occupation tabs, and correct any errors.

3. Prepare and Import Data

- If you use the Long-Term or Short-Term Projections Systems to produce industry employment projections, you do not need to import the ICT file. The file already exists in a subdirectory ready for use in the Occupational Projections system.
- If you are importing the ICT file, it must be in the right file structure. See the [ICT Spreadsheet Format](#) topic under the File Formats topic for an example of the file structure.
- Instructions for importing the ICT file are located under the [Import ICT](#) topic. **Important:** The ICT file must be in the Occupational Projections System before you import staffing patterns.
- The OES staffing patterns are exported from LEWIS in a file named **mmexport.dbf**. Instructions for extracting the file can be found at **[Extracting OES Staffing Patterns from EDS](#)**. The OES staff responsible for the **LEWIS** file should provide the file for use in the Occupational Projections System. It is recommended that the staffing patterns come from LEWIS.
- [Import Staffing Pattern](#) file into the Occupational Projections application. If there are errors, correct the errors then re-import the file. Imported staffing patterns will append or update existing records.

- Confidentiality Flags from the LEWIS file are maintained throughout the Occupational Projections application.

4. Check for Non-Matches

1. Use the [ICT / Staffing Pattern Match](#) module to check for non-matches by comparing the industry codes on the ICT file to the OES staffing patterns. All non-matches must be corrected before proceeding.
2. [Copy Staffing Patterns](#) - Staffing patterns can be copied from one geographic area to another area.
3. Delete the Staffing Pattern if there is no ICT Match. Use the [Edit Staffing Pattern](#) module to delete data.

Or

Add Base and Projected Employment to ICT. Use the Edit Staffing Pattern module to add data.

4. [Rollup Staffing Pattern](#) - Roll up staffing patterns to match the ICT.

5. Review and Edit Data

1. Review using [ICT / Staffing Pattern Match](#).
2. Use [Edit Staffing Pattern](#) to add, edit, or delete.
3. Use [Edit ICT](#) to add, update, or delete Industry base year employment and Industry Projections. Primary and secondary confidentiality flags can be selected in this module. If an industry is checked for confidentiality, all occupations will be confidential for that industry when projections are calculated.

6. Develop Occupational Projections

1. [Calculate Projections](#).
 - Select **Industries View** and the **Industry Totals** tab, then click **Calculate Projections**. Projections for *all occupations in all industries* are calculated.
 - Select **Industries View** and the **Occupations Within Industries** tab, then click **Calculate Projections**. Projections for *occupations only in the industry selected* are calculated.
2. [Calculate Self Employed](#) - You can add values or select **Create ICT records** to add them.
3. [Reconcile](#) - Reconcile projections forces employment to ICT totals.
4. [Aggregate](#) - Click **Process** to calculate survey-level replacements and aggregate survey-level replacement to summary levels.

7. Diagnostic Exports

1. Use [Diagnostic Exports](#) to export outputs.

Occupational Data

The **Occupational Data (F5)** group menu enables the management of areas, industries, and occupations. Importing of data, manipulation of data, and review tools are also available.

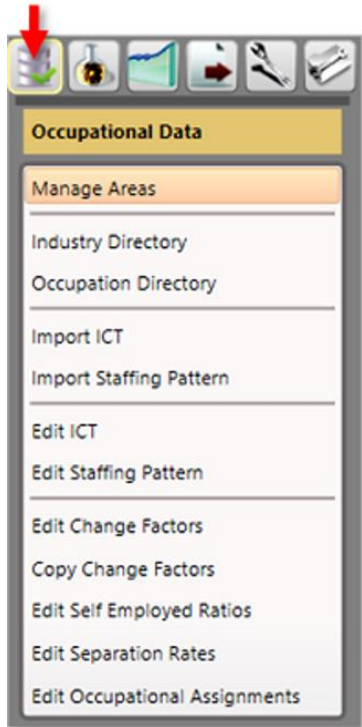


Figure 1: Occupational Data group menu

The **Occupational Data** group menu contains the following selections:

- [Manage Areas](#)
- [Industry Directory](#)
- [Occupation Directory](#)
- [Import ICT](#)
- [Import Staffing Pattern](#)
- [Edit ICT](#)
- [Edit Staffing Pattern](#)
- [Edit Change Factors](#)
- [Copy Change Factors](#)
- [Edit Self Employed Ratios](#)
- [Edit Separation Rates](#)
- [Edit Occupational Assignments](#)

Manage Areas

Use the **Manage Areas** module to select and customize areas for Industry and Occupational Projections. Manage Areas organizes the basic geographical areas your projections will be calculated from. You can select your state, add or change area types, add sub-state areas, and create **Area Groups**. Area Groups are used in sub-state projections and the **Project Multiple Regions** ([ST](#) and [LT](#)) modules.

The Manage Areas module is available in the Short-Term, Long-Term, and Occupational Projections applications. The changes you make in any of these modules populates throughout the applications.

Screen Controls

Area Setup section

- **Right Click Context Menu** (United States)
 - **Show All States**
 - **Hide Unchecked States**
- **Right Click Context Menu** (state)
 - **Show All Area Types**
 - **Show Area Types with Areas**
 - **Add Area Type**
 - **Create Area Group**
 - **Print Area Types**
 - **Print Areas**
 - **Print Area Groups**
- **Right Click Context Menu** (Substate)
 - **Add Area**
 - **Edit Area Type**
 - **Print Area Types**
 - **Delete Area**

Area Groups section

- **Right Click Context Menu** (Highest Level)
 - **Delete Area Group**
 - **Print Area Groups**
- **Right Click Context Menu** (Substate)
 - **Delete Area Group Member**

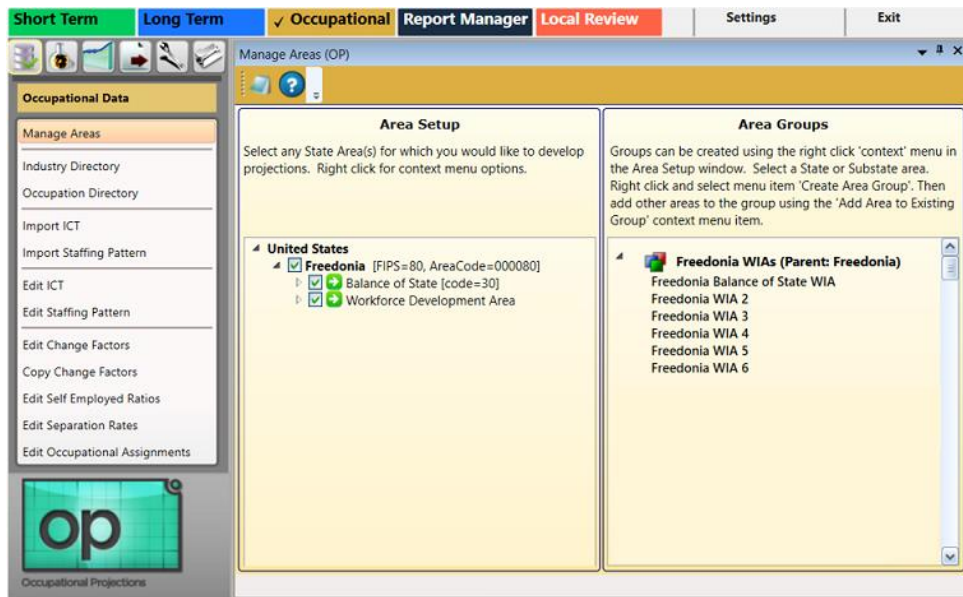


Figure 1: Manage Areas module

Area Setup Section of the Screen

1. **Right click** the **State Area** you want to work with to open its context menu.

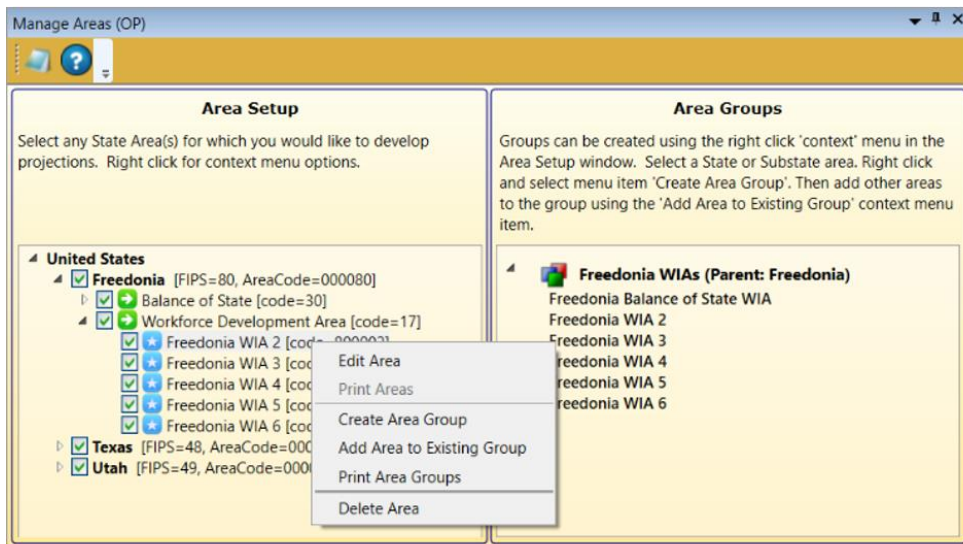


Figure 2: Context menu for working with State Areas

Depending on the changes needed to this area, click the appropriate option from the following:

- **Edit Area**
- **Print Areas**
- **Create Area Group**
- **Add Area to Existing Group**

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- **Print Area Groups**
- **Delete Area**

Edit an Area

1. Click **Edit Area**. The Edit Area dialog box will display.

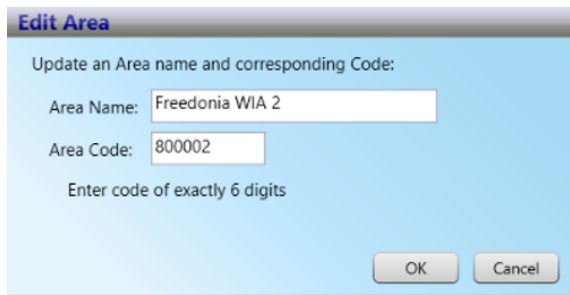


Figure 3: Edit Area dialog box

2. Change the **Area Name** and/or **Area Code**.
3. Click **OK**.

Print Areas

1. Select **Print Area Groups** from the context menu. This menu choice is accessed by right-clicking the second highest level (Freedonia, in this example) in the **Area Setup** section. The **Print Preview** screen will be displayed.
2. Click the **Print** icon to print the area's data.

Create an Area Group

1. **Right click** on the 2nd level in the **Area Setup** screen section.

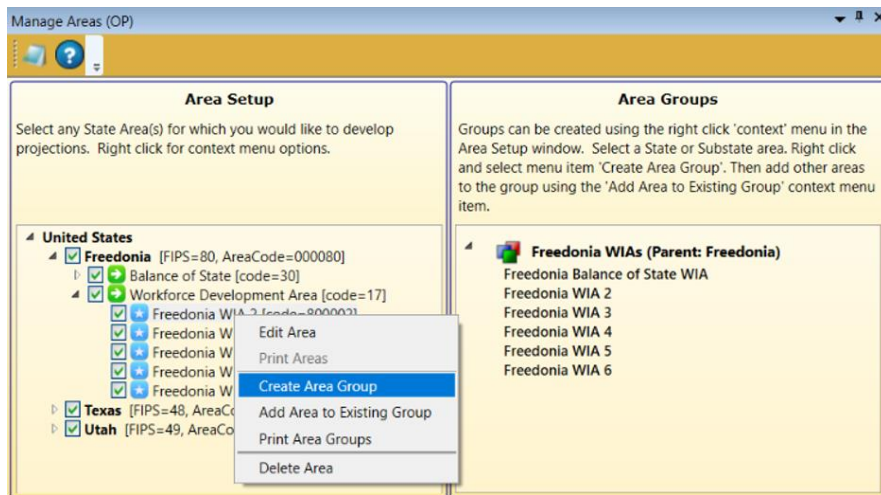


Figure 4: Create Area Group, to add to the Area Groups screen section

2. Click **Create Area Group**. The **Create Area Group** dialog box will be displayed:



Figure 5: Create Area Group dialog box

3. Give the area a **New Group Name**.
4. Click **OK**. This will add the new Area Group (named Test Group, in this example) to the **Area Groups** section of the screen.



Figure 6: The new Area Group (Test Group) is added

5. Continue adding areas to the Area Group by **right-clicking** and selecting **Add Area to Existing Group** from the context menu. Select a group from the drop-down menu to add the area to the Area Group, then click **OK**.

Delete Area

1. **Right click** on the area to select it.

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2. Select **Delete Area**. The following dialog box will be displayed:

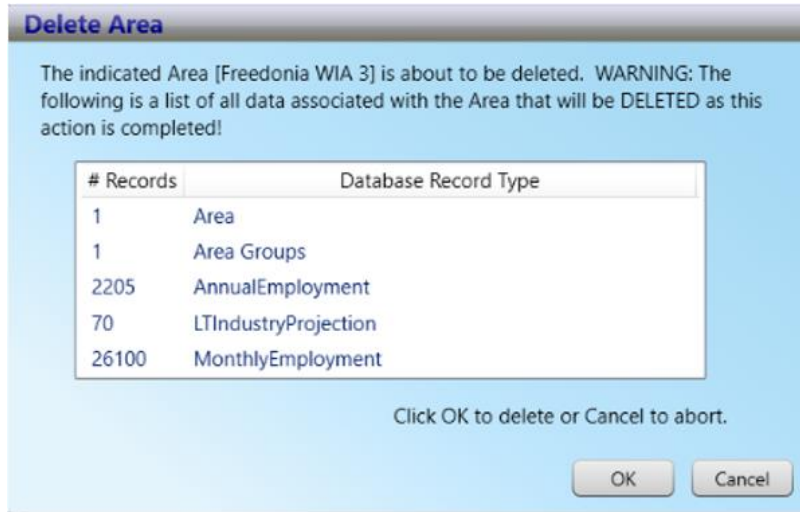


Figure 7: Delete Area dialog box

3. To delete the area, click **OK**. Click **Cancel** to keep the area.

Delete an Area Group

1. **Right click** the **Area Group** to select it for deletion.

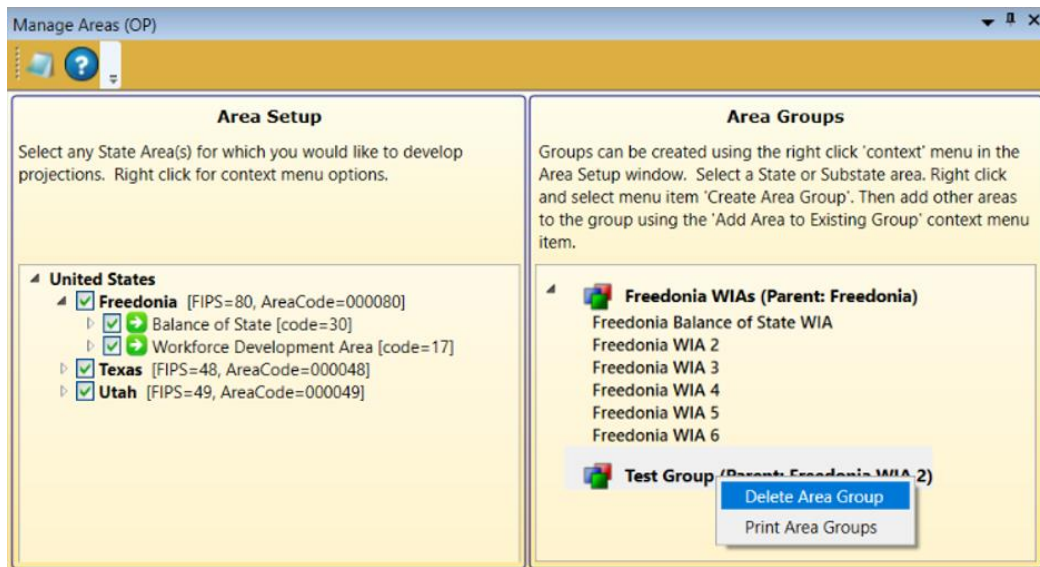


Figure 8: Delete the Area Group, Test Group

2. Select **Delete Area Group** from the context menu. You will be prompted to confirm the deletion.
3. Click **OK** to confirm. Click **Cancel** to keep the Area Group.

View Area Types

It may be helpful to view the various area types when initially setting up your Projections software, to determine the best way to classify your areas. To view all area types:

1. **Right click** your state and select **Show All Area Types**. This will list all of the area types and their associated codes in the Area Setup section.



Figure 9: All area types

2. When you are finished, close the list by **right-clicking** your state and selecting **Hide Area Types With No Areas** from the context menu.

Related Content

- [Create Balance of Area](#)
- [Review Areas](#)
- Project Multiple Regions ([ST](#) and [LT](#))
- [Area Format](#)

Industry Directory

Use the **Industry Directory** as a resource for information about specific industries, listed by [NAICS](#). The Industry Directory lists all valid industry codes and titles in a tree view. All Projections Suite applications use it for defining industries. A default Industry Directory is installed with the Projections Suite.

Analysts can modify the directory as needed for your state. However, the position of industries in the industry tree is critical. When adding or moving industries, ensure you place them correctly within the parent industry. Industry placement will affect aggregation of employment data in later projections steps.

The Industry Directory module is available in the Short-Term, Long-Term, and Occupational Projections applications. The same screen displays in each application.

Screen Controls

- **Print all industries** check box
- **Search for** field
- **Find** button
- **Expand/Collapse** arrows

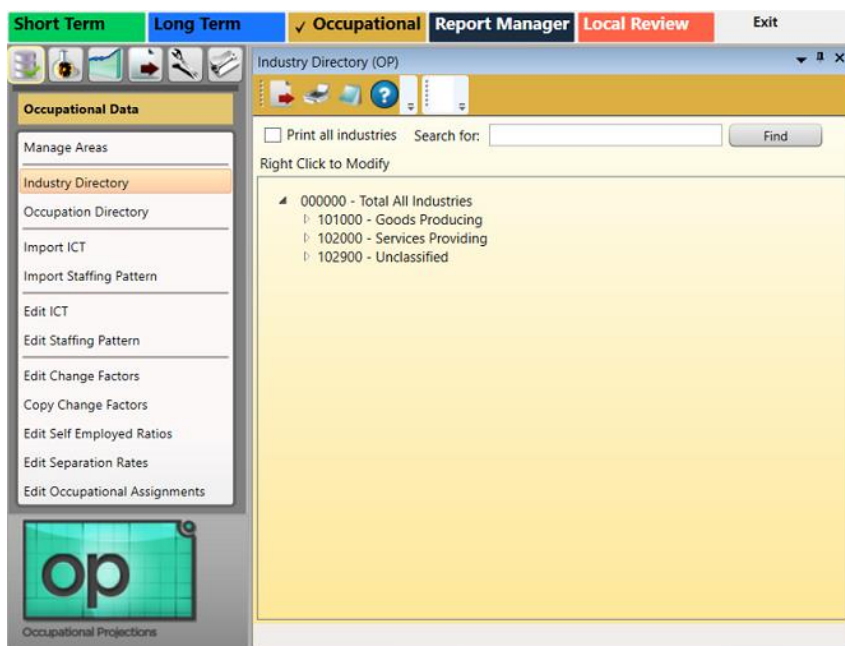




Figure 1: Industry Directory module

The **Total All Industries** code is displayed at the top of the tree. Beneath **Total All Industries** are the NAICS codes for Super-Sectors (2-digit), sectors (3-digit), and detailed industries (4 - 6 digit).

Manually Expand/Collapse the Industry Hierarchy

1. Click the **Expand**  icon next to the general category of the industry. The category will expand one level.
2. Continue clicking the expand icons in that category until the desired industry level is displayed.
3. Click the **Collapse**  icon on the category header to collapse to that level.

Use the Search Tool

1. Click into the **Search for** field.
2. Type an industry description or industry code.
3. Click the **Find** button or press **Enter**. The designated industry will be displayed if it is listed in the industry hierarchy.

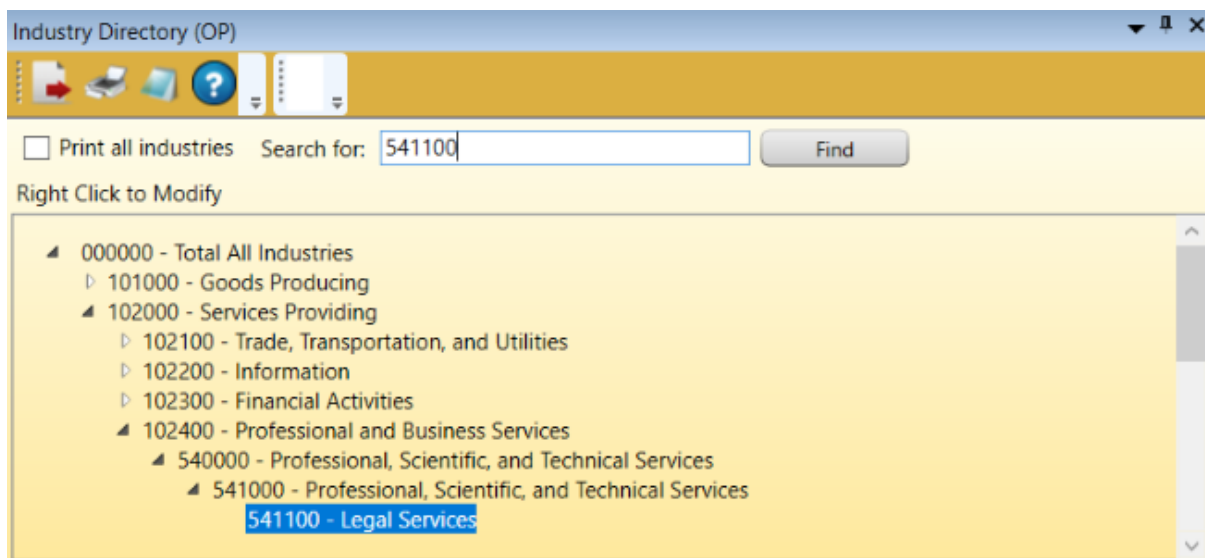


Figure 2: Using the Search for field

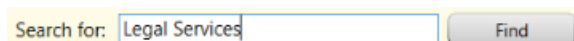


Figure 3: Use a description to find an industry

Additional Options in the Industry Directory

There are various options in the Industry Directory to help customize industries. To customize the Industry Directory:

1. **Right click** on an entry in the Industry Directory. Depending on which industry level you've selected, one of two context menus will be displayed.

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Figure 4: Industry Directory breakdown

The context menus contain the following items:

- **Expand all children** will expand the selected entry to the sixth level.
- **Collapse all children** will collapse all entries within the selected entry.
- **Add** enables the addition of new industries to the selected entry. Ensure their placement is correct to avoid future aggregation issues.
- **Cut** will remove the selected entry and copy it to the clipboard for pasting into another area.
- **Delete** will delete the selected entry.
- **Edit** enables editing of a selected entry.
- **Move** allows the selected entry to be moved to another location in the directory.
- **Paste** will paste a previously cut industry into another area in the hierarchy.

Occupation Directory

The **Occupation Directory** is a resource to locate specific occupations and their [SOC](#) (Standard Occupational Classification) codes. The Occupation Directory is used to review, edit, or add the occupations that are used as part of the projections process.

Screen Controls

- **Print all occupations** check box
- **Expand/Collapse** arrows
- **Search for** field

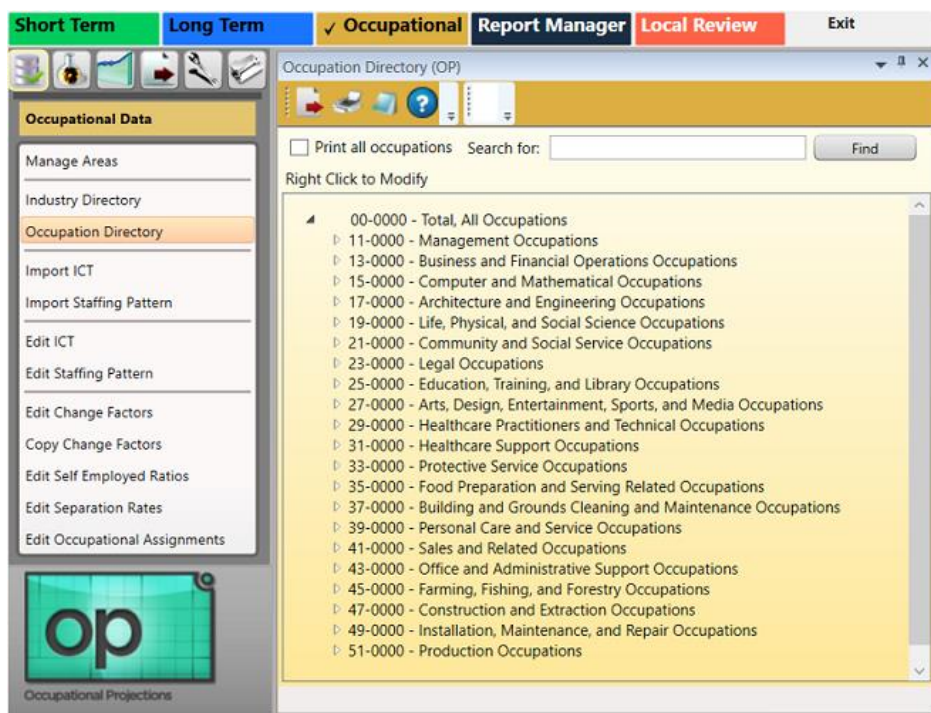




Figure 1: Occupation Directory module

Manually Expand/Collapse Icons

1. Click the **Expand**  icon next to the general category of the desired occupation. The general category will expand one level.
2. Continue clicking on the expand icons until the desired Occupation **Level** is displayed.
3. Click the **Collapse**  icon on the category header to collapse to that level.

Use the Search For Tool

1. Click the **Search for** field.

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2. Type the description or the code for an occupation.
3. Click **Find**. The designated occupation will be displayed, if it is listed in the data.

Add an Occupation

1. Find a **Parent Occupation** for the new **Occupation** to be added under.
2. **Right click** the major or minor group, which will designate it as the **Parent Occupation**.

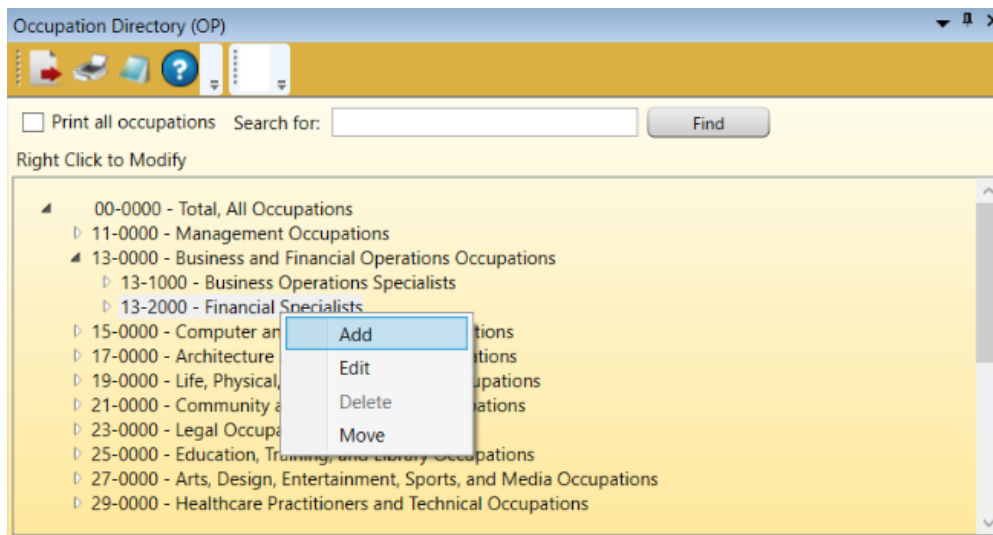


Figure 2: Add a new occupation under its Parent Occupation

3. Click the **Add** option from the context menu. The **Add Occupation** dialog box will be displayed:

The screenshot shows the 'Add Occupation' dialog box. It has a title bar with the text 'Add Occupation'. Inside the dialog, there is a section titled 'Enter code and name of occupation to add'. This section contains four input fields: 'Code' with the value '132001', 'Title' with the value 'Financial Examiner Assistant', 'Rollup Level' with the value '4', and a 'Description' field containing the text 'Assists Financial Examiner with basic office duties.'. At the bottom of the dialog, there are two buttons: 'OK' and 'Cancel'.

Figure 3: Add the Financial Examiner Assistant occupation

4. Enter the new occupation's **Code**, **Title**, and a **Description**. Make the code unique and consistent with its parent's code. The code must be six digits.
5. Click **Save**.

Edit an Occupation

1. **Right click** the occupation and select **Edit**. The **Edit Occupation** dialog box will be displayed.
2. Make changes to the Code, Title, Rollup Level, and Description.
3. Click **Save**.

Delete an Occupation

1. **Right click** the occupation to be deleted.
2. Select **Delete**. The **Delete Occupation** dialog box will be displayed.
3. Click **Confirm** to delete the occupation. Click **Cancel** to keep the occupation.

Move an Occupation to a New Parent

1. **Right click** the occupation you want to move.
2. In the **Move Occupation** box, select the **new parent** from the drop-down menu.
3. Click **Save**.

Print Occupations

1. Select the **Print all occupations** check box.
2. Click the **Print** icon on the Active Module Toolbar. An Occupation Directory Tree report will be generated in the Print Preview window.
3. Click the **Print** icon in the Print Preview window to send the report to the printer.

Related Content

- [Edit Occupational Assignments](#)

Import ICT

Import ICT imports **Industry Control Total (ICT)** data needed for the **Edit ICT** module in Occupational Projections. After the file is imported, it generates a report of records which lists missing, incomplete, or corrupted data.

Industry Control Total data is a fixed wage and salary employment total for an industry. Occupational employment in the industry must add up to the ICT.

To use Occupational Projections, you must have ICT data and staffing pattern data. The ICT data can be produced in the Short or Long-Term Projections modules, or can be imported from an external source.

🖱️ Click [here](#) for the **ICT file format** description.

Screen Controls

- **Select file to import** field
- **Detected file type** field
- **Browse** button
- **Import** button

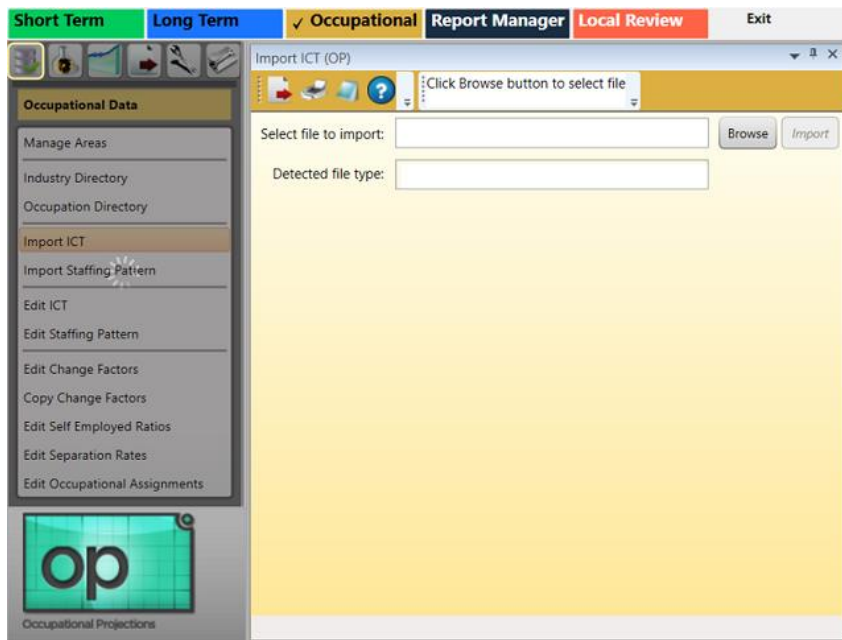


Figure 1: Import ICT module

Import ICT Data

1. Click **Browse**.

2. Locate and select the data file to import.
3. Click **Import** to load the file. When the data is imported, the **Import Spreadsheet** dialog box will display the results of the import.

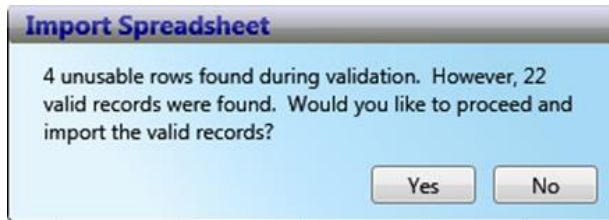



Figure 2: The Import Spreadsheet dialog box reports the status of the import

4. 4 out of the 26 records in the imported data are invalid. Choose **Yes** to import the valid records, or **No** to cancel the import.

 All records without errors will be imported. When the file is imported, any existing data is **updated** with the contents of the import file. **This enables you to retain the data you had previously, and add new data to the existing data.**

When the data has been imported, the **Import Spreadsheet** dialog box will display again to indicate a successful importation.



Figure 3: 22 out of 26 rows were imported

5. Click **OK** after reading the message. The **Import ICT** screen will display again and will now display detailed information about any errors encountered during importation.

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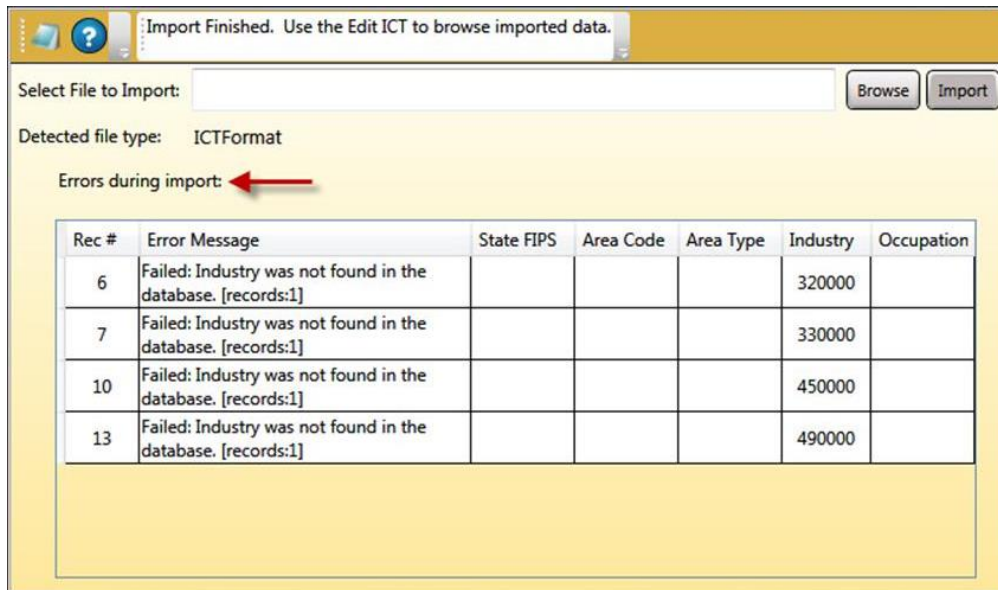


Figure 4: Import errors

- ☞ Records that have an area that is not found can be added to an area using the [Manage Areas](#) module. You can update an existing area by updating the area code, the state FIPS, or area type as needed. Alternatively, you can update the input file itself to match the area definitions currently in the system. You can do the same thing with the industries that are not defined at this time. Either add them to the [Industry Directory](#), or update the import file so they are a known industry.
- ☞ Take note of the message in the Active Module Toolbar field at the top of the screen. The imported data isn't displayed in this screen; it is visible and able to be edited in the [Edit ICT](#) module.

Related Content

- [ICT Spreadsheet Format](#)

Import Staffing Pattern

The **Import Staffing Pattern** module imports staffing pattern data, which is critical for continuing calculations in Occupational Projections. There are four file types the Import Staffing Pattern module handles, to decide which source will be used to import your data.

☞ To use the **Occupational Projections** application, **you must have ICT and staffing pattern data.**

If the ICT file has two-digit or three-digit industry data, then the four-digit staffing patterns is combined and summed to the appropriate industry.

Some industries are not rolled up. These are 113 and 115. These industries are not rolled up because OES does not survey the other four-digit sibling industries, and therefore, they are not included in the LEWIS file. Use the Analysis Category, [Rollup Staffing Pattern](#) module to deal with these industries.

The **Base Year** and **Projected Year** are set up in the [Projections Suite Settings Menu](#), under the Occupational Projections section.

Screen Controls

- **Import Staffing Pattern** selection tabs
 - **Import LEWIS FoxPro** tab
 - **Import LEWIS Excel** tab
 - **Import LEWIS Text** tab
 - **Import Spreadsheet** tab
- **Select File** entry field
- **Base Year** entry field
- **Projected Year** entry field
- **Rollup to ICT data** check box
- **Browse** button
- **Import** button

To import staffing pattern data, select the **Import Staffing Pattern** module. The Import Staffing Pattern screen will be displayed, with four selection tabs.

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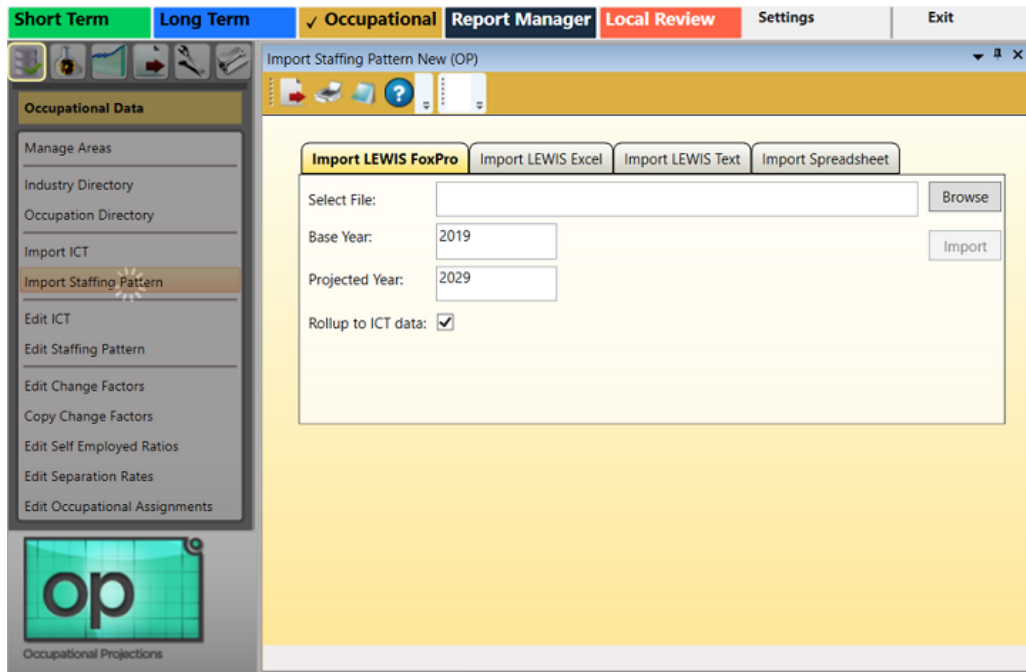


Figure 1: Import Staffing Pattern module

Import LEWIS FoxPro Data



1. Click the **Import LEWIS FoxPro** selection tab.
-  All tab layout images match Figure 1 under each of the tabs, except for the **Import Spreadsheet** tab. Another image will be included in that section, for reference.
2. Set a **Base Year** and **Projected Year**.
3. Click **Browse** to find the file containing the needed data.
-  The file must be a Database file (.db, .dbf, etc.). For more information on the LEWIS FoxPro spreadsheet format, click [here](#).
4. When the file is found, select it and click Open. Validation of the data will occur before it is imported. The **Import Staffing Pattern** screen displays with the file to be imported listed in the **Select file** field.
5. Select the **Rollup to ICT** data check box to roll up the industry data to match the industries in the ICT file.
6. Click **Import**. The **Import Spreadsheet** dialog displays when the import completes.



Figure 2: Details of the imported data

7. Click **OK**. The **Import Staffing Pattern** dialog box will confirm importation of the data.

☞ If there are errors in the file, a message will be displayed with error details. Correct the errors and re-import the file.

Import LEWIS Excel Data

1. Click the **Import LEWIS Excel** tab.
2. Set a **Base Year** and **Projected Year**.
3. Click **Browse** to find the file containing the needed data.

☞ The file must be an Excel file (.xlsx). For additional details on LEWIS Excel file formatting, click [here](#).

4. When the file is found, select it and click **Open**. Validation of the data will occur before it is imported.
5. Select the **Rollup to ICT** data check box to roll up the industry data to match the industries in the ICT file.
6. Click **Import**. The **Import Spreadsheet** dialog displays when the import completes.
7. Click **OK**. The **Import Staffing Pattern** dialog box confirms importation of the data.

Import LEWIS Text

1. Click the **Import LEWIS Text** tab.
2. Set a **Base Year**, **Projected Year**, and **State Fips** code.
3. Click **Browse** to find the file containing the needed data.

☞ The file must be a Database file (.db, .dbf, etc.). For more information on the BLS FoxPro file format, click [here](#).

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4. When the file is found, select it and click **Open**. Upon validating the data, the **Import Staffing Pattern** screen displays with the file to be imported listed in the **Select file** field.
5. Select the **Rollup to ICT** data check box to roll up the industry data to match the industries in the ICT file.
6. Click **Import**. The **Import Spreadsheet** dialog box will be displayed when the import completes.

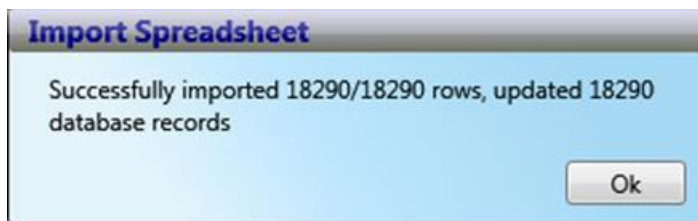


Figure 3: Details of the imported data

7. Click **OK**. The **Import Staffing Pattern** dialog box confirms the data importation.

Import Spreadsheet Data

The Import Spreadsheet tab was included in the Import Staffing Pattern module to allow the importation of data that isn't necessarily created and exported in Projections Suite. Match your values with the [Staffing Pattern Spreadsheet](#) format and import your data using this tab.

1. Click the **Import Spreadsheet** tab. The **Rollup to ICT data** checkbox is not available on this tab.

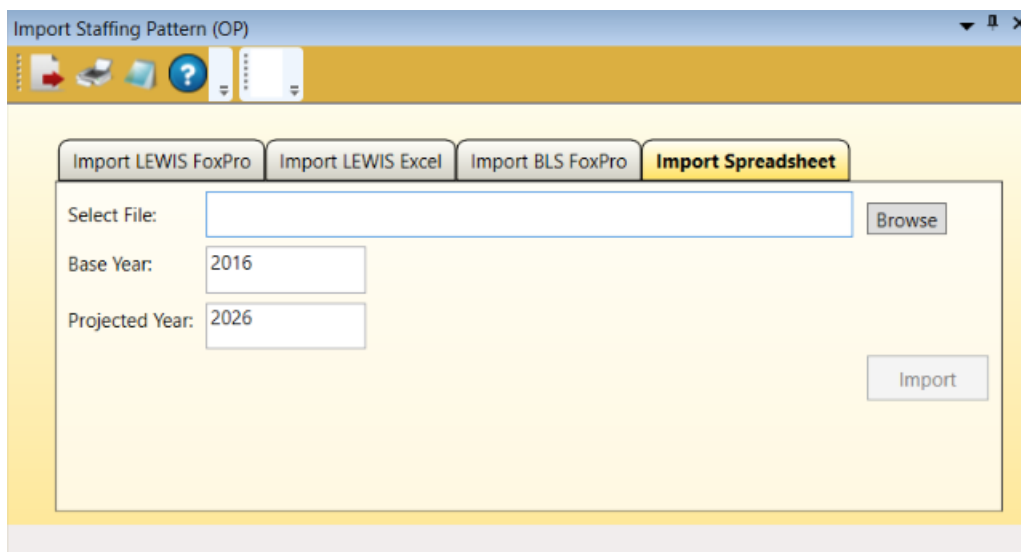


Figure 4: Import Spreadsheet tab

2. Set a **Base Year** and **Projected Year**.
3. Click **Browse** to find the file containing the needed data.
4. When the file is found, select it and click **Open**.

☞ The file must be a Spreadsheet file (.xls). For additional information on staffing pattern spreadsheet file formats, click [here](#).

5. Click **Import**. The **Import Spreadsheet** dialog box will indicate when the import completes.



Figure 5: Details of the imported data

6. Click **OK**. The **Import Staffing Pattern** dialog box confirms the importation of the data.

Related Content

- [Edit Staffing Pattern](#)
- [Staffing Pattern Spreadsheet Format](#)
- [Staffing Pattern Text Format](#)
- [Industry Directory](#)
- [Occupation Directory](#)

Edit ICT

The **Edit ICT** module enables adding, editing, and deleting **Industry Control Total (ICT)** data. Once you have the ICT data in the system from either [importing a file](#) or copying the data over directly from Long-Term or Short-Term Projections using the **ICT Export** modules ([ST](#) or [LT](#)), use the Edit ICT module to display and manipulate the data.

Screen Controls

- **Select Area** drop-down menu
 - **Select Timeframe** drop-down menu
 - **Right click contextual menu**
 - **Add**
 - **Edit**
 - **Delete**



Figure 1: Edit ICT module

View ICT Values

1. Select an area from the **Select Area** drop-down menu.
2. Select a time frame from the **Select Timeframe** drop-down menu. The **Edit ICT** module will be displayed with the data imported earlier.

Occupational Projections

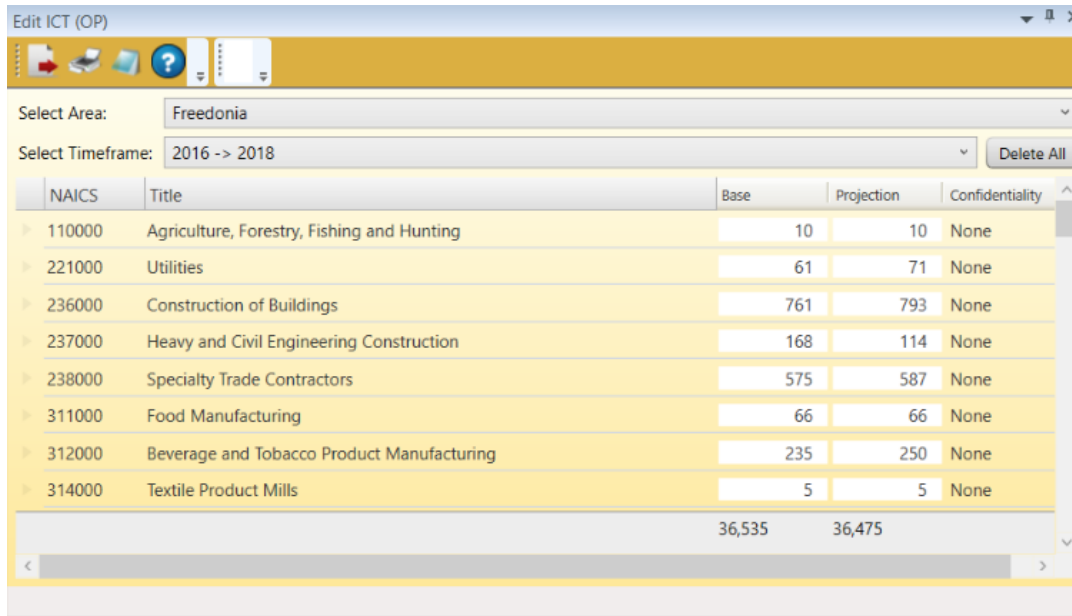


Figure 2 shows the 'Edit ICT (OP)' window with the following data:

NAICS	Title	Base	Projection	Confidentiality
110000	Agriculture, Forestry, Fishing and Hunting	10	10	None
221000	Utilities	61	71	None
236000	Construction of Buildings	761	793	None
237000	Heavy and Civil Engineering Construction	168	114	None
238000	Specialty Trade Contractors	575	587	None
311000	Food Manufacturing	66	66	None
312000	Beverage and Tobacco Product Manufacturing	235	250	None
314000	Textile Product Mills	5	5	None
		36,535	36,475	

Figure 2: The imported ICT data is displayed

- ☞ Sort the data (A-Z or 1-100) by clicking on the header of a column. Click the header a second time and the data will be sorted in reverse order (Z-A or 100-1).

Edit an ICT Record

1. **Right click** the record to be edited.
2. Select the **Edit** option and make the desired changes.

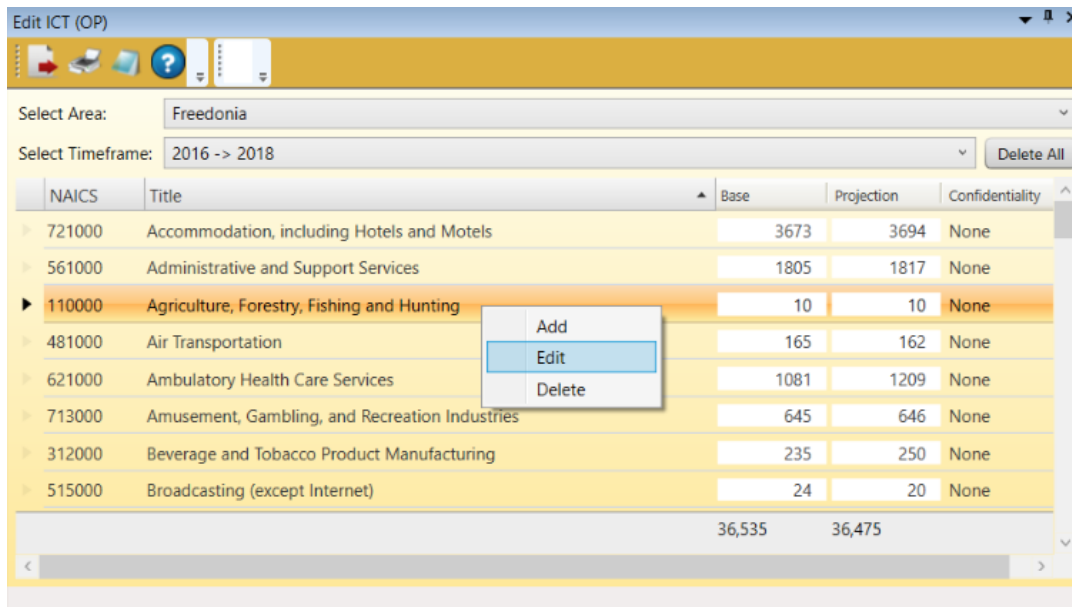


Figure 3 shows the 'Edit ICT (OP)' window with a context menu open over the record for NAICS 110000. The menu options are Add, Edit, and Delete.

NAICS	Title	Base	Projection	Confidentiality
721000	Accommodation, including Hotels and Motels	3673	3694	None
561000	Administrative and Support Services	1805	1817	None
110000	Agriculture, Forestry, Fishing and Hunting	10	10	None
481000	Air Transportation	165	162	None
621000	Ambulatory Health Care Services	1081	1209	None
713000	Amusement, Gambling, and Recreation Industries	645	646	None
312000	Beverage and Tobacco Product Manufacturing	235	250	None
515000	Broadcasting (except Internet)	24	20	None
		36,535	36,475	

Figure 3: Add, Edit, and Delete context menu

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- When complete, press **Enter** or click on any other record to save the changes to the cell.

Add an ICT Record

- Right click** and select **Add** from the contextual menu. The **Create New ICT** dialog box will appear.

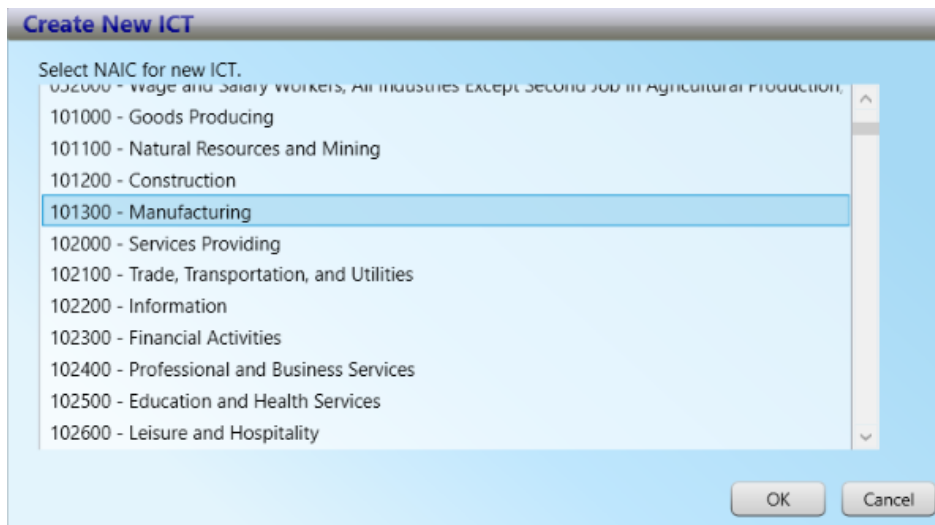


Figure 4: The Create New ICT dialog box

- Select a [NAICS](#) code for the new ICT entry and click **OK**.

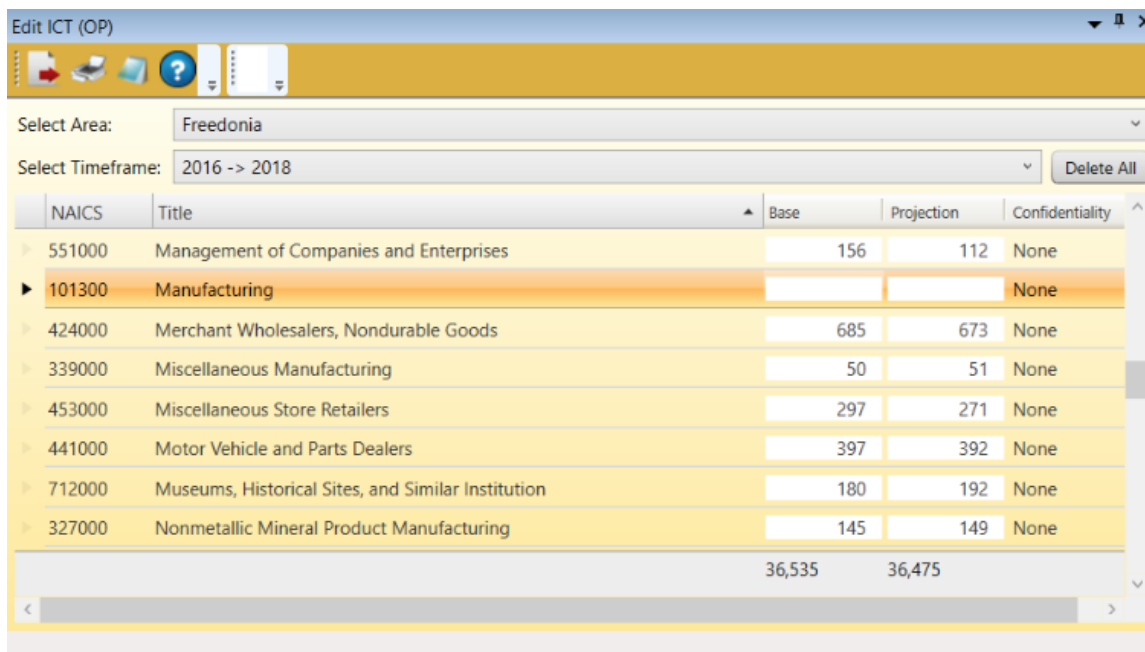


Figure 5: The ICT industry Manufacturing is added to the selected area

3. Type the **Base** and **Projection** in their fields to add them, then select the **Confidentiality** value from the field's drop-down selections. Modifying any cell in the table requires double-clicking it first.

NAICS	Title	Base	Projection	Confidentiality
551000	Management of Companies and Enterprises	156	112	None
101300	Manufacturing	1356	1378	None
424000	Merchant Wholesalers, Nondurable Goods	685	673	None
339000	Miscellaneous Manufacturing	50	51	None
453000	Miscellaneous Store Retailers	297	271	None
441000	Motor Vehicle and Parts Dealers	397	392	None
712000	Museums, Historical Sites, and Similar Institution	180	192	None
327000	Nonmetallic Mineral Product Manufacturing	145	149	None
		37,891	36,475	

Figure 6: Base, Projection, and Confidentiality values added

4. Press **Enter**, or click on any other record to save the changes.

Delete an ICT Record

1. **Right click** the industry to delete.
2. Select **Delete** from the context menu. The **Delete Record** dialog box will be displayed.
3. Click **Yes** to delete the record. Click **No** to keep the record.

 Delete multiple records by using the **Shift** and **Ctrl** keys. For more information on selecting multiple items, click [here](#).

Delete All ICT Records for an Area and Time Frame

1. Select an area and time frame from the drop-down menus.
2. Click the **Delete All** button. A **Delete Records** dialog box will be displayed.
3. Click **Yes** to confirm the deletion. Click **No** to keep the records.=

Export ICT Records

1. Click the **Export** icon on the [Active Module Toolbar](#). A **Save As** window will be displayed.

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2. Name and select a location for the file.
3. Click the **Save** button.

Related Content

- [Import ICT](#)
- ICT Export ([ST](#) or [LT](#))
- [ICT Spreadsheet Format](#)

Edit Staffing Pattern

Once you have staffing pattern data in the system, the **Edit Staffing Pattern** module facilitates staffing pattern maintenance activities. You can add, edit, or delete data.

The **Staffing File Maintenance** tab displays the industries that have staffing patterns and the occupational employment totals for each industry. The **Staffing Pattern Maintenance** tab displays all the occupations that comprise an industry staffing pattern.

Screen Controls

- **Select an Area** drop-down menu
- **Select a Timeframe** drop-down menu
- **Select an Industry** drop-down menu (selection functions unlocked under the **Staffing Pattern Maintenance** tab)
- **Staffing File Maintenance** tab
 - **Delete All Industries** button
- **Staffing Pattern Maintenance** tab

NAICS	Title	Pattern Total
110000	Agriculture, Forestry, Fishing and Hunting	668,000.00
111000	Crop Production	807,200.00
112000	Animal Production	472,100.00
113000	Forestry and Logging	62,300.00
113132	Forestry	15,900.00
113300	Logging	50,100.00
114000	Fishing, Hunting and Trapping	10,200.00
115000	Support Activities for Agriculture and Forestry	133,500.00
115100	Support Activities for Crop Production	334,060.00
115200	Support Activities for Animal Production	28,890.00

Figure 1: Edit Staffing Pattern module

View Staffing Patterns

1. **Select an Area** from the drop-down menu.

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2. **Select a Timeframe** from the drop-down menu. The data from the selected area and time frame will be displayed. The **Staffing File Maintenance** tab allows deleting of industries within the selected area and time frame.

☞ The **Pattern Total** column is calculated by summing up all of the occupations that make up that industry.

Delete an Industry

1. **Right click** the unnecessary industry. A **Delete** menu item will display.

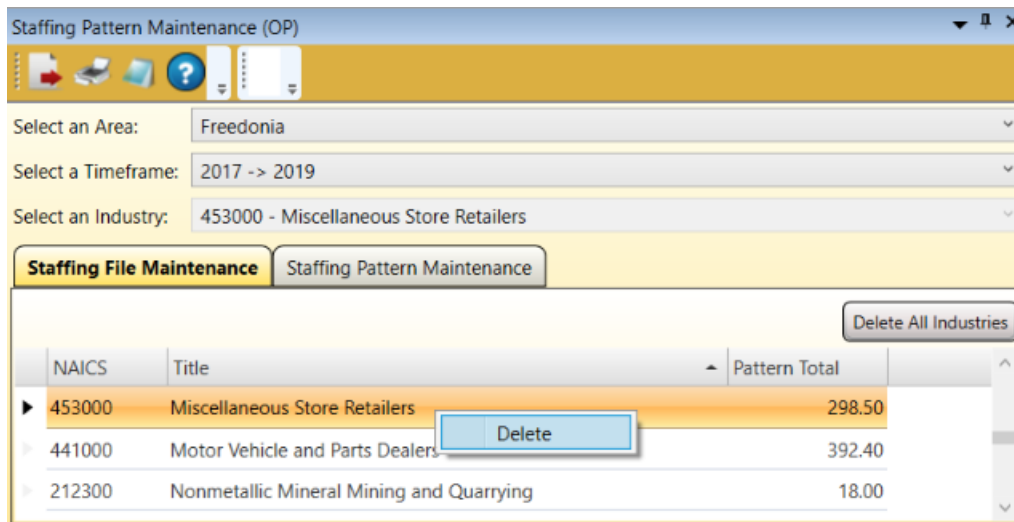


Figure 2: Deleting an industry from the Staffing File Maintenance tab

2. Click **Delete**. The **Delete Record** dialog box will be displayed.
3. Click **Yes** to delete the record from the selected area and time frame. Click **No** to keep the industry record.

☞ Delete multiple records by using the **Shift** and **Ctrl** keys. For more information on selecting multiple items at a time, click [here](#).

Delete All Industries for a Selected Area and Time Frame

1. From the **Staffing File Maintenance** tab, click the **Delete All Industries** button. A confirmation dialog will be displayed.
2. Select **Yes** to delete the staffing patterns. Click **No** to keep the staffing patterns.

Staffing Pattern Maintenance

1. Select the **Staffing Pattern Maintenance** tab. The **Staffing Pattern Maintenance** screen will be displayed and the **Select an Industry** drop-down menu will unlock.

Staffing Pattern Maintenance (OP)

Select an Area: Freedonia

Select a Timeframe: 2017 -> 2019

Select an Industry:

Staffing File Maintenance **Staffing Pattern Maintenance**

SOC	Title	Survey Level	Staffing Ratio
		0	0

Industry Total 291.00 Staffing pattern total does not equal industry total

Figure 3: Staffing Pattern Maintenance tab

2. **Select an Industry** from the drop-down menu. Selecting an industry under this drop-down will display the **SOC**, **Title**, **Survey Level**, and **Staffing Ratio** for each associated profession within the industry:

Staffing Pattern Maintenance (OP)

Select an Area: Freedonia

Select a Timeframe: 2017 -> 2019

Select an Industry: 236000 - Construction of Buildings

Staffing File Maintenance **Staffing Pattern Maintenance**

SOC	Title	Survey Level	Staffing Ratio
11-1021	General and Operations Managers	43.10	0.05525641
11-3011	Administrative Services Managers	1.90	0.00243590
11-3031	Financial Managers	3.40	0.00435897
11-3061	Purchasing Managers	4.60	0.00589744
11-9021	Construction Managers	26.70	0.03423077
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	5.40	0.00692308
17-2051	Civil Engineers	0.80	0.00102564
		780	1


Industry Total 794.00 Staffing pattern total does not equal industry total

Figure 4: Associated staffing pattern data for the selected industry

3. **Right click** to display a contextual menu to **Add**, **Edit**, or **Delete** staffing pattern data. The **Staffing Ratio** (the percentage of employment that each occupation comprises from the total industry employment) is what is used in the calculation.

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Whenever you add, edit, or delete a staffing pattern, make sure the ratio seems reasonable.

 The **Survey Level** is the employment value this occupation has in this industry.

Export Staffing Pattern

1. Click the **Export** icon in the [Active Module Toolbar](#). A **Save As** window will be displayed.
2. Name and select a location for the file.
3. Click the **Save** button.

Related Content

- [Import Staffing Pattern](#)

Edit Change Factors

The **Edit Change Factors** section of Projections Suite enables the display of the national change factor data in the system. Edit Change Factors facilitates adding, editing, and deleting of the change factor for specific occupations.

Change Factors can be explained through the definition of a few key terms. Staffing patterns are a distribution of employment within an industry (or rather, a set of ratios). Ratio analysis is the process of projecting changes in staffing pattern within industries. A Change Factor is the projected change in staffing pattern ratios, which is always accompanied by a rationale or reasons for the underlying Change Factor. Analysts use occupational expertise and empirical evidence to make decisions about how occupational utilization may change over the projections period.

Shown in the table below, a Change Factor equal to 1 indicates no change in the proportion of the occupation within the industry. A factor less than 1 indicates a declining proportion of the occupation within the industry. A factor greater than 1 indicates an increasing proportion of the occupation within an industry.

Change Factor Magnitude	Description
0.50	Very large decrease
0.65	Large decrease
0.80	Moderate decrease
0.90	Small decrease
1.00	No change
1.10	Small increase
1.20	Moderate increase
1.35	Large increase
1.50	Very large increase

Screen Controls

- **Select an Area** drop-down menu
- **Select a Timeframe** drop-down menu
- **Select Industry** drop-down menu

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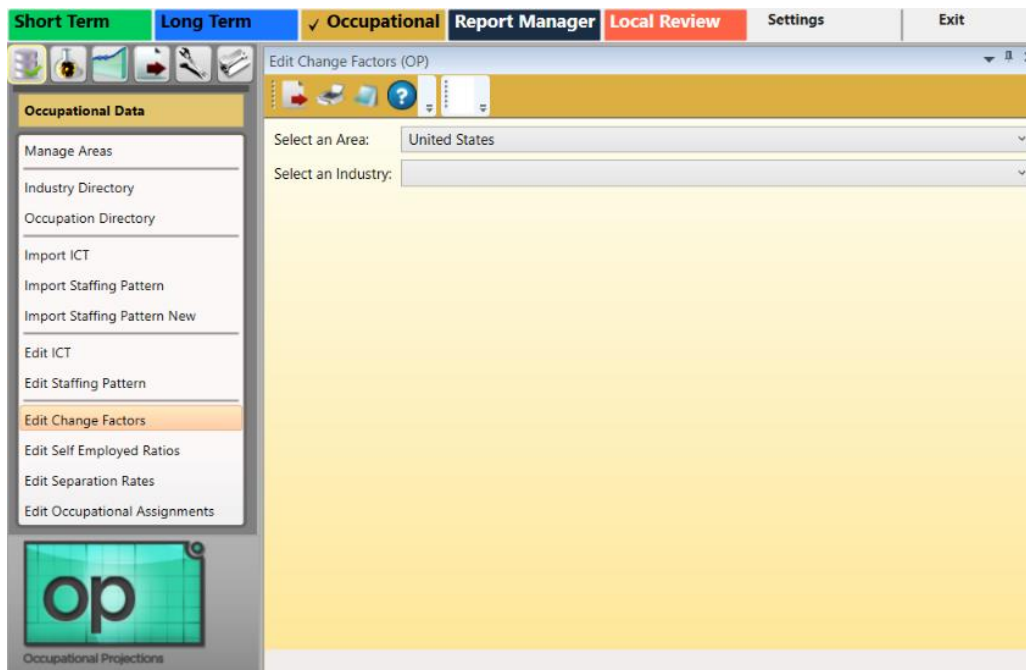


Figure 1: Edit Change Factors module

View Change Factors

1. **Select an Area.**
2. **Select an Industry.** The occupations contained within the selected industry are displayed.

The screenshot shows the 'Edit Change Factors (OP)' window with the 'Select an Area' dropdown set to 'United States' and the 'Select an Industry' dropdown set to '113000 - Forestry and Logging'. Below the dropdowns is a table with three columns: 'SOC', 'Title', and 'Change Factor'. The table lists several occupations with their corresponding change factors.

SOC	Title	Change Factor
11-1021	General and Operations Managers	0.99844
11-3051	Industrial Production Managers	0.91283
11-9013	Farmers, Ranchers, and Other Agricultural Managers	1.28776
11-9199	Managers, All Other	0.91283
13-1021	Buyers and Purchasing Agents, Farm Products	0.82154
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	0.82154

Figure 2: Titles and Change Factors within the industry

Add a New Occupation Title and Change Factor

1. **Right click** on any occupation.

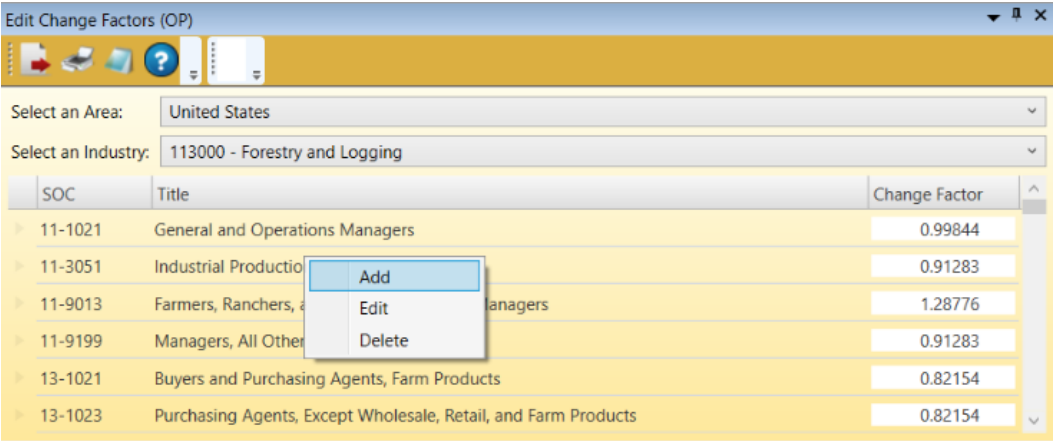


Figure 3: Adding a new title

2. Click the **Add** option. The **Create New Change Factor** dialog box will be displayed:

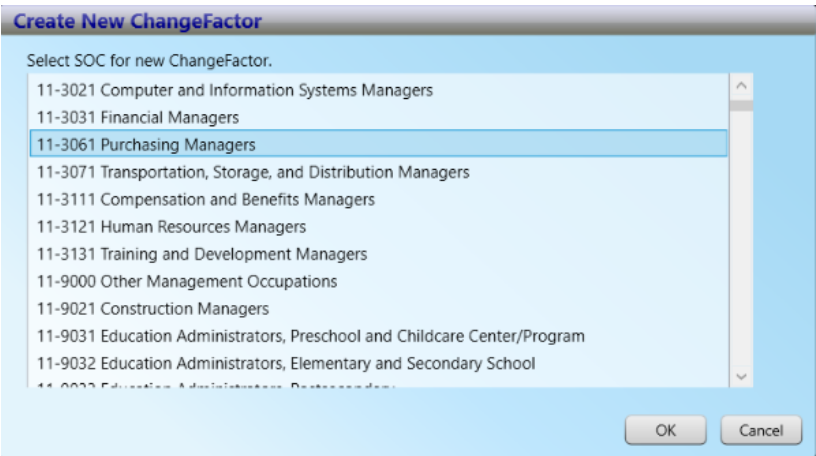


Figure 4: Create New Change Factor dialog box

3. Select the SOC to be added. Click **OK**.



Figure 5: Adding a new occupation and its Change Factor

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4. Type the **Change Factor** for the new occupation.
5. Press **Enter**, or click any other title to accept the value.

Edit an Occupation's Change Factor

1. **Right click** the occupation to modify its **Change Factor**.
2. Click **Edit**. The **Change Factor** field can now be modified.
3. Enter the new **Change Factor** value.



The screenshot shows a window titled "Edit Change Factors (OP)". It has a toolbar with icons for file operations and a help icon. Below the toolbar are two dropdown menus: "Select an Area:" set to "United States" and "Select an Industry:" set to "113000 - Forestry and Logging". The main area contains a table with three columns: "SOC", "Title", and "Change Factor". The table lists several occupations, with "11-3051 Industrial Production Managers" selected. The "Change Factor" for this occupation is currently "0.91283" and is being edited in a text box.

SOC	Title	Change Factor
11-1021	General and Operations Managers	0.99844
11-3051	Industrial Production Managers	0.91283
11-3061	Purchasing Managers	1.24565
11-9013	Farmers, Ranchers, and Other Agricultural Managers	1.28776
11-9199	Managers, All Other	0.91283
13-1021	Buyers and Purchasing Agents, Farm Products	0.82154

Figure 6: Modifications can be made to the Change Factor

4. Press **Enter**, or click any other occupation to accept the change.

Delete an Occupation

1. **Right click** the occupation to be deleted.
2. Select **Delete** from the contextual menu. A **Delete Record** confirmation dialog box will be displayed.
3. Click **Yes** to delete the record. Click **No** to keep the record.

Export Change Factors

1. **Select an Area** and **Select an Industry** from the drop-down menus to select the industry information you want to export.
2. Click the **Export** icon in the [Active Module Toolbar](#). A **Save As** window will be displayed.
3. Name and select a location for the file.
4. Click **Save**.

Related Content

- [Calculate Projections](#)

Copy Change Factors

The **Copy Change Factors** module is used to clone change factors. This enables the use of different sets of change factors for Short-Term and Long-Term Projections, for example.

Screen Controls

- **Source** control group
 - **Area** drop-down menu
 - **Timeframe** drop-down menu
- **Target** control group
 - **State** drop-down menu
 - **Area** drop-down menu
 - **Base Year** field
 - **Projected Year** field
- **Save Change Factors** button

The screenshot shows the 'Copy Change Factors (OP)' window. At the top, there is a navigation bar with tabs: 'Short Term' (green), 'Long Term' (blue), 'Occupational' (selected, with a checkmark), 'Report Manager' (dark blue), 'Local Review' (red), 'Getting Started', 'Settings', and 'Exit'. Below the navigation bar is a toolbar with icons for various functions. On the left, there is a sidebar menu under the heading 'Occupational Data' with options: 'Manage Areas', 'Industry Directory', 'Occupation Directory', 'Import ICT', 'Import Staffing Pattern', 'Edit ICT', 'Edit Staffing Pattern', 'Edit Change Factors', 'Copy Change Factors' (highlighted in orange), 'Edit Self Employed Ratios', 'Edit Separation Rates', and 'Edit Occupational Assignments'. At the bottom of the sidebar is a logo with the letters 'op' and the text 'Occupational Projections'. The main area of the window is divided into two sections: 'Source' and 'Target'. The 'Source' section has a dropdown for 'Area' set to 'United States' and a dropdown for 'Timeframe' set to '2018 -> 2028'. The 'Target' section has a dropdown for 'State' set to 'Freedonia', a dropdown for 'Area', and two text input fields for 'Base Year' and 'Projected Year'. A 'Save Change Factors' button is located at the bottom right of the 'Target' section.

Figure 1: Copy Change Factors module

Copy Change Factors

1. In the **Source** control group, select an **Area** and **Timeframe** from their drop-down menus.
2. Under the **Target** control group, select a **State** and **Area**.
3. Enter a **Base Year** and **Projected Year**.
4. Click the **Save Change Factors** button.

Edit Self Employed Ratios

The **Edit Self Employed Ratios** module allows the changing of **SE (Self Employed)** ratios. For additional information on the self-employed calculations, visit the [Calculate Self Employed](#) link.

Screen Controls

- **Select Area** drop-down menu
- **Right Click** contextual menu
 - **Add**
 - **Edit**
 - **Delete**

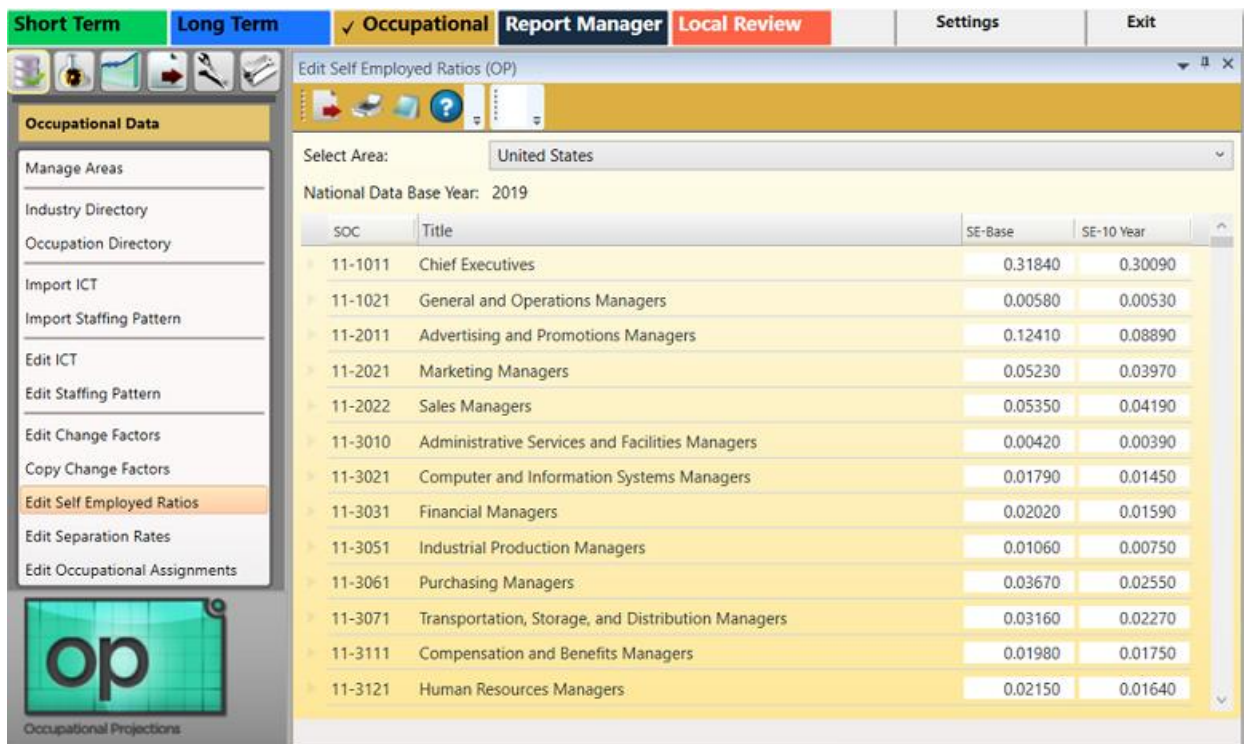


Figure 1: Edit Self Employed Ratios module

Add a New Record

1. Select an area from the **Select Area** drop-down box.
2. **Right click** on any record. A contextual menu will be displayed.

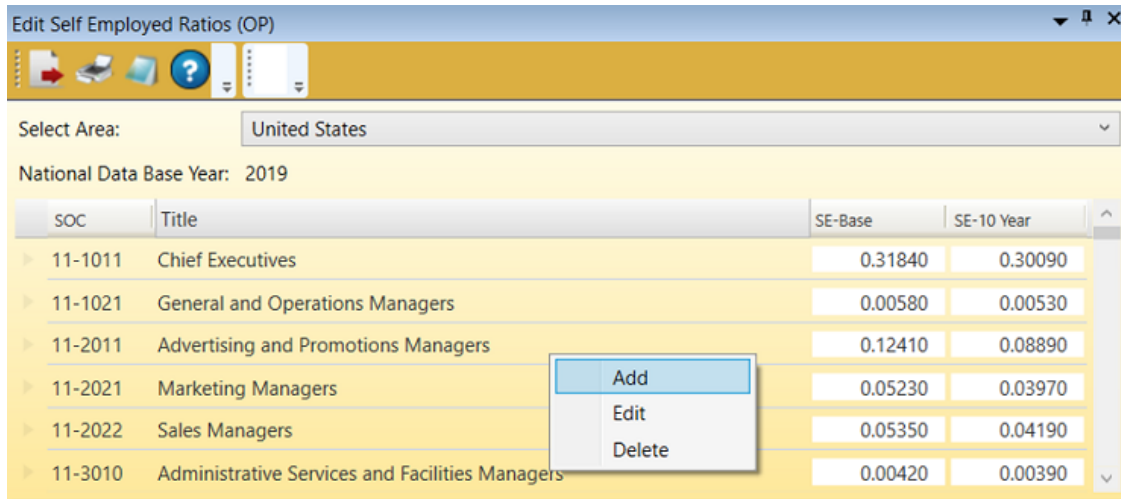


Figure 2: Click add from the contextual menu

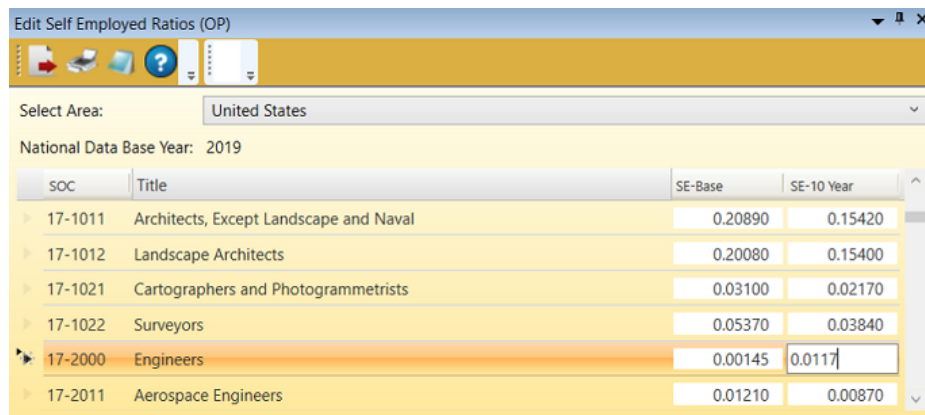
3. Click the **Add** option. The **Create New Self Employment Ratio** dialog box will be displayed.



Figure 3: Create New Self Employment Ratio dialog box

4. Select the desired [SOC](#) code and click **OK**. The new record will be displayed in its numerical order, in the **Title** column.
5. Enter the values for the **SE - Base** and **SE - 10 Year** for the new record.

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The screenshot shows the 'Edit Self Employed Ratios (OP)' window. At the top, there is a 'Select Area:' dropdown menu set to 'United States' and a 'National Data Base Year: 2019' label. Below this is a table with columns 'SOC', 'Title', 'SE-Base', and 'SE-10 Year'. The 'Engineers' record (SOC 17-2000) is highlighted, and its 'SE-10 Year' value is being edited from 0.0117 to 0.0117.

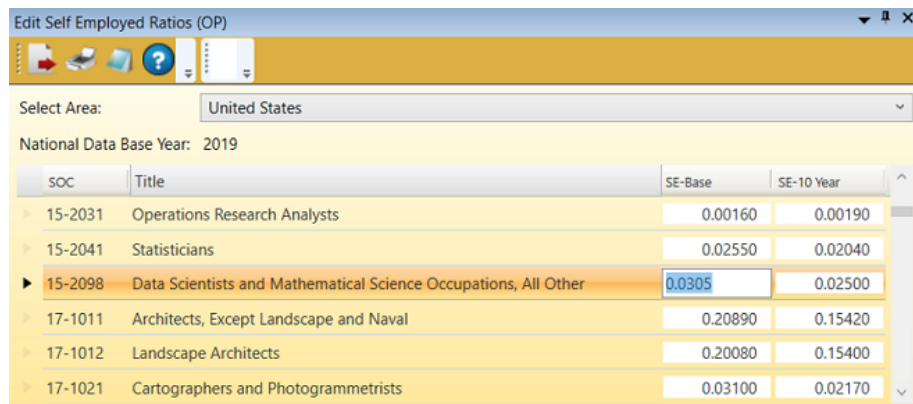
SOC	Title	SE-Base	SE-10 Year
17-1011	Architects, Except Landscape and Naval	0.20890	0.15420
17-1012	Landscape Architects	0.20080	0.15400
17-1021	Cartographers and Photogrammetrists	0.03100	0.02170
17-1022	Surveyors	0.05370	0.03840
17-2000	Engineers	0.00145	0.0117
17-2011	Aerospace Engineers	0.01210	0.00870

Figure 4: The Engineers record is edited

6. Press **Enter**, or click on any other record to save the new record.

Edit a Record

1. **Right click** a record to select it for editing.
2. Select the **Edit** option.



The screenshot shows the 'Edit Self Employed Ratios (OP)' window. At the top, there is a 'Select Area:' dropdown menu set to 'United States' and a 'National Data Base Year: 2019' label. Below this is a table with columns 'SOC', 'Title', 'SE-Base', and 'SE-10 Year'. The 'Data Scientists and Mathematical Science Occupations, All Other' record (SOC 15-2098) is highlighted, and its 'SE-Base' value is being edited from 0.0305 to 0.0305.

SOC	Title	SE-Base	SE-10 Year
15-2031	Operations Research Analysts	0.00160	0.00190
15-2041	Statisticians	0.02550	0.02040
15-2098	Data Scientists and Mathematical Science Occupations, All Other	0.0305	0.02500
17-1011	Architects, Except Landscape and Naval	0.20890	0.15420
17-1012	Landscape Architects	0.20080	0.15400
17-1021	Cartographers and Photogrammetrists	0.03100	0.02170

Figure 5: Edit a Self Employed Ratio record

3. Type the new values for the **SE - Base** and **SE - 10 Year**.
4. Press **Enter**, or click on any other record to save the changes.

Delete a Record

1. **Right click** on the record to delete.
2. Select **Delete**. A confirmation dialog box will be displayed.
3. Click **Yes** to delete the record. Click **No** to keep the record.

Related Content

- [Calculate Self Employed](#) (Statistical and Technical Terms)

Edit Separation Rates

The **Edit Separation Rates** module was updated from the Replacement Rates methodology in 2017 to reflect differences between workers changing careers and retiring. Separation Rates uses two sets of calculations to determine Occupational Transfers (migrations to new careers) and Labor Force Exits (traditional retirements). The new methodology is more dynamic in capturing the nuances of the "gig economy" and provides more precise projections.

Additional information from **BLS** on the **Occupational Separations Methodology** can be found by clicking [here](#). **Separations Communications** from Projections Central can be found here (**currently unlinked**).

For additional information on the process used to calculate **Occupational Separations**, visit [this link](#).

The **Edit Separation Rates** menu allows editing of existing records and adding of new records.

Screen Controls

- **Select Area** drop-down menu
- **Right Click** context menu
 - **Add**
 - **Edit**
 - **Delete**



Figure 1: Edit Separation Rates module

Add a New Record

1. Select an area from the **Select Area** drop-down box.
2. **Right click** on any record. A contextual menu will appear.
3. Click **Add**. The **Create New Separation Rate** dialog box will be displayed.

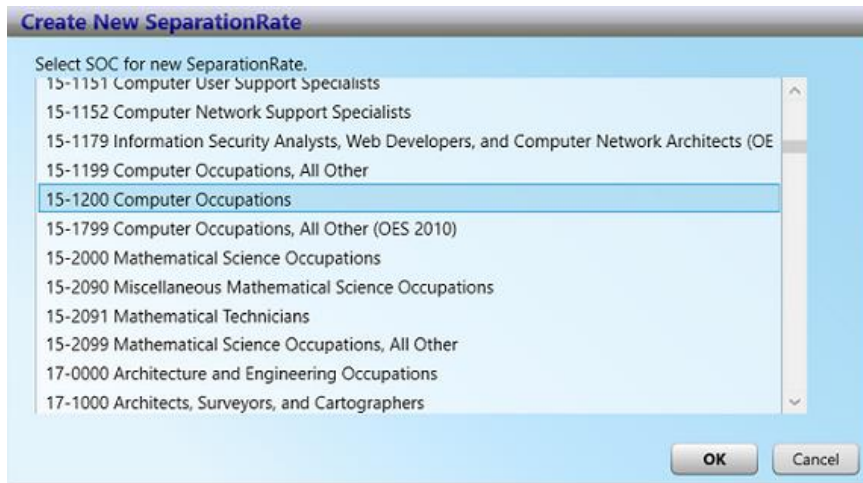


Figure 2: Add (or create) a new separation rate

4. Select the SOC to add to the Separation Rates data and click **OK**.
5. Enter the **Transfer** and **Exit Rates** for the new record.

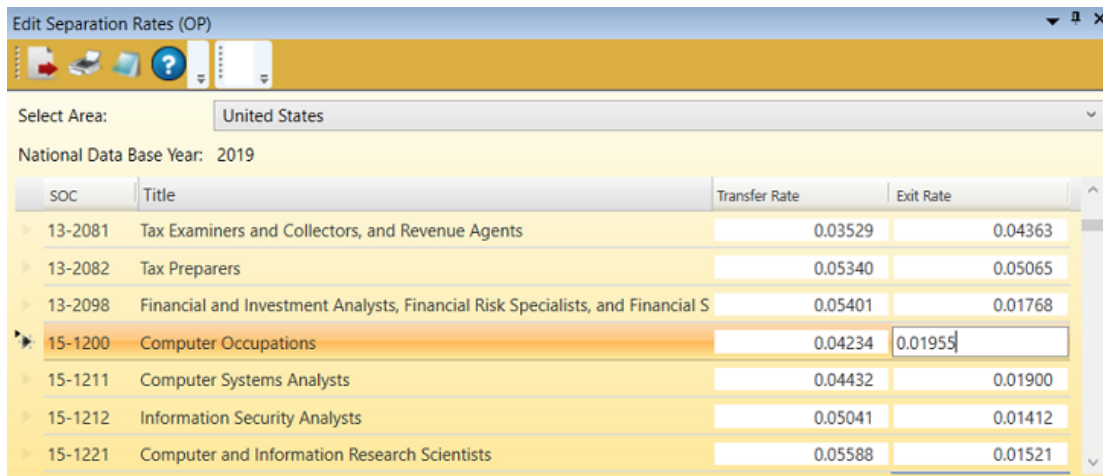


Figure 3: Edit the Transfer Rate and Exit Rate

6. Press **Enter** to save the values for the new record.

Edit Separation Rate Values

1. **Right click** a record and select **Edit**.

☞ To sort the information in this module, click the **headers of the columns**.

2. Edit the **Transfer Rate** and **Exit Rate** fields.

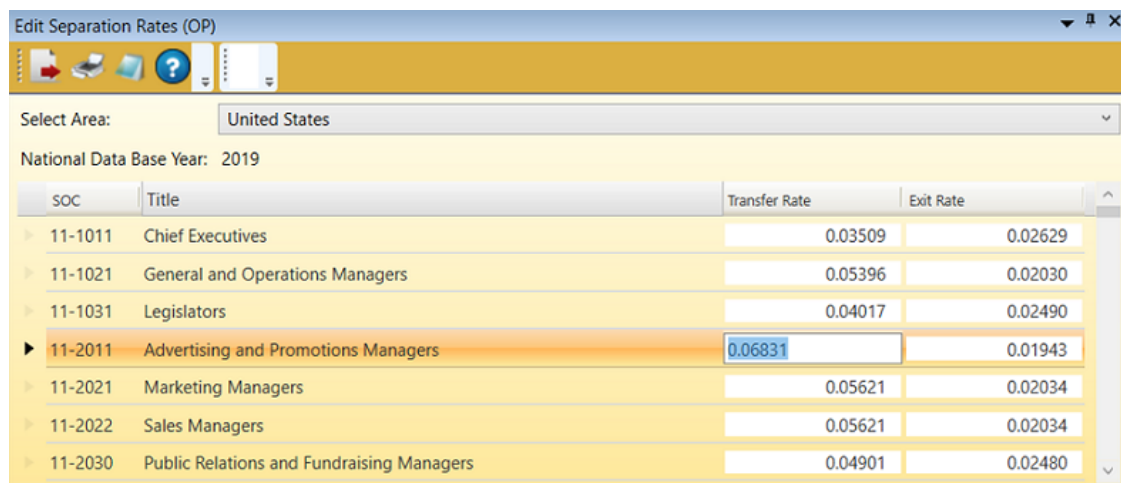


Figure 4 shows the 'Edit Separation Rates (OP)' window. It includes a 'Select Area' dropdown set to 'United States' and a 'National Data Base Year' of 2019. The table below lists occupations with their corresponding Transfer and Exit rates. The row for '11-2011 Advertising and Promotions Managers' is selected, and its Transfer Rate is being edited to 0.06831.

SOC	Title	Transfer Rate	Exit Rate
11-1011	Chief Executives	0.03509	0.02629
11-1021	General and Operations Managers	0.05396	0.02030
11-1031	Legislators	0.04017	0.02490
11-2011	Advertising and Promotions Managers	0.06831	0.01943
11-2021	Marketing Managers	0.05621	0.02034
11-2022	Sales Managers	0.05621	0.02034
11-2030	Public Relations and Fundraising Managers	0.04901	0.02480

Figure 4: Editing the Transfer and Exit Rate fields

Delete a Record

1. **Right click** the desired record and select **Delete** from the context menu. The **Delete Record** confirmation dialog box will be displayed.
2. Click **Yes** to delete the record. Click **No** to keep the record.

Related Content

- [Openings](#)
- [Occupational Separations](#) (Statistical and Technical Terms)

Edit Occupational Assignments

The **Edit Occupational Assignments** module indicates the education, work experience, and job training requirements for specific occupations. It also allows the adding and editing of occupational positions and records by [SOC](#) (Standard Occupational Classification).

Screen Controls

- **Select Area** drop-down menu
- **Right Click** context menu
 - **Add**
 - **Edit**
 - **Delete**

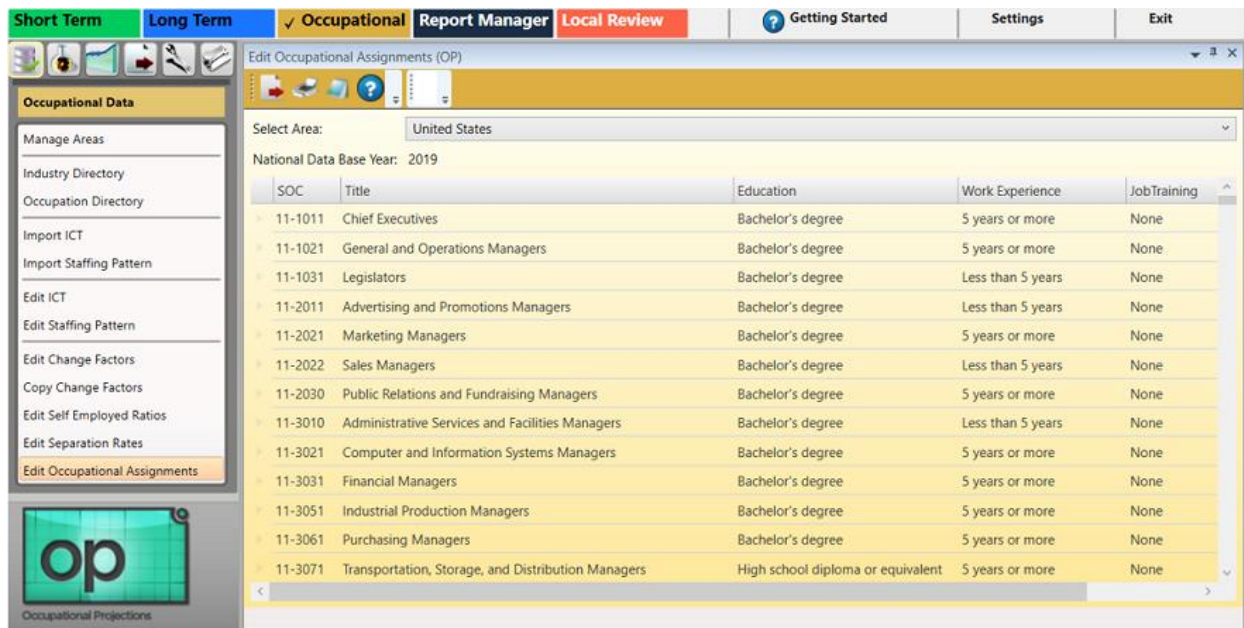


Figure 1: Edit Occupational Assignments module

Add Occupational Assignment

1. Select an area from the **Select Area** drop-down menu.
2. **Right click** on any record and select the **Add** option. The **Create New Occupational Assignment** dialog box will be displayed.

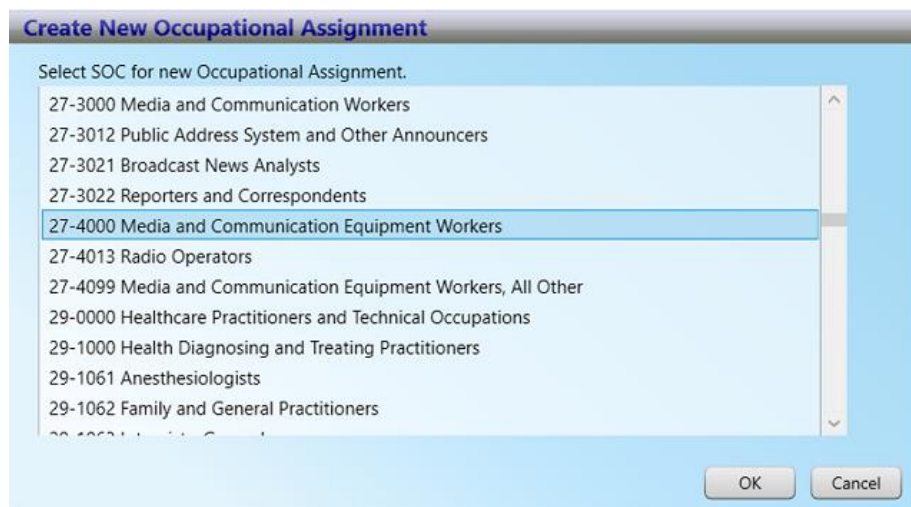


Figure 2: Create New Occupational Assignment dialog box

3. Select the SOC code to add and click **OK**. This will return you to the **Edit Occupational Assignments** window.
4. Click the **Education** category's drop-down menu for the new occupation assignment and select the desired **Education** category.



Figure 3: The occupation is added and assigned an Education category

5. Select an appropriate **Education** level, **Work Experience**, and **Job Training** recommendations.

Edit an Occupational Assignment

1. **Right click** on the record and select **Edit** from the context menu. The **Education** category drop-down menu will be activated.

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2. Select a new level of **Education** to replace the old one.
3. Click or tab into the **Work Experience** column to edit it.
4. Click or tab into the **Job Training** column to edit its value.
5. Press **Enter** or click another occupation to save the changes to the record.

Delete an Occupational Assignment

1. **Right click** the record and select **Delete** from the context menu. A **Delete Record** confirmation dialog box will be displayed.
2. Click **Yes** to delete the record. Click **No** to keep the record.

Related Content

- [Occupation Directory](#)

Occupational Analysis

The **Occupational Analysis (F6)** section of Projections Suite enables matching, copying, rollup, and quality checking of occupational data. Use these analysis tools to review data or to create/edit data in preparation for processing projections.



Figure 1: Occupational Projections Analysis group menu

The **Occupational Analysis** group menu contains the following selections:

- [ICT / Staffing Pattern Match](#)
- [Copy Staffing Patterns](#)
- [Rollup Staffing Pattern](#)
- [Data Quality Check](#)

ICT / Staffing Pattern Match

The **ICT / Staffing Pattern Match** module compares the industries in the ICT data with those in the staffing pattern data. The purpose of this module is to identify holes in the data before calculating Occupational Projections.

Missing data can be handled using the [Copy Staffing Patterns](#), [Rollup Staffing Pattern](#), [Edit ICT](#), or [Edit Staffing Pattern](#) modules.

Screen Controls

- **Select an Area** drop-down menu
- **Select a Timeframe** drop-down menu
- **Filter** drop-down menu

Industry Control Totals			Staffing Pattern Totals		
NAICS	Title	Base	NAICS	Title	Survey
000671	Total Self Employed and Unpaid Family Wo	288003	000671	Total Self Employed and Unpaid Family Wo	550527.72
006010	Self Employed Workers, All Jobs	414579	006010	Self Employed Workers, All Jobs	414574.37
110000	Agriculture, Forestry, Fishing and Hunting	79912	110000	Agriculture, Forestry, Fishing and Hunting	1148419.11
210000	Mining	9161	210000	Mining	9485.0500
220000	Utilities	23165	220000	Utilities	22489.629
236000	Construction of Buildings	45252	236000	Construction of Buildings	46182.989

Figure 1: ICT / Staffing Pattern Match module

View the ICT / Staffing Pattern Matches

1. **Select an Area** from the drop-down menu.
2. **Select a Timeframe.**
3. Select a **Filter** (if any) from the **Filter** drop-down menu. The **ICT / Staffing Pattern Match** data will be displayed.

☞ Selecting a filter is optional. You can select **None** (the default) or **No Matches Only**.

Industry Control Totals			Staffing Pattern Totals			
NAICS	Title	Base	NAICS	Title	Survey	Base
236000	Construction of Buildings	654	236000	Construction of Buildings	588.5	651.0475785
237000	Heavy and Civil Engineering Cons	239	237000	Heavy and Civil Engineering Construction	242.8	240.4353377
238000	Specialty Trade Contractors	531	238000	Specialty Trade Contractors	533.8	534.2530910
312000	Beverage and Tobacco Product M	222	312000	Beverage and Tobacco Product Manufactur	224.6	223.5654496
424000	Merchant Wholesalers, Nondurab	699	424000	Merchant Wholesalers, Nondurable Goods	711.19999	703.2620922
441000	Motor Vehicle and Parts Dealers	407	441000	Motor Vehicle and Parts Dealers	414.20000	404.7117334
444000	Building Material and Garden Equ	581	444000	Building Material and Garden Equipment a	593.40000	582.4873609
445000	Food and Beverage Stores	1254	445000	Food and Beverage Stores	1224.3999	1251.225416

Figure 2: Data matching the selected criteria is displayed

- ☞ Make sure the correct geographic area and time frame were selected. **If staffing patterns were not imported yet, the right half of the screen will be blank. If the ICT data has not been imported, the left half of the screen will be blank.**
- ☞ When you first import the OES staffing patterns, there will be non-matches because the OES does not survey all industries. The following industries in the ICT file will not have staffing patterns:

3-digit	4-digit
111	1131
112	1132
113	1141
114	1142
115	153
482	4821
814	8141

To correct these non-matches, staffing patterns must be added to the OES staffing patterns. The best source is National staffing patterns. Review the National staffing patterns.

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Related Content

- [Import ICT](#)
- [Import Staffing Pattern](#)
- [Edit ICT](#)
- [Edit Staffing Pattern](#)
- [Rollup Staffing Pattern](#)

Copy Staffing Patterns

There may be areas that have staffing patterns which need to be copied to an area, so that data can be worked with without time-intensive manual replication. **Copy Staffing Patterns** facilitates the copying of these patterns from one area to another, or for the same area but within a different time frame.

Select the source you want to copy the data from, then select the target state and area definition for the state you want to copy it to. You cannot copy over any industry you already have data for. To replace it, delete the data that already exists using the [Edit Staffing Pattern](#) module first. Once it's deleted, you can copy the staffing pattern. No data is actually copied until you click the **Save Staffing Patterns** button.

The same staffing pattern file can be used for your Long and Short-Term Projections. You can import the file twice, entering the respective time frame values. Or, import the file only once and use this Copy Staffing Patterns module to copy it to the same area, within a different timeframe.

Screen Controls

- **Source** control group
 - **Area** drop-down menu
 - **Timeframe** drop-down menu
- **Target** control group
 - **State** drop-down menu
 - **Area** drop-down menu
 - **Base Year** field
 - **Projected Year** field
- **Save Staffing Patterns** button
- **Move right** and **Move left** buttons
- **Move all right** and **Move all left** buttons

Projections Suite 2022

Short Term Long Term **Occupational** Report Manager Local Review Settings Exit

Copy Staffing Patterns (OP)

Occupational Analysis

- ICT / Staffing Pattern Match
- Copy Staffing Patterns**
- Rollup Staffing Pattern
- Data Quality Check

Source

Area: United States State: Freedonia

Timeframe: 2016 -> 2026 Area:

Base Year: Projected Year:

Save Staffing Patterns

006010 - Self Employed Workers, All Jobs
110000 - Agriculture, Forestry, Fishing and Hunting
111000 - Crop Production
112000 - Animal Production
113000 - Forestry and Logging
113132 - Forestry
113300 - Logging
114000 - Fishing, Hunting and Trapping

Figure 1: Copy Staffing Patterns module

Copy Staffing Patterns

1. Click the area to copy from, from the **(Source) Area** drop-down menu.
- ☞ The **source** is the data you want to **copy** from. The **Target** is where you want to **copy** to.
2. Select the **Timeframe** from the drop-down menu. Industries with staffing patterns for the selected **(Source) Area** and **Timeframe** will automatically populate.
3. Select the **State** to copy to, from the **State (Target)** drop-down menu.
4. Select the **Area** to copy to, from the **(Target) Area** drop-down menu.
5. Enter a value in the **Base Year** field.
6. Enter a value in the **Projected Year** field.

Copy Staffing Patterns (OP)

Source

Area: United States State: Freedonia

Timeframe: 2016 -> 2026 Area: Freedonia (000080)

Base Year: 2016 Projected Year: 2026

Save Staffing Patterns

006010 - Self Employed Workers, All Jobs
110000 - Agriculture, Forestry, Fishing and Hunting
111000 - Crop Production
112000 - Animal Production
113000 - Forestry and Logging
113132 - Forestry
113300 - Logging
114000 - Fishing, Hunting and Trapping

Figure 2: Data entered into the (Source) Area, Timeframe, (Target) State, (Target) Area, Base Year, and Projected Year fields

7. **Tab** out of the **Projected Year** field. The **Target** industries will populate if there are any in the database.

The screenshot shows the 'Copy Staffing Patterns (OP)' window. It has a yellow header bar with a question mark icon. Below the header, there are two main sections: 'Source' and 'Target'. The 'Source' section has a dropdown for 'Area' set to 'United States' and a dropdown for 'Timeframe' set to '2016 -> 2026'. The 'Target' section has a dropdown for 'State' set to 'Freedonia', a dropdown for 'Area' set to 'Freedonia (000080)', and two input fields for 'Base Year' (2016) and 'Projected Year' (2026). Below these fields are two lists of industries. The 'Source' list contains: 517100 - Wired Telecommunications Carriers, 006010 - Self Employed Workers, All Jobs, 110000 - Agriculture, Forestry, Fishing and Hunting, 111000 - Crop Production, 112000 - Animal Production, 113000 - Forestry and Logging, 113132 - Forestry, and 113300 - Logging. The 'Target' list is empty. Between the lists are four buttons: '>', '>>', '<<', and '<'. A 'Save Staffing Patterns' button is located below the 'Projected Year' field.

Figure 3: Staffing patterns for the selected (Target) Area will automatically populate



The industry list in the **Source Area** has both active (dark font) and non-active (grayed font) industries. The active industries are not listed in the **Target Area** list. If either **Area** has a matching staffing pattern, both are non-active (grayed-out), and it will not be possible to copy the pattern for that industry from the **Source Area** to the **Target Area**.

8. Click an industry in the **Source** list with the desired staffing pattern to copy to the **Target** list.

The screenshot shows the 'Copy Staffing Patterns (OP)' window after an industry has been selected in the Source list. The 'Source' section remains the same. The 'Target' section now has a dropdown for 'Area' set to 'Freedonia (000080)'. The 'Base Year' is '2016' and the 'Projected Year' is '2026'. The 'Source' list is the same as in Figure 3. The 'Target' list now contains: 006010 - Self Employed Workers, All Jobs, 110000 - Agriculture, Forestry, Fishing and Hunting, 111000 - Crop Production, 112000 - Animal Production, 113000 - Forestry and Logging, 113132 - Forestry, 113300 - Logging, and 114000 - Fishing, Hunting and Trapping. The '517100 - Wired Telecommunications Carriers' industry from the Source list is now highlighted in blue in the Target list. The 'Save Staffing Patterns' button is still present.

Figure 4: Click an industry in the Source Area to copy it to the Target Area

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9. Click the **Move**  button (the example in Figure 5 uses the move button). Alternatively, click the **Move All**  button to move all available industries to the **Target** list.
- ☞ In the **Source Area**, upon right-clicking, the menu options **Add Selected**, **Select All**, and **Unselect All** become available. The **Remove Selected**, **Select All**, and **Unselect All** options become available in the **Target Area**, by **right-clicking**.

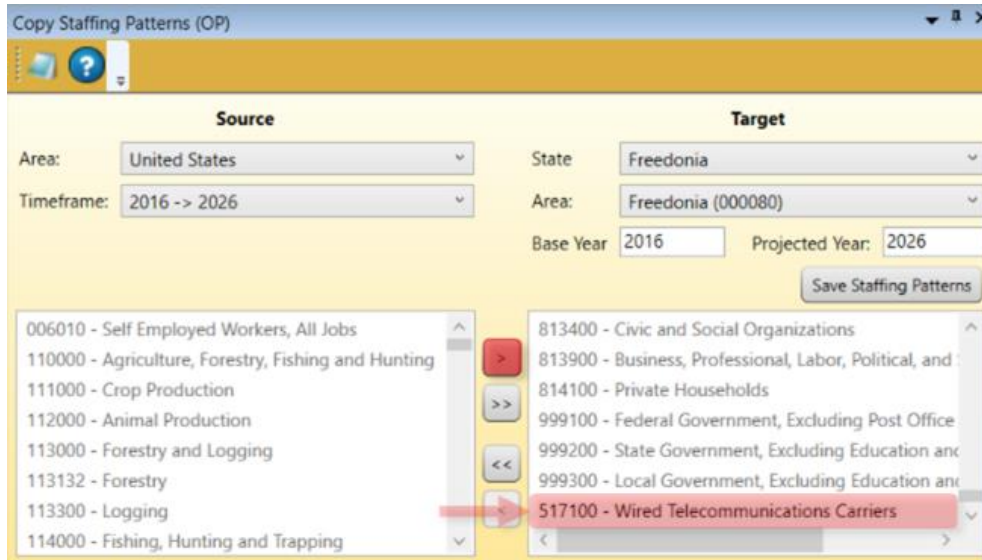


Figure 5: The 517100 industry is moved from the Source list to the Target list

Clicking the **Move** button copies industry 517100 to the **Area of Freedonia (000080)** for the **2016 to 2026** time frame.

- ☞ Notice the copied industry is at the bottom of the area. Later, it will be automatically sorted into alphabetical order.
10. Click **Save Staffing Patterns** to save the staffing pattern(s) to the new area and time frame. The staffing patterns will be saved to the **Target** area:

The screenshot shows a software window titled "Copy Staffing Patterns (OP)". It has a yellow header bar with a question mark icon. Below the header, there are two main sections: "Source" and "Target".

Source Section:

- Area: United States (dropdown menu)
- Timeframe: 2016 -> 2026 (dropdown menu)
- Base Year: 2016 (text input)
- Projected Year: 2026 (text input)
- A list of industries with a scrollbar. The visible items are:
 - 006010 - Self Employed Workers, All Jobs
 - 110000 - Agriculture, Forestry, Fishing and Hunting
 - 111000 - Crop Production
 - 112000 - Animal Production
 - 113000 - Forestry and Logging
 - 113132 - Forestry
 - 113300 - Logging
 - 114000 - Fishing, Hunting and Trapping

Target Section:

- State: Freedonia (dropdown menu)
- Area: Freedonia (000080) (dropdown menu)
- A list of industries with a scrollbar. The visible items are:
 - 512200 - Sound Recording Industries
 - 515100 - Radio and Television Broadcasting
 - 515200 - Cable and Other Subscription Programming
 - 517100 - Wired Telecommunications Carriers (highlighted in red)
 - 517200 - Wireless Telecommunications Carriers (exce
 - 517400 - Satellite Telecommunications
 - 517900 - Other Telecommunications

Between the two lists are four arrow buttons: ">", ">>", "<<", and "<". A "Save Staffing Patterns" button is located below the Target section.

Figure 6: The industry's staffing pattern has been copied and sorted into the Target area

Related Content

- [Import Staffing Pattern](#)
- [Edit Staffing Pattern](#)

Rollup Staffing Pattern

Use the **Rollup Staffing Pattern** module to combine multiple staffing patterns into an ICT industry or to re-code, or re-name, a single staffing pattern to match the ICT data.

The rollup will only let you select an industry for which there isn't already a match. If you already have the ICT data and the staffing pattern data for an industry, the industry will not be displayed in the list; only non-matches are displayed. One possible use of the rollup is changing the staffing pattern's industry code to match the ICT data. Another use is combining multiple staffing patterns into a single staffing pattern to match the ICT data. You can select multiple staffing pattern industries, but only a single ICT industry.

Screen Controls

- **Patterns to Rollup** tab
 - **Area** drop-down menu
 - **Timeframe** drop-down menu
- **Industry Rollup Code** tab
- **Process** tab
 - **Rollup** button

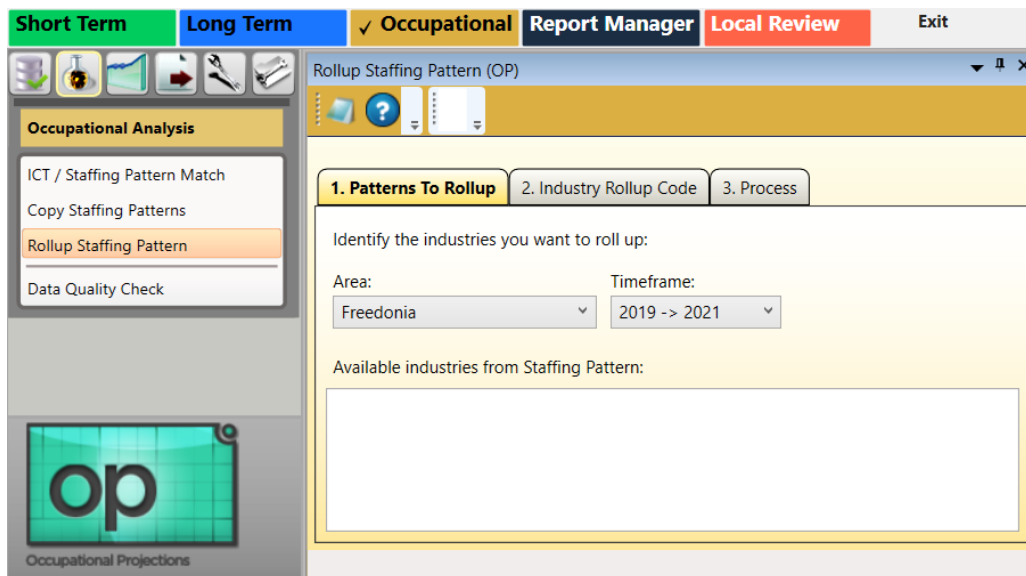
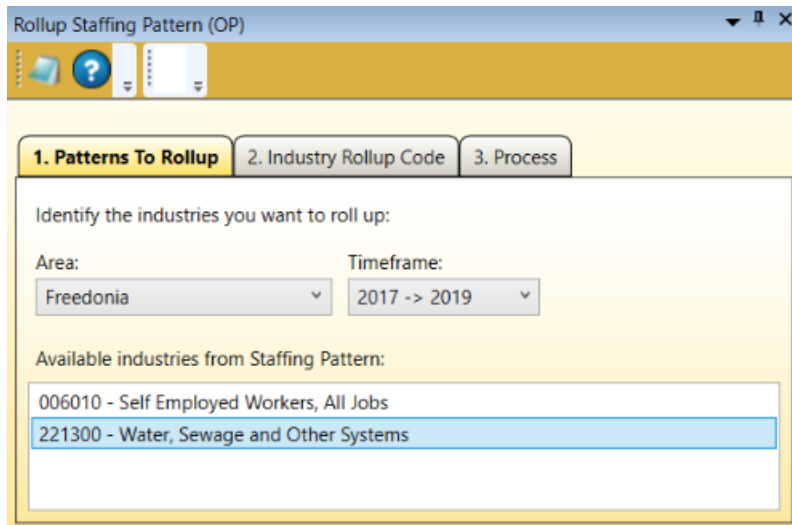


Figure 1: Rollup Staffing Pattern module

Rollup Staffing Patterns

1. Under the **Patterns to Rollup** tab, select an **Area** from the drop-down menu.
2. Select the **Timeframe** from the drop-down menu.
3. **Select the industry** whose staffing pattern is to be rolled up into another industry.



Rollup Staffing Pattern (OP)

1. Patterns To Rollup 2. Industry Rollup Code 3. Process

Identify the industries you want to roll up:

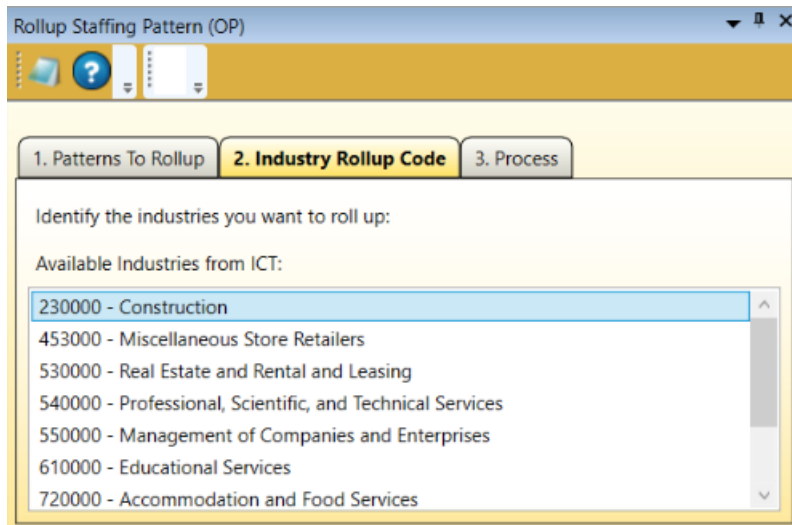
Area: Timeframe:

Available industries from Staffing Pattern:

- 006010 - Self Employed Workers, All Jobs
- 221300 - Water, Sewage and Other Systems

Figure 2: Area and time frame choices selected

- Click the **Industry Rollup Code** tab. On this tab is a list of all ICT industries for which there is not a corresponding staffing pattern.



Rollup Staffing Pattern (OP)

1. Patterns To Rollup 2. Industry Rollup Code 3. Process

Identify the industries you want to roll up:

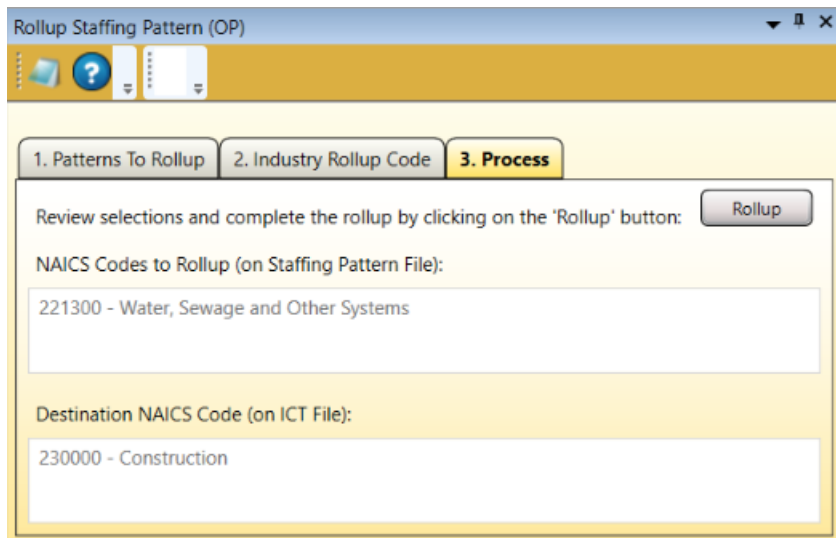
Available Industries from ICT:

- 230000 - Construction
- 453000 - Miscellaneous Store Retailers
- 530000 - Real Estate and Rental and Leasing
- 540000 - Professional, Scientific, and Technical Services
- 550000 - Management of Companies and Enterprises
- 610000 - Educational Services
- 720000 - Accommodation and Food Services

Figure 3: Selection from Industry Rollup Code tab

- Select the industry from the **Available industries from ICT** list. These are the industries that do not have a corresponding staffing pattern match. You can only select one available industry.
- Click the **Process** tab and review your selections.

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The screenshot shows the 'Rollup Staffing Pattern (OP)' window with the '3. Process' tab selected. The window has a title bar with standard OS controls. Below the title bar is a toolbar with icons for help, save, and undo. The main area contains three tabs: '1. Patterns To Rollup', '2. Industry Rollup Code', and '3. Process'. The '3. Process' tab is active and displays the following content:

Review selections and complete the rollup by clicking on the 'Rollup' button:

NAICS Codes to Rollup (on Staffing Pattern File):

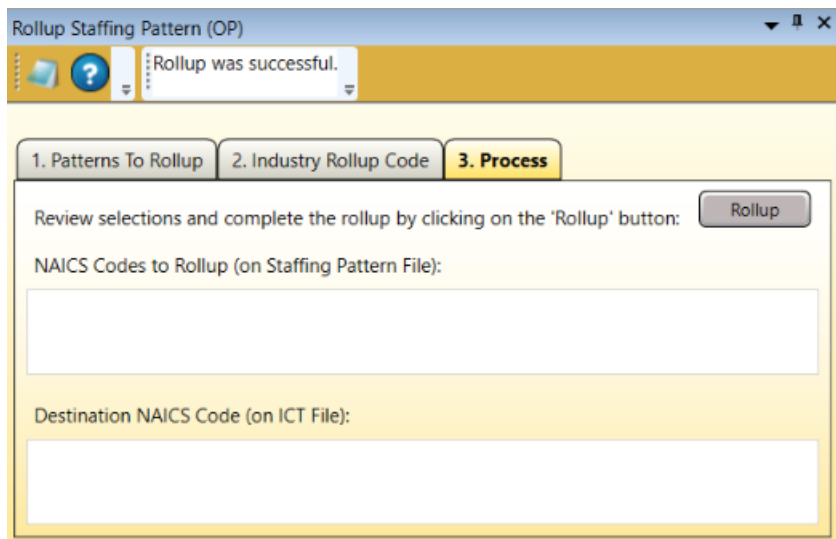
221300 - Water, Sewage and Other Systems

Destination NAICS Code (on ICT File):

230000 - Construction

Figure 4: The selected industries are displayed under the Process tab

7. If your selections are correct, click the **Rollup** button. The **Process** tab will be cleared after processing the staffing pattern into the designated industry, because they now have a corresponding match. The **NAICS Codes to Rollup (on Staffing Pattern File)** and **Destination NAICS Code (on ICT File)** areas of the screen will empty to reflect completion of the rollup process.



The screenshot shows the 'Rollup Staffing Pattern (OP)' window with the '3. Process' tab selected. The window has a title bar with standard OS controls. Below the title bar is a toolbar with icons for help, save, and undo. The main area contains three tabs: '1. Patterns To Rollup', '2. Industry Rollup Code', and '3. Process'. The '3. Process' tab is active and displays the following content:

Rollup was successful.

Review selections and complete the rollup by clicking on the 'Rollup' button:

NAICS Codes to Rollup (on Staffing Pattern File):

Destination NAICS Code (on ICT File):

Figure 5: The staffing pattern rollup was successful

Related Content

- [Edit ICT](#)
- [Edit Staffing Pattern](#)

Data Quality Check

The **Data Quality Check** module looks for data problems in the database that will result in invalid results if not resolved. If industries or occupations are listed on the screen, you need to ensure they are removed. If not, they will be included twice, which will result in an over-count of projections data when it is aggregated.

Screen Controls

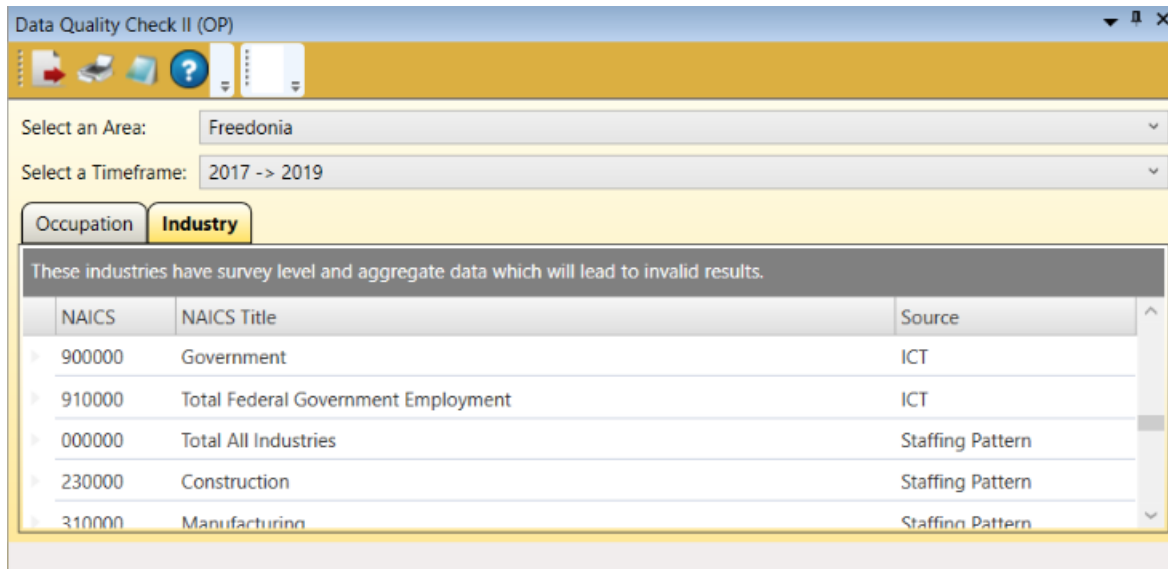
- **Select an Area** drop-down menu
- **Select a Timeframe** drop-down menu
- **Occupation** tab
- **Industry** tab

Figure 1: Data Quality Check module

Check the Quality of the Data

1. **Select an Area** from the drop-down menu.
2. **Select a Timeframe.** After searching the database, the results are displayed.
3. If there are no errors under the **Occupation** tab, select the **Industry** tab.

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The screenshot shows the 'Data Quality Check II (OP)' window. At the top, there is a toolbar with icons for file operations and a help icon. Below the toolbar, there are two dropdown menus: 'Select an Area:' set to 'Freedonia' and 'Select a Timeframe:' set to '2017 -> 2019'. Below these are two tabs: 'Occupation' and 'Industry', with 'Industry' being the active tab. A message box states: 'These industries have survey level and aggregate data which will lead to invalid results.' Below this message is a table with three columns: 'NAICS', 'NAICS Title', and 'Source'.

NAICS	NAICS Title	Source
900000	Government	ICT
910000	Total Federal Government Employment	ICT
000000	Total All Industries	Staffing Pattern
230000	Construction	Staffing Pattern
310000	Manufacturing	Staffing Pattern

Figure 2: Industries found requiring corrective active

Any Occupational data with errors will display under the **Occupation** tab. If there were industries found with errors, they will be listed under the **Industry** tab. Data with errors will lead to invalid results. The **Source** column lists where the error is occurring. Depending on the source of the data with errors, use the [Edit ICT](#) or [Edit Staffing Pattern](#) modules to correct the errors.

Occupational Projections

Use the **Occupational Projections (F7)** group menu to calculate projections and self-employed staffing patterns, reconcile, aggregate, process openings, and modify confidentiality.

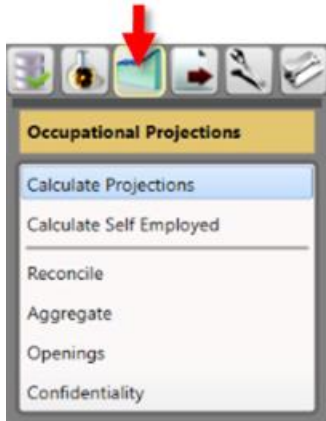


Figure 1: Occupational Projections group menu

The **Occupational Projections** group menu contains the following selections:

- [Calculate Projections](#)
- [Calculate Self Employed](#)
- [Reconcile](#)
- [Aggregate](#)
- [Openings](#)
- [Confidentiality](#)

Calculate Projections

The **Calculate Projections** module is used to calculate industry and occupation totals. ICT and staffing pattern data for each industry must be in the Occupational Projections system before calculating projections.

For additional information on the process used to **Calculate Projections**, visit [this link](#).

Screen Controls

- **Select an Area** drop-down menu
- **Select a Timeframe** drop-down menu
- **View** control group - When radio buttons are changed, the tab names and functions change
 - **Industries** radio button
 - **Occupations** radio button
- **Calculate Projections** button
- **View** control group selections
 - **Industries** radio button selected:
 - **Industry Totals** tab
 - **Occupations Within Industry** tab
 - **Industry** drop-down menu
 - **Change Factor** field
 - **Occupations** radio button selected:
 - **Occupation Totals** tab
 - **Industries Within Occupation** tab
 - **Occupation** drop-down menu

Industry	Estimate	Est (RD)	Projection	Proj (RD)
006010 - Self Employed Workers, All Jobs	15920.47104456	15905	15818.82408163	15801
110000 - Agriculture, Forestry, Fishing and Hunting	585.65006397	576	464.93383940	454
210000 - Mining	105.88898129	94	102.25573115	92
	364453.85155216	363707	395486.25554130	394814

Figure 1: Calculate Projections module

View the Industry or Occupation Totals

1. **Select an Area.**
2. **Select a Timeframe.**

3. Select either **View Industries** or **Occupations** radio buttons.

☞ If you select the **View Occupations** radio button, the occupations roll up and display on the **Occupation Totals** tab without clicking **Calculate Projections**. Selecting the **View Occupations** radio button disables the **Calculate Projections** button.

4. Click **Calculate Projections**. A **Calculate Projections** dialog box will be displayed.

5. By selecting **Yes**, the data will be calculated and displayed. Select **No** to cancel the process.

Industries

The **Industry Totals** tab table headers display by the **Industry**:

- **Estimate**
- Estimate Value Rounded (**Est (RD)**)
- **Projection**
- Projection Value Rounded (**Proj (RD)**)

The **Industry Totals** tab will **Calculate Projections** from the **Industries** view. On the tab, projections are calculated for all occupations within all industries.

☞ All fields are sortable by clicking a column's header. For example, to sort by industry, click on the **Industry** column header.

Calculate Survey-Level Projections (OP)

Select an Area: WIA1 View: ☒ Industries ☐ Occupations

Select a Timeframe: 2016 -> 2026 Calculate Projections

Change Factors: United States 2019 - 2029. To change, open the Edit Change Factors and select the desired Area and Timeframe.

Industry Totals Occupations Within Industry

Industry	Estimate	Est (RD)	Projection	Proj (RD)
006010 - Self Employed Workers, All Jobs	15905.00000000	15889	15801.00000000	15796
110000 - Agriculture, Forestry, Fishing and Hunting	576.00000000	567	454.00000000	444
210000 - Mining	94.00000000	82	92.00000000	81
220000 - Utilities	1718.00000000	1712	1780.00000000	1777
236000 - Construction of Buildings	2959.00000000	2953	3336.00000000	3333
237000 - Heavy and Civil Engineering Construction	1215.00000000	1206	1346.00000000	1335
	363707.00000000	362978	394814.00000000	394132

Figure 2: View Industries radio button and Industry Total tab selected

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On the **Occupations Within Industry** tab, select an **Industry** from the drop-down to view the individual occupations that make up that industry. You can view an individual **Occupation's** specific:

- **Estimate**
- **Est (RD)**
- **Projection**
- **Proj (RD)**

Select an individual **Industry** from the drop-down to calculate projections for all occupations within a single industry.

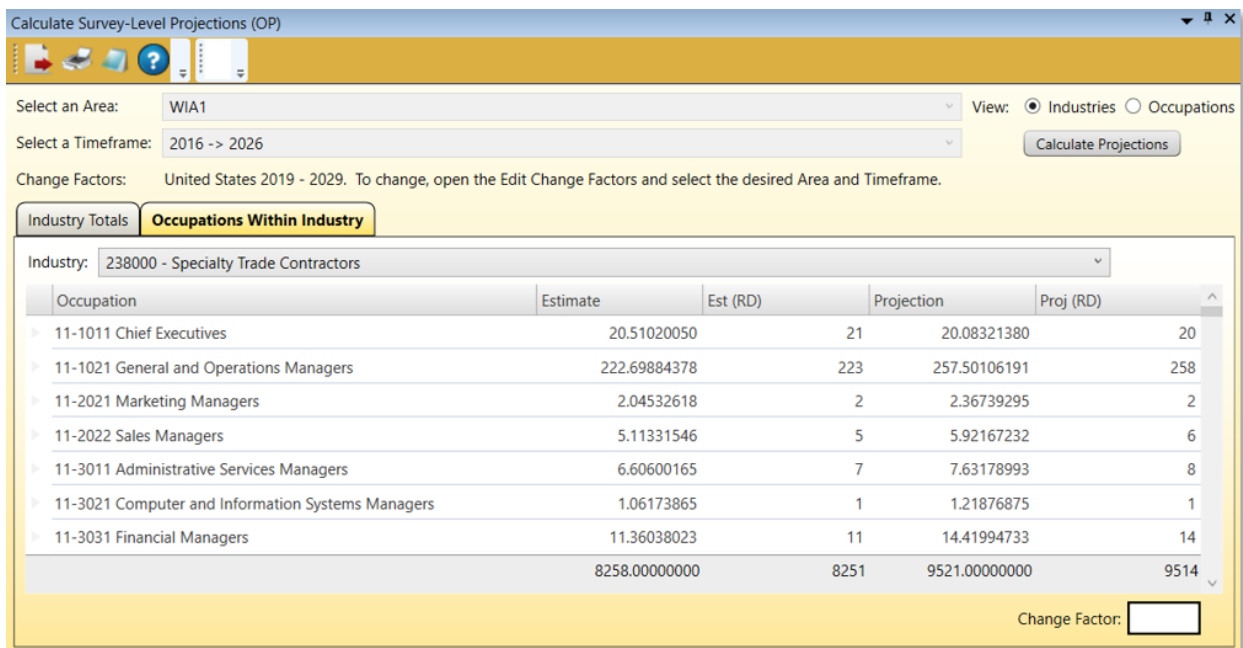


Figure 3: Industry selected under the Occupations Within Industry tab

Select an **Occupation** in the table to display the **Change Factor** for that occupation. The change factor can be edited and the projection for the select occupation re-calculated. If you go back to the **Industry Totals** tab and click the **Calculate Projections** button, the changes you made will be overridden.

Occupations

By selecting the **View Occupations** radio button, the occupation rollups will load and the **Occupation Totals** and **Industries Within Occupation** tabs will become available. The **Calculate Projections** button will become unavailable in the **Occupations** view.

The **Occupation Totals** tab displays each **Occupation's**:

- **Estimate**

- Estimate Value Rounded (**Est (RD)**)
- **Projection**
- Projection Value Rounded (**Proj (RD)**)

On the **Industries Within Occupation** tab, select an occupation to view the **Industry-specific**:

- **Estimate**
- **Est (RD)**
- **Projection**
- **Proj (RD)**

Select the occupation you want to view from the **Occupation** drop-down menu. The data will change to show each instance of where that occupation is employed within an industry.

Related Content

- [Calculate Projections](#) (**Statistical and Technical Terms**)

Calculate Self Employed

Use the **Calculate Self Employed** module to generate self-employed staffing patterns. Once projections are calculated for all industries using the Calculate Projections module, the number of self-employed workers needs to be calculated using the national ratios.

For additional information on the **Self Employment Calculations**, visit [this link](#).

Screen Controls

- **Select Area** drop-down
- **Select Timeframe** drop-down
- **Create ICT records** check box
- **Process** button



The screenshot shows the 'Calculate Self Employed Staffing Patterns (OP)' module interface. At the top, there is a navigation bar with tabs: 'Short Term' (green), 'Long Term' (blue), 'Occupational' (yellow, selected), 'Report Manager' (dark blue), 'Local Review' (red), 'Settings' (grey), and 'Exit' (grey). Below the navigation bar is a toolbar with icons for various functions. On the left, there is a sidebar titled 'Occupational Projections' with a list of options: 'Calculate Projections', 'Calculate Self Employed' (highlighted in orange), 'Reconcile', 'Aggregate', 'Openings', and 'Confidentiality'. Below the sidebar is a logo for 'op' (Occupational Projections). The main area of the window has a yellow background. It contains two drop-down menus: 'Select Area:' with 'Freedonia' selected, and 'Select Timeframe:' with '2010 -> 2020' selected. Below these menus, there is a text box explaining the process: 'The process will generate the Self Employed staffing pattern for the selected area and timeframe. The staffing pattern will be based on existing survey-level estimates and projections.' Below this text, there is a message: 'ICT values for this area and timeframe exist. Check the 'Create ICT records' checkbox to overwrite.' followed by a checkbox labeled 'Create ICT records' which is currently unchecked. At the bottom right of the main area is a 'Process' button.

Figure 1: Calculate Self Employed staffing patterns module

Generate Self Employed Staffing Patterns

1. Select an area from the **Select Area** drop-down menu.
2. Select a time frame from the **Select Timeframe** drop-down menu.
3. If ICT values for the selected area and time frame do not exist or if you want to overwrite the current values, click the **Create ICT records** check box.

☞ If ICT values already exist, a message displays to **Check the Create ICT records** check box to overwrite.

4. Click **Process**. When processing is complete, the **Creating Self Employed ICT records** dialog box will be displayed.

☞ If the **Process** button is unavailable, navigate to the [Update Database](#) module under the **Occupational Utilities (F11)** group menu and press the **Update National Data Files** button.

Use the [Edit Staffing Pattern](#) module to view the calculated values and the occupations included in the self-employed industry. If you selected the **Create ICT records** option, use the [Edit ICT](#) module to view the calculated values.

Related Content

- [Calculate Self Employed](#) (Statistical and Technical Terms)

Reconcile

Use the **Reconcile** module to ensure the occupational projection totals for each industry match the ICT values. Whenever any projections data are changed, make sure the projections are re-reconciled to reflect the changes.

Screen Controls

- **Area** drop-down menu
- **Timeframe** drop-down menu
- **Reconcile** button

Reconcile the Difference Between ICT Values and Rounded (RD) Values

1. Select an **Area** from the drop-down menu.
2. Select a **Timeframe**.

Industry	Base [ICT]	Base (RD)	Proj [ICT]	Proj (RD)
000671 - Total Self Employed and Unpaid Fam	288,003	288,009	293,815	293,824
006010 - Self Employed Workers, All Jobs	414,579	414,582	450,911	450,910
110000 - Agriculture, Forestry, Fishing and Ht	79,912	79,919	77,547	77,557
210000 - Mining	9,161	9,160	9,506	9,506
220000 - Utilities	23,165	23,170	17,166	17,161
236000 - Construction of Buildings	45,252	45,251	48,633	48,630
	6,406,941	6,406,927	6,960,375	6,960,306

Figure 1: Differences in the ICT values and the calculated RD values

3. Click the **Reconcile** button. After the data is reconciled the following will be displayed on the **Reconcile** module's table:
 - **Industry** - Listed by [NAICS](#)
 - **Base (ICT)** - Base Industry Control Total (ICT)
 - **Base (RD)** - Base Value Rounded
 - **Proj (ICT)** - Industry Control Total Projection
 - **Proj (RD)** - Projection Value Rounded

Aggregate

Use the **Aggregate** module to aggregate the Industry and Occupation sub-categories into the parent category and to compute the confidentiality value.

Screen Controls

- **Area** drop-down menu
- **Timeframe** drop-down menu
- **Industry Subtotal Level** drop-down menu
- **Occupation Subtotal Level** drop-down menu
- **Process** button

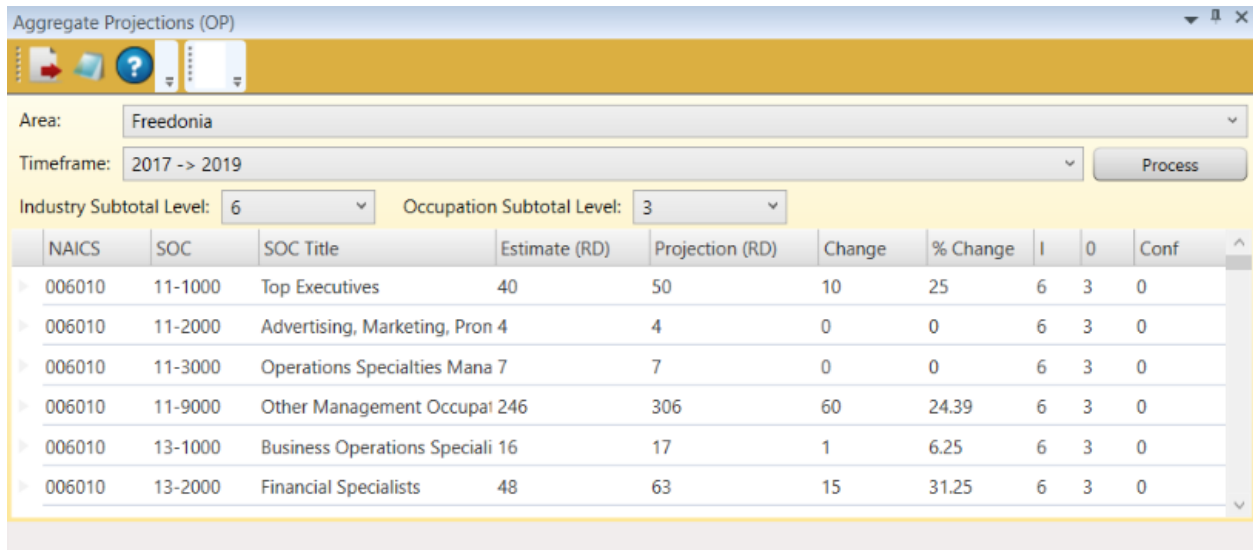
NAICS	SOC	SOC Title	Estimate (RD)	Projection (RD)	Change	% Change	I	O	Conf
000000	00-0000	Total, All Occupations	5992362	6509464	517102	8.63	1	1	0
000000	11-0000	Management Occupations	428648	438773	10125	2.36	1	2	0
000000	11-1000	Top Executives	106578	104302	-2276	-2.14	1	3	0
000000	11-1011	Chief Executives	23838	23272	-566	-2.37	1	4	0
000000	11-1021	General and Operations Man	78370	76710	-1660	-2.12	1	4	0
000000	11-1031	Legislators	4370	4320	-50	-1.14	1	4	0

Figure 1: The Aggregate module

Aggregate the Sub-categories to Parent Categories

1. Select an **Area** from the drop-down menu.
2. Select a **Timeframe**.
3. Click the **Process** button. When complete, the calculations will be displayed, aggregated (from Freedonia, in this example) during the 2017 - 2019 time frame:

Projections Suite 2022



Aggregate Projections (OP)

Area: Freedonia

Timeframe: 2017 -> 2019

Process

Industry Subtotal Level: 6 Occupation Subtotal Level: 3

NAICS	SOC	SOC Title	Estimate (RD)	Projection (RD)	Change	% Change	I	O	Conf
006010	11-1000	Top Executives	40	50	10	25	6	3	0
006010	11-2000	Advertising, Marketing, Prom 4		4	0	0	6	3	0
006010	11-3000	Operations Specialties Mana 7		7	0	0	6	3	0
006010	11-9000	Other Management Occupat 246		306	60	24.39	6	3	0
006010	13-1000	Business Operations Speciali 16		17	1	6.25	6	3	0
006010	13-2000	Financial Specialists	48	63	15	31.25	6	3	0

Figure 2: Aggregated data is displayed

- ☞ To edit the confidentiality flag, **right click** the occupation, then select **Edit Confidentiality**. You can select or de-select any of the values. Click **Save**. If you click **Process** again, the original confidentiality flag is used.
- ☞ Filter the displayed information by selecting the **Industry Subtotal Level** and the **Occupation Subtotal Level** drop-down boxes.

Openings

Use the **Openings** module to calculate the number of job openings based on transfers, exits, and employment changes for specific occupations.

For additional information on the openings calculations, visit this [Occupational Separations](#) link.

Screen Controls

- **Select an Area** drop-down menu
- **Select a Timeframe** drop-down menu
- **Show** drop-down menu
- **Process** button



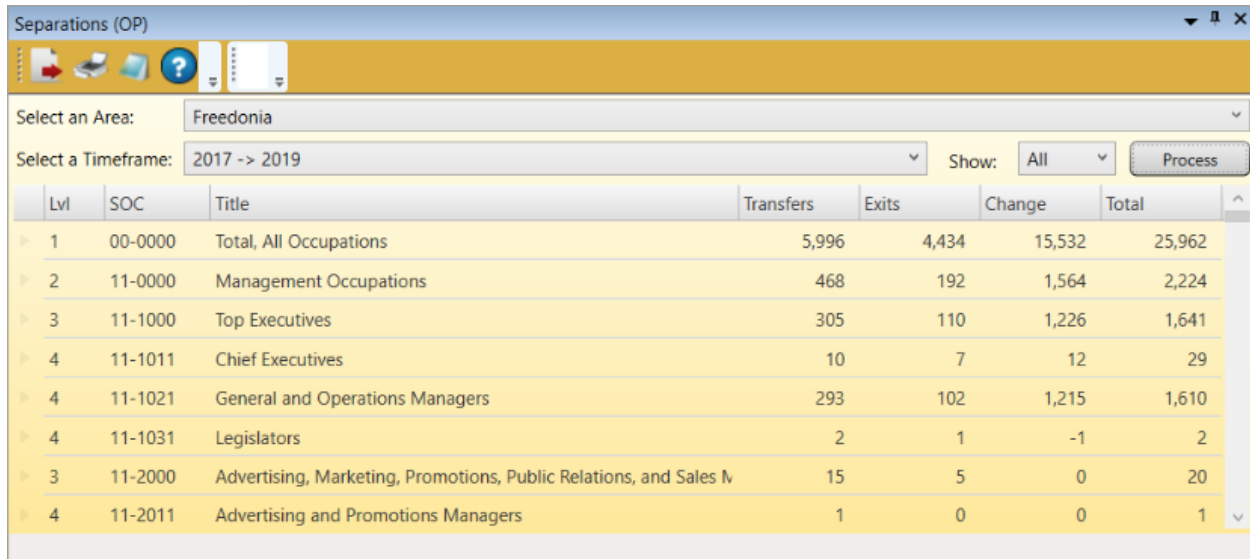
Lvl	SOC	Title	Transfers	Exits	Change	Total
1	00-0000	Total, All Occupations	10,179	10,119	553,379	573,677
2	11-0000	Management Occupations	148	147	39,847	40,142
3	11-1000	Top Executives	0	0	8,661	8,661
4	11-1011	Chief Executives	0	0	1,998	1,998
4	11-1021	General and Operations Managers	0	0	6,394	6,394
4	11-1031	Legislators	0	0	269	269
3	11-2000	Advertising, Marketing, Promotions, Public Relations, and Sales &	0	0	2,897	2,897

Figure 1: Openings module

Calculate Openings

1. **Select an Area** from the drop-down menu.
2. **Select a Timeframe.**
3. Click the **Process** button. When the creation and saving of records is complete, a list of openings for the selected area and time frame will be displayed:

Projections Suite 2022



Separations (OP)

Select an Area: Freedonia

Select a Timeframe: 2017 -> 2019 Show: All Process

Lvl	SOC	Title	Transfers	Exits	Change	Total
▶ 1	00-0000	Total, All Occupations	5,996	4,434	15,532	25,962
▶ 2	11-0000	Management Occupations	468	192	1,564	2,224
▶ 3	11-1000	Top Executives	305	110	1,226	1,641
▶ 4	11-1011	Chief Executives	10	7	12	29
▶ 4	11-1021	General and Operations Managers	293	102	1,215	1,610
▶ 4	11-1031	Legislators	2	1	-1	2
▶ 3	11-2000	Advertising, Marketing, Promotions, Public Relations, and Sales M	15	5	0	20
▶ 4	11-2011	Advertising and Promotions Managers	1	0	0	1

Figure 2: List of openings associated with the selected parameters

4. In the **Show** field, select the [SOC](#) level to display (Level 1 - Level 5, or all).

Related Content

- [Edit Separation Rates](#)
- [Occupational Separations](#) (Statistical and Technical Terms)

Confidentiality

The **Confidentiality** module updates confidentiality values based on a threshold specified by the user. This causes the flagging of any base or projected employment cell that is less than the threshold value.

Screen Controls

- **Select Area** drop-down menu
- **Select Timeframe** drop-down menu
- **Threshold for confidentiality** spinner
- **Process** button

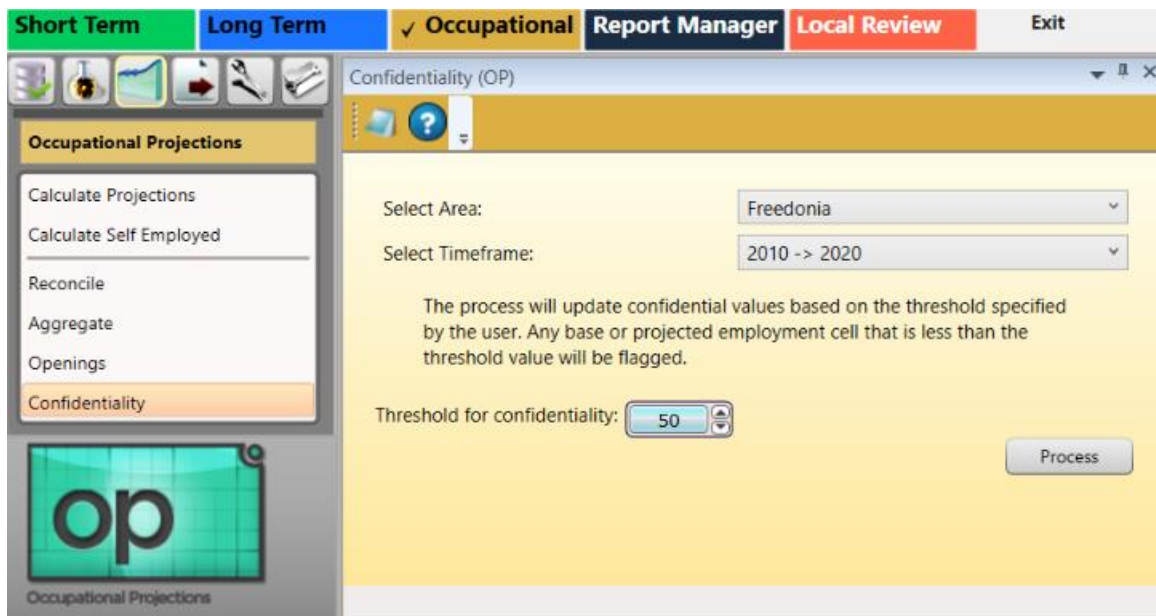



Figure 1: Confidentiality module

Update the Confidentiality Threshold

1. Select an area from the **Select Area** drop-down menu.
2. Select a time frame from the **Select Timeframe** drop-down menu.
3. Use the **Threshold for confidentiality** spinner to select the desired threshold parameter.

 The threshold is a minimum employment value. All employment cells less than the value are flagged as confidential. The value is determined by each state.

4. Click the **Process** button. An **Updating Confidentiality Records** dialog box will be displayed.
5. Click **OK** to return to the **Confidentiality** module.

Occupational Output

The **Occupational Output (F9)** group menu enables the reporting of occupational projections data for a specific area and time frame.



Figure 1: Occupational Output group menu

The **Occupational Output** group menu contains the following selections:

- [Diagnostic Exports](#)
- [WID Extract Version 2.7](#)
- [WID Extract Version 2.8](#)
- [Export Occupational Projections](#)
- [Mid Term Projections](#)
- [Sum of Areas Comparison](#)

Diagnostic Exports

Use the **Diagnostic Exports** module to generate a **Mega Matrix** and/or a **Growth and Education** file. Both of these files are used to determine if any adjustments need to be done prior to doing any final exports.

Screen Controls

- **Select an Area** drop-down menu
- **Timeframe** drop-down menu
- **Mega Matrix - File** field
- **Growth & Education - File** field
- ... buttons

☞ To use the module, projections and openings need to be calculated and aggregated first.

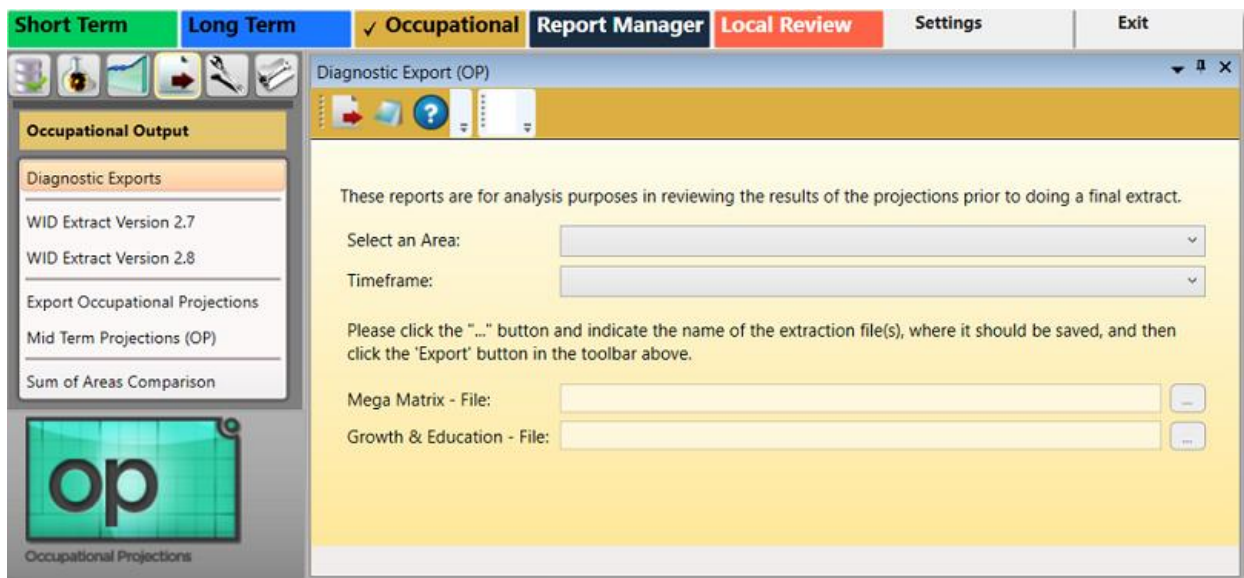


Figure 1: Diagnostic Exports module

Data Not Ready for Exporting

Clicking the **Diagnostic Exports** screen may produce the following dialog box:

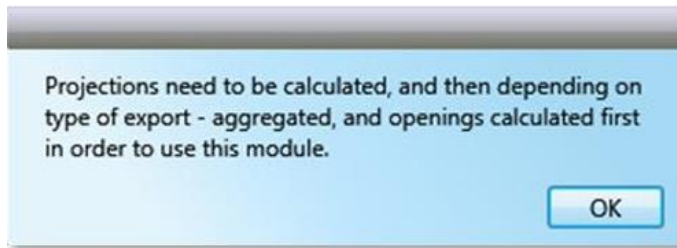


Figure 2: Processes to complete before Diagnostic Exports outputs will be displayed

- ☞ This dialog box indicates there are necessary data processes that are not complete. These processes create the data required for all the sections in **Occupational Output**. To proceed with data exports, **complete all projections in the Occupational Projections group menu**.

Data Prepared for Exporting

If the dialog box (in Figure 2) does not display, proceed with the data export. To process the **Occupational Output** items:

1. **Select an Area** from the drop-down menu.
2. Select a **Timeframe**.
3. Type a location to save the **Mega Matrix File**, or browse to a location by pressing the ... button.
4. Type a location to save the **Growth & Education File**, or browse to a location by pressing the ... button.

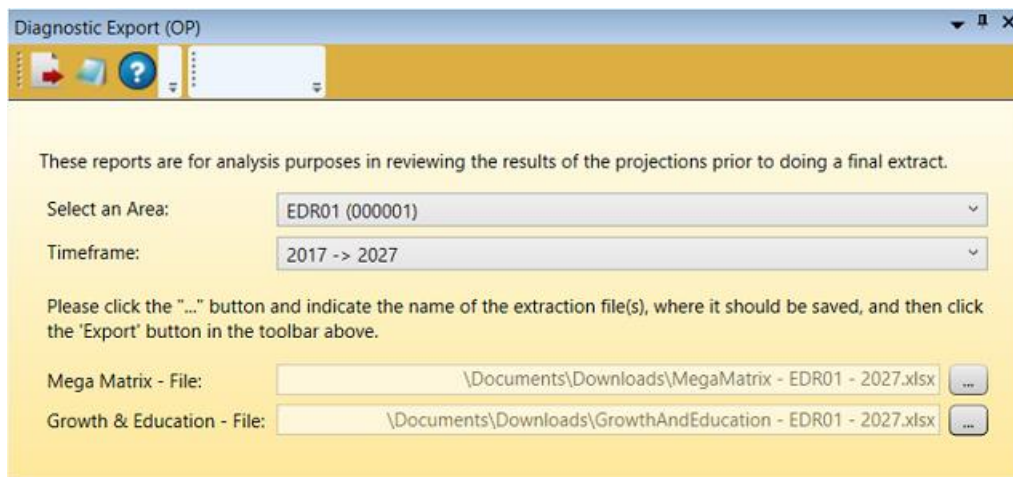


Figure 3: Required information has been entered into the Diagnostic Exports fields

5. Click the **Export** icon in the [Active Module Toolbar](#) when the fields have been filled in. This will export the **Diagnostic Reports** to the selected location(s). A dialog box will be displayed to indicate the export is complete.
6. Click **OK** to return to the **Diagnostic Exports** module.

WID Extract Version 2.7

Use the **Workforce Information Database (WID) Extract Version 2.7** module to create the files needed by your state WID database administrator for publication of projection results on your state website. For additional information on the WID version 2.7 database structure (last revised March 27, 2018), click [here](#).

Screen Controls

- **Select Area** drop-down
- **Select Timeframe** drop-down
- **Period ID** field
- **Save Option** drop-down
 - **Single File**
 - **Separate Files**
 - **Auto-Named File**
- **Directory & Crosswalk Files** tab
 - **inddir (Industry Directory)** check box
 - **occdir (Occupation Directory)** check box
 - **matxind (Matrix Industry Code to NAICS Crosswalk)** check box
 - **matxocc (Matrix Occupation Code to SOC Crosswalk)** check box
- **Data Files** tab
 - **iomatrix (Industry/Occupation Matrix)** check box
- **Multiple Areas** tab
 - **Combine geographic areas** check box

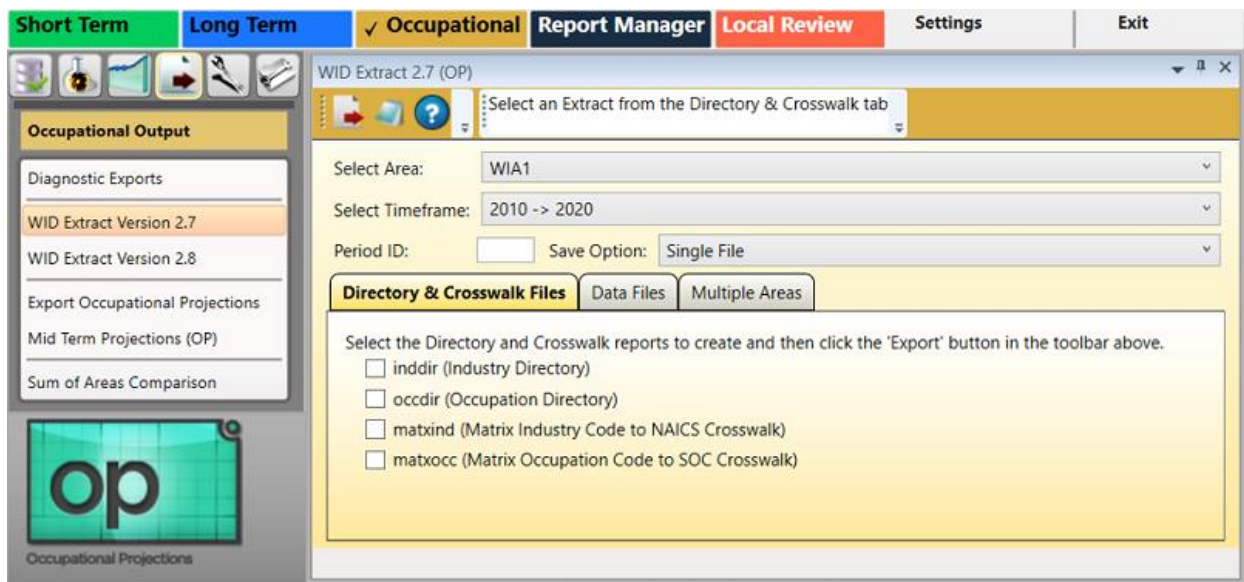


Figure 1: WID Extract Version 2.7 module

Extract Files for Your State's Website

1. Select an area from the **Select Area** drop-down menu.
- ☞ To select more than one area, use the **Multiple Areas** tab.
2. Select a time frame from the **Select Timeframe** drop-down menu.
3. Enter a **Period ID**. The Period ID is a state-specific, 2-digit indicator for target year and base year. The state database administrator can provide this value.
4. Select the desired option from the **Save Option** drop-down menu. You can create:
 - **Single File** - if creating a single file, it can be saved as an .xls or .xlsx file
 - **Separate Files** - if creating separate files, they can be saved as an .xls, .xlsx, or .csv file
 - **Auto-Named Files** - auto-named files are saved as .csv files

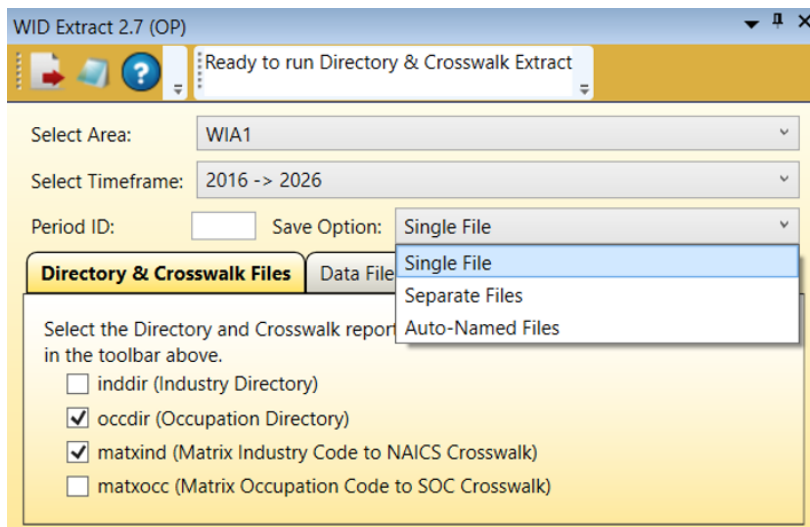


Figure 2: Make a selection from the Save Option drop-down menu

Directory & Crosswalk Files Tab

1. Click the **Directory & Crosswalk Files** tab.
2. Select the check box(es) for the report(s) to create (see the Figure 2 table image checkboxes).
3. Click the **Export** icon in the [Active Module Toolbar](#). The selected report(s) will be exported.

Data Files Tab

1. Click the **Data Files** tab.
2. Select the check box(es) for the report(s) to create.

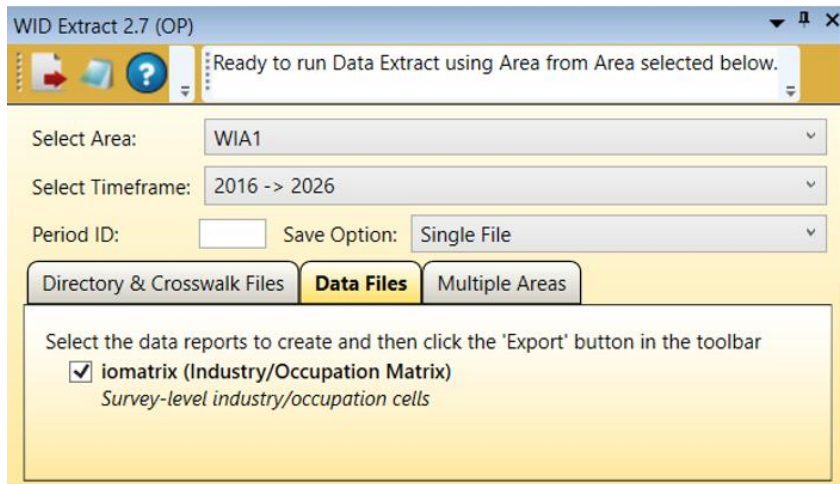


Figure 3: Data Files tab

3. Click the **Export** icon. The selected report(s) will be exported.

Multiple Areas Tab

1. Click the **Multiple Areas** tab.
2. Select the **Combine geographical areas** check box, if desired.
3. Select one of the **Areas** to combine from the **Available Areas** section.

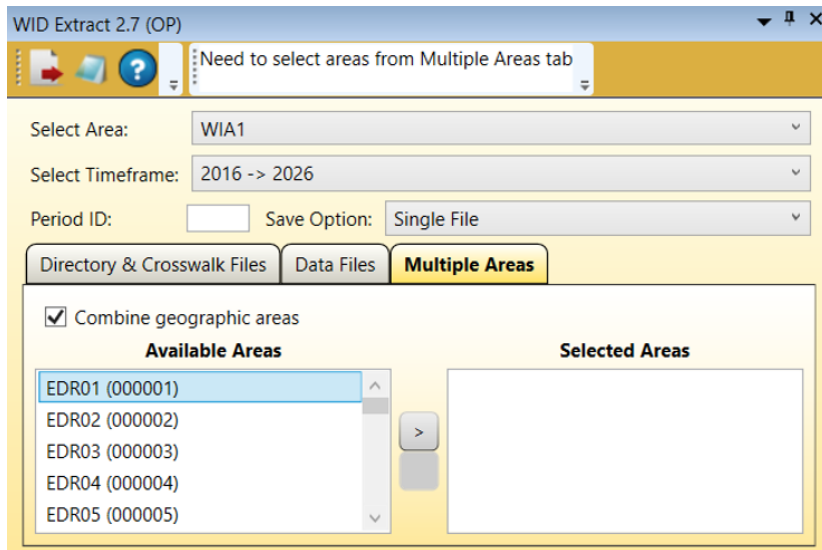



Figure 4: Multiple Areas tab

4. Click the **Add**  button to move the selected Area to the **Selected Areas** section.

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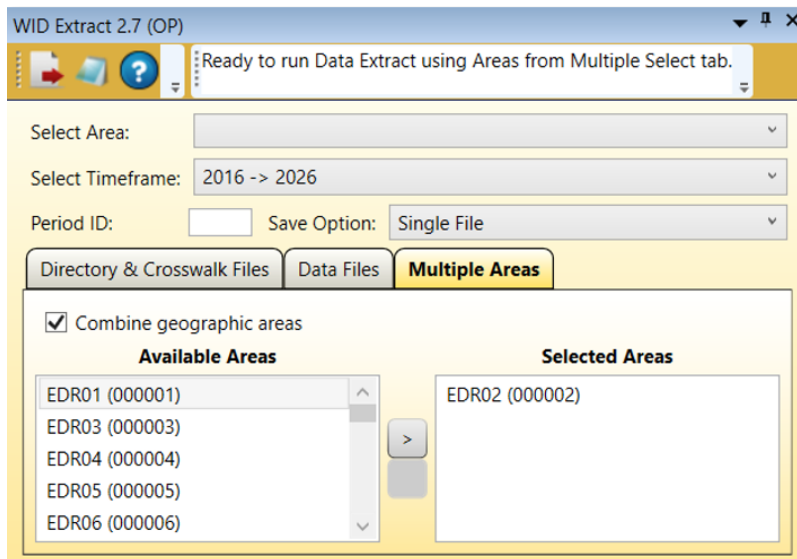


Figure 5: EDR02 added to the Selected Areas section

5. Repeat steps 3 and 4 for each additional area to combine. Or, use the context menu choices (by right-clicking): **Add Selected**, **Select All**, or **Unselect All**.

☞ Selecting more than one choice at a time is possible using the Shift or Ctrl keys. For more information on selecting multiple items, click [here](#).

☞ Two or more areas must be selected.

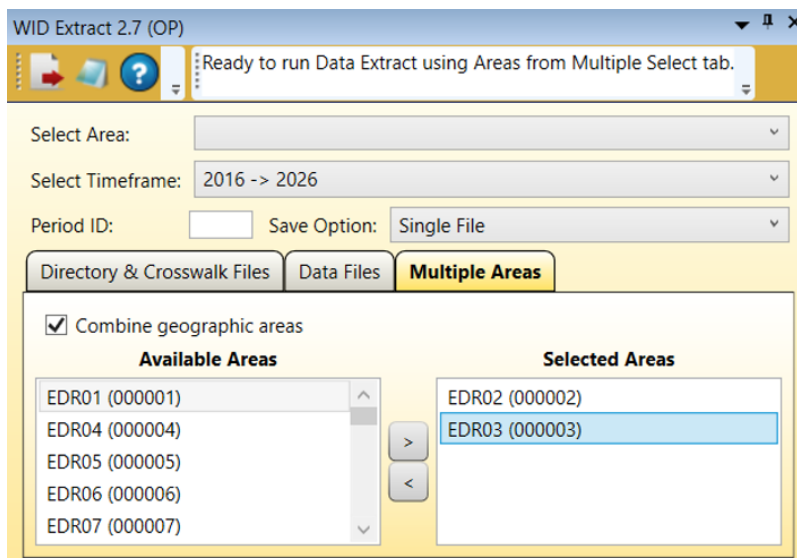


Figure 6: EDR02 and EDR03 are combined

6. Click the **Export** icon on the [Active Module Toolbar](#). The export combines the selected areas.

Related Content

- [WID Version 2.7 Database Structure](#)

WID Extract Version 2.8

Use the **Workforce Information Database (WID) Extract Version 2.8** module to create the files needed by your state WID database administrator for publication of Projections results on your state's website. For additional information on the WID version 2.8 database structure (released May 19, 2019), click [here](#).

Screen Controls

- **Select Area** drop-down
- **Select Timeframe** drop-down
- **Period ID** field
- **Save Option** drop-down
 - **Single File**
 - **Separate Files**
 - **Auto-Named File**
- **Directory & Crosswalk Files** tab
 - **inddir (Industry Directory)** check box
 - **occdir (Occupation Directory)** check box
 - **matxind (Matrix Industry Code to NAICS Crosswalk)** check box
 - **matxocc (Matrix Occupation Code to SOC Crosswalk)** check box
- **Data Files** tab
 - **iomatrix (Industry/Occupation Matrix)** check box
- **Multiple Areas** tab
 - **Combine geographic areas** check box

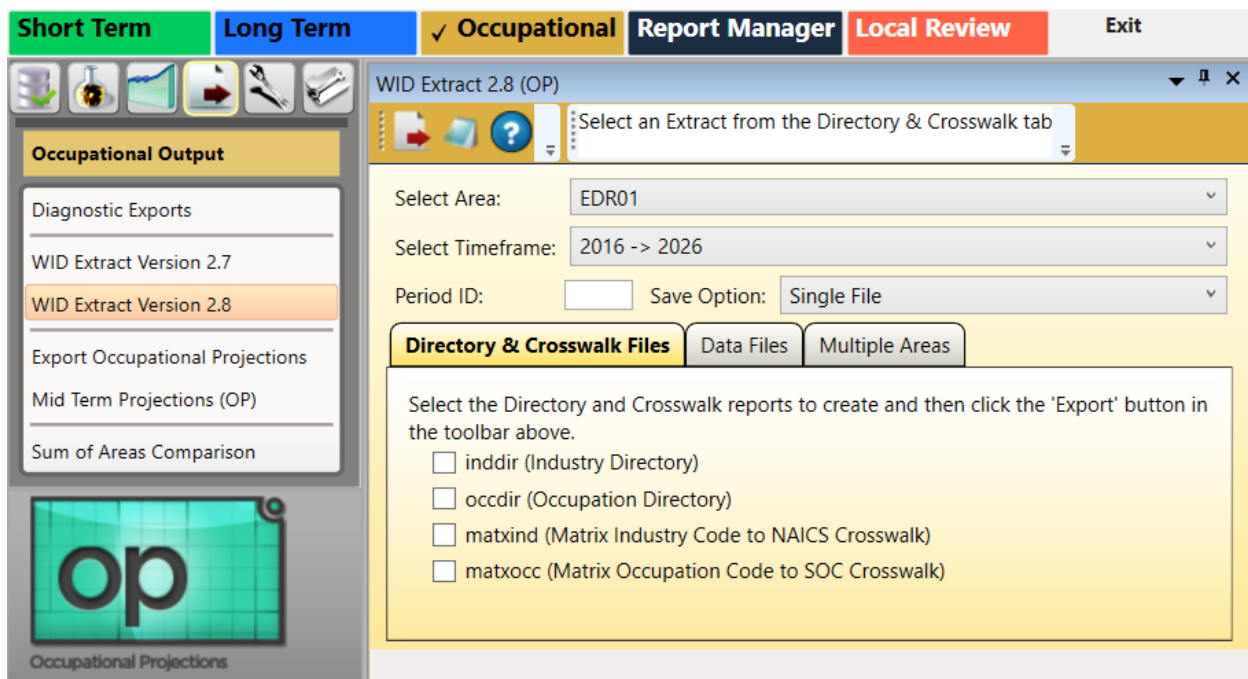


Figure 1: WID Extract Version 2.8 module

Extract Files for Your State's Website Using the WID Extract Version 2.8 Module

1. Make a selection from the **Select Area** drop-down menu. The state as a whole and area groups are available.

 To select more than one area, use the Multiple Areas tab.

2. Select from the **Select Timeframe** drop-down menu. Short-Term and Long-Term timeframes are available.
3. Enter a **Period ID**. The Period ID is a state-specific, 2-digit indicator for target year and base year. The Selected Area or state's analysts, or their database administrator can provide this value.
4. Select the desired option from the **Save Option** drop-down menu. You can create:
 - **Single File** - if creating a single file, it can be saved as .xls or .xlsx files.
 - **Separate Files** - if creating separate files, they can be saved as .xls, .xlsx, or .csv formatted files.
 - **Auto-Named Files** - auto-named files are saved as only as .csv files.

Directory & Crosswalk Files Tab

1. The **Directory & Crosswalk Files** tab is the default tab the WID Extract 2.8 module selects when you open it.
2. Select a directory or crosswalk check box (or more than one), to generate the reports you want to create.
3. Click the **Export** icon in the [Active Module Toolbar](#) and the selected reports will be exported.

Data Files Tab

1. Click the **Data Files** tab.
2. Select the check box for the reports you want to export. Selecting the **iomatrix** checkbox in this tab will add additional columns to the report it produces and is **required** to produce any reports generated under the **Multiple Areas** tab.

Projections Suite 2022

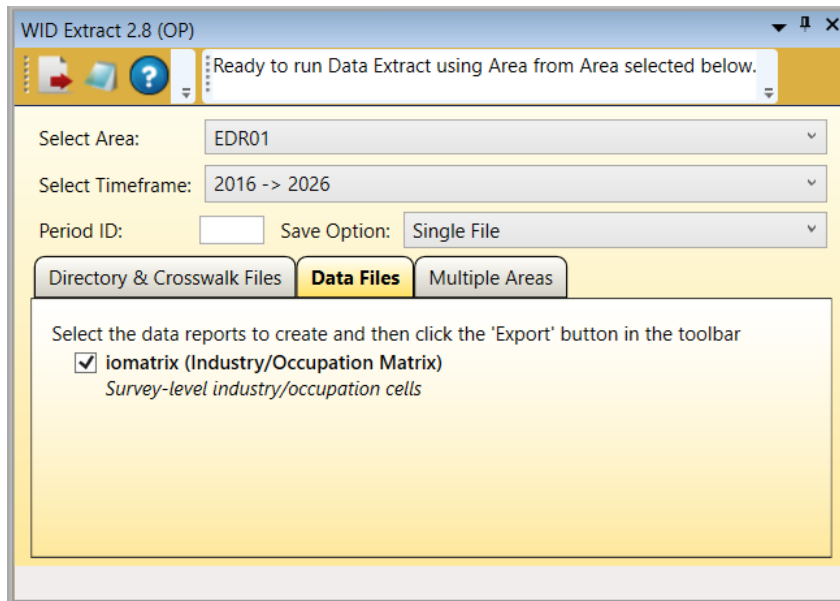



Figure 2: Data Files tab

3. Click the **Export** icon and the selected report will be exported.

Multiple Areas Tab

1. Click the **Multiple Areas** tab.
2. Select the **Combine geographic areas** check box, if desired. It is useful, depending on what type of report you need. Clicking it produces a report with several values combined in the report, amongst their geographic differences.
3. Select the **Available Areas** (including or excluding the state) to combine them in the **Selected Areas** section, or use a single area selection.
4. Click the **Add**  button to move the selected area to the **Selected Areas** section.

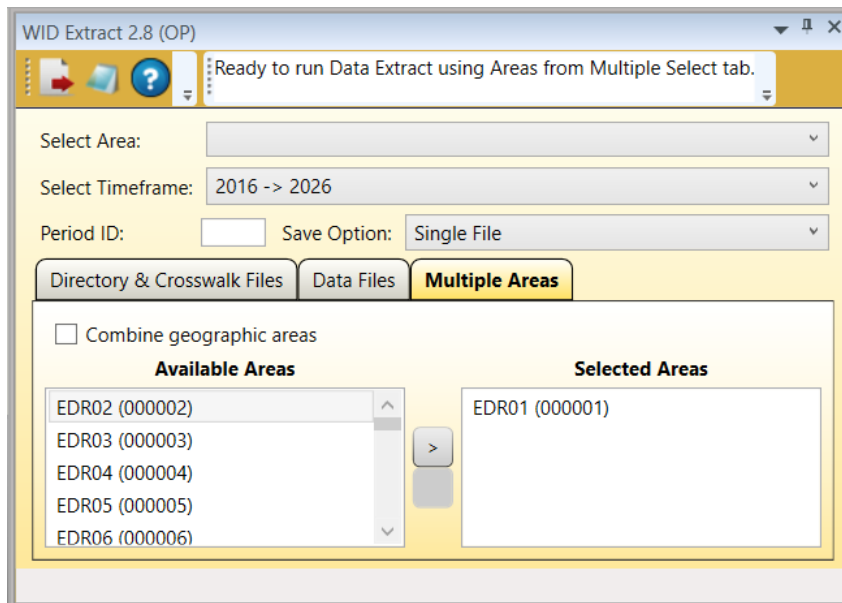


Figure 3: Multiple Areas tab

5. Repeat steps 3 and 4 for each additional area to combine. Or, use the context menu choices (by right-clicking on an area): **Add Selected**, **Select All**, or **Unselect All**.

☞ Selecting more than one choice at a time is also possible to use the Shift or Ctrl keys. For more information on selecting multiple items, click [here](#).

6. Click the **Export** icon on the Active Module Toolbar and the export will combine the **Selected Areas**. On the **Multiple Areas** tab, more than one area is the purpose of this tabbed function, but not necessary to export a single file.

Related Content

- [WID Extract Version 2.8 Database Structure](#)
- [Manage Areas](#)

Export Occupational Projections

The **Export Occupational Projections** module enables the export of **Occupational Directory** data to **Report Manager**. [Report Manager](#) is an associated application, used to combine labor market data from multiple sources and generate organized reports.

Screen Controls

- **Source Area(s)** drop-down
- **Source Timeframe** drop-down

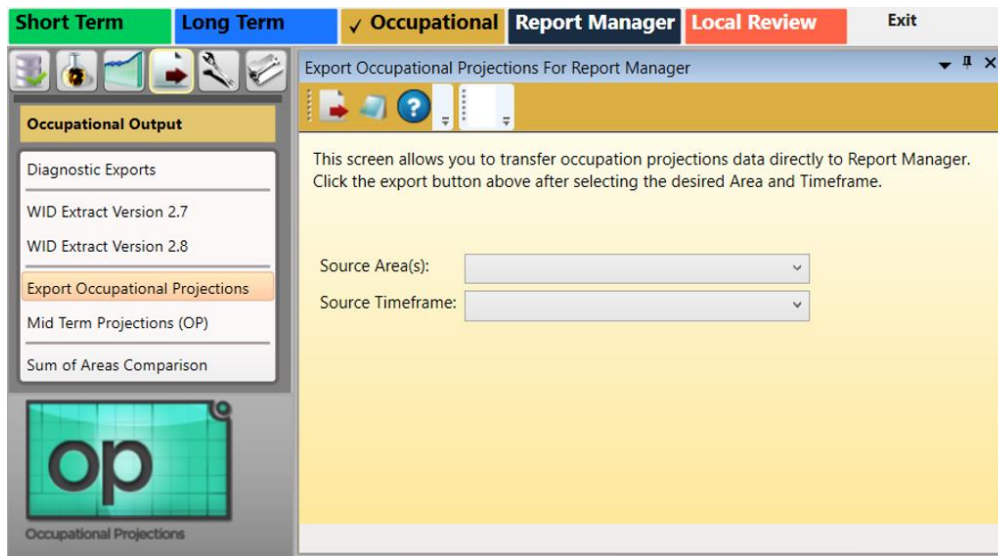


Figure 1: Export Occupational Projections module

Export Occupational Projections Data

- ☞ To export to **Report Manager**, [log into Report Manager](#) through the Projections Suite.
1. Select an area from the **Source Area(s)** drop-down menu.
 2. Select a time frame from the **Source Timeframe** drop-down menu.
 3. Click the **Export** button in the [Active Module Toolbar](#).
- ☞ Be sure to run the [Data Quality Check](#) from the **Occupational Analysis** group menu before exporting the data into **Report Manager**.

Related Content

- [Report Manager](#)

Mid Term Projections

In **Mid Term Projections**, using the basis of the existing short-term (2-year) and long-term (10-year) employment projections processes, states can choose to produce industry and occupational employment projections for any one year from 2 through 9 years. The following steps enable states to produce that Mid Term Projection.

Complete Short-Term and Long-Term Projections for your state and area(s) using the same base period. **The base year of both the Short-Term and Long-Term source timeframe inputs must be similar.** For example, if the Long-Term base is 2016, then the selected Short-Term round must be one including the base period for **all of 2016** (a Short-Term base period ending **Dec 2018** or **Mar 2017**, etc.).

Screen Controls

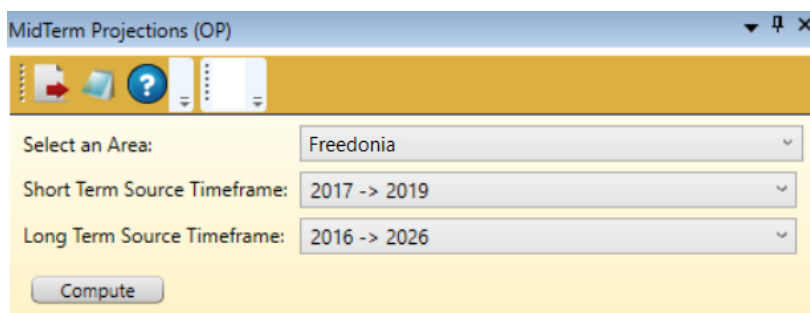
- **Select an Area** drop-down menu
- **Short Term Source Timeframe** drop-down menu
- **Long Term Source Timeframe** drop-down menu
- **Compute** button

Figure 1: Mid Term Projections module

Select Options For Mid Term Calculations To Compute

1. **Select an Area** to develop Mid Term Projections.
2. Select a **Short Term Source Timeframe** to use as a base period.
3. Select a **Long Term Source Timeframe** to use, which uses the same base period as the Short Term selection.

Projections Suite 2022



MidTerm Projections (OP)

Select an Area: Freedonia

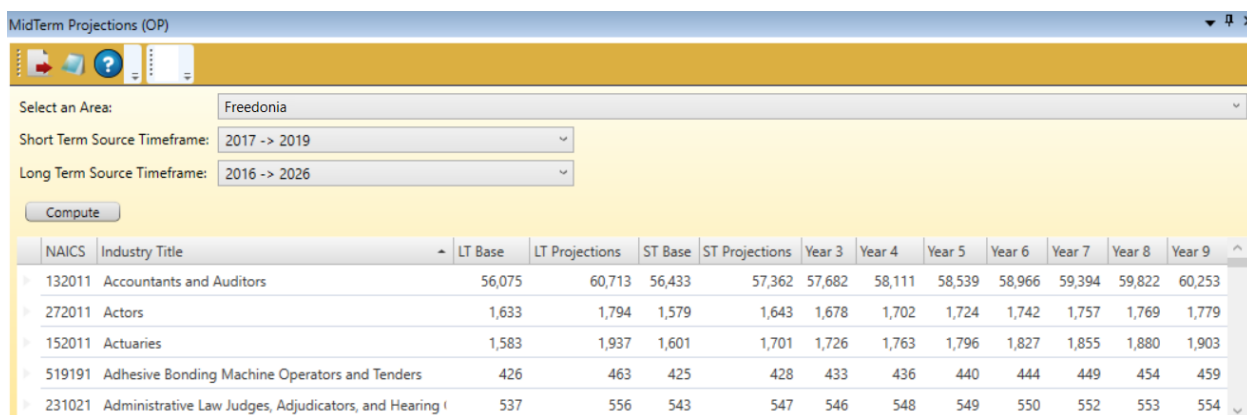
Short Term Source Timeframe: 2017 -> 2019

Long Term Source Timeframe: 2016 -> 2026

Compute

Figure 2: The options used for the calculation of Mid Term Projections

4. Press the **Compute** button to calculate Projections for all Mid Term years. The projected results are displayed in the table below.



MidTerm Projections (OP)

Select an Area: Freedonia

Short Term Source Timeframe: 2017 -> 2019

Long Term Source Timeframe: 2016 -> 2026

Compute

NAICS	Industry Title	LT Base	LT Projections	ST Base	ST Projections	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
132011	Accountants and Auditors	56,075	60,713	56,433	57,362	57,682	58,111	58,539	58,966	59,394	59,822	60,253
272011	Actors	1,633	1,794	1,579	1,643	1,678	1,702	1,724	1,742	1,757	1,769	1,779
152011	Actuaries	1,583	1,937	1,601	1,701	1,726	1,763	1,796	1,827	1,855	1,880	1,903
519191	Adhesive Bonding Machine Operators and Tenders	426	463	425	428	433	436	440	444	449	454	459
231021	Administrative Law Judges, Adjudicators, and Hearing Officers	537	556	543	547	546	548	549	550	552	553	554

Figure 3: Mid Term Projections table displayed after pressing the Compute button

5. The **LT Base** and **LT Projection** (as well as the Short-Term derivatives), as well as the calculated years (**Year 3** through **Year 9**) organized by the **NAICS** and **Industry** Titles are displayed.

👉 For an explanation of how the **Mid Term Projections** module was developed and a mathematical formula example for 5-year Projections, visit the **Related Content**.

Related Content

- [About the Mid-Term Numbers](#) (Statistical & Technical Terms)

Sum of Areas Comparison

The **Sum of Areas Comparison** module facilitates comparison of sum of areas occupational estimates to state occupational estimates.

For each occupational line, the report shows the state estimate, the sum of areas estimate, the absolute difference, and the percent difference. To highlight potential outliers, the percent deviation of regional occupational estimates from state occupational estimates is also displayed.

This measure of deviation compares each regional occupational estimate as a percent of the regional total, to the state occupational estimate, as a percent of the state total. The analysis is provided separately for base year estimates and projected year estimates. Sort the output on absolute differences to review the largest state to sum of area differences. Review region percent deviations to identify potential estimate adjustments. While a base year analysis is provided, a review of projected estimates is the focus of the analysis.

Screen Controls

- **Select an Area Group** drop-down menu
- **Select Timeframe** drop-down menu
- **Process** button

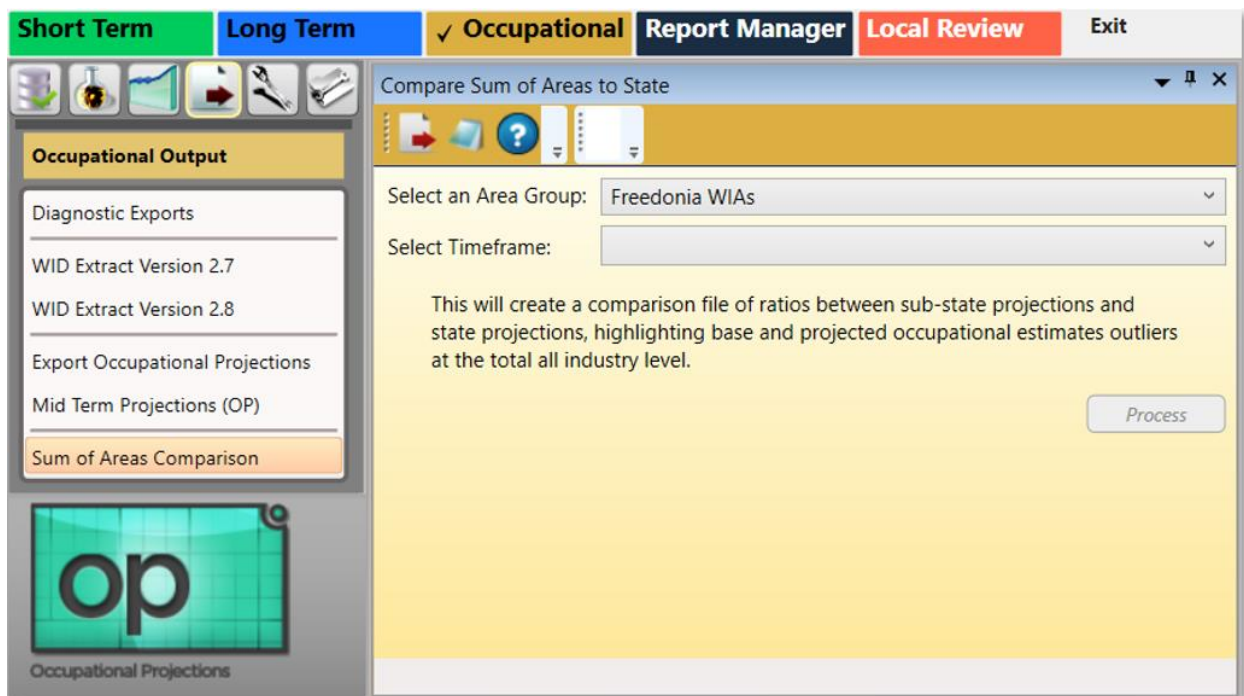


Figure 1: Sum of Areas Comparison module

Perform a Sum of Areas Comparison

1. **Select an Area Group** from the drop-down menu.
2. Select a time frame with the **Select Timeframe** drop-down menu.
3. Click the **Process** button.
4. When processing is complete, the **Area Comparison Complete** dialog box will be displayed. Click **OK**.
5. Click the **Export** button in the [Active Module Toolbar](#). A **Save as** window will be displayed.
6. Name the file and select an export location. Click **Save**.
7. A **Finished** dialog box will be displayed. Click **OK**.

Occupational Compare

Use the **Occupational Compare (F12)** group menu to configure an **Upload Area** account, upload data, and create geographic comparisons.

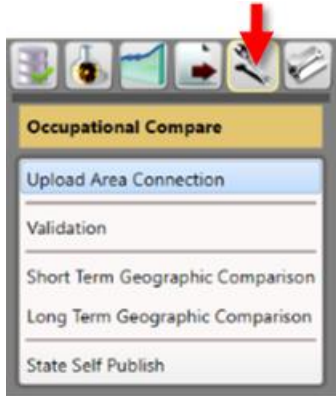


Figure 1: Occupational Compare group menu

The **Occupational Compare** group menu contains the following selections:

- [Upload Area Connection](#)
- [Validation](#)
- [Short Term Geographic Comparison](#)
- [Long Term Geographic Comparison](#)
- [State Self Publish](#)

Upload Area Connection

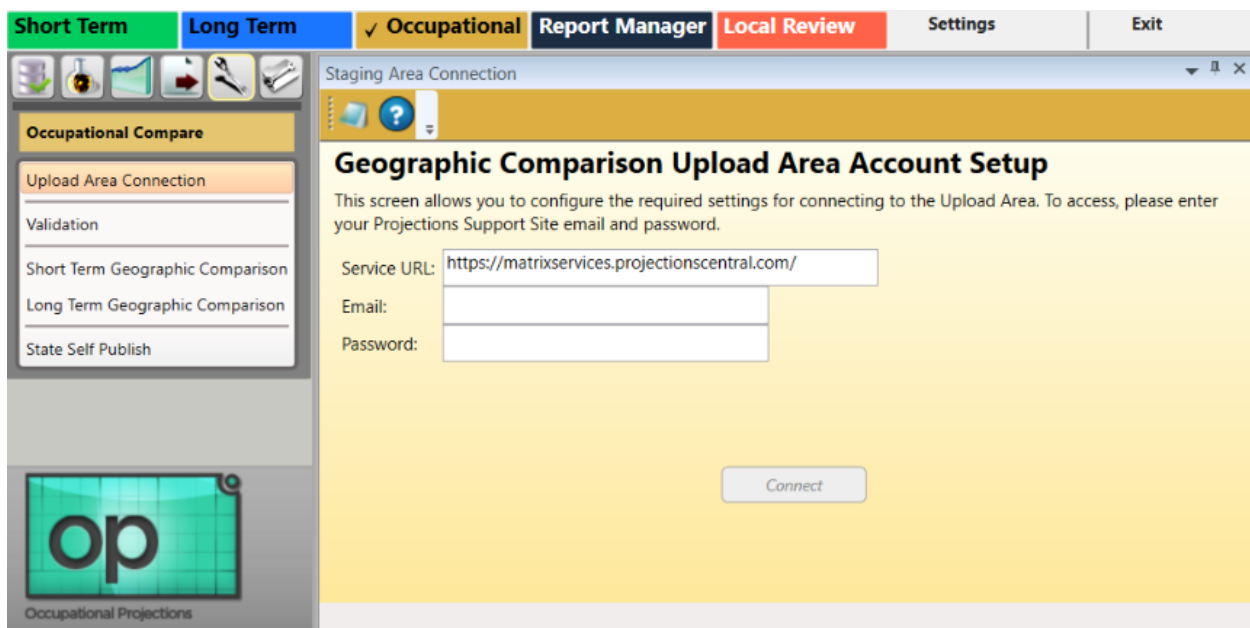
Use the **Upload Area Connection** module to configure an **Upload Area** account. Contact [Technical Assistance](#) for help with setting up an **Upload Area** account if you have difficulties. There should be only one registered analyst per state.

This module is available in the Short-Term, Long-Term, and Occupational Projections applications.

☞ The **Notebook** is not available in the **Long-Term Upload Area Connection** module.

Screen Controls

- **Service URL** field
- **Email** field
- **Password** field
- **Connect** button



The screenshot shows the 'Staging Area Connection' window of the Projections Suite 2022. The window has a title bar with 'Staging Area Connection' and standard window controls. Below the title bar is a navigation bar with tabs: 'Short Term' (green), 'Long Term' (blue), 'Occupational' (yellow, selected), 'Report Manager' (dark blue), 'Local Review' (red), 'Settings' (grey), and 'Exit' (grey). On the left side, there is a sidebar with a 'Occupational Compare' section containing a tree view with 'Upload Area Connection' selected, and 'Validation', 'Short Term Geographic Comparison', 'Long Term Geographic Comparison', and 'State Self Publish' options. Below this is a logo for 'Occupational Projections'. The main area of the window is titled 'Geographic Comparison Upload Area Account Setup'. It contains a text box for 'Service URL' with the value 'https://matrixservices.projectionscentral.com/', and input fields for 'Email' and 'Password'. A 'Connect' button is located at the bottom right of the main area. A small help icon (?) is visible in the top left of the main area.

Figure 1: Upload Area Connection module

Login to Geographic Comparison Upload Area Account

1. Enter your **Projections Support Site email address** in the **Email** field.
2. Enter your **Projections Support Site password** in the **Password** field.
3. Click **Connect**. A Finished dialog box will be displayed if the connection is successful.
4. Click **OK** to return to the **Upload Area Connection** module.

☞ If the connection is unsuccessful, the following message will be displayed:

Email / Password combination failed. It's possible your account has not yet been approved. Please check to make sure you entered everything correctly. If you have any questions, you can contact Brett Judd at bdjudd@utah.gov

Figure 2: Connection failure dialog

5. Check your email address and password combination and try again. If multiple failures occur, contact [Technical Assistance](#) for help.

Related Content

- [State Self Publish](#)

Validation

Use the **Validation** module to validate and submit your **Employment and Training Administration (ETA)** deliverable data. Projections that were done using Projections Suite, [Occupational Projections](#) modules, or imported data can be validated and uploaded.

Screen Controls

- **Projection Suite Data** radio button
 - **State** drop-down menu
 - **Timeframe** drop-down menu
 - **Export To Upload Area** radio button
 - **Export To File** radio button
 - **File** field
 - **...** button
 - **Send ETA** button
- **Import File** radio button
 - **Select file to import** field
 - **Detected File Type** field
 - **Browse** button
 - **Import** button

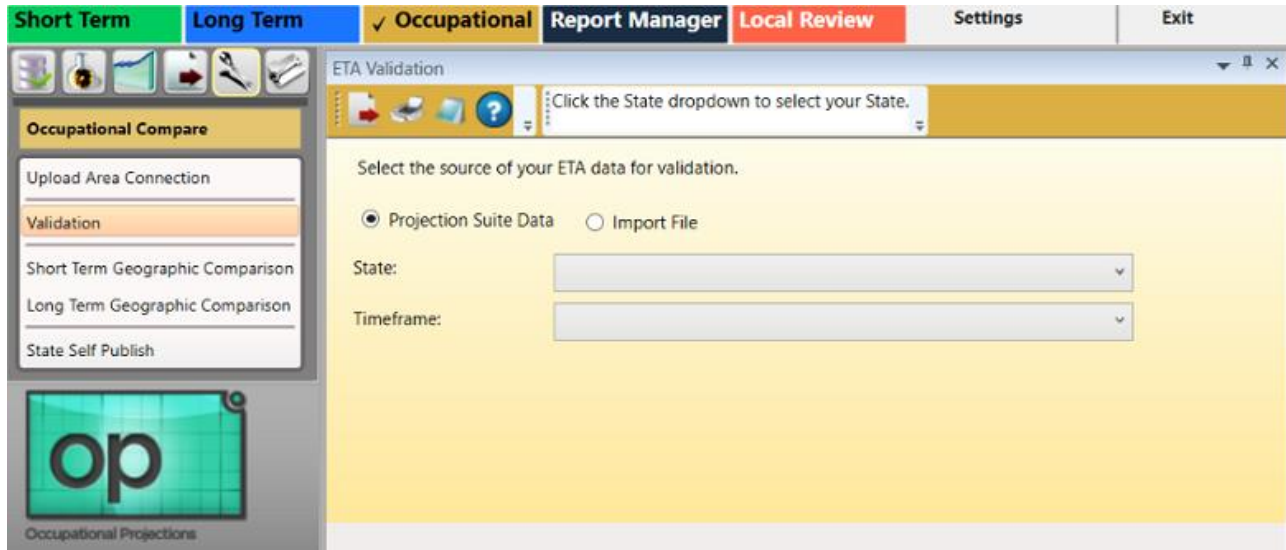


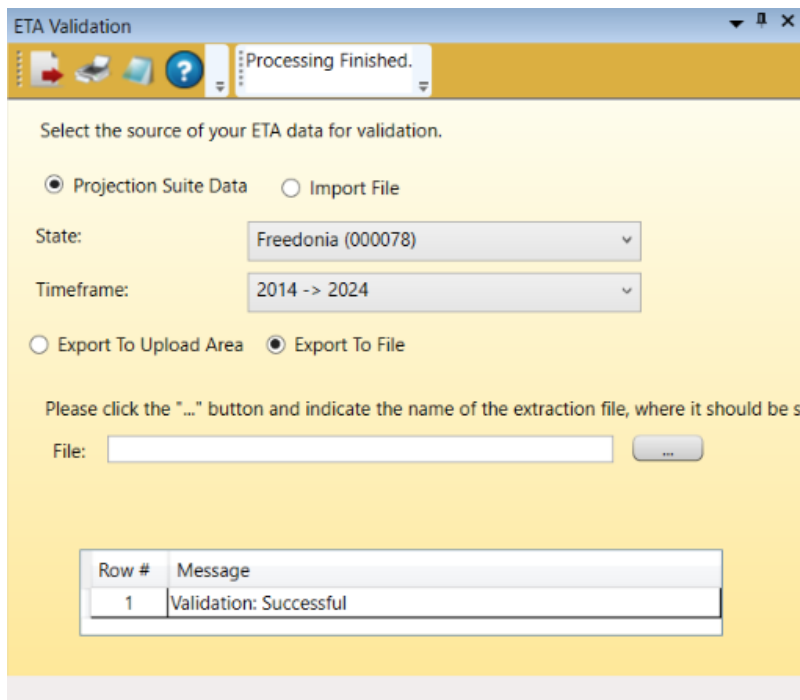
Figure 1: Validation module

ETA Data Source Selection

1. As an initial step, select the source of your ETA data for validation. Select either the:
 - **Projection Suite Data** radio button
 - **Import File** radio button

Validate ETA Data and Export to a File

1. Select the **Projection Suite Data** radio button.
2. Select a state from the **State** drop-down menu.
3. Select a **Timeframe** from the drop-down menu. If there are any errors, they will be displayed in the validation error box near the bottom of the screen (check the source of your data and try again). If there are no errors in the data, the message **Validation: Successful** will be displayed.



ETA Validation

Processing Finished.

Select the source of your ETA data for validation.

☒ Projection Suite Data ☐ Import File

State: Freedonia (000078)

Timeframe: 2014 -> 2024

☐ Export To Upload Area ☒ Export To File

Please click the "..." button and indicate the name of the extraction file, where it should be saved.

File: ...

Row #	Message
1	Validation: Successful

Figure 2: Export validated data to file

4. When the data displays, click the **Export to File** radio button.
5. Click the ... button, then select the location to save the file to.
6. Click the **Export** icon on the [Active Module Toolbar](#). Export the file to correct any errors or make changes. When the file is exported, a **Finished Extract Data** message will be displayed.
7. Click **OK**.

☞ Exporting data to a file is not a required step in validation, but is an available option if you require the data in an external file.

Export Validated ETA

1. Click **Export to Upload Area**.
2. Click **Send ETA**. When data is successfully submitted, a message will be displayed and a confirmation email will be sent.

Import a File for Upload

1. Click **Import File**.
2. Click **Browse to Select file to import**.
3. Select the file. Projections Suite will check the file type. If it is not a valid ETA format, or if the file still contains invalid data, an error will be displayed.
4. When the data displays, click **Import**.
5. Click **Export to Upload Area**.
6. Click **Send ETA**.

☞ If the data needs to be updated, use the **Validation** module again. The previous projections data is deleted and the new data is stored.

Non-Projections Suite Data

For **states that do not use Projections Suite** to do projections, their projections data can be sent to the **Upload Area** by using the **Validation** module and importing an Excel file. The columns needed in the file format can be viewed by visiting the [Validation of Section of the ETA File Format](#) topic.


Short-Term Geographic Comparison

Use the **Short-Term Geographic Comparison** module to create comparisons. You can create comparisons for:

- **Compare to States**
- **Region Compare**
- **Workforce Compare**
- **Services Compare**
- **Goods Compare**

Data is stored in the **Upload Area** for all states which have submitted data. Short-Term Geographic Comparison requires data from at least three states.

The **Short-Term Geographic Comparison** module is available in the [Short-Term](#) and **Occupational Projections** applications. It is important to make the distinction: the Short-Term Geographic Comparison module compares *industry* data; the Short-Term Geographic Comparison module in the Occupational Compare group menu utilizes *occupational* data.

 If you do not have an **Upload Area** account, an error message displays. You are unable to make comparisons until you have the account set up. Reference the [Upload Area Connection](#) module for information on creating or connecting an account.

Screen Controls

- **Select the base state** drop-down menu
- **Geographic Comparison** button
- **Compare to States** radio button
 - **Available States** table
 - **Selected States** table
 - **Move** buttons
- **Region Compare** radio button
- **Workforce Compare** radio button
- **Services Compare** radio button
- **Goods Compare** radio button
- **Available States** screen
- **Selected States** screen

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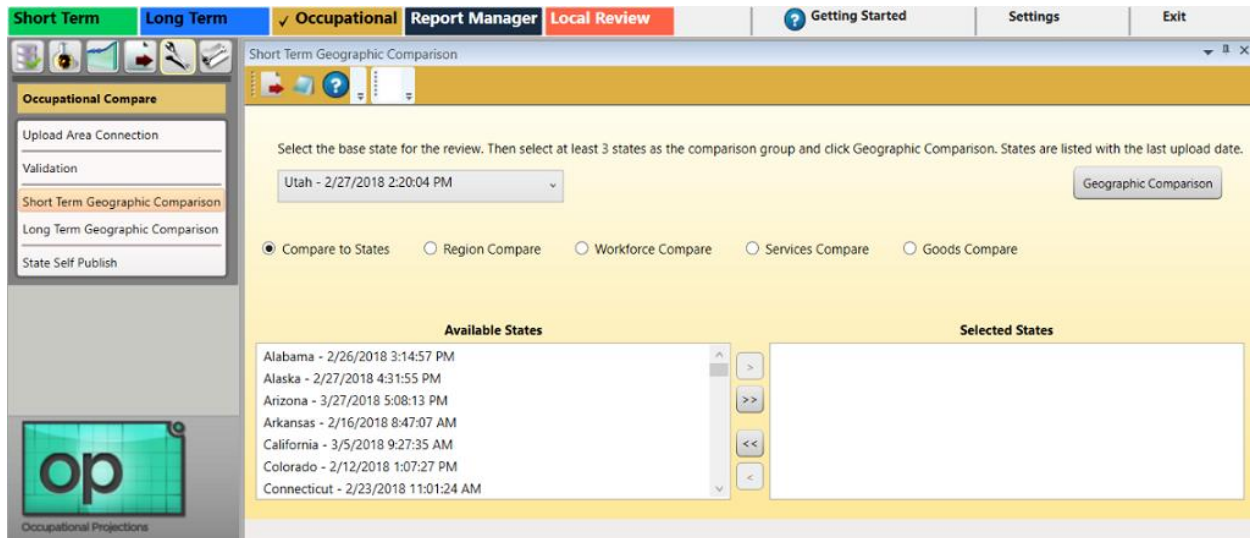


Figure 1: Short-Term Geographic Comparison module

To generate comparisons from the **Short-Term Geographic Comparison** module, select the type of comparison using the radio buttons. Submitted data includes the state name and submittal date and time. The date and time is used to ensure the compared data is the latest, most updated data.

Under each comparison topic below, the steps are often repetitive. The reason for it is in a situation where an analyst looks at this module's instructions and selects one topic to read, instead of the entire page.

Compare to States

1. Select the base state. The base state defaults to your state. You can select any state from the list as the base state for the comparison.
2. Select the states from the **Available States** box and move them to the **Selected States** box. Click the state, then click the arrow button. Or, click the double arrow button to move all **Available States** to the **Selected States** box.
3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the [Active Module Toolbar](#).
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as** type, then click **Save**.

Region Compare

1. Select the base state. The base state defaults to your state. You can select any state from the list as the base state for the comparison.
2. **Select the Region for the comparison.**

3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the tool bar.
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as** type, then click **Save**.

Workforce Compare

1. Select the base State.
2. **Select the Workforce Quartile for the comparison.**
3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the tool bar.
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as** type, then click **Save**.

Service Compare

1. Select the base State.
2. **Select the Services Quartile for the comparison.**
3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the tool bar.
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as** type, then click **Save**.

Goods Compare

1. Select the base State.
2. **Select the Goods Quartile for the comparison.**
3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the tool bar.
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as** type, then click **Save**.

Related Content

- [Geographic Comparison File Format](#)

Long-Term Geographic Comparison

Use the **Long-Term Geographic Comparison** module to compare geographic data. You can create comparisons for:

- **Compare to States**
- **Region Compare**
- **Workforce Compare**
- **Services Compare**
- **Goods Compare**
- **Compare to Nation**

Data is stored in the **Upload Area** for all states which have submitted data. Long-Term Geographic Comparison requires data from at least three states.

This module is available in the [Long-Term](#) and **Occupational Projections** applications. It is important to make the distinction: the Long-Term Geographic Comparison module under the Long-Term application compares *industry* data; the Long-Term Geographic Comparison module in the Occupational Compare group menu utilizes *occupational* data.

☞ If you do not have an **Upload Area** account, an error message displays. You are unable to make comparisons until you have the account set up. Reference the [Upload Area Connection](#) module for information on creating an account.

Screen Controls

- **Select the base state** drop-down menu
- **Geographic Comparison** button
- **Compare to States** radio button
 - **Available States** table
 - **Selected States** table
 - **Move** button
- **Region Compare** radio button
- **Workforce Compare** radio button
- **Services Compare** radio button
- **Goods Compare** radio button
- **Compare to Nation** radio button
- **Available States** screen
- **Selected States** screen
- **Move Right** button
- **Move Left** button
- **All Right** button

- **All Left** button

Figure 1: Long-Term Geographic Comparison module

To generate comparisons from the **Long-Term Geographic Compare** module, select the type of comparison using the radio buttons. Submitted data includes the state name and submittal date and time. The date and time is used to ensure data compared is the latest, most updated data.

☞ Under each comparison topic below, the steps are often repetitive. The reason for it is in a situation where an analyst looks at this module's instructions and selects one topic to read, instead of the entire page.

Compare to States

1. Select the base state. The base state defaults to your state. You can select any state from the list as the base state for the comparison.
2. Select the states from the **Available States** box and move them to the **Selected States** box. Click the state then click the arrow button. Or, click the double arrow button to move all **Available States** to the **Selected States** box.
3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the [Active Module Toolbar](#).
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as type**, then click **Save**.

Region Compare

1. Select the base state. The base state defaults to your state. You can select any state from the list as the base state for the comparison.
2. **Select the Region for the comparison.**

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3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the Active Module Toolbar.
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as type**, then click **Save**.

Workforce Compare

1. Select the base state.
2. **Select the Workforce Quartile for the comparison.**
3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the Active Module Toolbar.
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as type**, then click **Save**.

Service Compare

1. Select the base state.
2. **Select the Services Quartile for the comparison.**
3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the Active Module Toolbar.
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as type**, then click **Save**.

Goods Compare

1. Select the base state.
2. **Select the Goods Quartile for the comparison.**
3. Click **Geographic Comparison**. When the comparison is complete, a message displays.
4. Click **OK**.
5. Click the **Export** icon in the Active Module Toolbar.
6. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as type**, then click **Save**.

Compare to Nation

1. Select the base state.
2. Click **Geographic Comparison**. When the comparison is complete, a message displays.
3. Click **OK**.

4. Click the **Export** icon in the [Active Module Toolbar](#).
5. In the **Save As** pop up window, select the location, enter a **File Name**, select the **Save as type**, then click **Save**.

Related Content

- [Geographic Comparison File Format](#)

State Self Publish

The **State Self Publish** module enables publication of projections data to the public website. You must have a connection to the **Upload Area** to publish the projections. Reference the [Upload Area Connection](#) module for information on creating an account.

When the data is published successfully, a message displays and a confirmation email is sent. If the public website is not ready to accept data for the selected time frame, a **Can't Publish** message will be displayed.

- ☞ Data can be resent to the website. **Re-sending data will overwrite previously stored data with the new data.**

Screen Controls

- **Short Term Projections** radio button
- **Long Term Projections** radio button
- **Publish** button



Figure 1: State Self Publish module

Publish Short Term Projections

1. Select the **Short Term Projections** radio button.
2. Click the **Publish** button.

Publish Long Term Projections

1. Select the **Long Term Projections** radio button.
2. Click the **Publish** button.

Occupational Utilities

Use the **Occupational Utilities (F11)** group menu to manage and export the **Notebook**, perform other administrative functions, update modules, and add or update data tables.

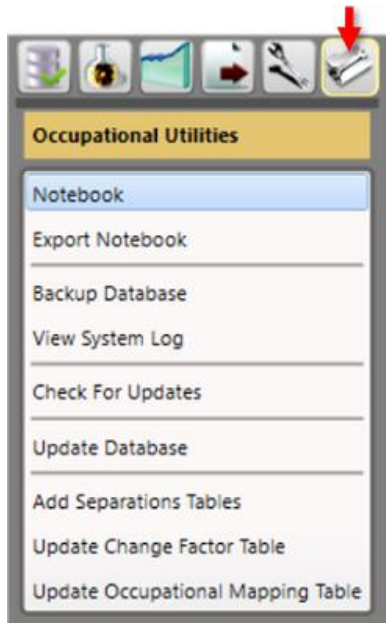


Figure 1: Occupational Utilities group menu

The **Occupational Utilities** group menu contains the following selections:

- [Notebook](#)
- [Export Notebook](#)
- [Backup Database](#)
- [View System Log](#)
- [Check for Updates](#)
- [Update Database](#)
- [Add Separations Tables](#)
- [Update Change Factor Table](#)
- [Update Occupational Mapping Table](#)

Notebook

Use the **Notebook** module to record user and statistical notes for each area and time frame. The Notebook can be helpful during the analysis and projections process. It can also be used to keep historical records for industries, which can be helpful when state analysts leave and new analysts begin using the application.

You can access the Notebook in all but a few [Short-Term Industry](#) and **Occupational Projections** modules.

- ☞ Notebook information is retained from each projection period. It is up to the analyst to maintain (edit, remove) data as needed.

Screen Controls

- **Area** drop-down menu
- **Timeframe** drop-down menu
- **Save** button
- **Reload** button
- **Delete All Notes** button

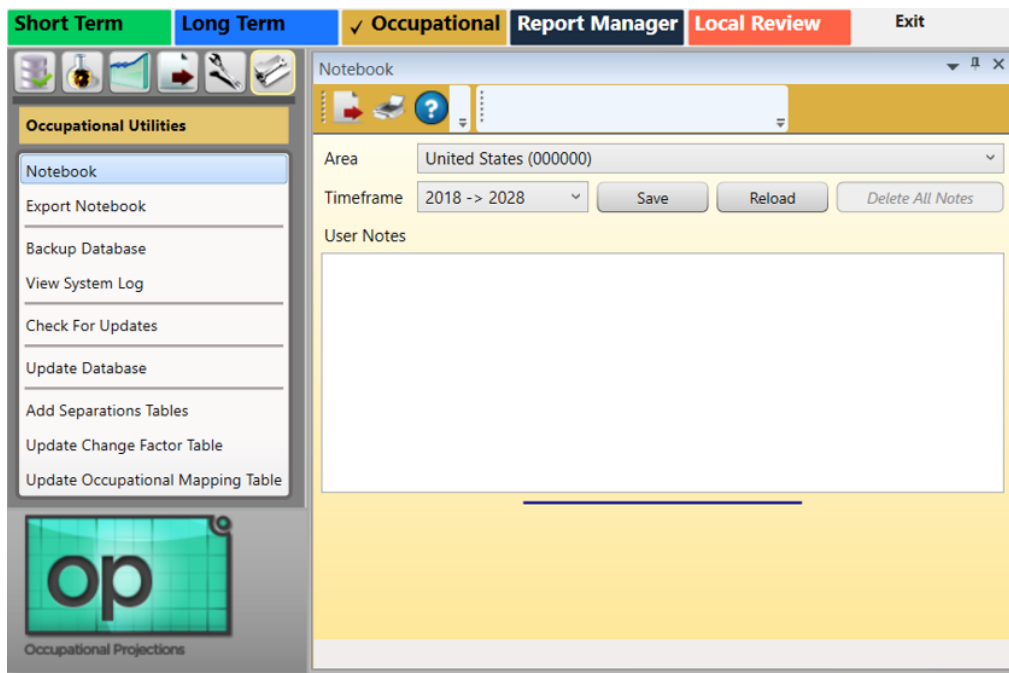


Figure 1: Notebook module

Record or Modify Notes

1. Click the **Notebook** module from the group menu. The **Notebook** screen will be displayed in its own undocked window:

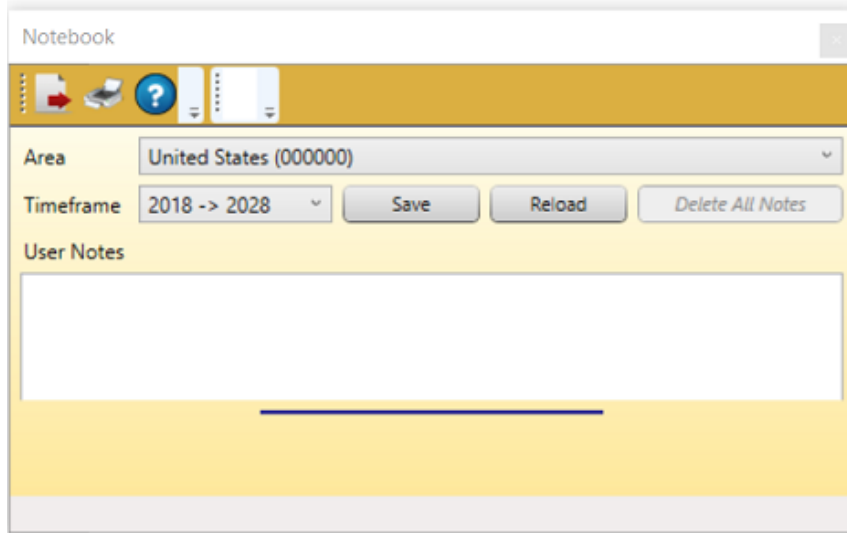


Figure 2: Notebook module, undocked

2. Select an **Area** to record/modify notes about with the drop-down menu.
3. Select a **Timeframe** to record/modify notes for from the drop-down menu.
4. Type (or copy and paste) the **User Notes** for the selected area and time frame.
5. Click the **Save** button. This will save and pair what was written, and associate it with the selected area and timeframe.

Export Notes

1. Click the **Export** button in the [Active Module Toolbar](#). A **Save As** dialog box will be displayed.
2. Select a name and location for the Notebook file to be exported to.
3. Click the **Save** button.

Printing the Notes

1. Click the **Print** button in the Active Module Toolbar. The **Print Preview dialog box** will be displayed. The **Print Preview dialog box** contains seven icons to assist with the printing/confirmation process. From left to right, they are the:
 - **Print** icon used to send the notebook to the printer.
 - **Zoom In** and **Zoom Out** icons are used to make the text larger and smaller.
 - **View at 100%** icon used to view the Notebook at 100% of its size.
 - **View at Page Width** icon used to view the notebook so it fills the width of the page.
 - **View Whole Page** icon used to view the entire Notebook page.
 - **View Two Pages** icon used to view two pages of the Notebook at the same time.

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2. Click the **Print** icon after making all of the needed entries and adjustments.
The **Notebook** data will print.

Export Notebook

The **Export Notebook** menu enables the export of all notes for specific areas, or the export of *all* Notebook data.

Screen Controls

- **All Notes for an Area** check box
 - **Area** drop-down menu
- **All** check box

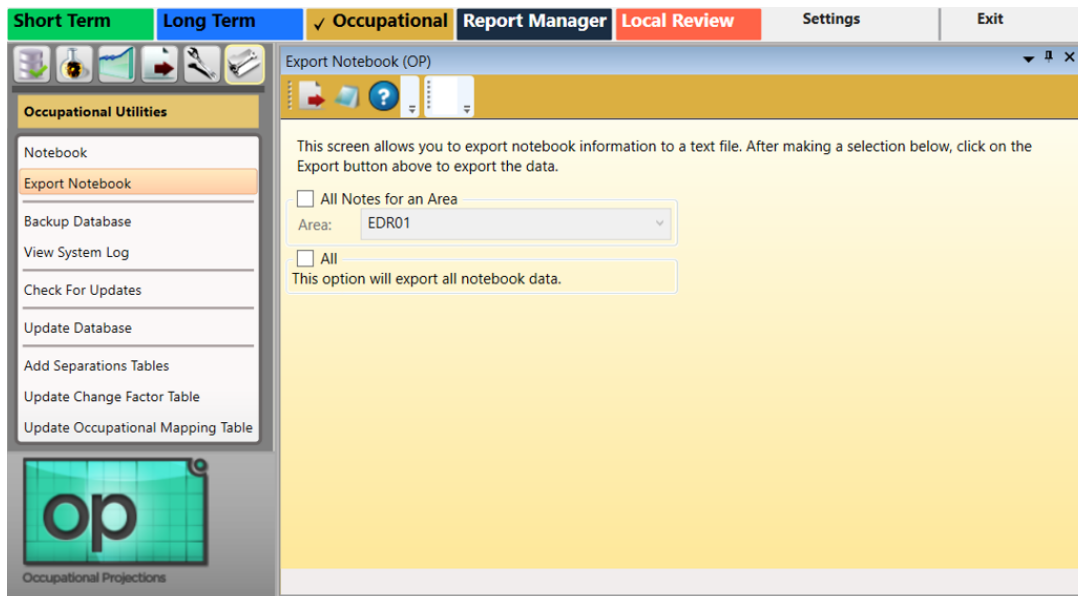


Figure 1: Export Notebook module

Export/Save All Notes from Specific Areas

1. Select the **All Notes for an Area** check box to save and export a single area's notes.
2. Select an area for export from the **Area** drop-down menu.

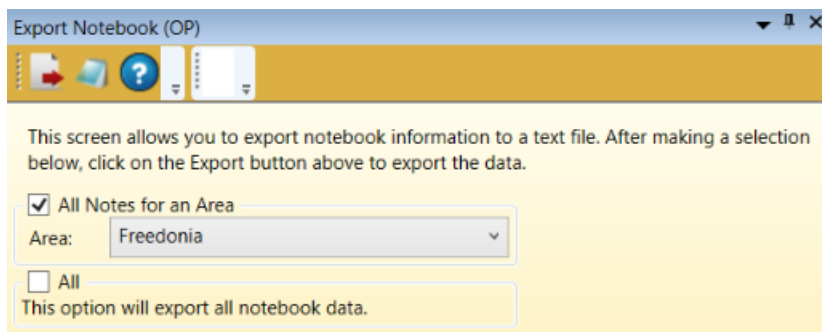


Figure 2: Export notes for an area

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3. Click the **Export** icon in the [Active Module Toolbar](#). A **Save As** dialog box will be displayed.
4. Navigate to the desired folder and enter a name for the file.
5. Click the **Save** button. This will save the notes for the designated area.

Save All Notes From All Areas and Time Frames

1. Click the **All** check box.

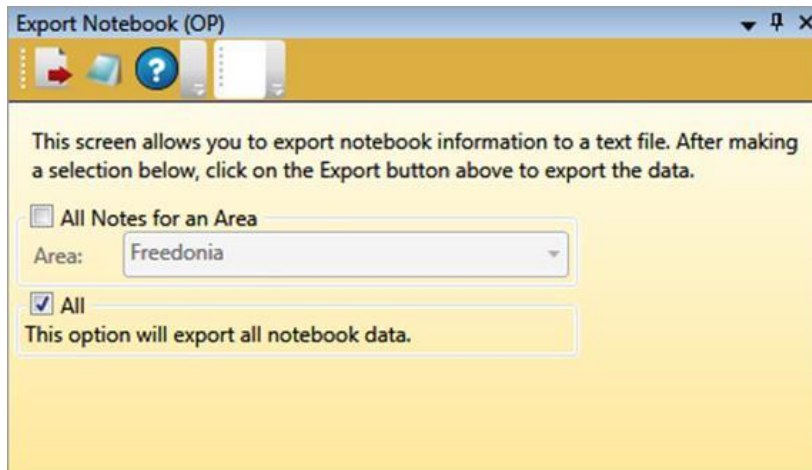


Figure 3: Exporting all notes from every Area and time frame

2. Click the **Export** button. A **Save As** dialog box will display.
3. Select a name and location for the exported file.
4. Click the **Save** button.

Backup Database

Use the **Backup Database** module to create a copy or archive the existing data in the database so the information can be restored if needed.

Backup Changes in the Database

1. Click the **Backup Database** menu choice from the **Occupational Utilities** group menu. The backup process will begin immediately. When the backup is complete, the following screen will be displayed:

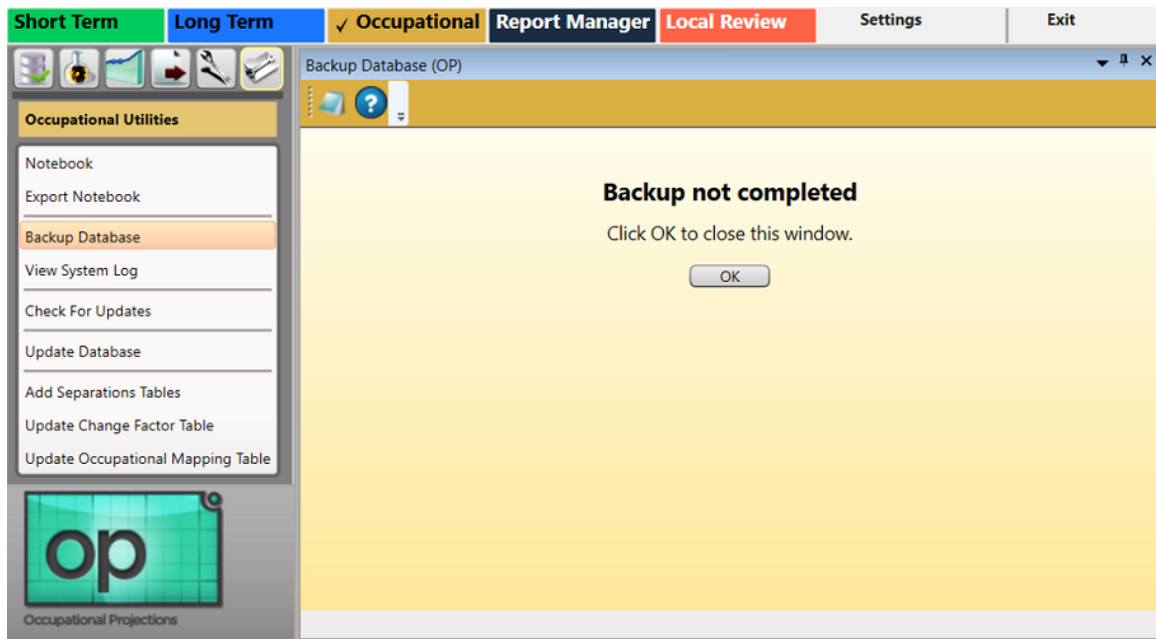


Figure 1: Backup Database dialog box

2. Click **OK**.

☞ In Figure 1, the **Backup not completed** dialog box was put into a **docked** position on the module's display; see [Screen Controls](#) for more information on that function. Click **OK** on the dialog box to close the window, whether it's docked or not.

Set a Backup Location

1. If there is no directory path for the backup folder, the following error will be displayed.

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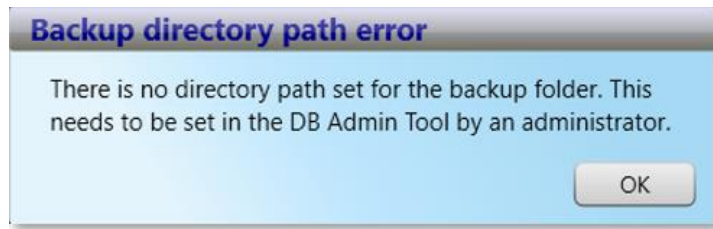


Figure 2: Backup directory path error Dialog Box

2. Visit the [Projections Suite Installation](#) page to see if everything was installed correctly.
3. If you've already done your **Projections Suite** calculations, **talk with your state administrator** to see if there's anything they can do to assist you without wiping your data through reinstallation.
4. If your state administrator isn't able to assist you, get in touch with the [Technical Assistance Contacts](#).

View System Log

The **View System Log** module is used in the event Projections Suite is not functioning properly. A copy of the **Projections Suite Log** may be required to troubleshoot your Projections Suite environment. This module is available in Short-Term, Long-Term, and Occupational Projections.

View the System Log

1. Click the **View System Log** module's menu choice. The **View System Log** instructions dialog box containing this message (in Figure 1, the **View System Log** dialog box has been docked into the window) will be displayed:

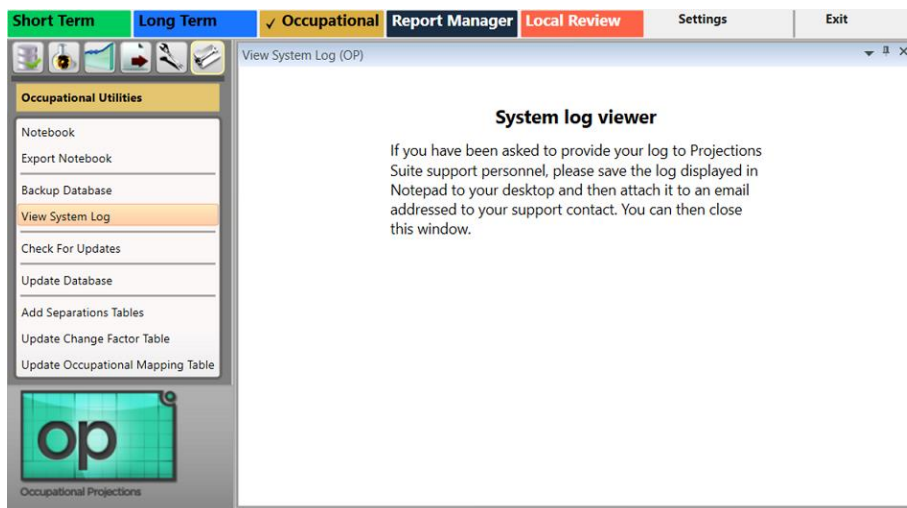


Figure 1: View System Log module, with the View System Log dialog box docked into the window

- To see how to **dock** the dialog box in the Projections Suite's window, see the [Screen Controls](#) page.
2. The **Projections Suite Log** file contains the following log information and will be displayed simultaneously when the **View System Log** module is selected in the group menu. The following information may be required by [Technical Assistance](#) needs to be contacted.

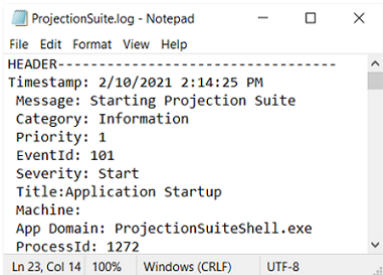


Figure 2: Projections Suite Log

Check For Updates

The **Check for Updates** module is available in **Short-Term**, **Long-Term**, and **Occupational Projections**. To check for updates to the Projections Suite application:

1. Select the **Check For Updates** module from the **Utilities** group menu.

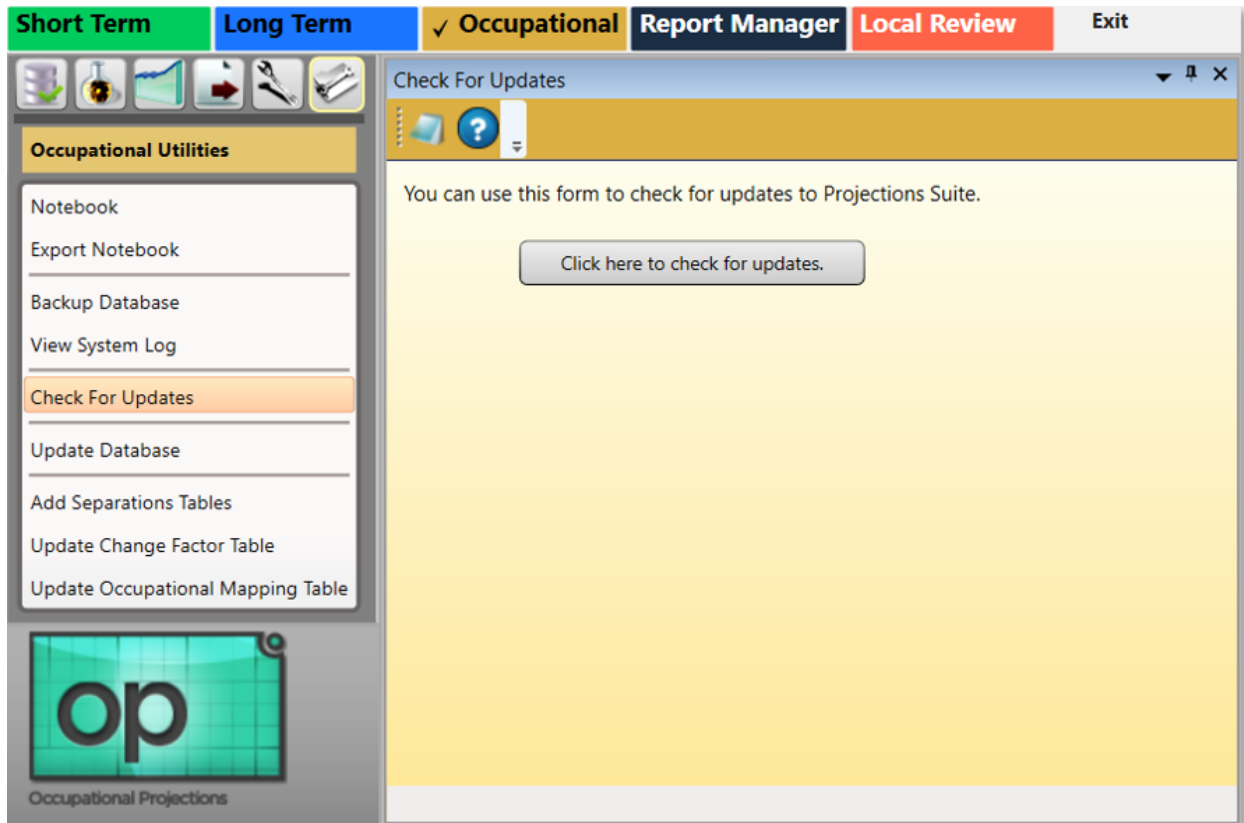


Figure 1: Check For Updates module

2. Select the **Click here to check for updates** button. If the application is up to date, the following message will be displayed:

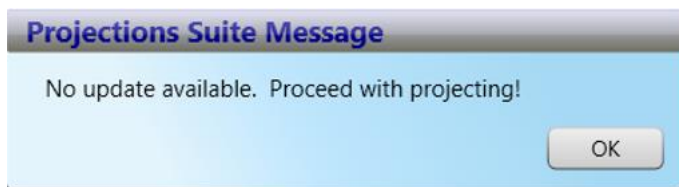


Figure 2: Projections Suite Message dialog box

Update Database

The **Update Database** module facilitates the updating of the [Industry Directory](#), [Occupational Directory](#), and [National Data Files](#).

☞ In this Update Database module in **Occupational Projections**, there will *always* be the same update options buttons available.

Screen Controls

- **Update Industry Directory** button
- **Update Occupational Directory** button
- **Update National Data Files** button
- **Update Titles** check box

Update the Databases

1. Select the **Update Database** menu option from the **Occupational Utilities** group menu. The Update Database module will be displayed:

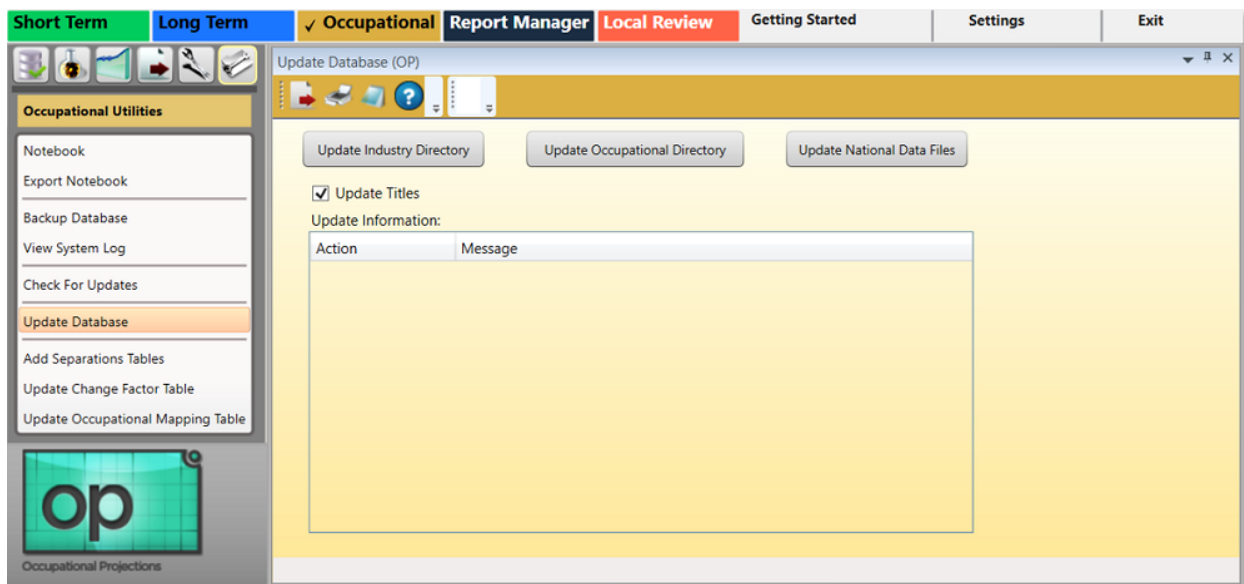


Figure 1: Update Database module

Updating the **Industry Directory** and **Occupational Directory** are rare occurrences, but that **National Data Files** can be updated often. For instructions on all updates, select one of the following three options.

☞ The **Update Titles** check box is automatically checked when the **Update Database** module is opened.

Update the Industry Directory

1. Select the **Update Industry Directory** button to update the directory. If there are no updates to complete, the following dialog box will be displayed.



Figure 2: Update Industry Directory dialog box

Update the Occupational Directory

1. Select the **Update Occupational Directory** button to update the occupational directory. If there are no updates to complete, the following dialog box will be displayed.



Figure 3: Update Occupation Directory dialog box

Update the National Data Files

1. Select the **Update National Data Files** button to update the national data files. A **Loading** dialog box will be displayed in the module and when the process is complete, the following dialog box will be displayed.

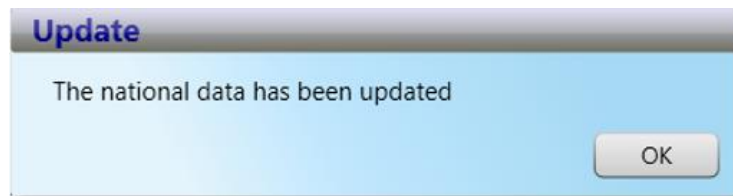


Figure 4: National Data Update dialog box

Add Separations Tables

Add Separations Tables is the latest release of Projections Suite uses Separations instead of Replacements in the calculation of Openings in the Occupational Projections application. This requires that **Separations Tables** be added to your database.

If you participated in the Separations Testing, the tables will have already been added. If not, the tables can be added using one of the three methods listed below. Only one of these methods is needed to add the tables; all three methods are not required.

Adding the tables to the database requires administrative rights (or at least, rights sufficient to add the tables). Assistance from your IT staff may be required.

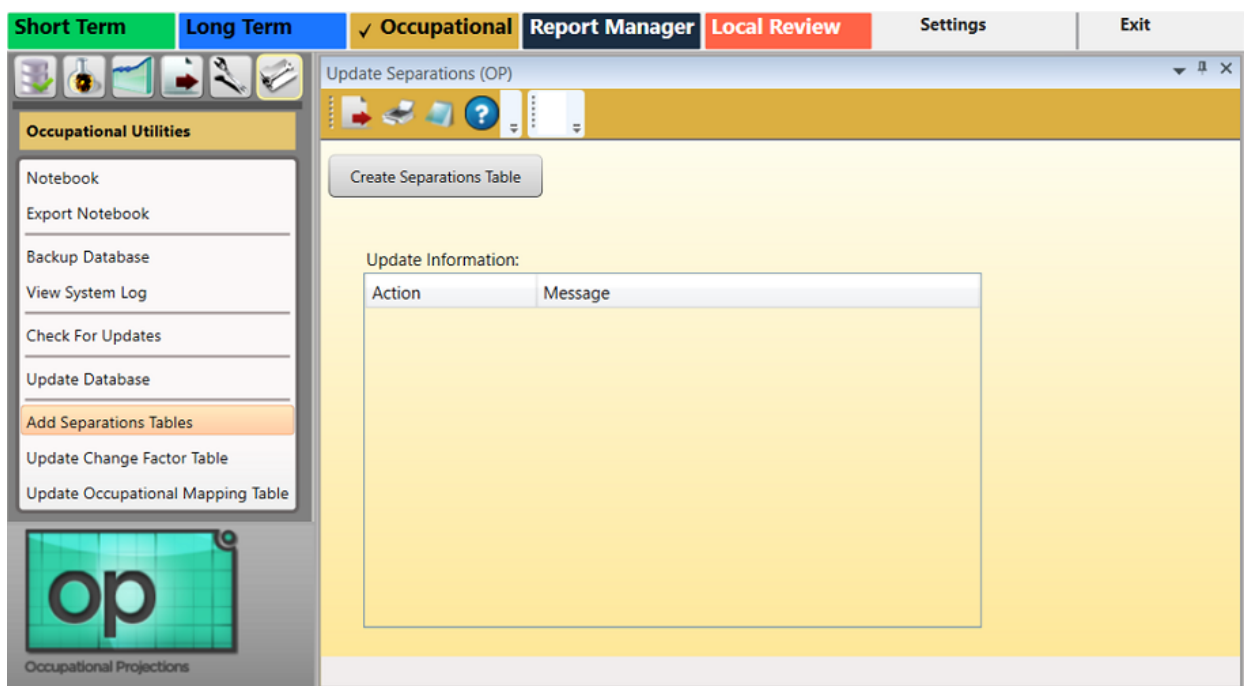


Figure 1: Add Separations Tables module

First Method to Add Separations Tables

1. Update the Database Setup Tool to the latest version if this has not already been done.
2. Open the **Projections Suite Database Tool** by double-clicking it on the desktop, or selecting it from the Windows Start menu.

Projections Suite 2022



Figure 2: Projections Suite Database Setup Tool icons

3. When the Database Tool is open, click the **Connect** button. This will enable the third step's (**Add Required Data**) button under **Tasks**, in the **Required Steps** column:

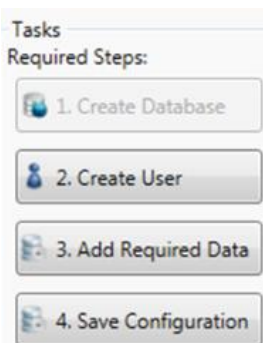


Figure 3: Required Steps in the Projections Suite Database Setup Tool

4. Select step **3. Add Required Data** and the tables will be added to the database. If the table creation is successful, the following message will be displayed in the Progress Information dialog box:

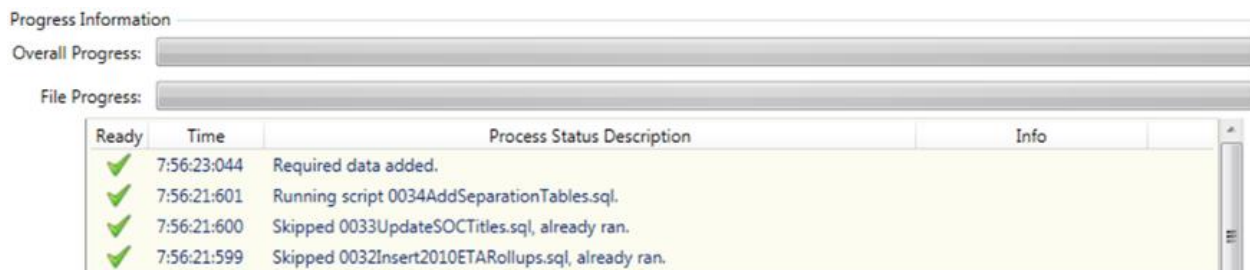


Figure 4: Progress Information output dialog

Second Method to Add Separations Tables

The Projections Suite application can be used to add the tables, if you have sufficient rights to create tables in the database. To accomplish this:

1. Navigate to the **Occupational Utilities** group menu in Occupational Projections.
2. Select **Add Separations Tables**.

3. Click the **Create Separations Table** button to create the tables. If this method was successful, a **Create** dialog box will be displayed.
4. Click **OK**.

Third Method to Add Separations Tables

If preferred, [Technical Assistance](#) can send an SQL script file to run directly in SQL Server Management Studio. Again, administrative rights are required to complete this operation.

Contact bdjudd@utah.gov for more information.

Update Change Factor Table

The **Update Change Factor Table** module is a convenient method to update **Change Factors**.

Screen Controls

- **Update Change Factor Table** button

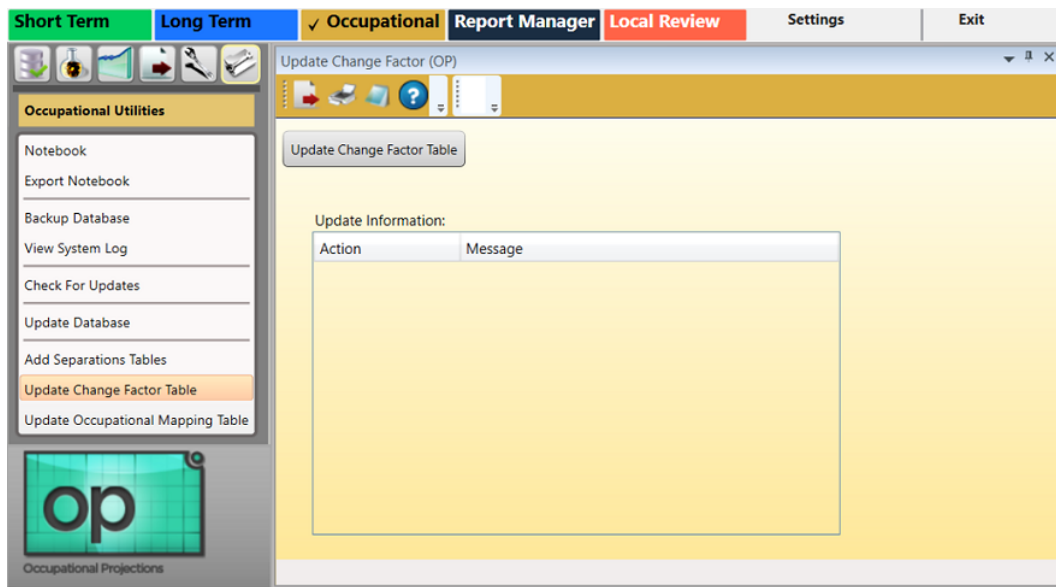


Figure 1: Update Change Factor Table module

Update Change Factors

1. To update **Change Factors**, click the **Update Change Factor Table** button. An **Update** dialog box will be displayed, informing your the Change Factor table was updated successfully.

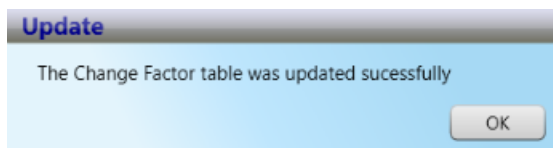


Figure 2: Update dialog box

2. Click **OK**.

Related Content

- [Edit Change Factors](#)

Update Occupational Mapping Table

The **Update Occupational Mapping Table** module assists you by updating your occupational mapping data to the most current version, similar to the [Update Change Factor Table](#) module.

Screen Controls

- **Update Occupational Mapping Table** button

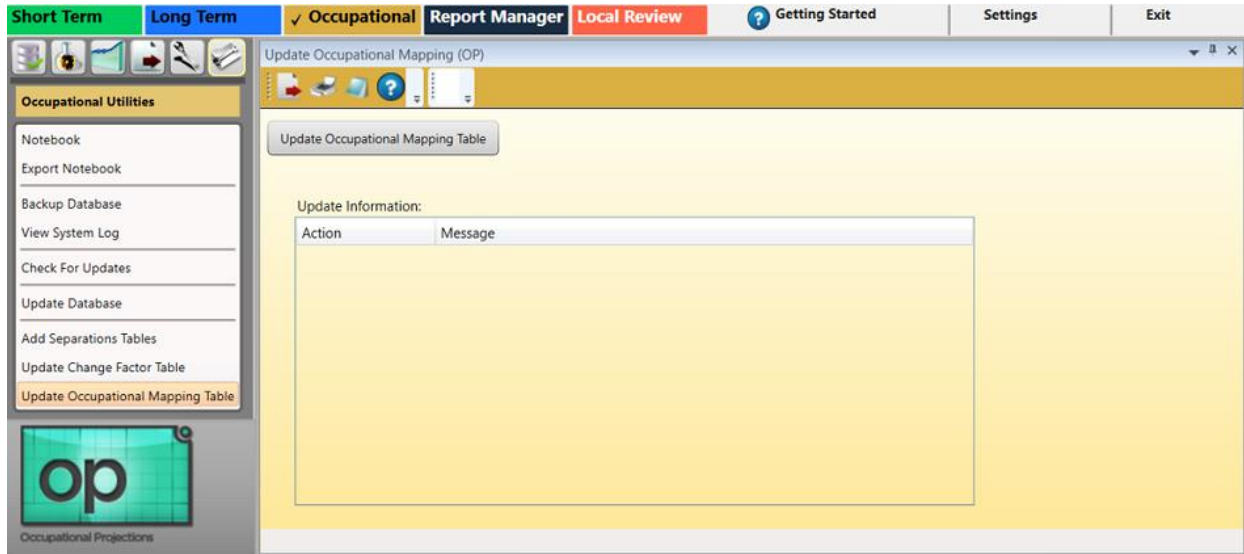


Figure 1: Update Occupational Mapping Table module

Occupational Mapping Table Functions

1. Click the **Update Occupational Mapping Table** button and the following dialog will be displayed.

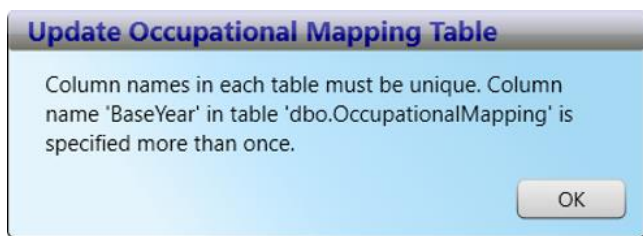


Figure 1: Update Occupational Mapping Table dialog box

2. If you have questions, contact the [Technical Assistance Contacts](#).

Report Manager



Report Manager (RM) is a web-based application that allows state Analysts and Economists to analyze, combine, and describe labor market data from multiple sources to generate reports. The system uses a powerfully driven database underlay to provide flexible views of your data. You can transform or combine series to provide more usable data.

Report Manager data is imported from **Projection Suite's** area-specific industry and occupational data (via [STIP](#), [LTIP](#), and [OP](#)) or wage data from sources like **Local Employment and Wage Information System (LEWIS)**. Within RM, you can create descriptors (high-growth industries and low-growth industries), indexes (hot jobs based on Occupational Projections and occupational wages), or skills-based employment projections (green and non-green skill employment demand). Additionally, **O*NET**-based information such as knowledge, skills, and education is included and applied to reports as needed.

Please be aware that Report Manager is not capable of suppressing data on its own. LEWIS has a check box during the exportation process that will prevent the export of suppressed data. Projections Suite automatically prevents suppressed data from entering Report Manager.

Access Report Manager from this [link](#) to display the following login screen (after registration, approval, and logging in):

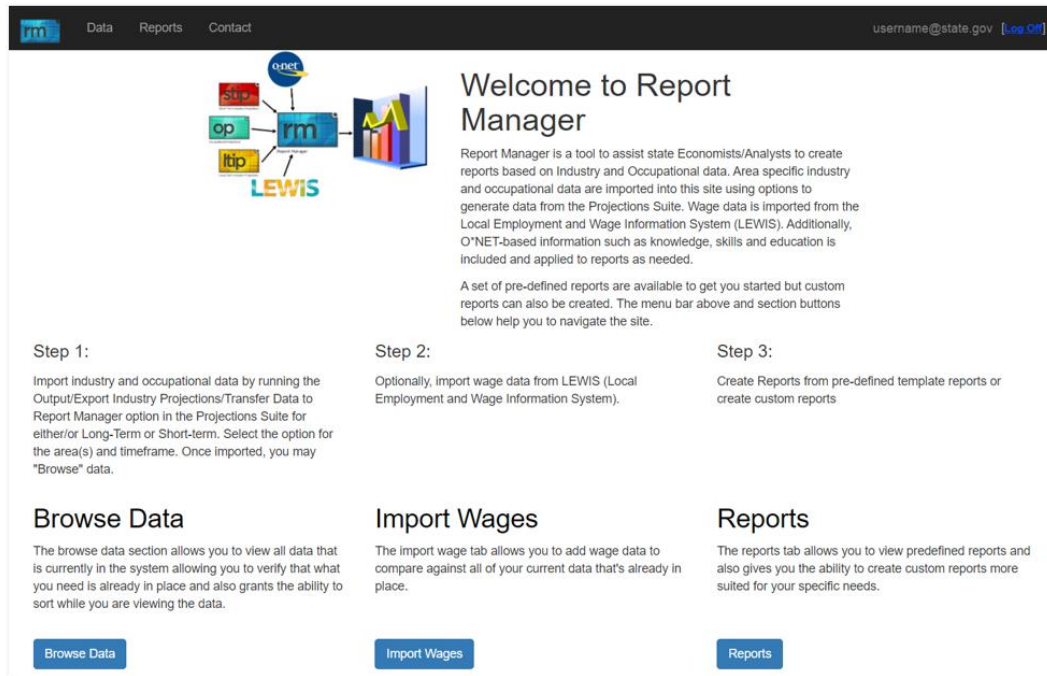


Figure 2: Report Manager Login Display

The **Report Manager** documentation contains:

- [Report Manager Login](#)
- [Report Manager Main Menu](#)
 - [Registration and Login](#)
- **Data Menu Option**
 - [Browse Tab](#)
 - [Import Wages Tab](#)
 - [Manage Tab](#)
- **Reports Menu Option**
 - [New Reports and Editing](#)
 - [Data Series Display Position](#)
 - [Redaction Filter](#)
 - [Revert Changes](#)
 - [Save and Export Reports](#)
- [Contact](#)

Report Manager Main Menu

Report Manager is divided into three main methods: [Browse Data](#), [Import Wages](#), and [Reports](#). This guide will cover each of these sections (displayed near the top left of the display, as well as the buttons near the bottom of the display in Figure 1).

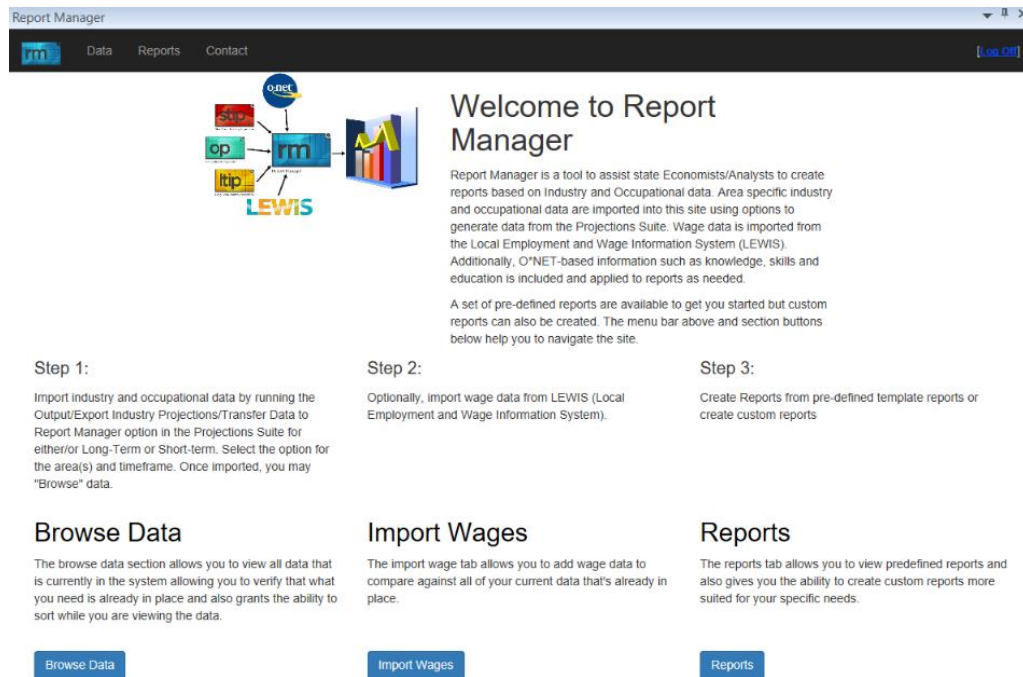


Figure 1: Report Manager's main menu

Accessing Report Manager

Report Manager can be accessed from within the **Projections Suite** by clicking on the **Report Manager** tab. You can also access Report Manager via browser by navigating to the [Login](#) page.

Registration and Login

Report Manager is a web-based application that can also be accessed through the **Projections Suite** application. **Report Manager** registration is required to gain access and login to the application.

Login Credentials

Report Manager uses the same login credentials you use with the **Projections Support** site. If you want to confirm you have an account or change your password there, navigate here for the [Report Manager Login](#) portal, click the **Login** button, and follow its available options.

- If you do not have a Projection Support account, you can create one on the [Register](#) page.
- If you forgot your Projections Support account credentials, follow the [Forgot Password](#) link.

☞ After you have logged in, the system will log you out after time of inactivity.

Accessing Report Manager

1. Using the Projections Suite software, click on the **Report Manager** tab on the main menu (at the top of the Projections Suite window). If Projections Suite isn't currently available, you can also go to the [Report Manager Home](#) page to log in through the web.



Figure 1: Click on the Report Manager tab in Projections Suite

2. A new user will need to click on the **Register** button and go through the registration process.

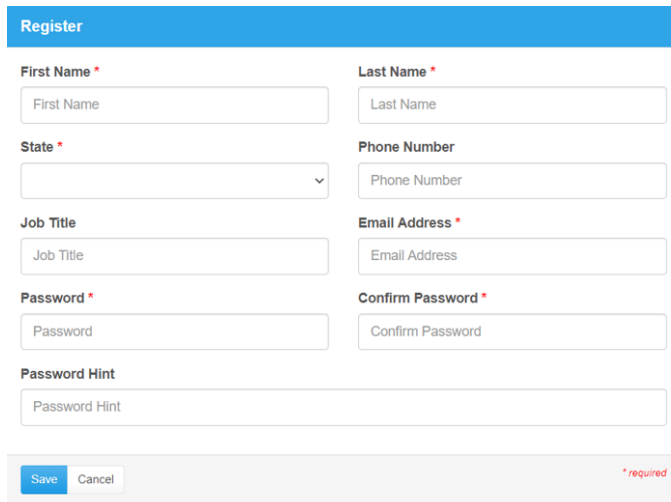
A dark-themed login form titled 'Login'. Below the title is the instruction 'Please use your projections support/forum credentials to login.' There are two input fields: 'User name' and 'Password'. At the bottom, there are three buttons: 'Forgot Password' (white), 'Register' (white with a red border), and 'Login' (blue).

Figure 2: Report Manager login display

Projections Suite 2022

☞ If you already have a verified account, this will be the **Login** display and will not require you to click the **Register** button. Enter your **User name** and **Password** in those fields, then click Login.

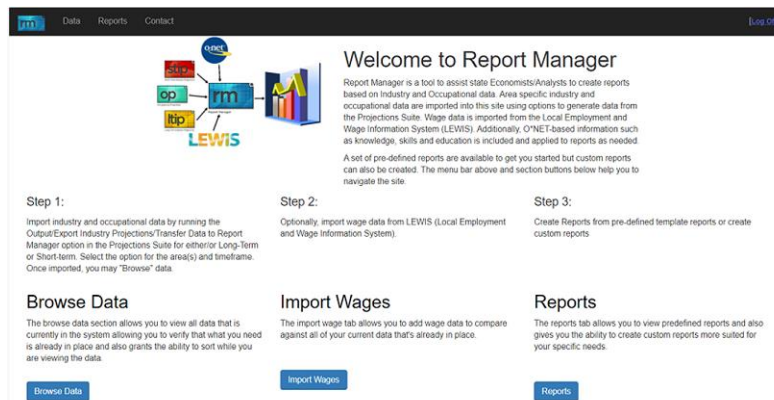
3. After clicking the **Register** button, the following screen with these fields will be displayed.



The Register form is titled "Register" in a blue header. It contains several input fields arranged in two columns. Fields marked with a red asterisk (*) are required. The fields are: First Name, Last Name, State (a dropdown menu), Phone Number, Job Title, Email Address, Password, Confirm Password, and Password Hint. At the bottom left are "Save" and "Cancel" buttons. At the bottom right is a red asterisk with the text "*required".

Figure 3: Register display

4. Enter your state employee information with your state (or verified organization's) email address in the fields, then click the **Save** button. Fields marked with a red asterisk are **required**.
5. After your account has been authenticated (typically by a response to the authorized email address you entered), navigate through the [Report Manager Login](#) displayed in Figure 2 (above), **Login**, and you will be logged into the **Report Manager** home screen:



The Report Manager home screen features a navigation bar with "Data", "Reports", and "Contact" links, and a "Log Out" button. A central graphic shows icons for "Data", "Reports", and "LEWIS". The main content area is titled "Welcome to Report Manager" and includes a description of the tool. Below this, three steps are outlined: Step 1 (Browse Data), Step 2 (Import Wages), and Step 3 (Reports). Each step has a brief description and a corresponding button: "Browse Data", "Import Wages", and "Reports".

Figure 4: Home screen of Report Manager after logging in

☞ If logging in becomes an issue please contact [Technical Assistance](#) to speak with Report Manager help.

Browse Data Tab

The Browse tab is available after selecting the **Report Manager** main menu **Data** option. The Browse tab is useful for viewing area and [SOC](#)-organized data, imported or transferred from associated **Projections Suite** or LEWIS software.

The Browse tab allows viewing of the data transferred to **Report Manager** from **Projections Suite** or imported from a **LEWIS** file. The data in this section are organized into four options (+ box drop-downs) in the **Category** panel:

- **Occupation Projections** - Data transferred from the **Occupational Projections** section of Projections Suite (see [Export Occupational Projections](#)).
- **Industry Projections** - Data transferred from both the **Long-Term Industry Projections** (LTIP) and **Short-Term Industry Projections** (STIP) sections of the Projections Suite (also explained in the link in the previous bullet).
- **Wages** - Data imported from a LEWIS file (view the [Import Wages](#) tab, next in this section).
- **Occupations without ONET KSAs** - Occupation-based data that has been transferred from the Projections Suite, but does not match an O*NET SOC code. Consequently, this data will be ignored when producing any O*NET-based report.

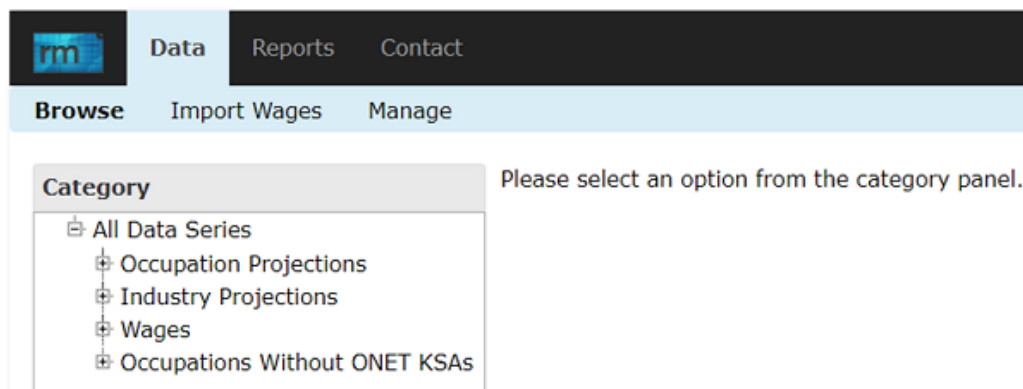


Figure 1: Browse tab under Data, Category menu options

View Records in a Data Category

1. To view data, expand one of the categories on the left of the screen (by clicking on a plus **[+]** symbol) and select a data series.

Projections Suite 2022



Figure 2: Category menu, expanded options

2. After your selection, a summary of the available data will appear in the display on the right.

Each of these series' are divided based on what you selected under **Category** headers and sub-categories. You're able to select which area (**Geography**) and view the area's **Geography Type**, which **Time Frame** the **Count** was drawn from, and explore the series further under the **View** header.

Category

All Data Series

Occupation Projections

- Base Year Employment
- Projected Year Employment
- Growth Openings
- Replacements
- Exits
- Transfers
- Change

Industry Projections

- Base Year Employment
- Projected Year Employment

Wages

- Mean of Median Wages

Occupations Without ONET KSAs

- Base Year Employment
- Projected Year Employment
- Growth Openings
- Replacements

Base Year Employment

NOTE: Occupation count totals for the report might not sum to the true overall count due to the "All Other" occupation codes.

Geography	Geography Type	Time Frame	Count	View
Central	Balance of State	2014-2024	533	Browse
Central	Balance of State	2016-2026	509	Browse
Central Southwest	Balance of State	2018-2028	174	Browse
East	Balance of State	2014-2024	590	Browse
East	Balance of State	2016-2026	563	Browse
Eastern New	Balance of State	2018-2028	237	Browse
Ogden-Clearfield, UT Metropolitan Statistical Area	Metropolitan Statistical Area	2018-2028	381	Browse

Figure 3: Summary of data displayed, based on which series you selected

- Under the **View** header's column, click on the data series' associated **Browse** button to view the data series in better detail (by **SOC**):

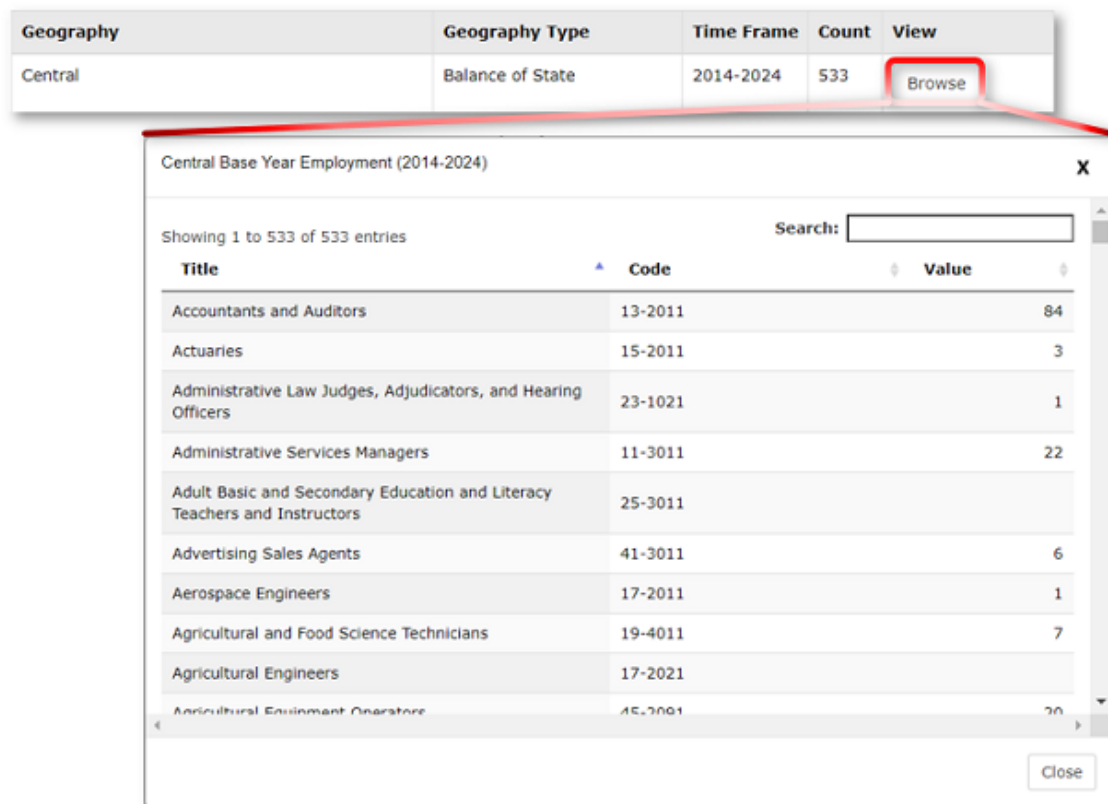


Figure 4: Clicking the Browse button will open the data series

- When viewing the detailed records, you can sort the data by the **Title**, **Code**, or a data series' **Value**.

Sort Data

Report Manager utilizes the sorting features throughout the system. When a column is sorted, the system presents the ▲ icon when it is sorted in ascending order and the ▼ icon when it is sorted in descending order.

- To sort by alphabetical or numerical **SOC** titles, codes, or displayed values, click on the column's header.

When a column is sortable (but not sorted) Report Manager will display the ◆ icon. Clicking on the ◆ icon once will sort the **column in ascending order**. Clicking on the ▲ icon will **sort the column in descending order**. Clicking on the ▼ icon will change the **sort back to ascending order**. You can only sort by one column at a time.

Import Wages Tab

Using **Import Wages** in **Report Manager** is not required, but it does enhance the reporting options available in the system.

☞ It is helpful to be logged into **Projections Suite** to use the [Export Occupational Projections](#) module under the **Occupational Projections** application. Using this avenue can upload the **Source Area(s)** and **Source Timeframe** set of data to Report Manager's web interface, import, and create reports.

Create the Import File From LEWIS

To import wages, you will need to access the [LEWIS](#) software or coordinate with the **LEWIS** user in your state. Then, follow the steps below:


1. **Be sure you have transferred occupation projections into Report Manager before importing wages.**
2. In **LEWIS**, select the estimate type you would like to export, **right click**, and choose **Select for export** from the menu.
3. In the export options, select **LEWIS Wage Table (Report Manager)** and then choose the file format option of a **pipe file** (Report Manager only accepts pipe delimited | text files).
4. Export the file and locate it in the **edspub** folder.

Import LEWIS Files Into Report Manager

Once you have the file from LEWIS, follow these steps to import your data into Report Manager:

1. Within Report Manager, click the **Import Wages** option from the main menu.
2. Click the **Choose File** button. Choose the saved **LEWIS** file when prompted.
3. Choose the time frames (from the **Occupational Projections** you transferred) that you want associated with these wages (even though several others are shown on this display).

Import Wages From LEWIS



Upload file:

Choose File No file chosen

Please indicate which occupational projections timeframe(s) should be associated with these wages.

☐ 2014-2016
☐ 2014-2024
☐ 2015-2017
☐ 2016-2026
☐ 2018-2028
☐ 2020-2030

Continue >>

You must first transfer occupational projections from the Projections Suite before importing wages.

To prepare the extract file from [LEWIS](#):

1. Select the estimate type that you would like to export (i.e. State of Ohio), right click and select "Select for Export."
2. In the export options, select "LEWIS (EDS) wage table" and then choose the file format option of a pipe delimited text file (this import only accepts pipe delimited | text files). And select "Exclude suppressed data."
3. Export the file and locate it in the "edspub" folder.
4. Choose the file from the option below and import.

Figure 1: File and time frame selection(s)

4. Click the **Continue>>** button.

5. Since the **Projections Suite** and **LEWIS** may use different area codes and area type codes for a geographic area, it is necessary to match Projections Suite codes with those of the LEWIS file you are importing. To match codes, select the corresponding area from the **drop-down on the right**. If you do not want to import a particular area from the LEWIS file, select **<< Ignore >>**. **Report Manager** will remember these matches for future imports.

6. Click **Submit** to import the wage file. If successful, you will be told how many records were imported. If unsuccessful, check your data and please try again. If it fails twice, visit the [LEWIS Contact](#) page if you have questions or need assistance.

- ☞ Click the **To prepare the extract file from [LEWIS](#)** link underneath the LEWIS logo to access information on preparing the extract file from LEWIS for importation.

Related Content

- [File Formats](#)

Manage Tab

The **Manage** tab provides access to a list of uploaded projections listed by **Geography Code**, **Geography Type**, **Time Frame**, and **Count**. You can select how many geographies display on each page by using the **Show** entries drop-down menu. Data can be sorted by each of these column headers by clicking the **arrow** buttons in the header cell. A **Search** field is also available.

1. Only geographies from the user's state can be viewed on the **Manage** tab. The information displayed on the Manage tab mirrors what is contained under the **Browse** tab.

Warning! This data is shared by all Report Manager users in your state. Check with others to ensure this data is not currently being used. Data can be re-added via projection suite if removed by mistake.

Show **10** entries Search:

Geography Code	Geography Type	Time Frame	Count	<input type="checkbox"/>
Central - 490002	Balance of State - 30	2016-2026	509	<input type="checkbox"/>
Central - 490002	Balance of State - 30	2014-2024	533	<input type="checkbox"/>
Central Southwest - 490007	Balance of State - 30	2018-2028	174	<input type="checkbox"/>
East - 490004	Balance of State - 30	2014-2024	590	<input type="checkbox"/>
East - 490004	Balance of State - 30	2016-2026	563	<input type="checkbox"/>
Eastern New - 490006	Balance of State - 30	2018-2028	237	<input type="checkbox"/>
EDR01 - 000001	Economic Development Region - 08	2016-2026	689	<input type="checkbox"/>
Freedonia Balance of State WIA - 800001	Balance of State - 30	2008-2010	9	<input type="checkbox"/>
Ogden-Clearfield, UT Metropolitan Statistical Area - 036260	Metropolitan Statistical Area - 21	2018-2028	381	<input type="checkbox"/>
OgdenClearfield - 036260	MSA - 02	2016-2026	717	<input type="checkbox"/>

Showing 1 to 10 of 51 entries Previous **1** 2 3 4 5 6 Next

[Back to Browse Data](#) [Remove Selected Imports](#) [Update ONET on Selected Imports](#)

Figure 1: Manage tab, under the Data selection

2. Scrolling to the bottom of the page reveals three buttons: **Back to Browse Data**, **Remove Selected Imports**, and **Update ONET on Selected Imports**.
 - Clicking the **Back to Browse Data** button will navigate you back to the **Browse** tab.
 - You can **remove** imports by clicking on the **blank check boxes** (☐) for each geography you wish to delete, then by clicking the **Remove Selected Imports**. Notice the warning at the top of the page and only delete data you're sure is not being used.
 - The **Update ONET on Selected Imports** button is useful by adding a more defined set of parameters to the selected geography's type of calculations. By

clicking the **Update ONET on Selected Imports**, it updates your selected records with the new **Skill, Knowledge, and Generalized Work Activity** assignment system.

☞ The **Update ONET on Selected Imports** explanation in more detail is at [Tested Replacements for the Existing Importance & Level Cutoffs during Import to Report Manager - Method Notes](#) (and can also be found in [Statistical & Technical Terms](#)). This button was created on April 9, 2020 when Projections Suite was updated.

Reports Menu Option

The core functionality of the Report Manager is to generate reports. To access this function, click on the **Reports** link on the top menu. The Reports Dashboard will be displayed:

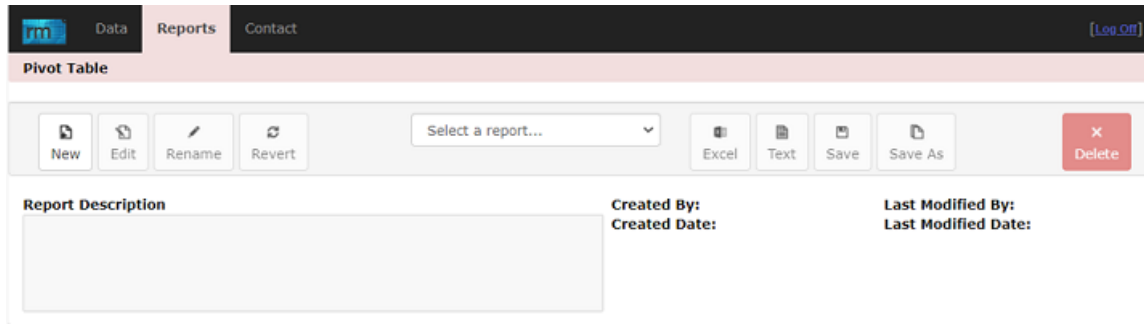


Figure 1: Reports Dashboard

Predefined Reports

Report Manager has pre-loaded several reports for you, referred to as **Predefined Reports**. These reports are contained in the drop-down labeled **Select a report....** You can create and save your own predefined reports, and they will be found in this drop-down list as well.

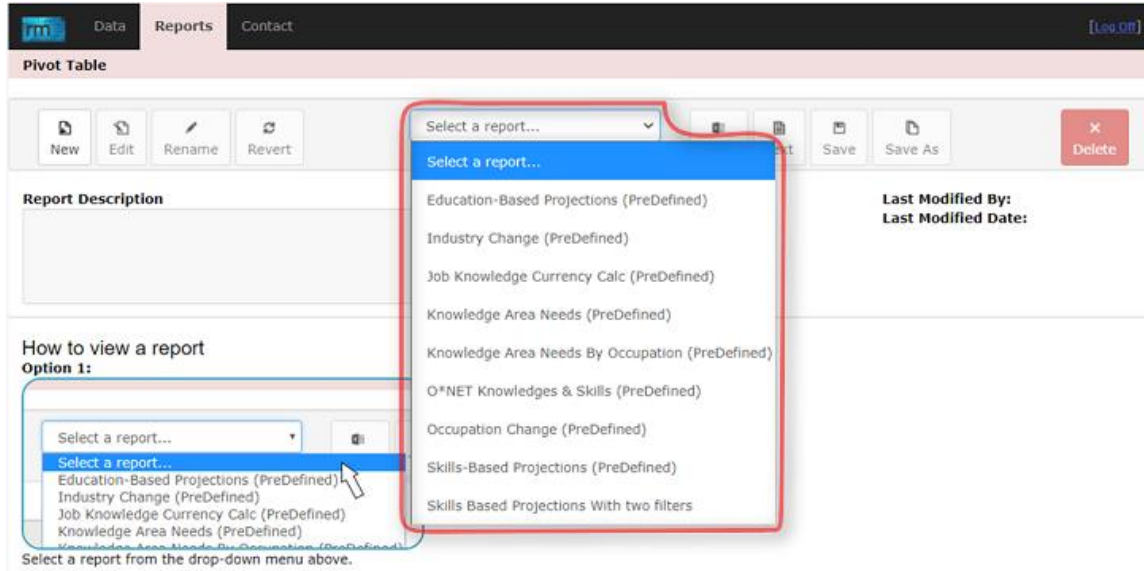


Figure 2: Select a Report drop-down menu

When you select a report, the system will automatically generate that report based on your data. You can sort the columns of this report by clicking on the arrows of a particular column. See the **Sorting Data** sub-section of the [Browse Data](#) section for more information on sorting.

Export Reports

You also have the option of downloading an Excel (.xlsx) or text (.txt) formatted report. To do so:

1. Click on the **Excel** or **Text** button:

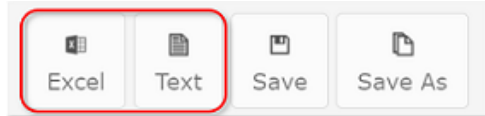


Figure 3: Excel or Text format export options

2. A window will appear to prompt you to name the file. After entering the name, click **Download** to finish the export.



Figure 4: Export Report dialog box

New Reports and Editing

If you would like to start a new report from scratch, click the **New** button.

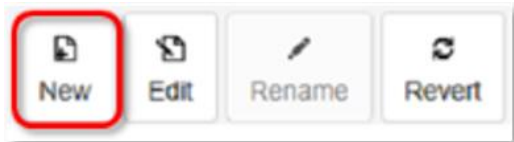


Figure 1: New button

This clears all values and lets you select the elements you would like. You can save these selections by clicking **Save** and naming the report.

Edit Reports

To change the columns, rows, a selected data series, or to filter particular data and apply [redaction](#) or suppression, click on the **Edit** button in the top navigation bar.

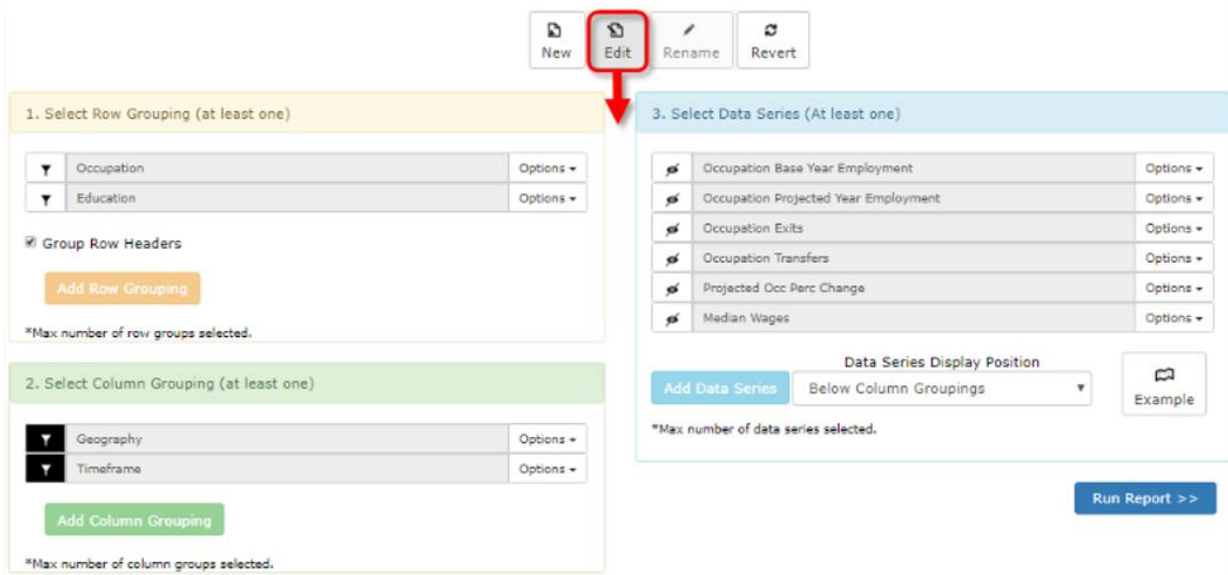
A screenshot of the 'Edit' report menu. At the top, a navigation bar contains four buttons: 'New', 'Edit', 'Rename', and 'Revert'. The 'Edit' button is highlighted with a red square, and a red arrow points from it to the first section of the menu. The menu is divided into three main sections: 1. Select Row Grouping (at least one), 2. Select Column Grouping (at least one), and 3. Select Data Series (At least one). Section 1 includes a table with 'Occupation' and 'Education' rows, each with an 'Options' dropdown, a checked 'Group Row Headers' checkbox, an 'Add Row Grouping' button, and a note '*Max number of row groups selected.'. Section 2 includes a table with 'Geography' and 'Timeframe' rows, each with an 'Options' dropdown, an 'Add Column Grouping' button, and a note '*Max number of column groups selected.'. Section 3 includes a table with six data series rows: 'Occupation Base Year Employment', 'Occupation Projected Year Employment', 'Occupation Exits', 'Occupation Transfers', 'Projected Occ Perc Change', and 'Median Wages', each with an 'Options' dropdown. Below this table is an 'Add Data Series' button, a 'Data Series Display Position' dropdown set to 'Below Column Groupings', and an 'Example' button. A note '*Max number of data series selected.' is at the bottom of this section. A 'Run Report >>' button is located at the bottom right of the menu.

Figure 2: Open Edit report menu options

To add or change the rows or columns of a report, click on the **Add Row Grouping** or **Add Column Grouping** buttons. You can have a maximum of two row or column groupings.

1. Select Row Grouping (at least one)

▼	Occupation	Options ▼
▼	Education	Options ▼

☒ Group Row Headers

Add Row Grouping

*Max number of row groups selected.

2. Select Column Grouping (at least one)

▼	Geography	Options ▼
▼	Timeframe	Options ▼

Add Column Grouping

*Max number of column groups selected.

Figure 3: Add Row Grouping, Add Column Grouping

☞ When the **Group Row Headers** box is checked, it will generate a report with two row groupings to visually group secondary row groupings under the umbrella of one primary row. If unchecked, all primary and secondary row groupings will be divided.

If you are already using two row or column groupings and want to change them, you must first select the **Options** drop-down and select **Delete** to remove the unwanted grouping.

1. Select Row Grouping (at least one)

▼	Occupation	Options ▼
▼	Education	<div> Delete Move down </div>

☒ Group Row Headers

Add Row Grouping

*Max number of row groups selected.

Figure 4: Delete unwanted grouping

To filter data, click on the **Filter** button to the left of either a column or row grouping. Click on a geography in the **Available Fields** area to add it to the **Selected**

Fields. Select a geography in the **Selected Fields** area and click the **Deselect** button to remove it. You can also use the **Select All** button and **UnSelect All** buttons to configure the filter.

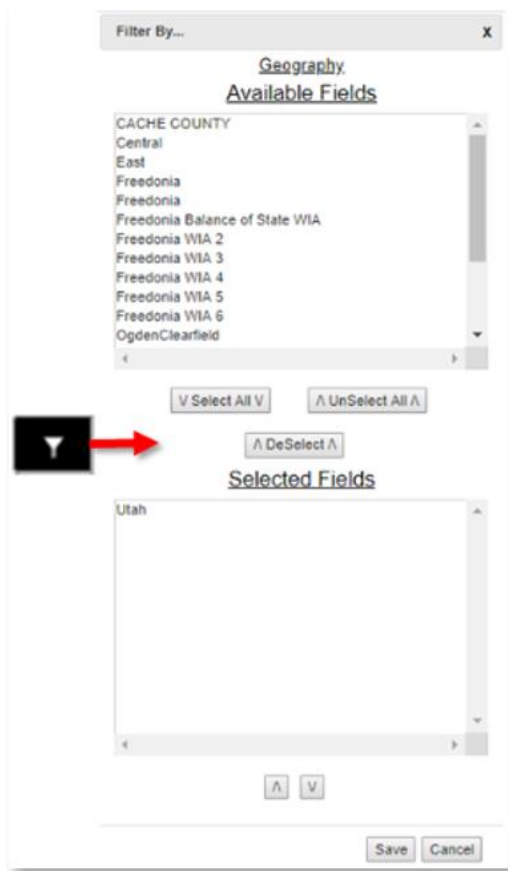




Figure 5: Open Filter By... options

 To quickly deselect an item in the **Selected Fields** box, double click the item.

The order of the items in the Selected Fields box will affect the order they appear in the report. The order can be changed by clicking on an item in the **Selected Fields** box to select it, then use the up () and down () arrows to modify its position. When the filter is configured to your liking, click the **Save** button to save the filter.

If you would like to change the data series or the row or column groupings, click on the **Options** button and select **Delete**, **Move Up**, or **Move Down**.

3. Select Data Series (At least one)

	Occupation Base Year Employment	Options ▾
	Occupation Projected Year Employment	Options ▾
	Occupation Exits	<div>Delete Move up Move down</div>
	Occupation Transfers	
	Projected Occ Perc Change	
	Median Wages	Options ▾

Add Data Series Data Series Display Position: Below Column Groupings ▾ Example

*Max number of data series selected.

Figure 6: Move down or Move up

To see how the reports are structured, click the **Example** button which will show you a sample layout of the report.

Sample Report Layout

Pivot Table Layout Example

		2015 - 2017				2016 - 2017	
		Brewster		Rockland		Brewster	
		Base Emp	Proj Emp	Base Emp	Proj Emp	Base Emp	Proj Emp
High School Diploma	11-1011						
	11-1021						
	13-1011						
	13-1021						
	27-1011						
Associate's Degree	11-1011						
	11-1021						
	13-1011						

Example →


Close

Figure 7: Example report layout

Data Series Display Position

By default, the data series is the inner-most column grouping. In some situations, you may want the data series grouped at a different level. To change this grouping, select the desired option in the **Position** drop-down located at the bottom of the **Select Data Series** section.

3. Select Data Series (At least one)

	Occupation Base Year Employment	Options ▾
	Occupation Projected Year Employment	Options ▾
	Occupation Growth Openings	Options ▾
	Occupation Replacements	Options ▾
	Projected Occ Perc Change	Options ▾
	Median Annual Wage	Options ▾

Add Data Series

Data Series Display Position

Below Column Groupings

Top of Column Groupings

Between Column Groupings



Example

Figure 1: Data Series Display Position

Redaction Filter

If you would like to mask values that fall under a certain threshold, click the **Redaction** button located to the left of each of the selected data series. Enter the threshold you want to use as the basis for redaction and click **Save**.

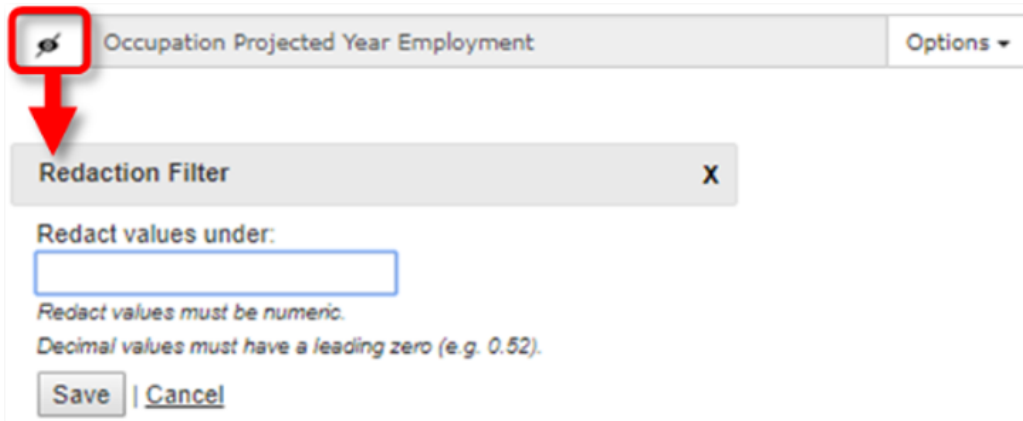


Figure 1: Open Redaction Filter

When a redaction value is selected the redaction icon will be darkened, indicating the value is redacted:

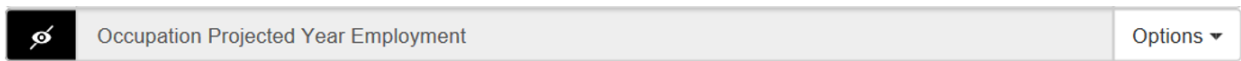


Figure 2: Value redacted

Any values less than that threshold will not be displayed. To remove this suppression, click the **Remove Redaction** button. You can have different levels of redaction for different data series.

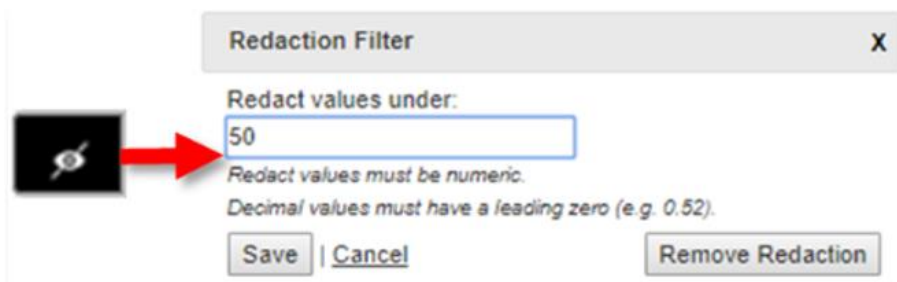


Figure 3: Remove Redaction

Revert Changes

If you would like to revert your changes to the last saved values, click the Revert button. Please note, any changes you have made to the last saved values will be lost.

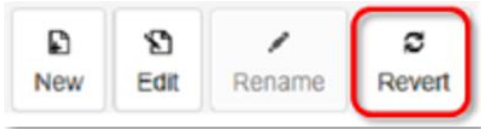


Figure 1: Revert button

Save and Export Reports

You cannot save a predefined report, but you can save a copy by clicking on the **Save As** button. This creates a copy you can further customize.

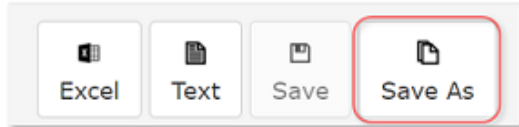


Figure 1: Save As button

You can also customize reports by clicking on the **Edit** button. Clicking the **Edit** button will open the **Edit Report** menu options (see Figure 1). Once you have customized a report by changing the default settings, you can **Save** that report (using the existing name) or use **Save As** to give the report a different name.

Report Manager Assistance Contact

For any technical assistance or questions you have after reviewing the documentation, contact:

Jared Schrock

(385) 310-7961

jschrock@utah.gov

Transfer Data from Projections Suite to Report Manager

You will need to transfer projections data from Projections Suite before creating reports with projections data. Both industry and occupational projections can be transferred.

Transfer Occupational Projections

1. Open Projections Suite and navigate to the **Occupational** menu and select the **Output** group menu (you can also hit F9).
2. Select **Export Occupational Projections**.
3. On the screen that appears, select the geographic area and projections time frame you would like to transfer into Report Manager. If you would like to select all the areas, select the "All" area at the top of the list.

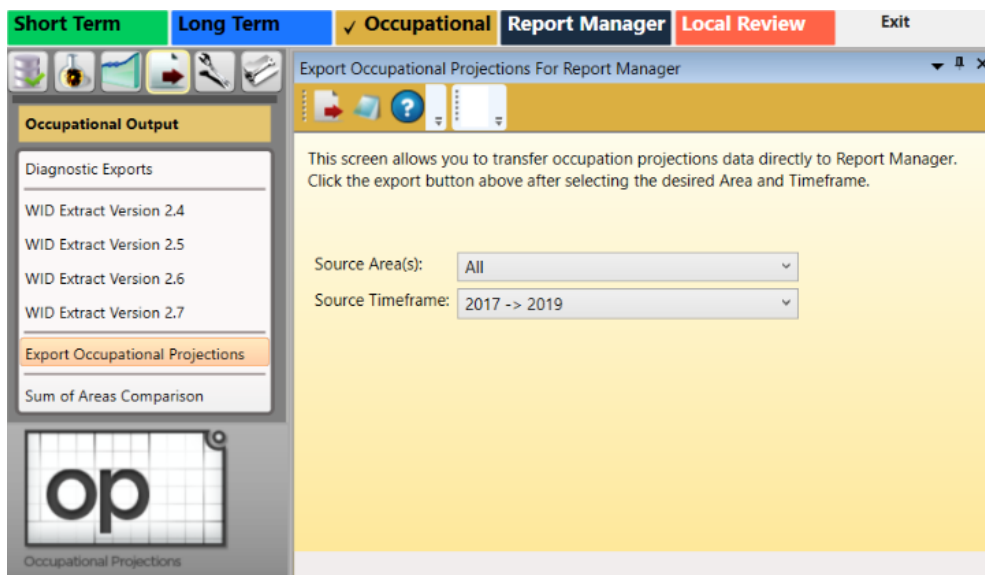


Figure 1: Exporting Occupational Projections into Report Manager

4. When you have made your selection, click the **Export** button on the Active Module Toolbar.
5. A notification window will pop up when the transfer has successfully completed. Please contact the Utah staff if you do not receive a success message.
6. Repeat this process for as many areas/time frames as you would like to use within the Report Manager.

Transfer Industry Projections

1. Open the Projections Suite and navigate to the **Short Term** or **Long Term** menu. Select the **Output** submenu (you can also hit F9).
2. Select **Export Industry Projections**.

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3. On the screen that appears, select the geographic area and projections time frame you would like to transfer into Report Manager.
4. Select the **Source Area(s)** you would like to transfer to Report Manager. If you would like to select all the areas, select the “All” areas at the top of the list.
5. Click the **Transfer Data to Report Manager** radio button.
6. When you have made your selection, click the **Export** button on the Active Module Toolbar.
7. A notification window will pop up when the transfer has successfully completed. Please contact the Utah staff if you do not receive a success message.
8. Repeat this process for as many areas as you would like to use within the Report Manager.

Access Data Exported to Report Manager

To access your exported data, reference the [Browse Data](#) section.

Local Review



Local Review (LR) is used by state industry projections analysts to obtain information about economic activity from local area experts, and recommend modifications to projected industry employment. Access Local Review in your preferred browser by clicking this link (access [Local Review](#)).

To access Local Review as a state analyst administrator, you will need to have an account set up. If you have questions, contact Mike Sylvester (msylves@utah.gov) with the [Technical Assistance](#) team.

State analysts with administrator rights will have menu items and screens available to them that reviewers will not see. Reviewers will only see the detail and summary views.

The **Local Review** documentation contains the following sections:

- [Local Review Menu](#)
- [Data](#)
- [Reviewers](#)
- [Review Menu](#)
 - [Summary](#)
 - [Reviewer Summary](#)
 - [Details](#)
- [Format](#)

Local Review Menu

When the **Local Review** application is logged into [here](#), the primary page will be displayed. A **Home** main menu will be available (on the left) with explanations of what each menu selection is used for and its functions.

- ☞ Selecting the **Home** option will bring you back to this primary page after you have navigated away from it.

Screen Controls

- **Home**
- **Data**
- **Reviewers**
- **Review**
 - **Summary**
 - **Reviewer Summary**
 - **Details**
- **Edit Profile**
- **Sign Out**

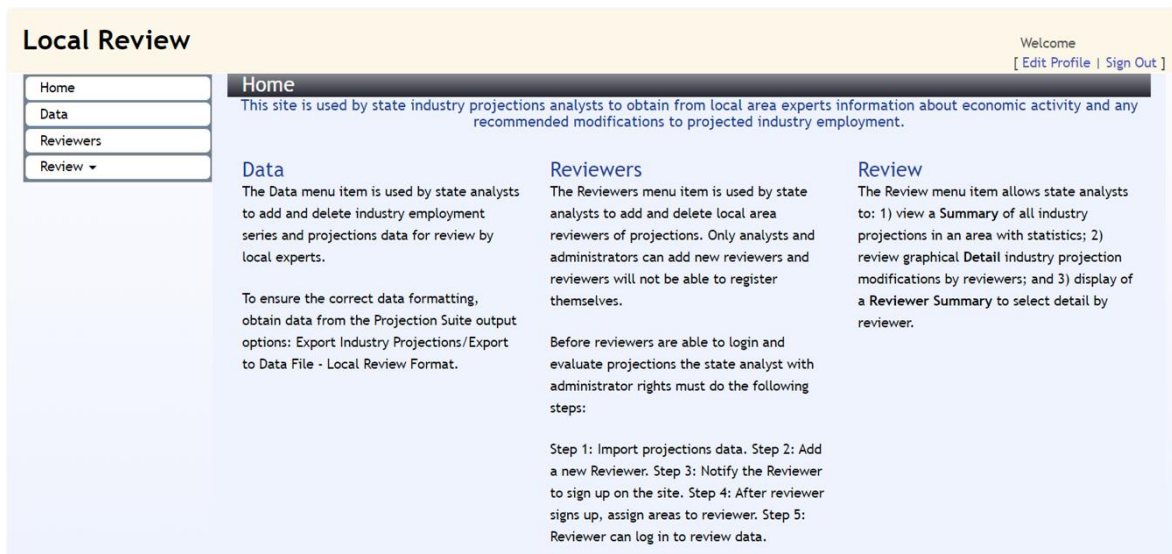


Figure 1: Local Review application's Home page

Home

The **Home** main menu is used to navigate each of the application's capabilities:



Figure 2: Local Review Home main menu selections

Data

The **Data** menu selection is used by state analysts to manage (by adding or deleting) an industry or occupational employment series, and to allow access to submitted projections data for review by local experts. To ensure correct data formatting, obtain data from the **Projection Suite Output** options. For further explanations of the **Manage Data** process, navigate to the **Local Review** [Data](#) page in this documentation.

Reviewers

The **Reviewers** menu item can be used by state analysts to add or delete local area projections reviewers. Only analysts and administrators can add new reviewers, and reviewers will not be able to sign in until their state's administrator allows access for them as a reviewer. For addition information, go to the [Reviewers](#) page on this site.

Review



Figure 3: The Review menu selection's dropdown

The **Review** menu item allows state analysts to:

- View a **Summary** of all industry projections in an area with submitted statistics from analysts and reviewers.

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- Use **Reviewer Summary** to select data submissions from reviewers and see their projections forecast contributions, based on their area.
- **Details** is a graphical tool to display detailed industry projections based on areas, and industries over previous years. Submitting modified forecasts is also available on this page.

Edit Profile

To edit your user profile, click the **Edit Profile** link in the top right corner of the screen. This allows you to modify your first name, last name, email address, phone number, and include user notes.

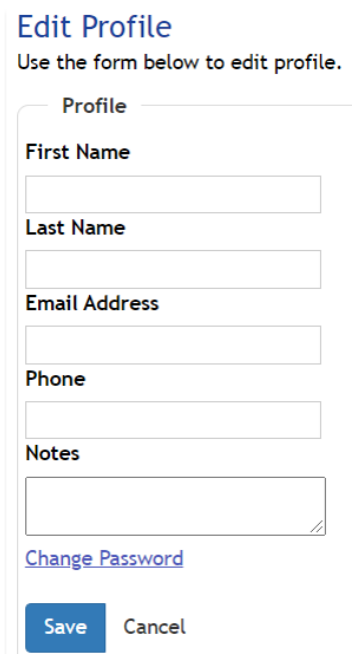
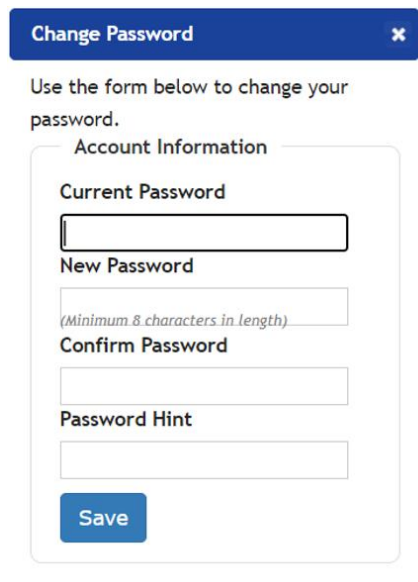
The screenshot shows a web form titled "Edit Profile" in blue text. Below the title is a subtitle: "Use the form below to edit profile." The form is enclosed in a light gray border and has a "Profile" tab at the top. It contains several input fields: "First Name", "Last Name", "Email Address", and "Phone", each with a corresponding text box. Below these is a "Notes" section with a larger text area. At the bottom of the form, there is a blue "Save" button and a "Cancel" button. A blue link labeled "Change Password" is positioned below the notes field.

Figure 4: Edit Profile screen

After updating your information, click the **Save** button to save the changes. Click the **Cancel** button to discard any changes.

To change your password, click the **Change Password** link below the notes field. A **Change Password** window will be displayed.



The image shows a 'Change Password' dialog box. It has a blue header bar with the title 'Change Password' and a close button (x) in the top right corner. Below the header, there is a text instruction: 'Use the form below to change your password.' The form is titled 'Account Information' and contains four input fields: 'Current Password', 'New Password', 'Confirm Password', and 'Password Hint'. The 'New Password' field has a small text note below it: '(Minimum 8 characters in length)'. At the bottom of the form is a blue 'Save' button.

Figure 5: Change Password window

Update your account information and click the **Save** button. Click the **x** in the top right corner to cancel the change password process.

Sign Out

[[Edit Profile](#) | [Sign Out](#)]

Clicking on the **Sign Out** link in the top right corner of the window will sign you out of the **Local Review** application, take you back to the access [Local Review](#) page, and require you to log back into your account.

Local Review Data

Import Data

- Use the **Short-Term Industry Projections (STIP)** application, under its **Output** group menu, and select the [Export Industry Projections](#) module. Select the **Export to Data File - Local Review Format** radio button, use the **Source Area(s)** dropdown menu and choose an area, then click on **Export** from the [Active Module Toolbar](#) to create the format.

Or

- Use the **Long-Term Industry Projections (LTIP)** application, its **Output** group menu, and select its [Export Industry Projections](#) module. The rest of the **Export** steps are similar to the STIP procedure to generate a **Local Review Format** file.

The Local Review **Data** menu item contains a list of all available projections, by area and time frame.

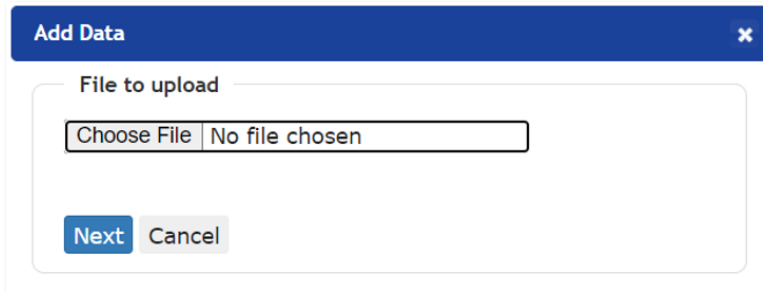
Projections Available

Area	Timeframe	Add
EDR01	2018-2026	Delete
EDR02	2018-2026	Delete
EDR03	2018-2026	Delete
EDR04	2018-2026	Delete
EDR05	2018-2026	Delete
EDR06	2018-2026	Delete
EDR07	2018-2026	Delete
EDR08	2018-2026	Delete
EDR09	2018-2026	Delete
EDR10	2018-2026	Delete

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Figure 1: Manage Data section of the Data menu

To add data to the repository, click the **Add** button. An **Add Data** window will be displayed:



The 'Add Data' window features a blue header bar with the title 'Add Data' and a close button (X). Below the header, there is a section titled 'File to upload' containing a text input field with the placeholder text 'Choose File' and 'No file chosen'. At the bottom of the window, there are two buttons: 'Next' (highlighted in blue) and 'Cancel'.

Figure 2: Add Data window

Click the **Choose File** button and select a file for upload. Click the **Next** button to proceed with the upload. Click the **Cancel** button to cancel the upload.

To delete data from the Manage Data screen, click the **Delete** button next to the data set.

View Projections

By selecting one of the available sets of projections from the list, you will be taken to the **Summary** screen.



The 'Reviewer Summary' screen displays a table of projections. At the top, there is a header bar with the title 'Reviewer Summary' and tabs for 'Summary' and 'Details'. Below the header, there is a dropdown menu for 'Reviewer' with the selected value 'Test, Bill'. The table has the following columns: 'Area (Timeframe)', 'Industry Code', 'Industry Title', 'Base Value', 'Analyst Forecast', 'Local Revision', and 'Modified Forecast'. The table contains 20 rows of data, each representing a different industry and its associated projections. The 'Area' column shows 'EDR01 (2018-2026)' for all rows. The 'Industry Code' and 'Industry Title' columns provide specific details for each row. The 'Base Value', 'Analyst Forecast', 'Local Revision', and 'Modified Forecast' columns show numerical values for each projection.

Area (Timeframe)	Industry Code	Industry Title	Base Value	Analyst Forecast	Local Revision	Modified Forecast
EDR01 (2018-2026)	110067	Self Employed Workers in Agriculture	959	955		
EDR01 (2018-2026)	110500	Wage and Salary Workers in Agriculture	1,527	1,519		
EDR01 (2018-2026)	210000	Mining, including Logging	506	589		604
EDR01 (2018-2026)	220000	Utilities	1,730	1,843		
EDR01 (2018-2026)	237000	Heavy and Civil Engineering Construction	916	1,386		1,390
EDR01 (2018-2026)	238000	Specialty Trade Contractors	4,693	6,200		
EDR01 (2018-2026)	311000	Food Manufacturing	8,043	10,404		
EDR01 (2018-2026)	313000	Textile Mills	28	40		
EDR01 (2018-2026)	315000	Apparel Manufacturing	6	4		
EDR01 (2018-2026)	322000	Paper Manufacturing	1,639	971		
EDR01 (2018-2026)	323000	Printing and Related Support Activities	962	935		
EDR01 (2018-2026)	324000	Petroleum and Coal Products Manufacturing	11	12		
EDR01 (2018-2026)	327000	Nonmetallic Mineral Product Manufacturing	721	763		
EDR01 (2018-2026)	332000	Fabricated Metal Product Manufacturing	2,851	2,953		
EDR01 (2018-2026)	335000	Electrical Equipment, Appliance, and Component Manufacturing	176	181		
EDR01 (2018-2026)	336000	Transportation Equipment Manufacturing	371	318		
EDR01 (2018-2026)	339000	Miscellaneous Manufacturing	412	396		
EDR01 (2018-2026)	424000	Merchant Wholesalers, Nondurable Goods	4,640	5,375		
EDR01 (2018-2026)	425000	Wholesale Electronic Markets and Agents and Brokers	540	900		

Figure 3: Summary screen

Click the arrow buttons or use the drop-down menu to review the listed projections. To view the associated projections, click on its associated NAICS code or Industry Title. Clicking on one of the links will take you to its Details screen.

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Figure 4: Details screen

The data grid on the left of the Details screen displays the Year/Quarter, the employment value, and the growth percentage. You can change the graph to view the data by employment level or by percent growth.

Local Review Reviewers


The **Reviewers** menu item is used to **add** and **delete** local area Reviewers of projections. **Only Analysts and Administrators can add new reviewers**, and **Reviewers will not be able to login until the state Administrator adds them** as a Reviewer. Before Reviewers are able to login and evaluate projections, the state Analyst with Administrator rights should do the following steps:

1. Import Projections data.
2. Add a new Reviewer.
3. Notify the Reviewer to sign up on the site.
4. After the Reviewer creates an account, assign areas to the Reviewer.
5. Reviewer will then be able to log in and review the data.

Manage Reviewers

The **Reviewers** option displays a list of available Reviewers.

The **Add** and **Delete** options are available here, to manage the access of a Reviewer.



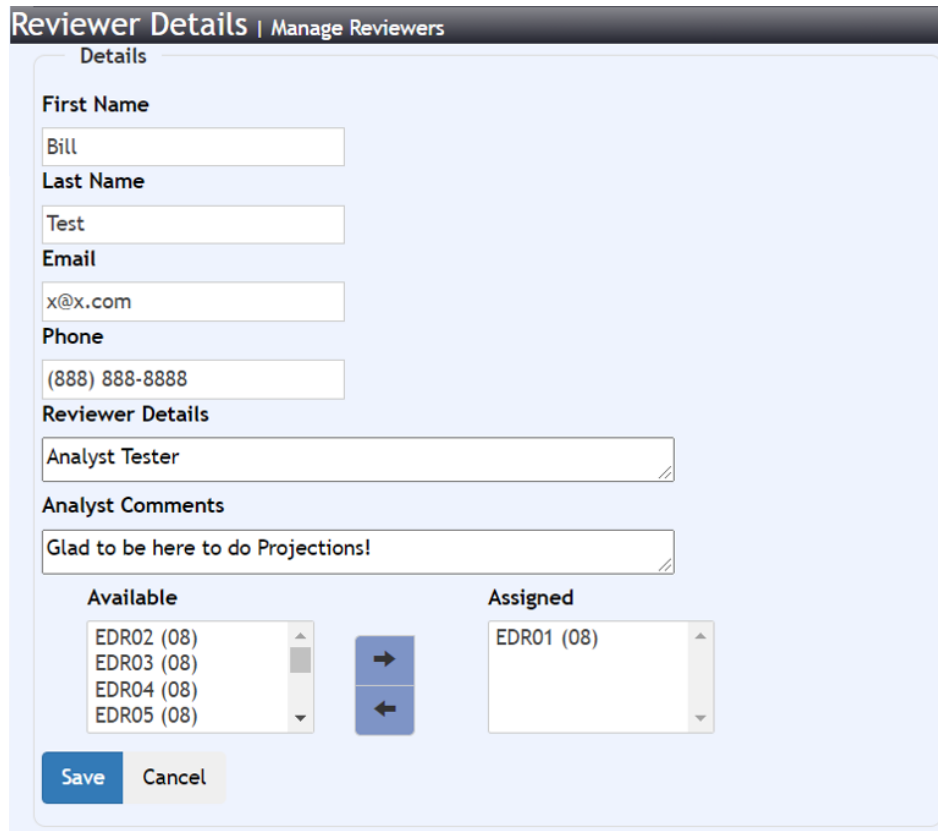
Name ↑	Add
Analyst, David	Delete
Reviewer, Betty	Delete
Reviewer, Test	Delete
Test, Bill	Delete

Page 1 of 1 10 ▾

Figure 1: Manage Reviewers display

Clicking on a Reviewer's name navigates to the **Reviewer Details** display, where the Reviewer's contact information and profile details are displayed.

Projections Suite 2022



The image shows a web application window titled "Reviewer Details | Manage Reviewers". The window has a light blue background and a dark header bar. The main content area is divided into several sections. At the top, under the "Details" tab, there are input fields for "First Name" (containing "Bill"), "Last Name" (containing "Test"), "Email" (containing "x@x.com"), and "Phone" (containing "(888) 888-8888"). Below these is a "Reviewer Details" section with a dropdown menu showing "Analyst Tester". Underneath is an "Analyst Comments" section with a text area containing "Glad to be here to do Projections!". The bottom section is divided into two columns: "Available" and "Assigned". The "Available" column has a list box with four items: "EDR02 (08)", "EDR03 (08)", "EDR04 (08)", and "EDR05 (08)". The "Assigned" column has a list box with one item: "EDR01 (08)". Between the two list boxes are two blue buttons with white arrows: a right-pointing arrow on top and a left-pointing arrow on the bottom. At the bottom left of the window are two buttons: "Save" (blue) and "Cancel" (light blue).

Reviewer Details | Manage Reviewers

Details

First Name
Bill

Last Name
Test

Email
x@x.com

Phone
(888) 888-8888

Reviewer Details
Analyst Tester

Analyst Comments
Glad to be here to do Projections!

Available

EDR02 (08)
EDR03 (08)
EDR04 (08)
EDR05 (08)

Assigned

EDR01 (08)

Save Cancel

Figure 2: Reviewer Details display

Use the **left** and **right arrows** to move **Available** areas to the **Assigned** areas category, allowing access for this Reviewer's user profile.

Click **Save** to save changes to the **Reviewer** record. Click **Cancel** to return to the **Manage Reviewers** display.

Review Menu

The **Review** menu expands into three options and is accessed by hovering your cursor over the arrowed **Review** (▼) dropdown menu.

Screen Controls

- **Review** dropdown
 - **Summary**
 - **Review Summary**
 - **Details**

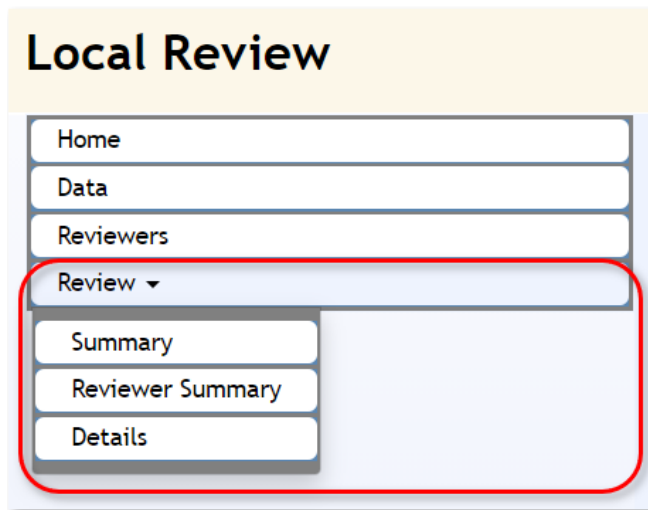


Figure 1: Review menu dropdown selections

The **Review** menu item allows state Analysts to:

- [Summary](#)
 - **Explain.** Displays all industry projections in a selected area with statistics.
- [Reviewer Summary](#)
 - **Explain.** Graphical detailed industry projection modifications by Reviewers.
- [Details](#)
 - **Explain.** A Reviewer Summary to select detail by reviewer.

Summary

When the **Summary** option is selected from the **Review** submenu, select an **Area** from the dropdown menu to view the area's associated industry projections data with included statistics. The **Summary** option page has the ability to **Export** the data as a spreadsheet.

By allowing you to search through uploaded data by each Reviewer and Analyst, the **Summary** of industries categorized by their **Area** differs from the (next page's) **Reviewer Summary**.

Screen Controls

- **Area** drop-down menu
- **Code / Industry Title** column links
 - **Level** radio button (shows points on the graph, based on the **Year** and **Value**)
 - **Growth** radio button (shows percentage points on the graph, based on the **Year** and **Growth** percentage)
 - **Show All** radio button
 - **Reviewed Only** radio button
- **Page** input field and navigation **arrows**
- **Export** button

Summary | Reviewer Summary | Details

Area: EDR01 (2018-2026)

Code	Industry Title	Base Value	Analyst Forecast	Reviewer Min	Reviewer Max	Reviewer Median	Reviewer Average	Modified Forecast
000067	Self Employed Workers, All Jobs	12,638	11,190					
110000	Agriculture, Forestry, Fishing and Hunting	2,486	3,075					
110067	Self Employed Workers in Agriculture	959	955					
110500	Wage and Salary Workers in Agriculture	1,527	1,519					
210000	Mining, including Logging	506	589					604
220000	Utilities	1,730	1,843					
236000	Construction of Buildings	2,260	2,956					
237000	Heavy and Civil Engineering Construction	916	1,386					1,390
238000	Specialty Trade Contractors	4,693	6,200					
311000	Food Manufacturing	8,043	10,404					
312000	Beverage and Tobacco Product Manufacturing	464	195					
313000	Textile Mills	28	40					
314000	Textile Product Mills	67	51					
315000	Apparel Manufacturing	6	4					
316000	Leather and Allied Product Manufacturing	6	9					
321000	Wood Product Manufacturing	355	456					
322000	Paper Manufacturing	1,639	971					
323000	Printing and Related Support Activities	962	935					
324000	Petroleum and Coal Products Manufacturing	11	12					

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Export

Figure 1: Summary display, Area selected

The table columns includes:

- **Code** - [NAICS](#) code

- **Industry Title**
- **Desc**
- **Base Value**
- **Analyst Forecast**
- **Reviewer Min**
- **Reviewer Max**
- **Reviewer Median**
- **Reviewer Average**
- **Modified Forecast.** In this (Figure 1) example there are two previously submitted Modified Forecasts.

Use the **Page** input or **arrow buttons** at the bottom of the table to scroll forward and backward through the data. Press the **Export** button to download an Excel spreadsheet of the data to your computer.

By clicking on an item under the **Code** or **Industry Title** columns, the industry history's **Details** and its associated graph will be displayed:

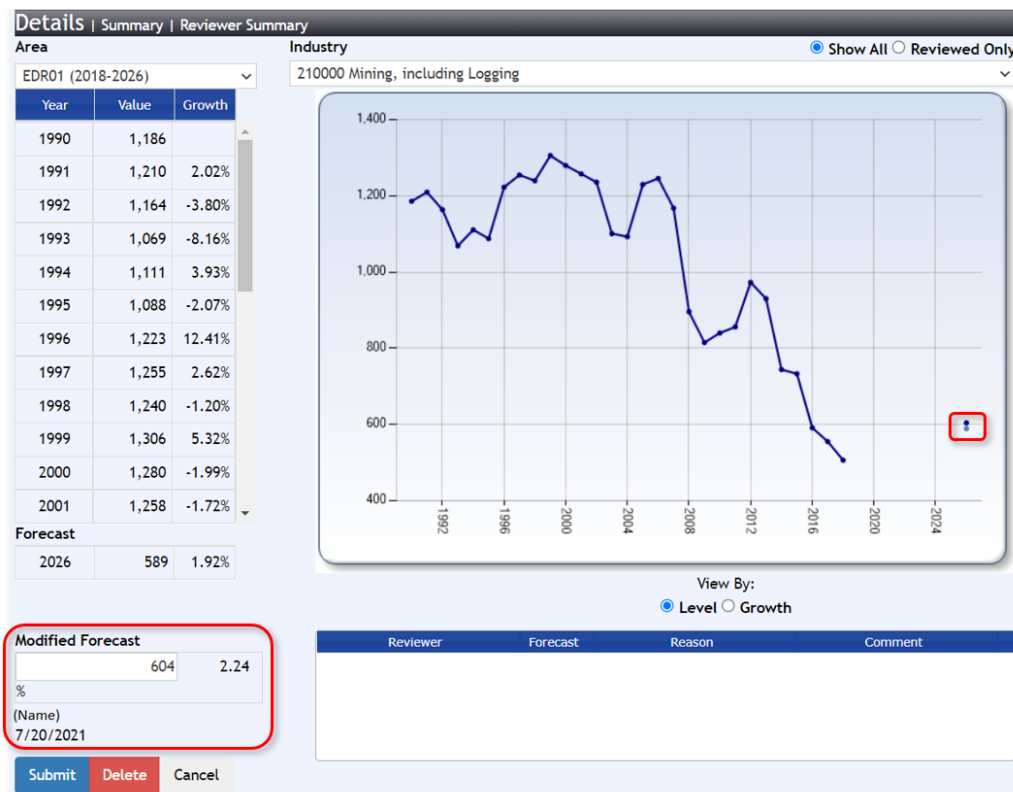


Figure 2: Industry Data display, after a Modified Forecast has been submitted

On the left side of the display, the earliest **Industry** history's year starts based on where the base year used in the projections calculates backward to (typically 1990).

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The future **Forecast** will be displayed just below the year history. On the right side of the display, the graph displays the industry's year history and the future **Forecast** point.

If outside calculations or adjustments are done by the Reviewer or Analyst, a **Modified Forecast** can be submitted into **Local Review** under your Reviewer user name. After entering the data and the **Submit** button is clicked, the Modified Forecast will be saved. After saving, the user **Name** of the Analyst, the date it was submitted, as well as the forecasted increase or decrease in (decimal) percentage will be displayed below the Modified Forecast entry. The data for the submitted Modified Forecast will be saved and displayed near the **Forecast** data on the graph (highlighted on the right).

☞ Submitting a **Modified Forecast** will save the value so it's available under the **Reviewer Summary** and **Details** menu options.

When the submitted **Modified Forecast** data is in its saved cell, clicking the **Delete** button will remove that data and its forecasted point will be removed from the graph.

Reviewer Summary

The **Reviewer Summary** option enables the viewing of projections, sorted by the Reviewer's name. Select a **Reviewer** from the drop-down menu to display data they have reviewed. The ability to look over the **Reviewer Summary** of their industries differs from the previous **Summary** page, by allowing you to search through Reviewer's and Analyst's uploaded projections in **Local Review**, instead of sorting by **Area**.

Screen Controls

- **Reviewer** dropdown menu
- **Code / Industry Title** column links
 - **Level** radio button (shows points on the graph, based on the **Year** and **Value**)
 - **Growth** radio button (shows percentage points on the graph, based on the **Year** and **Growth** percentage)
 - **Show All** radio button
 - **Reviewed Only** radio button
- **Page** input field and navigation **arrows**

Select a **Reviewer** from the dropdown menu and all of their previous inputs will be displayed for the areas they've submitted, as well as any **Modified Forecast** adjustments they've made in the far right column:

Reviewer Summary Summary Details						
Reviewer: Test, Bill						
Area (Timeframe) ↕	Industry Code	Industry Title	Base Value	Analyst Forecast	Local Revision	Modified Forecast
EDR01 (2018-2026)	110067	Self Employed Workers in Agriculture	959	955		
EDR01 (2018-2026)	110500	Wage and Salary Workers in Agriculture	1,527	1,519		
EDR01 (2018-2026)	210000	Mining, including Logging	506	589		604
EDR01 (2018-2026)	220000	Utilities	1,730	1,843		
EDR01 (2018-2026)	237000	Heavy and Civil Engineering Construction	916	1,386		1,390
EDR01 (2018-2026)	238000	Specialty Trade Contractors	4,693	6,200		
EDR01 (2018-2026)	311000	Food Manufacturing	8,043	10,404		
EDR01 (2018-2026)	313000	Textile Mills	28	40		
EDR01 (2018-2026)	315000	Apparel Manufacturing	6	4		
EDR01 (2018-2026)	322000	Paper Manufacturing	1,639	971		
EDR01 (2018-2026)	323000	Printing and Related Support Activities	962	935		
EDR01 (2018-2026)	324000	Petroleum and Coal Products Manufacturing	11	12		
EDR01 (2018-2026)	327000	Nonmetallic Mineral Product Manufacturing	721	763		
EDR01 (2018-2026)	332000	Fabricated Metal Product Manufacturing	2,851	2,953		
EDR01 (2018-2026)	335000	Electrical Equipment, Appliance, and Component Manufacturing	176	181		
EDR01 (2018-2026)	336000	Transportation Equipment Manufacturing	371	318		
EDR01 (2018-2026)	339000	Miscellaneous Manufacturing	412	396		
EDR01 (2018-2026)	424000	Merchant Wholesalers, Nondurable Goods	4,640	5,375		
EDR01 (2018-2026)	425000	Wholesale Electronic Markets and Agents and Brokers	540	900		

Figure 1: Reviewer Summary display, Reviewer highlighted

By clicking a [NAICS Code](#) or **Industry Title** link, you'll be navigated to the history and graphical **Details** display (similar to this option on the [Summary](#) page) to review the history and **Modified Forecast** on an industry's projections.

Details

The **Details** option under **Review** (parent) menu can show a selected **Area** and **Industry** history on a graph, together.

Screen Controls

- **Area** drop-down menu
- **Industry** drop-down menu
- **Level** radio button (shows points on the graph, based on the **Year** and **Value**)
- **Growth** radio button (shows percentage points on the graph, based on the **Year** and **Growth** percentage)
- **Show All** radio button
- **Reviewed Only** radio button

Navigating to the Details option will display the data on a graph to view and enable the submission and viewing of Modified Forecasts.

Select an **Area** and **Industry** from the drop-down menus. The data and its graph will be displayed and allow you to enter a **Modified Forecast**. To filter by the industries that have been reviewed, click the **Reviewed Only** radio button.

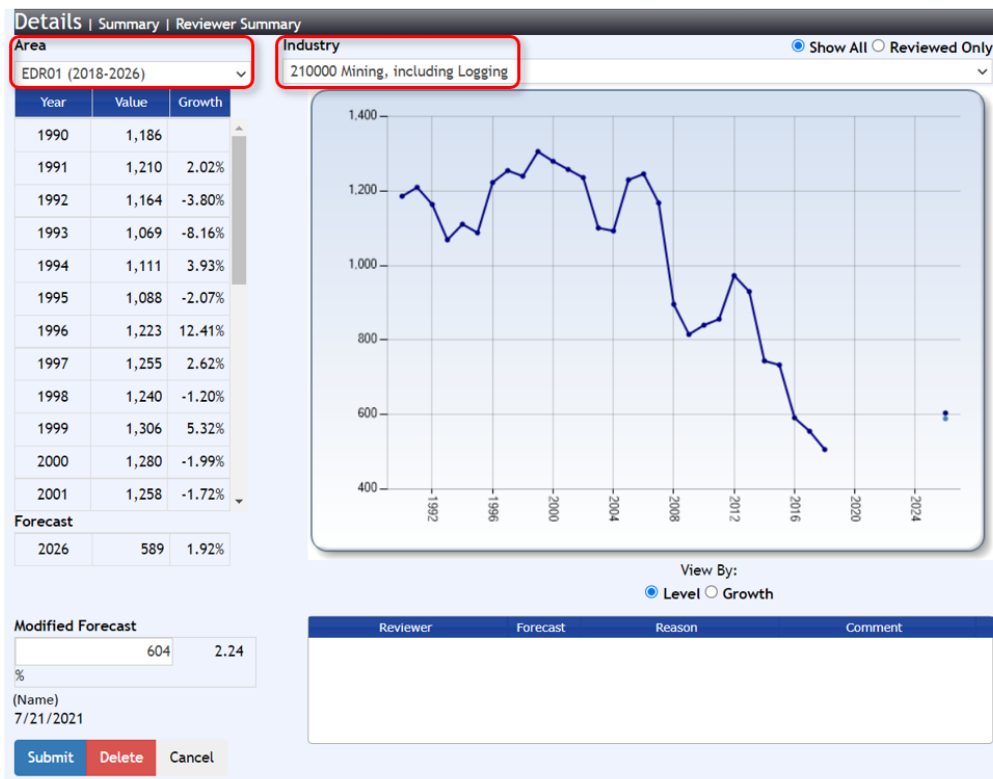


Figure 1: Details display, with Area and Industry highlighted

You are able submit a *different* Modified Forecast by entering a new value in the **Modified Forecast** field and clicking the **Submit** button. Click **Delete** to remove the current Modified Forecast.

- ☞ Submitting a new Modified Forecast does not allow a single **Reviewer** to add multiple modified forecasts, it will simply update the current Modified Forecast submitted under your Reviewer user name.

Local Review Format

Local Review is designed to review **industry** projections in the correct **Format** exported from Projections Suite. Local Review *does not* enable reviewing of Occupational Projections.

Export Industry Projections Method

1. Open **Projections Suite** and navigate to the **Short-Term** or **Long-Term** application menus. Select the **Output** group menu icon (you can also press **F9** on your keyboard).
2. Select the **Export Industry Projections** module.

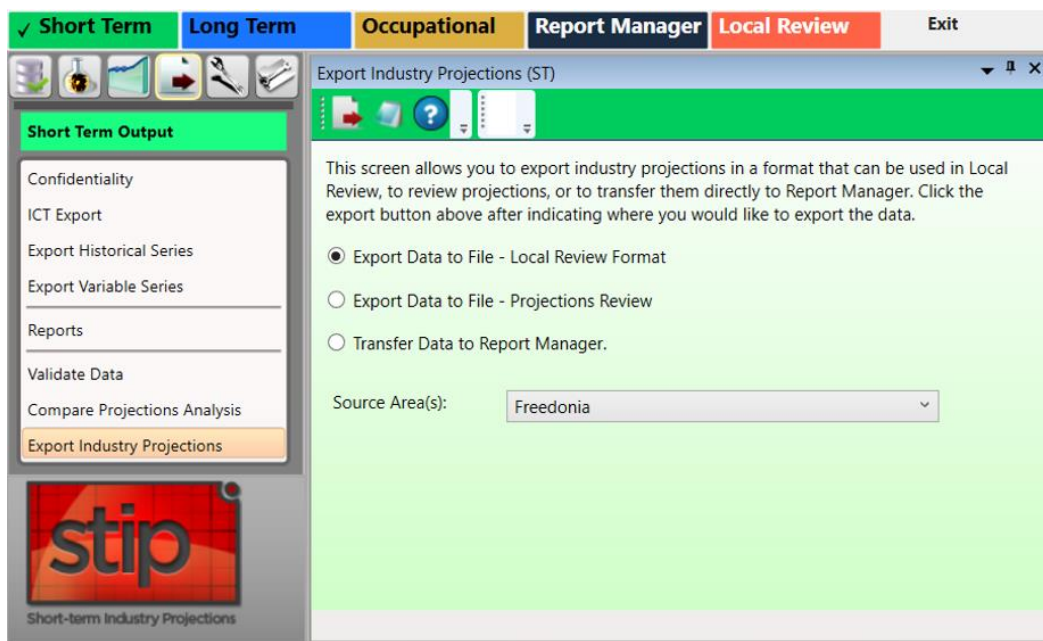


Figure 1: Export Industry Projections module

3. On the screen that appears, select the **Source Area(s)** you would like to transfer to **Local Review**. If you would like to select all the areas, select the **All** areas at the top of the list.
4. Click the **Export Data to File - Local Review Format** radio button.
6. When you have made your selection, click the **Export** button on the [Active Module Toolbar](#).
7. A **Save As** dialog box will display. Name and select a location for the file, then press the **Save** button.
8. A **Finished** dialog box will display once projections have been exported. Click **OK**.

Local Review File Format

The **Local Review** file format contains the following columns:

- **FIPS** - State FIPS code (2 character alphanumeric and may contain a zero on the left).
- **Area** - Area Code (valid codes are 6 digits long and may contain zeros left or right and must correspond to the area code found in [Manage Areas](#) - Area Directory).
- **AreaName** - The name of the area.
- **AreaType** - Area Type code (2 digits long and may contain a zero on the left). **01** indicates statewide area type. See **Manage Areas** for the various types.
- **IndustryCode** - Industry Code (valid codes are 6 digits long and may contain zeros on the right and must be a code found in Manage Industries - [Industry Directory](#)).
- **IndustryTitle** - Corresponding NAICS Industry Title.
- **Date** - Year and quarter.
- **Value** - Employment value.

Microsoft Excel - LocalReviewIndustryProjections_STIP

	A	B	C	D	E	F	G	H
1	FIPS	Area	AreaName	AreaType	IndustryCode	IndustryTitle	Date	Value
2	17	000017	Freedonia	01	211000	Oil and Gas Extr	2013 Q2	23605
3	17	000017	Freedonia	01	211000	Oil and Gas Extr	2013 Q3	23617
4	17	000017	Freedonia	01	211000	Oil and Gas Extr	2013 Q4	23628
5	17	000017	Freedonia	01	211000	Oil and Gas Extr	2014 Q1	23640
6	17	000017	Freedonia	01	211000	Oil and Gas Extr	2014 Q2	23652

Figure 2: Local Review File Format

File Formats

Projections Suite uses a variety of input and output file formats to control how data is imported and exported throughout it, as well as transferred to and from other associated software platforms. These files can be categorized into two main types: spreadsheet and text. Select a link from the list below to learn more about (and see examples of) individual file formats used in Projections Suite.

☞ To avoid spreadsheet import problems, use the same (or a future released) version of the spreadsheet software used to create the spreadsheet. When this is not possible, find a coworker who has the required version and have them save the spreadsheet into a compatible version.

Spreadsheet File Formats

- [Area Format](#) - Used in all **Projections Suite** applications
- **Employment Formats** - Used in **Short-Term** and **Long-Term Projections**
 - [Type 1](#) - Dates as Columns
 - [Type 2](#) - Industries as Columns
 - [Type 3](#) - Industry and Date by Row
- [Geographic Comparison](#) Format
- [ICT Spreadsheet](#) Format - Used in **Occupational Projections**
- [Variable Spreadsheet](#) Format - Used **Short-Term** and **Long-Term Projections**
- [Validation Section of the ETA](#) Format
- [Staffing Pattern Spreadsheet](#) Format - Used in the Import Staffing Pattern module of **Occupational Data**
 - [LEWIS Staffing Pattern](#) Format
 - **Import Spreadsheet** ([ST](#) and [LT](#)) module instructions

Text File Formats

- **Import Text File** ([ST](#) and [LT](#)) module instructions.
- [LEWIS Staffing Pattern Text](#) Format
- [QCEW Data Extract Instructions](#)
- [QCEW Output Text](#) Format
- [Win202 / MSA Text](#) Format
- **Import Text File** ([ST](#) and [LT](#)) module instructions

Related Content

- Variable Directory ([ST](#) and [LT](#))
- Review Variables ([ST](#) and [LT](#))

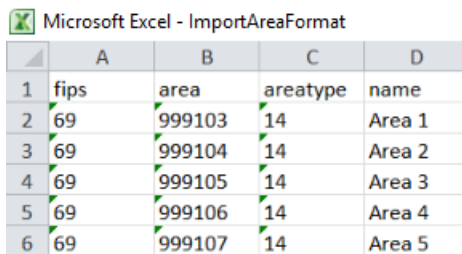
- [Preview Variables](#)
- [Edit ICT](#)
- Manage Areas ([ST](#), [LT](#), and [OP](#))
- [Validation](#)
- Geographic Comparison ([ST](#), [LT](#), [OP ST](#), and [OP LT](#))
- [Import Staffing Pattern](#)

Area Format

This spreadsheet format provides the means to create multiple new areas in a single operation. Creating areas from a spreadsheet is not a typical procedure (usually analysts will simply build areas with the templates provided in the [Manage Areas](#) module), but the option is made available through the **Import Spreadsheet** ([ST](#) and [LT](#)) modules.

The first row in the spreadsheet is reserved for the column headers. Four column headers are required to identify the area and industry, and can be in any order in the header row:

- **fips** - State FIPS code (2 character alphanumeric and may contain a zero on the left).
- **area** - Area code (valid codes are 6 digits long and may contain zeros left or right).
- **areatype** - Area Type code (2 digits long and may contain a zero on the left). "00" indicates US variables, "01" indicates statewide values, otherwise the code identifies a specific area type.
- **name** - Area name.



	A	B	C	D
1	fips	area	areatype	name
2	69	999103	14	Area 1
3	69	999104	14	Area 2
4	69	999105	14	Area 3
5	69	999106	14	Area 4
6	69	999107	14	Area 5

Figure 1: Area Format spreadsheet

- ☞ All other columns in the spreadsheet will be ignored. The **areatype** code must already exist in the application database. All area values will fall under the respective column header cell that identifies it.

Related Content

- [Manage Areas](#)


Type 1 Employment Format - Dates as Columns

This **Type 1** spreadsheet format identifies the area and industry per row, with all the date and employment value columns extending to the right. It is a horizontal or wide layout.


The first row in the spreadsheet is reserved for the column headers. Four column headers are required to identify the area and industry, and can be in any order in the header row.

The first row also requires the column header cells that identify the date for each column of employment values. Each of these column header cells must begin with the letter "D" (upper or lower case) followed by the date (e.g., monthly - D199001, D200406; annual - D2008, D2001, etc.). See the examples below.

- **fips** - State FIPS code (2 character alphanumeric and may contain a zero on the left).
- **area** - Area Code (valid codes are 6 digits long and may contain zeros left or right and must correspond to the area code found in Manage Areas - Area Directory).
- **areatype** - Area Type code (2 digits long and may contain a zero on the left). "01" indicates statewide area type. See **Manage Areas** ([ST](#), [LT](#), [OP](#)) for the various types.
- **naics** - Industry Code (valid codes are 6 digits long and may contain zeros on the right and must be a code found in **Manage Industries - Industry Directory** ([ST](#), [LT](#), [OP](#)).


 Microsoft Excel - ExampleFormat1Monthly [Compatibility Mode]

	A	B	C	D	E	F	G	H
1	fips	area	areatype	naics	d199001	d199002	d199003	d199004
2	80	000080	01	000000	772889	777318	784127	793142
3	80	000080	01	111000	40352	40264	40177	40089
4	80	000080	01	112000	31705	31636	31567	31498

 Microsoft Excel - ExampleFormat1Annual [Compatibility Mode]

	A	B	C	D	E	F	G	H
1	Fips	areatype	area	NAICS	d1972	d1973	d1974	d1975
2	80	01	000080	000000	1536000	1538240	1567780	1541380
3	80	01	000080	211000	2634	2674	2776	2984
4	80	01	000080	212000	6878	7036	7572	8040

Figure 1: Short-Term (top) and Long-Term (bottom) Type 1 Employment Format examples

 All other columns in the spreadsheet will be ignored. If definitions are not valid, the record will be ignored in the import with messages displayed. All area, industry,

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and employment values will fall under the respective identifying column header cells.

Related Content

- Import Spreadsheet ([ST](#) and [LT](#))

Type 2 Employment Format - Industries as Columns

The **Type 2** spreadsheet format identifies the area and date per row, industries as columns with each Industry/employment value extending to the right. This spreadsheet format may contain both monthly and annual data rows intermingled. It is referred to as a vertical or tall layout.

The first row in the spreadsheet is reserved for the column headers. Four column headers are required to identify the area and date, and can be in any order in the header row:

- **fips** - State FIPS code (2 character alphanumeric and may contain a zero on the left).
- **area** - Area Code (valid codes are 6 digits long and may contain zeros left or right).
- **areatype** - Area Type code (2 digits long and may contain a zero on the left). "00" indicates US variables, "01" indicates statewide values, otherwise the code identifies a specific area type.
- **date** - Specifies the date to be associated with industry employment values.

Microsoft Excel - ExampleFormat2Monthly [Compatibility Mode]

	A	B	C	D	E	F	G	H
1	fips	area	areatype	date	I111000	I112000	I114000	I115000
2	80	000080	01	199001	7494	1093	225	668
3	80	000080	01	199002	7546	1098	186	649
4	80	000080	01	199003	7592	1089	200	635

Microsoft Excel - ExampleFormat2Annual [Compatibility Mode]

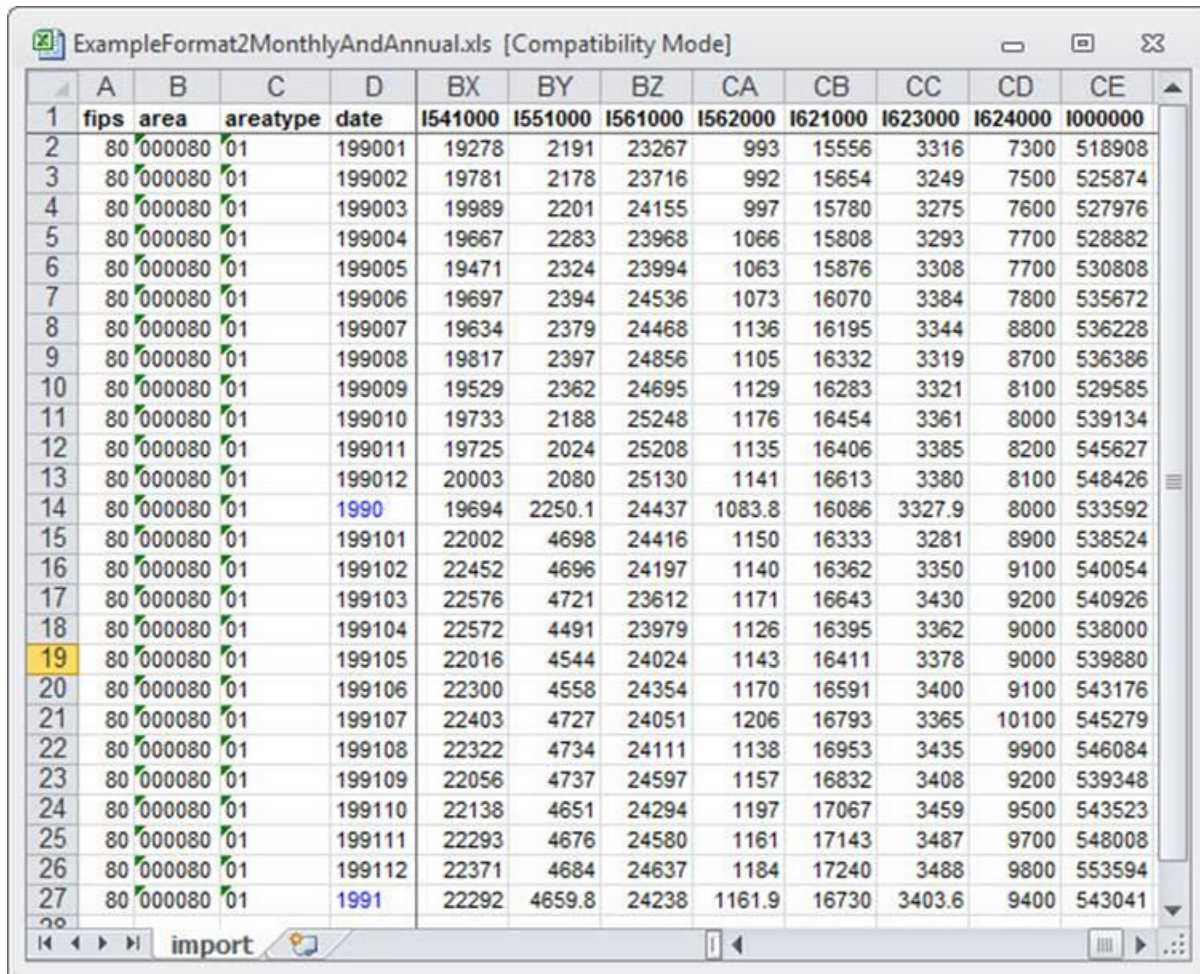
	A	B	C	D	E	F	G	H
1	fips	area	areatype	date	I111000	I112000	I114000	I115000
2	80	000080	01	1990	7494	1093	225	668
3	80	000080	01	1991	7546	1098	186	649
4	80	000080	01	1992	7592	1089	200	635

Figure 1: Short-Term (top) and Long-Term (bottom) Format Type 2 examples

The first row also requires the column header cells that identify the industry for each column of employment values. Each of these column header cells must begin with the letter "I" (upper or lower case) followed by the Industry/[NAICS](#) code (example: I811000, I626262, I999100, etc.).

This spreadsheet format may contain both monthly and annual data rows intermingled, however, the first row of data will be recognized by the system as the type to import and will ignore other type records. In the example below the first row of data is a monthly type and will import all the monthly type records and ignore the annual type records. If the first row of data contains an annual type then all annual types will be imported and the monthly will be ignored.

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	A	B	C	D	BX	BY	BZ	CA	CB	CC	CD	CE
1	fips	area	areatype	date	I541000	I551000	I561000	I562000	I621000	I623000	I624000	I000000
2	80	000080	01	199001	19278	2191	23267	993	15556	3316	7300	518908
3	80	000080	01	199002	19781	2178	23716	992	15654	3249	7500	525874
4	80	000080	01	199003	19989	2201	24155	997	15780	3275	7600	527976
5	80	000080	01	199004	19667	2283	23968	1066	15808	3293	7700	528882
6	80	000080	01	199005	19471	2324	23994	1063	15876	3308	7700	530808
7	80	000080	01	199006	19697	2394	24536	1073	16070	3384	7800	535672
8	80	000080	01	199007	19634	2379	24468	1136	16195	3344	8800	536228
9	80	000080	01	199008	19817	2397	24856	1105	16332	3319	8700	536386
10	80	000080	01	199009	19529	2362	24695	1129	16283	3321	8100	529585
11	80	000080	01	199010	19733	2188	25248	1176	16454	3361	8000	539134
12	80	000080	01	199011	19725	2024	25208	1135	16406	3385	8200	545627
13	80	000080	01	199012	20003	2080	25130	1141	16613	3380	8100	548426
14	80	000080	01	1990	19694	2250.1	24437	1083.8	16086	3327.9	8000	533592
15	80	000080	01	199101	22002	4698	24416	1150	16333	3281	8900	538524
16	80	000080	01	199102	22452	4696	24197	1140	16362	3350	9100	540054
17	80	000080	01	199103	22576	4721	23612	1171	16643	3430	9200	540926
18	80	000080	01	199104	22572	4491	23979	1126	16395	3362	9000	538000
19	80	000080	01	199105	22016	4544	24024	1143	16411	3378	9000	539880
20	80	000080	01	199106	22300	4558	24354	1170	16591	3400	9100	543176
21	80	000080	01	199107	22403	4727	24051	1206	16793	3365	10100	545279
22	80	000080	01	199108	22322	4734	24111	1138	16953	3435	9900	546084
23	80	000080	01	199109	22056	4737	24597	1157	16832	3408	9200	539348
24	80	000080	01	199110	22138	4651	24294	1197	17067	3459	9500	543523
25	80	000080	01	199111	22293	4676	24580	1161	17143	3487	9700	548008
26	80	000080	01	199112	22371	4684	24637	1184	17240	3488	9800	553594
27	80	000080	01	1991	22292	4659.8	24238	1161.9	16730	3403.6	9400	543041

Figure 2: Type 2 format example

- ☞ All other columns in the spreadsheet will be ignored. If definitions are not valid, the record will be ignored in the import and messages will be displayed to indicate the number of records not imported. All area, date, and industry employment values will fall under the respective column header cell that identifies it.

Related Content

- Import Spreadsheet ([ST](#) and [LT](#))

Type 3 Employment Format - Industry and Date by Row

The **Type 3** spreadsheet format identifies the area, industry, level, and date per row. Each industry/employment value extends to the right. For **Short-Term**, this spreadsheet format can contain both monthly and annual data rows. It is referred to as a square or block/vertical or tall layout.

This spreadsheet's first row is reserved for the column headers. Six column headers are required and can be in any order in the header row:

- **FIPS** - State FIPS code (2 character alphanumeric and may contain a zero on the left).
- **Area** - Area Code (valid codes are 6 digits long and may contain zeros left of right).
- **AreaType** - Area Type code (2 digits long and may contain a zero on the left). "00" indicates US variables, "01" indicates statewide values, otherwise the code identifies a specific area type.
- **NAICS** - Industry Code (valid codes are 6 digits long and may contain zeros on the right).
- **Level** - Industry Level.
- **Date** - Specifies the date to be associated with industry employment values.

Microsoft Excel - ExampleFormat3Monthly [Compatibility Mode]

	A	B	C	D	E	F
1	FIPS	Area	Areatype	NAICS	Level	Date
2	80	000080	01	236000	726	200801
3	80	000080	01	237000	323	200801
4	80	000080	01	238000	75	200801

Microsoft Excel - ExampleFormat3Annual [Compatibility Mode]

	A	B	C	D	E	F
1	FIPS	Area	Areatype	NAICS	Level	Date
2	80	000080	01	236000	726	2008
3	80	000080	01	237000	323	2008
4	80	000080	01	238000	75	2008

Figure 1: Short-Term (top) and Long-Term (bottom) Format Type 3 examples

☞ All other columns in the spreadsheet will be ignored. If definitions are not valid, the record will be ignored in the import and messages will be displayed to indicate the number of records not imported. All area, industry, level, and date values will fall under the respective column header cell that identifies it.

Related Content

- Import Spreadsheet ([ST](#) and [LT](#))

Geographic Comparison File Format

The [Short](#) and [Long-Term Geographic Comparison](#) modules generate spreadsheets with the state comparison data. These columns are immediately preceded by the [Validation Section of the ETA File Format](#).

The following information can also be found inside the generated file, under the Column Definitions tab. The **Geographic Comparison** files are shown as the **Occupation Format** (left columns) and **Industry Format** (right columns):

Column	Occupation Format Definition	Column	Industry Format Definition
L	Growth Ratio	K	Growth Ratio
M	Number of States Submitting this Occupation Code	L	Number of States Submitting this Industry Code
N	Number of States with a Higher Percent Change	M	Number of States with a Higher Percent Change
O	Number of States with a Lower Percent Change	N	Number of States with a Lower Percent Change
P	Minimum Percent Change of All States	O	Minimum Percent Change of All States
Q	Maximum Percent Change of All States	P	Maximum Percent Change of All States
R	Lowest Percent Change of All States, designated by a 1	Q	Lowest Percent Change of All States, designated by a 1
S	Highest Percent Change of All States, designated by a 1	R	Highest Percent Change of All States, designated by a 1
T	1 of 3 States with the Lowest Percent Change, designated by a 1	S	1 of 3 States with the Lowest Percent Change, designated by a 1
U	1 of 3 States with the Highest Percent Change, designated by a 1	T	1 of 3 States with the Highest Percent Change, designated by a 1
V	1 of 3 States with a Positive Percent Change, designated by a 1	U	1 of 3 States with a Positive Percent Change, designated by a 1
W	1 of 3 States with a Negative Percent Change, designated by a 1	V	1 of 3 States with a Negative Percent Change, designated by a 1

X	Only State with a Positive Percent Change, designated by a 1	W	Only State with a Positive Percent Change, designated by a 1
Y	Only State with a Negative Percent Change, designated by a 1	X	Only State with a Negative Percent Change, designated by a 1
Z	Each State's Percent Change in Rank Order	Y	Each State's Percent Change in Rank Order
AA	Number of States Submitting this Occupation Code	Z	Number of States Submitting this Industry Code
AB	Number of States with a Higher Growth Ratio	AA	Number of States with a Higher Growth Ratio
AC	Number of States with a Lower Growth Ratio	AB	Number of States with a Lower Growth Ratio
AD	Minimum Growth Ratio of All States	AC	Minimum Growth Ratio of All States
AE	Maximum Growth Ratio of All States	AD	Maximum Growth Ratio of All States
AF	State with the Lowest Growth Ratio, designated by a 1	AE	State with the Lowest Growth Ratio, designated by a 1
AG	State with the Highest Growth Ratio, designated by a 1	AF	State with the Highest Growth Ratio, designated by a 1
AH	1 of 3 States with the Lowest Growth Ratio, designated by a 1	AG	1 of 3 States with the Lowest Growth Ratio, designated by a 1
AI	1 of 3 States with the Highest Growth Ratio, designated by a 1	AH	1 of 3 States with the Highest Growth Ratio, designated by a 1
AJ	1 of 3 States with a Negative Growth Ratio, designated by a 1	AI	1 of 3 States with a Negative Growth Ratio, designated by 1
AK	1 of 3 States with a Positive Growth Ratio, designated by a 1	AJ	1 of 3 States with a Positive Growth Ratio, designated by a 1
AL	Only State with a Negative Growth Ratio, designated by a 1	AK	Only State with a Negative Growth Ratio, designated by a 1
AM	Only State with a Positive Growth Ratio, designated by a 1	AL	Only State with a Positive Growth Ratio, designated by a 1
AN	Each State's Growth Ratio in Rank Order	AM	Each State's Growth Ratio in Rank Order

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AO	Each State's Base Employment in Rank Order	AN	Each State's Base Employment in Rank Order
----	-----------------------------------------------	----	-----------------------------------------------

Figure 1: Occupation and Industry format definitions

Projection descriptors replicate the methodology used by the U.S. Bureau of Labor Statistics in its review of 10-year, occupational employment projections. This report also uses percentage changes to rank each state on a number of additional descriptors. The mix of growth ratio and percent change descriptors should provide a comprehensive depiction of a state's **Occupational Projections**.

Occupations with a suppress value of 1 are not analyzed and are excluded from the comparative rankings. These occupations do not appear on a state's completed analysis spreadsheet.

The results in the Growth Ratio are estimated for each occupation by dividing the occupation's growth rate in the state to the state's projected growth rate for total employment. The ratio always uses the sign of the numerator.

The state comparisons could result in a number of states with the same value. For example, if six states are tied at #10 for the rank order, the next rank would be 16. This explains how N could equal 50, with 9 having a higher percent change and 35 with a lower percent change. This indicates 6 states were tied at a value.

Most ties should be eliminated by using a percentage change calculation to five decimal places.

Related Content

- Short-Term Geographic Comparison ([ST](#) and [OP](#))
- Long-Term Geographic Comparison ([LT](#) and [OP](#))
- [Validation Section of the ETA File Format](#)

ICT Spreadsheet Format

The **ICT Spreadsheet Format** supports the **Industry Control Total (ICT)** data import for staffing patterns. It has ten required columns (in **bold** in the following list) and two optional columns:

- **indid** - Industry ID Code (valid codes are 6 digits long and may contain zeros on right).
- indname - Industry name (optional column).
- **stfips** - State FIPS code (2 character alphanumeric and may contain a zero on the left).
- **areatype** - Area Type code (2 digits long and may contain a zero on the left). "00" indicates US variables, "01" indicates state-wide values, otherwise the code identifies a specific area type.
- **areacode** - Area Code (valid codes are 6 digits long and may contain zeros left or right).
- **areaname** - Name of the area (optional column).
- **baseyear** - Base year.
- **base** - Base employment.
- **projyear** - Projected year.
- **proj** - Projected employment.
- **conf1** - Primary Confidentiality flag (the new ICT record's confidentiality flag will be a combination of the primary and secondary flags).
- **conf2** - Secondary Confidentiality flag.

	A	B	C	D	E	F	G	H	I	J	K	L
1	indid	indname	stfips	areatype	areacode	areaname	baseyear	base	projyear	proj	conf1	conf2
2	000000	Total All In	78	01	000078	Freedonia	2017	36204	2019	36471	0	0
3	230000	Constructi	78	01	000078	Freedonia	2017	0	2019	1908	0	0
4	236000	Constructi	78	01	000078	Freedonia	2017	794	2019	887	0	0
5	237000	Heavy and	78	01	000078	Freedonia	2017	456	2019	541	0	0
6	238000	Specialty	78	01	000078	Freedonia	2017	482	2019	480	0	0
7	310000	Manufactu	78	01	000078	Freedonia	2017	0	2019	459	0	0
8	312000	Beverage	78	01	000078	Freedonia	2017	283	2019	288	0	0
9	327000	Nonmetalli	78	01	000078	Freedonia	2017	158	2019	151	0	0
10	334000	Computer	78	01	000078	Freedonia	2017	20	2019	20	0	0
11	420000	Wholesale	78	01	000078	Freedonia	2017	0	2019	763	0	0
12	424000	Merchant	78	01	000078	Freedonia	2017	755	2019	763	0	0
13	440000	Retail Trad	78	01	000078	Freedonia	2017	0	2019	5797	0	0
14	441000	Motor Veh	78	01	000078	Freedonia	2017	395	2019	386	0	0
15	443000	Electroni	78	01	000078	Freedonia	2017	203	2019	194	0	0

Figure 1: ICT spreadsheet format

- ☞ All other columns in the spreadsheet will be ignored. Empty cell values will cause the row to be ignored without creating an ICT record for that row of data. All values will fall under the respective column header that identifies it.

Related Content

- [Import ICT](#)
- [Edit ICT](#)
- [ICT Export](#)

Variable Spreadsheet Format

The **Variable Spreadsheet** format identifies the date, possible areas if needed, and one or more industry variable values per row. This spreadsheet must either contain monthly (Short-term) or annual (Long-term) data, but cannot contain both in the same file because of the month and year differences in the data.

National Variable Spreadsheet

The first row in the spreadsheet is reserved for column headers. The required columns are:

- **Date** - Specifies the year and month (Short-term), or just the year (Long-term) to be associated with the variables.
- **Variable Names** - These variable names must be exact, as listed how you want them displayed in the **Variable Directory** (including spaces). If the name deviates in any way from what is already listed in the Variable Directory, a new variable will be added.

	A	B	C	D	E	F
1	date	Composit	Average Weekly Hou	Average W	Manufac	Vendor Pe
2	199001	69.7	40.5	362	108998	48
3	199002	69.5	40.6	356	113094	44
4	199003	69.6	40.6	344	115394	47
5	199004	69.3	40.4	361	113067	47
6	199005	69.3	40.6	358	115053	48
7	199006	69.3	40.7	361	114782	49
8	199007	69.0	40.6	367	113494	46
9	199008	68.0	40.5	387	115321	50

Figure 1: **Short-term National** variables spreadsheet format

	A	B	C	D	E
1	date	fips	areatype	area	Real Gross
2	1972 00	00	000000	000000	5,380
3	1973 00	00	000000	000000	5,687
4	1974 00	00	000000	000000	5,656
5	1975 00	00	000000	000000	5,644
6	1976 00	00	000000	000000	5,949
7	1977 00	00	000000	000000	6,224
8	1978 00	00	000000	000000	6,500

Figure 2: **Long-term National** variables spreadsheet format (that includes FIPS, Areatype, and Area)

Reference the **Variable Directory** modules ([ST](#) and [LT](#)) for more information. Select the **National** variable type from the drop-down in Projections Suite to see the names of the national variables in its table. All variables and data values will fall under the respective column header cell that identifies it in the spreadsheet.

☞ The latest National Variable downloads can be found at the [Projections Suite Support](#) site in its **Resources** drop-down menu.

Multiple Area Variables

To use variables when projecting particular **Long-term** industries by [FIPS](#) code, area types, and areas, [import their spreadsheet](#) and use the [Variable Directory](#) module. In the Long-Term **Variable Directory** module, the **Select an area** drop-down menu will display the location determined by the imported FIPS.

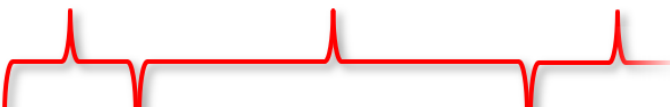
Date

- YYYY for LT

Area Specifications

- FIPS for State or Territory
- Areatype/Area are imported and used in Manage Areas modules

Variable Names



	A	B	C	D	E
1	Date	FIPS	Areatype	Area	FLP
2	1982	80 01	000080	7,68	
3	1983	80 01	000080	8,15	
4	1984	80 01	000080	8,50	
5	1985	80 01	000080	8,64	
6	1986	80 01	000080	8,70	
7	1987	80 01	000080	8,80	

Figure 4: An example of a labeled **Long-term (annual, multi-area)** variable spreadsheet

☞ For more information about importing spreadsheets in general, reference the **Import Spreadsheet** ([ST](#) and [LT](#)) modules or view the **Variable Directory** ([ST](#), [LT](#)) modules. For references, you can look at the [File Formats](#) topic directory itself, for a broader point of view on all types of variables used.

Related Content

- Variable Directory ([ST](#) and [LT](#))
- Review Variables ([ST](#) and [LT](#))
- [Preview Variables](#)

Validation Section of the ETA File Format

Two of these file formats are produced in the **Projections Suite**: one for Industry data and one for Occupational data. Their formats are similar, but have the minor differences listed below. This collection of columns is used in the [Validation](#) module in **Occupational Projections** to validate file contents before uploading ETA data. Each set of columns listed below is immediately followed by the contents of the [Geographic Comparison File Format](#).

For more information on the ETA deliverable process from the **Projections Central Support** website, click [here](#).

The file produced in **Occupational Projections** must contain the following eleven columns to pass validation:

- **stfips** - The two-digit state FIPS.
- **periodid** - 2 if it is short term data and 10 if it is long term data.
- **occcode** - The occupation code.
- **title** - The occupation title.
- **estoccprj** - The base year employment value.
- **projoccprj** - The projected year employment value.
- **nchg** - The numeric change. (projoccprj - estoccprj).
- **pchg** - The percent change. (projoccprj - estoccprj) / estoccprj * 100. Entered to five decimal places.
- **aopent** - The annual average total openings.
- **suppress** - The suppression value indicates whether the data is confidential. 1 if it is confidential and 0 if not.
- **baseyear** - The base year.
- **projectionyear** - The projection year.

The file produced in **Industry** (both **Short-Term** and **Long-Term**) **Projections** must contain the following ten columns to pass validation:

- **stfips** - The two-digit state FIPS.
- **periodid** - 2 if it is short term data and 10 if it is long term data.
- **ndcode** - The industry code.
- **title** - The industry title.
- **level** - Occupational level (SOC level).
- **basevalue** - The base year employment value.
- **projectionvalue** - The projected year employment value.
- **nchg** - The numeric change (proj - base).
- **pchg** - The percent change (proj - base) / base * 100. Entered to five decimal places.

- **suppress** - The suppression value indicates whether the data is confidential. 1 if it is confidential and 0 if not.
- **baseyear** - The base year.
- **projectionyear** - The projection year.

Related Content

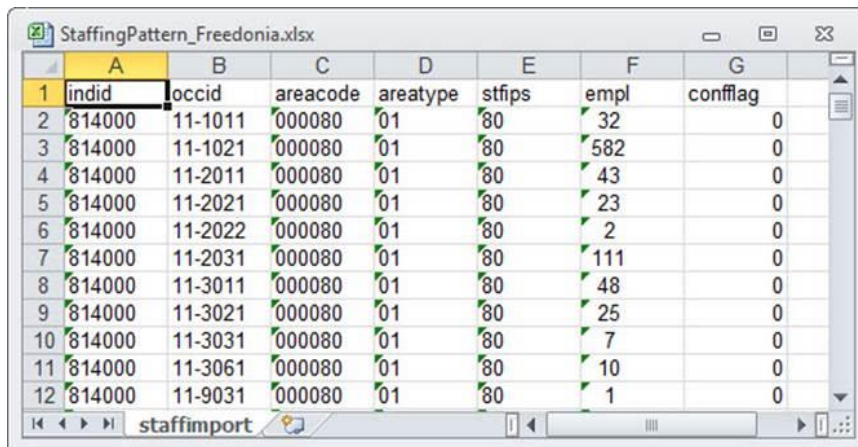
- [Validation](#)
- [Upload Area Connection](#)
- [Geographic Comparison File Format](#)

Staffing Pattern Spreadsheet Format

The **Staffing Pattern Spreadsheet** format identifies the area, industry, occupation, employment level, and confidentiality per row. Match your data to the format below and import it using the [Import Staffing Pattern](#) module in **Occupational Projections**.

Column headers must be in the first row of the spreadsheet. Seven column headers are required and can be in any order in the header row:

- **indid** - Industry ID code (valid codes are 6 digits long and may contain zeros on the right).
- **occid** - Occupational ID code (valid codes start with 2 digits, followed by a dash, and then 4 digits. Example: 00-0000, 11-0000, 19-1031, etc.).
- **areacode** - Six-digit area identification code.
- **areatype** - Area Type code (2 digits long and may contain a zero on the left). "00" indicates US variables, "01" indicates statewide values, and otherwise the code identifies a specific area type.
- **stfips** - State FIPS code (2 character alphanumeric and may contain a zero on the left).
- **empl** - Employment value (whole number without decimal).
- **conflag** - Confidentiality flag (either 0 or 1, where 1 is confidential).



	A	B	C	D	E	F	G
	indid	occid	areacode	areatype	stfips	empl	conflag
2	814000	11-1011	000080	01	80	32	0
3	814000	11-1021	000080	01	80	582	0
4	814000	11-2011	000080	01	80	43	0
5	814000	11-2021	000080	01	80	23	0
6	814000	11-2022	000080	01	80	2	0
7	814000	11-2031	000080	01	80	111	0
8	814000	11-3011	000080	01	80	48	0
9	814000	11-3021	000080	01	80	25	0
10	814000	11-3031	000080	01	80	7	0
11	814000	11-3061	000080	01	80	10	0
12	814000	11-9031	000080	01	80	1	0

Figure 1: Staffing Pattern spreadsheet format

- ☞ All other columns in the spreadsheet will be ignored. All area, industry, level, and date values will fall under the respective column header cell that identifies it.

Related Content

- [Import Staffing Pattern](#)
- [Edit Staffing Pattern](#)

LEWIS Staffing Pattern Format

Field specifications for **LEWIS Staffing Pattern** file structure:

Field	Field Name	Type	Width, Dec
1	RECTYPE	Char	1
2	ESTYEAR	Char	4
3	PANEL	Char	1
4	STFIPS	Char	2
5	AREATYPE	Char	2
6	AREA	Char	6
7	INDCLASS	Char	1
8	INDCODE	Char	6
9	OCCCLASS	Char	1
10	OCCCD	Char	7
11	SUBOCCCD	Char	7
12	SCHEDULES	Int	4
13	IMPSCHED	Int	4
14	EMPL	Num	12,2
15	EMPLVAR	Num	12,2
16	EMPLRSE	Num	6,2
17	CONFFLAG	Int	4
18	QUALFLAG	Int	4
19	RSEFLAG	Int	4

Related Content

- [Import Staffing Pattern](#)

LEWIS Staffing Pattern Text Format

Field specifications for the **LEWIS Staffing Pattern Text** file structure:

Field	Field Name	Type	Width, Dec
1	AREA	Char	7
2	NAICS	Char	6
3	FRAME_N	Num	10,1
4	SAMPLE_N	Num	8
5	RESPNDE_N	Num	8
6	RESPNDW_N	Num	8
7	TOTOCC_N	Num	8
8	RSPOCCE_N	Num	8
9	RSPOCCW_N	Num	8
10	OCC_CODE	Char	7
11	OCC_TITL	Char	150
12	RAW_EMP	Num	12,1
13	ROUNDEMP	Num	12
14	MEANWAGE	Num	7,2
15	MN_THRD	Num	7,2
16	MN_2THD	Num	7,2
17	WPCT10	Num	7,2
18	WPCT25	Num	7,2
19	WPCT50	Num	7,2
20	WPCT75	Num	7,2
21	WPCT90	Num	7,2
22	A_MEAN	Num	9
23	A_MNTHRD	Num	9
24	A_MN2THD	Num	9
25	A_WPCT10	Num	9
26	A_WPCT25	Num	9

27	A_WPCT50	Num	9
28	A_WPCT75	Num	9
29	A_WPCT90	Num	9
30	PCTE_IMP	Num	6,1
31	PCTW_IMP	Num	6,1
32	WMU_PRSE	Num	6,1
33	EMP_PRSE	Num	6,1
34	CONF_EMP	Char	1
35	CONF_WAGE	Char	1
36	QUAL_EMP	Char	1
37	QUAL_WAGE	Char	1
38	RSE_FLAG	Char	1
39	ROLLUP	Char	8
40	RELEASE	Char	9

☞ This LEWIS text format can also be imported as a **pipe delimited (|)** format, which is the preferred method of reliable usage.


Related Content

- [Import Staffing Pattern](#)

QCEW Data Extract Instructions

QCEW / Win Text File Extract Procedure

1. A **state analyst** must request a **QCEW** run, using the job named **ES2J247D** (also known as **247D**). The analyst must identify the parameters. These parameters could include:
 - 3-digit for state wide or counties
 - Any ownership value
 - Date range
 - Annual versus monthly
2. The **QCEW analyst** will download the file. The file will be named **YBU49X.A145.JOB247D.ALMS1**

 **49X** is the Utah state **FIPS** code. **Your state code** will be in this position.
3. The state analyst will review the data. The analyst will generally import the text file into a spreadsheet to validate the data. Once the data is validated in the spreadsheet, it can be uploaded as spreadsheet file format **Type 1 - 3** (see the [File Formats Introduction](#) for links to those format pages).
4. Use the **Import Text File** ([ST](#) and [LT](#)) or **Import Spreadsheet** ([ST](#) and [LT](#)) modules to import the file into **Projections Suite**.

QCEW Output Text Format

The **QCEW** report from the job **247D ALMIS Extract File** format (**ES2ALMS**) consists of a fixed set of **38** required columns and an additional 4 columns for optional data. Consequently, the import software expects to find either **38** or **42** columns. If the text file has fewer or a greater number columns the Projections Suite applications will display errors. The following is the layout of the fixed columns:

Columns	Length	Description
1 - 2	2	Not used.
3	1	<space>
4 - 7	4	ALMIS-specific county code, including one-byte area code leading sub-field. Column 4 = ALMIS area code portion of county identifier Columns 5 - 7 = 3-digit County FIPS code
8	1	<space>
9 - 10	2	Classification code for area defined above.
11	1	<space>
12 - 17	6	NAICS code.
18	1	<space>
19 - 22	4	This may either represent a 4-digit year, or a 2-digit year and 2-digit quarter combined; however, no sub-field definitions have been provided. The quarter field is actually defined separately, later in the record.
23 - 24	2	Month of the year for ALMIS data.
25	1	<space>
26	1	Quarter for ALMIS data (1, 2, 3, or 4).
27	1	<space>
28 - 35	8	ALMIS employment.
36	1	<space>
37	1	ALMIS source code.
38	1	<space>
39	1	Ownership code (1, 2, 3, or 5).
40	1	<space>

Projections Suite 2022

41	1	Non-disclosure suppression indicator ('0' = disclosable, '1' = non-disclosable).
42	1	<space>

Figure 1: QCEW Output Text format

Related Content

- Import Text File ([ST](#) and [LT](#))
- Import Spreadsheet ([ST](#) and [LT](#))

Win202/MSA Text Format

The **Win202/MSA** format is similar to the standard **QCEW** format except that the area code has an additional column. The import software expects that this format has **39** columns or **43** columns. If the text file has fewer or a greater number columns the application will display errors. The following is the layout of the fixed columns:

Columns	Length	Description
1 - 2	2	Not used.
3	1	<space>
4 - 8	5	ALMIS-specific county code.
9	1	<space>
10 - 11	2	Classification for area defined above.
12	1	<space>
13 - 18	6	NAICS code.
19	1	<space>
20 - 23	4	This may either represent a 4-digit year, or a 2-digit year and 2-digit quarter combined; however, no sub-field definitions have been provided. The quarter field is actually defined separately, later in the record.
24 - 25	2	Month of the year.
26	1	<space>
27	1	Quarter for ALMIS data (1, 2, 3, or 4).
28	1	<space>
29 - 36	8	ALMIS employment.
37	1	<space>
38	1	ALMIS source code.
39	1	<space>
40	1	Ownership code (1, 2, 3, or 5).
41	1	<space>
42	1	Non-disclosure suppression indicator ('0' = disclosable, '1' = non-disclosable).
43	1	<space>

Figure 1: Win 202 / MSA format

Projections Suite 2022

Related Content

- Import Text File ([ST](#) and [LT](#))
- Import Spreadsheet ([ST](#) and [LT](#))

Statistical and Technical Terms

Each of these pages explain the **Statistical and Technical Terms** of the Projections Suite's functions, their usage, and provide references. Many of these terms are mathematical and/or have a brief explanation of how the projections are calculated, or what purpose they have in assisting with the calculations. The module pages in this documentation often link here and have a useful history from providing expanded details into how Projections Suite operates.

- [About the Mid-Term Numbers](#)
- [Actual Values](#)
- [Adjusted R-Squared](#)
- [ARMA Models](#)
- [Autoregressive Moving Average Method](#)
- [Autoregressive Process](#)
- [BVAR Models](#)
- [Calculate Projections](#)
- [Calculate Self Employed](#)
- [Coefficient Estimates](#)
- [Correct for Serial Correlation](#)
- [Degrees of Freedom](#)
- [Durbin-Watson Statistic](#)
- [ETA](#)
- [Exponential Smoothing](#)
- [F-Statistic](#)
- [Fitted Values](#)
- [Forecast Errors](#)
- [Forecast Period](#)
- [Forecast Values](#)
- [Granger Causality](#)
- [Growth Rate Calculation](#)
- [Historical Fit](#)
- [Import and Export Models](#)
- [Independent Variable](#)
- [Independent Variable Forecast](#)
- [Lagged Values](#)
- [Leading Indicators](#)
- [Level of Significance](#)
- [Linear Trend](#)
- [Log Likelihood](#)
- [Long Run Drift](#)
- [Mean Absolute Percentage Error](#)
- [Mean of Zero](#)
- [Mix Method](#)

Projections Suite 2022

- [Mix Models](#)
- [Monthly, Quarterly, Annual](#)
- [Moving Average Process](#)
- [Multivariate Methods](#)
- [NAICS](#)
- [Nonlinear Function](#)
- [Number of Observations](#)
- [Occupational Separations](#)
- [OLS Correction for Serial Correlation](#)
- [OLS Models](#)
- [Optimization Process](#)
- [P-Value and the Test for Significance](#)
- [Pre-Projections - Preview Employment](#)
- [Projections - View Projections \(Statewide and Sub-state Areas\)](#)
- [Q-Statistic](#)
- [R-Squared](#)
- [Random Walk](#)
- [Related Industries](#)
- [Residuals \(Error Terms\)](#)
- [Rounded vs. Unrounded Data](#)
- [Sample Period](#)
- [Seasonal Adjustment](#)
- [SOC](#)
- [Standard Errors of Coefficients](#)
- [Step Ahead Calculation](#)
- [Step 1, Step 2, Step 3](#)
- [Sum of Squared Residuals](#)
- [T-Statistic](#)
- [Theil-U](#)
- [Tournament](#)
- [Trend Models](#)
- [Turning Point Accuracy](#)
- [Univariate Methods](#)
- [VAR Models](#)
- [References](#)

About the Mid-Term Numbers

Sources of Projected Employment Data

State mid-term occupational projections are developed in the **Labor Market Information** ([LMI](#)) sections of each **State Employment Security Agency (SESA)**.

Occupational Data

Each SESA, in cooperation with the **Bureau of Labor Statistics** ([BLS](#)), uses the **Occupational Employment Statistics (OES)** report to gather occupational employment data. The OES data are the basis for the staffing patterns used in the projections. The data collected reflect the Standard Occupational Classification ([SOC](#)). Since there is a conversion to the 2018 SOC, some titles are duplicated but have a different code. To avoid confusion, [SOC 2018](#) has been added to the title of the new codes. Many occupations are not identified separately in the SOC (and are included in aggregate categories not shown on this site).

Employment may not be sufficient to warrant the development of occupational projections in every occupation in each state, or the data may be confidential. Occupations for which projections are not available are indicated with an (NA) for 'not available.'

For your reference in the majority of states, employment estimates are rounded to the nearest 10. Numerical employment change and average annual openings are rounded to the nearest 10. If the numerical employment change is shown as (NA), the percent employment change is also shown as (NA).

Data for states that are not currently included will be added as they become available.

Numeric Employment Change

Numeric employment change is the difference in the number of jobs between the base and projected years. A positive number means employment is growing due to the creation of new jobs. A negative number indicates employment is declining in the occupation.

Numeric change is important to consider along with percent change, because both types of change are affected by the size of employment in an occupation. Occupations with a large base of numeric employment may be creating large numbers of new jobs yet have small percent changes. Conversely, occupations with a small base of numeric employment may be creating a small number of new jobs yet have large percent changes.

Percent Employment

Percent employment change indicates how fast employment is expected to increase or decrease during the projection period. The larger the positive percent change, the faster employment is growing. A large positive percent change is generally an indicator of favorable employment prospects. Likewise, the larger the negative percent change, the faster employment is declining, and the more unfavorable the employment prospects.

Average Annual Openings

Average annual openings represent the number of openings per year, expected for a respective occupation or sum of occupations. Annual average openings are the sum of two employment calculations, the average annual numeric employment change (the increase or decrease in the number of jobs associated with the occupation), and average annual separations.

Here, separations represent the number of workers who either leave the labor force or make a significant occupational change. An example of a non-significant occupational change would be a move from Teachers Assistant (25-9041) to Secondary Teacher (25-2031), staying within the same major group (indicated in the first two digits of the SOC code). A significant change would be to move from Secondary Teacher (25-2031) to Lawyer (23-1011), by changing the minor group or the broad or detailed occupation.

Disclaimer

Projection data accessible from this site are the responsibility of each agency that developed the projections. The accuracy of projections for individual occupations is subject to error because of the many unknown factors that will affect the economy over the projection period. While occupational employment projections and related job outlook information can provide valuable inputs to the career decision-making process, they should not be the sole basis for a choice of career.

Actual Values

Actual Values are the available set of historical observations (values) for a time series. Measures of [Historical Fit](#), such as the [R-Squared](#), are based on the difference between model predicted values and actual values over the [Sample Period](#). Forecast evaluation statistics, such as [Mean Absolute Percentage Error](#), are based on the difference between projected values and actual values over the projection period. The smaller the [Residuals](#) are, the better the fit of a statistical model. Actual values associated with the final employment projections may not be available until you initiate the next round of projections.

Adjusted R-Squared

The **Adjusted R-Squared** takes into account the [Number of Observations](#) and the number of variables used in estimating the “goodness of fit” of the model to the actual data. Unlike the [R-Squared](#), the Adjusted R-Squared does not necessarily increase as additional variables are added to an equation. In fact, the Adjusted R-Squared will only increase when adding [Independent Variables](#) to the model if the additional explained variation in the dependent variable more than compensates for the loss of a degree of freedom when an Independent Variable is added. It is a particularly useful measure when comparing models that have a different number of Independent Variables or a different Number of Observations.

$$R_{adj}^2 = 1 - \left[\frac{(1 - R^2)(n - 1)}{n - k} \right]$$

Where n = number of time-series observations, and k = number of Independent Variables.

ARMA Models

Time series approaches are distinguished by their reliance on past behavior of the *dependent variable* alone to project the most likely future path. The potential causal role of explanatory variables is disregarded; therefore, spurious regression relationships and inaccurate input projections will not contribute to *projection errors*. Data requirements are minimal because the **Employment Series** alone provides full information for time series model estimation and projections. The family of ARMA(p,q) time series models combine [autoregressive](#) and [moving average](#) (**ARMA**) components.

AR component : $Y(t) = d_y + f_1 y(t-1) + f_2 y(t-2) + e_y(t)$

MA component : $Y(t) = d_y + e_y(t) - g_1 e_y(t-1) - g_2 e_y(t-2)$

For example, an ARMA(1,1) process relies on the most recent past values of the dependent variable ($p=1$) and recent errors or disturbances ($q=1$) to describe the current observation of the dependent variable series.

$$Y(t) = d_y + f_1 y(t-1) + g_1 e_y(t-1) + e_y(t)$$

An [Optimization Process](#) is used in select industry models to determine ARMA model parameters (f and g) that will minimize the [Sum of Squared Residuals](#) over the [Sample Period](#).

ARMA model projections are constructed sequentially because each projection value depends on information from the preceding period. Statistical details relating to Sample Period (including [Coefficient Estimates](#), [standard errors](#), and [R-Squared](#)) and projection evaluation (projection values, projection errors, [Mean Absolute Percentage Error](#)) are presented in a comparable format to the [OLS model](#) output. The [Q-Statistic](#) is also presented to determine if any systematic pattern of the [Residuals](#) remains.

All of the ARMA Models in the system are estimated on monthly employment data which has been differenced once relative to the previous year. The system offers a variety of ARMA(p,q) models including ARMA(1,0), ARMA(2,0), ARMA(3,0), ARMA(0,1), ARMA(1,1), ARMA(2,1), ARMA(0,2), ARMA(1,2), and ARMA(2,2).

ARMA(1,0), ARMA(2,0) and ARMA(3,0) have an autoregressive component without a corresponding moving average component. ARMA(0,1) and ARMA(0,2) have moving average components, but no autoregressive ones.

Autoregressive Moving Average Method

The most common **Autoregressive (AR) Moving Average (MA) Method** is referred to as **Box-Jenkins** and is abbreviated as ARIMA. [Project Single Region](#) uses a variation of the ARIMA model known simply as **ARMA**, with no integrated term.

Autoregressive Process

Auto-regression is a form of regression where the dependent variable is related to past values of itself at varying time lags. The number of past values is defined by the parameter (p). Thus, an AR(p) process is generated as a weighted average of past

observations. Each of these past observations is influenced, in turn, by its own history. Thus, the data series will exhibit an extended "memory" with characteristic periods of gradual adjustment. An **Autoregressive Process** will exhibit a greater degree of persistence than a [Moving Average Process](#). For example, under an AR(1)

$$Y(t) = d_y + f_1 Y(t - 1) + e_y(t)$$

the most recent observation $Y(t - 1)$ will determine the expected difference between the current short run value and the long run trend or constant.

[Forecast Values](#) will follow a path of dynamic adjustment that eventually returns to long run expected values for the data series. AR(p) projections can be generated by selecting [ARMA Models](#) without a moving average component: ARMA(1,0), ARMA(2,0), ARMA(3,0).

BVAR Models

The **Bayesian Vector Auto-regression (BVAR) Model** resolves some of the difficult issues associated with standard VAR. In general, collinearity problems increase and [Degrees of Freedom](#) decline as the number of [Coefficient Estimates](#) grows. To facilitate estimation under these conditions we may elect to introduce prior information regarding the [VAR model's](#) many parameters. The BVAR framework relies on a mixed estimation procedure described by Theil and Goldberger (1960) which incorporates prior statistical estimates (or simply prior beliefs) on parameter means and variances.

Litterman (1981) proposed a set of prior beliefs for BVAR Models. The first lag of each equation's *dependent variable* has a mean of one while all other explanatory arguments are assigned [means of zero](#). Prior variances allow some movement away from these values but the Bayesian priors are imposed with more "tightness" as lag length increases. The system employs prior variances suggested by Doan (1990) which are more relaxed than Litterman's. Hamilton (1994) provides a thorough review.

The STIP projections system provides a pre-defined family of BVAR Models with different sets of explanatory variables. "Indicators" refers to a preset model based on the set of [Leading Indicators](#) that you have already identified. The "Industries" option calls for a preset model based on [Related Industries](#). Leading Indicators and Related Industries are combined to form the set of [Independent Variables](#) in the "Full" option. With the "User-Defined" option, you can define industry-specific BVAR models based on a more extensive set of explanatory variable combinations.

The VAR method can be plagued by overfitting, due to low Degrees of Freedom and the complexity of VAR model estimation. Also, high correlations across lagged variables in the VAR can produce serious multicollinearity problems. The BVAR answer to these possible problems with the unrestrained Vector Autoregression is to place prior restrictions on the coefficients. The coefficients are set at lag 1, and there is a restriction on how much they can change in subsequent lag periods. This approach lessens the possibility of overfitting, multicollinearity, and spurious coefficients that can produce unrealistic forecasts.

Calculate Projections

Terms like "Year Differential Factor" and "Change Factor Differential" are descriptive labels. All formulas are assumed to be at the individual I/O cell level.

b = Base Year Employment Estimate

s = Staffing Ratio

i = Industry Control Total

$$b = s \cdot i$$

c = CHG_EST

f = Change Factor

y = Year Differential Factor

$$c = b \cdot (((f - 1) \cdot y) + 1)$$

$$y = d/10$$

$$d = \textit{Projected} - \textit{Base Year Difference}, i.e., 2028 - 2018 = 10$$

The timeframe adjustment is made because the change factors assume a ten-year projections period.

p= Projected Employment

g = Change Factor Differential

k = Sum of CHG_EST for Industry

j = ICT Projected Employment

$$p = c \cdot g$$

$$g = j/k$$

Calculate Self Employed

d - Difference between base and projected years

S_b - SE Base Year Ratio

S_p - SE Projected Year (10-Year) Ratio

n - National Basis Year of Ratios

b - Base Year

p - Projected Year

e_{bi} - Base year estimate of employment for one occupation across industries (excluding other SE occupational totals)

e_{pi} - Projected year employment for one occupation across all industries (excluding other SE occupational totals)

SE Base Year Estimate = $[S_b + ((S_p - S_b)/10) \cdot (b - n)] \cdot e_{bi}$

SE Projected Year Estimate = $[S_p + ((S_p - S_b)/10) \cdot (p - n)] \cdot e_{pi}$

Coefficient Estimates

Coefficient Estimates are statistical estimates taken from a sample designed to approximate the true regression coefficients of the populations. The difference between estimated and true coefficients is the bias.

With [OLS Models](#), Coefficient Estimates can be viewed as the slope and intercept of the "best fitting" linear relationship between the [independent](#) and the dependent variables. The slope can also be interpreted as the marginal effect of Independent Variable on the *dependent variable*. The intercept has no ready interpretation because it corresponds to the mean of the dependent variable when the Independent Variable is zero and captures the average effects of omitted variables.

Coefficient Estimates in [Exponential Smoothing](#), [ARMA](#), and [VAR](#) are somewhat less amenable to direct interpretation; however, estimates in these models do relate different types of past information as predictors of the dependent time series.

Correct for Serial Correlation

When this option is selected, the dependent and independent variables are processed through the Hildreth-Lu algorithm to create a set of differenced series. The regression equation is modified by the Hildreth-Lu calculation result referred to as the Rho value. This is a number between zero and one.

Degrees of Freedom

Degrees of Freedom is the difference between the [Number of Observations](#) and the number of [Independent Variables](#) minus one. Statistical inferences tend to be more reliable when the Number of Observations is large relative to the number of inferences attempted. When evaluating a regression equation, for example, we subtract the number of [Coefficient Estimates](#) (k) from the Number of Observations (n) to obtain the Degrees of Freedom ($n - k$). This value is a meaningful component in determining the [Level of Significance](#) for associated statistical tests.

The addition of new variables in the projection model may increase the overall quality of the goodness of fit ([Adjusted R-Squared](#)), but would decrease the Degrees of Freedom. As the number of the Degrees of Freedom declines, the estimates tend to be less reliable.

Durbin-Watson Statistic

A test statistic for first-degree autocorrelation; the condition of autocorrelation is present when current [Residuals](#) are not independent of past Residuals. In this case, the diagnostic statistics will tend to overstate reliability of the model. Projections will not be robust to changes in the end of the [Sample Period](#); therefore, the results of projection evaluation activities are likely to be misleading.

The Durbin-Watson Statistic ranges from 0 to 4. A value significantly different from 2 indicates that the Residuals from an estimated regression equation are not independent over time. A test statistic value that approaches 2 suggests the absence of a first-order autocorrelation. A DW statistic < 1.5 indicates significant positive correlation. A DW statistic > 2.5 indicates significant negative correlation.

ETA

The **Employment & Training Administration (ETA)** is part of the U.S. Department of Labor. Its mission is to provide training, employment, labor market information, and income maintenance services.

Exponential Smoothing

Exponential Smoothing is a trend technique that reduces the short-term volatility of the series (see [Trend Models](#)). Exponential Smoothing is a trend technique that reduces the short-term volatility of the series (see *Trend Models*). The new series is obtained as

a weighted average of current and previous values with geometrically declining weights in a smoothing method. The more recent values receive greater weight.

Exponential Smoothing uses an adaptive trend approach to projecting in which the model's parameters are updated explicitly throughout the [Sample Period](#). Initial settings for the smoothed level (S), trend (T), and seasonal (I) components are taken from the linear trend model estimates. The three components are adjusted with each successive observation in response to the difference between the one step ahead prediction ($Y(t+1)$) and the actual value.

$$\begin{aligned} \alpha &= \mu \\ \delta &= D \\ \gamma &= g \\ Y(t+1) &= S(t) + I(t+1-1) \\ S(t) &= S(t-1) + T(t-1) + \mu \cdot e(t) \\ T(t) &= T(t-1) + \mu \cdot g \cdot e(t) \\ I(t) &= I(t-12) + (1-\mu) \cdot D \cdot e(t) \end{aligned}$$

Smoothing parameters (alpha, gamma, and delta) determine the degree to which the level, trend, and seasonal components adapt to new information. Parameter values range from zero to one. Low values describe a path, which is unresponsive to the latest observation. The [Random Walk](#) model represents a special case where the parameter for level equals 1 and the parameters for trend and seasonal equal 0.

The system provides estimates for the smoothing parameters. The [Optimization Process](#) searches over values from 0.1 to 0.9 for all three parameters to identify the combination that minimizes the [sum of squared Residuals](#).

F-Statistic

The **F-Statistic** is computed to test the hypothesis that the regression equation has at least one nonzero coefficient. Thus, it tests for the overall goodness-of-fit of an equation. The F-Statistic is represented by the ratio of the explained sum of squares to the residual sum of squares, adjusted for the number of [Independent Variables](#) and the [Number of Observations](#) in the sample.

The following steps are necessary to perform an F-test:

1. Estimate forecasting model and obtain the coefficients to be tested.
2. Compute F-Statistics, F_c .

3. Determine the [Degrees of Freedom](#).
4. Derive a critical value for the F-Statistic, F^* , considering the chosen [Level of Significance](#) and the Degrees of Freedom. As a general rule, the significance level should be .05 or less.
5. Set and test the null (H_0 = each of the regression coefficients is equal to zero and alternative (H_a = at least one of the regression coefficients is nonzero)) following hypotheses:

Decision Rule:

1. If F_c is greater than F^* , then the null hypothesis is rejected. Under this condition, at least one of the regression coefficients is statistically significant from zero and the model surpasses the goodness-of-fit test.
2. If the null hypothesis cannot be rejected (F_c is less than F^*), then each of the regression coefficients is equal to zero. The model fails to surpass the goodness-of-fit test.

FIPS

Federal Information Processing Standards (FIPS) codes are used for states and counties to uniquely identify their geographic areas. FIPS codes are used for area identification in Projections Suite's data.

Fitted Values

Fitted Values represent values for the dependent variable over the historical [Sample Period](#) which are implied (predicted) by the statistical model. Fitted Values are obtained by applying the [Coefficient Estimates](#) to the set of [Independent Variables](#).

Forecast Errors

Forecast Errors are the difference between [Forecast Values](#) and [actual values](#) for the *dependent variable* over the [Forecast Period](#). One of the primary criteria in selecting a forecasting model is to minimize Forecast Errors. An experimental Forecast Period can be defined that begins within the range of historical data to provide an evaluation of alternative models based on forecast performance. Inspection of individual Forecast Errors, calculation of summary measures (such as [Mean Absolute Percentage Error](#)), and viewing Forecast Values against actual values in a graph are all useful exercises for this purpose. The model with smaller forecasts errors would be a better forecasting model. However, Forecast Errors cannot be determined when the entire Forecast Period is beyond the range of available historical data.

Forecast Values for [VAR](#) models must be derived one period at a time to provide the required Lagged Values of the dependent variable. With Trend Models and [ARMA](#) models, Forecast Values represent an extended pattern of univariate time series behavior. Trend forecasts are deterministic in the sense that they do not respond to information revealed during the Forecast Period. In contrast, ARMA forecasts must be derived one-step at a time to incorporate early Forecast Errors in constructing Forecast Values for subsequent periods.

Forecast Period

The **Forecast Period** is the period of time over which [Forecast Values](#) are produced. The Forecast Period includes the eight quarters immediately following the end of specified [Sample Period](#). Historical [observations](#) for evaluation of [Forecast Errors](#) will be available if the Forecast Period begins within the range of available data; however, final employment forecasts extend eight quarters past the last available historical observation (see [Step 1](#), [Step 2](#), [Step 3](#)). The Forecast Period is the frame of reference for all of the information presented in the "results" section of select industry forecasts.

Forecast Values

Typically, **Forecast Values** represent values for the dependent variable over the [Forecast Period](#), which are implied (predicted) by the statistical model. With [OLS Models](#), Forecast Values are obtained by applying the [Coefficient Estimates](#) to the associated set of [Independent Variables](#). [Independent Variable Forecasts](#) are required when the Forecast Period extends beyond the range of available historical data. [Forecast Errors](#) can only be calculated when the Forecast Period begins within the range of available historical data.

Forecast Values for [VAR Models](#) must be derived one period at a time to provide the required [Lagged Values](#) of the dependent variable. With [Trend Models](#) and [ARMA Models](#), Forecast Values represent an extended pattern of univariate time series behavior. Trend forecasts are "deterministic" in the sense that they do not respond to information revealed during the Forecast Period. In contrast, ARMA forecasts must be derived one-step at a time to incorporate early *Forecast Errors* in constructing Forecast Values for subsequent periods.

Granger Causality

Correlation between two variables is a statistical relationship, which does not necessarily indicate a meaningful behavioral relationship, that is, causation. For

example, a finding that weekly birth rates in coastal villages are correlated with the arrival of migrating storks does not prove that storks bring (or cause) babies.

Granger Causality is a technique for determining whether one time series is useful in forecasting another. Typically, regressions simply reflect correlations, or associations. A time series is said to “Granger-cause” another time series, if the [Lagged Values](#) provide statistically significant information on the future value of a second time series. The test for statistical significance is the [F-statistic](#). However, Granger Causality is not sufficient to prove a causal relationship between two variables.

The predictive contribution of each [Independent Variable](#) is assessed in all [VAR Models](#) and [BVAR Models](#) using the Sims alternative form of Granger Causality test. The "unrestricted" vector [Autoregression](#) is performed with the entire set of explanatory variables, including Lagged Values of employment and all Independent Variable. Lagged Values of one Independent Variable are excluded when forming the "restricted" equation. An F-statistic compares the residual sum of squares from each equation to determine if the restricted form has significantly less explanatory power. If so, then past values of the excluded variable contribute to the explanation of current employment. The reported test statistic has [Degrees of Freedom](#) equal to the [Number of Observations](#) divided by the difference between observations and Independent Variable in the unrestricted equation.

Growth Rate Calculation

Short-Term Industry Projections: **Growth Rate Calculation** and display.

Module	Year-Over-Year Growth	Compounded Annual Growth
Pre-projections Preview Employment	Quarterly	24 months
Pre-projections Preview Variables		24 months
Projections Leading Index		Eight quarters
Projections Single Region		
Projections Multiple Regions Analyze Industry Tab	Eight quarters	
Projections Multiple Regions Area View Tab	Eight quarters	
Projections View Projections	Eight quarters	
Output Final Reports	Eight quarters	

Historical Fit

The [Adjusted R-Squared](#) is a measure of the goodness of fit with each regression equation. Intuitively, in the Leading Index module of STIP, this refers to the proportion of total variation in state employment, which can be explained by each set of [Leading Indicators](#). **Historical Fit** is displayed for each indicator variable individually and in combination with others. Separate [OLS regressions](#) are evaluated for each row of information using the two and four-period equations.

Import Models

Import models work best for import oriented industries. Import oriented industries are industries that do not have enough workers in the area compared with other areas. Workers are coming into the area to find work.

Import models use the Vocational Quotient:

- % of workers in an industry in an area
- % of workers in an industry in the nation

When the Vocational Quotient for the industry is below 1.2, it is considered an import oriented industry.

Export Models

Export models work best for export oriented industries. Export oriented industries are industries that have a surplus of workers in the area compared with other areas. Workers are leaving the area to find work.

Export models use the Vocational Quotient:

- % of workers in an industry in an area
- % of workers in an industry in the nation

When the Vocational Quotient for the industry is above 1.2, it is considered an export oriented industry.

Independent Variable

An **Independent** (or explanatory) **Variable** is one whose values are determined outside the system being modeled. In the [OLS model](#), Independent Variables are used in an

implied causal relationship to explain and predict the values of a dependent variable. The choice of Independent Variables is usually based on economic theory, past experience, or intuitive judgment.

Consider the proposition that monthly ice cream sales (measured in scoops sold) at Rosie's Ice Cream Parlor are influenced by the average monthly temperature, the price per scoop, the number of flavors, monthly ticket sales at the nearby movie theater, and Rosie's advertising budget. In a regression equation to explain or predict ice cream sales, "monthly scoops" constitutes the dependent variable while all of the potential influences would be Independent Variables. These "explanatory variables" appear on the right hand side in a conventional *OLS model*. In the short-term forecasts system, OLS models can include [Leading Indicators](#), [Related Industries](#), or a user-selected combination of Independent Variables.

Independent Variable Forecast

The traditional practice of forecasting with [OLS models](#) requires [Forecast Period](#) values for all explanatory variable series. These **Independent Variable Forecasts** can be taken from external sources as a user-defined option.

A problem arises in that final industry employment forecasts depend on Independent Variable Forecasts while the within-sample industry employment forecast experiments are based on actual data. For OLS models that are sensitive to the accuracy of explanatory variables the forecast evaluation statistics promote a misleading sense of confidence. Independent Variable Forecasts cannot be as accurate as the actual data; however, this source of error is not revealed in the experiments, which inform model selection.

The system generates Independent Variable Forecasts internally. This improves the reliability of forecast evaluation and reduces data requirements. Internal forecasts for each explanatory variable are produced by a second order [VAR model](#), which includes industry employment and the user-defined set of explanatory variables.

Lagged Values

Instantaneous relationships between dependent and [Independent Variables](#) do not exist in all economic situations. Therefore, it is frequently useful in time-series forecasting to allow for the possibility that the dependent variable is related to **Lagged Values** of itself or other variables. The lag is the number of time periods by which the lagged variable is offset from the variable being forecast. This is particularly important when the units of time are small, such as months.

[Leading Indicators](#) are chosen based on their contribution to prediction of future employment. Therefore, past values (Lagged Values) of indicator variable series should serve as a useful source of information on current employment. *VAR Models* are based on this assumption. Lagged Values of the dependent variable series influence current employment movements in [ARMA](#), [VAR](#) and [BVAR models](#).

Leading Indicators

The basic goal of the leading indicator exercise is to identify a small but effective set of explanatory variables that serve as state-specific predictors of future employment changes. These indicator variables will be used extensively in the formation of industry forecasting models.

Quarterly data is employed in all of the identify **Leading Indicators** analysis. Two and four quarter leading relationships are explored between the current values of potential explanatory variables and future statewide employment. [OLS Models](#) are estimated with each indicator separately and in combination with others. Summary measures of [Historical Fit](#) and [Turning Point Accuracy](#) throughout the [Sample Period](#) are presented. Relative individual performance as well as combined effectiveness should be used to determine candidates for inclusion.

Level of Significance

Level of Significance is designated by the Greek letter “alpha” and is sometimes called the level of risk because it is the risk one takes of rejecting the null hypothesis when it is really true. It measures the amount of Type I error (rejecting a true null hypothesis) implied by a particular critical value.

Linear Trend

Linear Trend fits a least squares, or [OLS](#), regression line to the data. This becomes the trend line you are going to use in forecasting. The Linear Trend also models seasonality. It takes into account what the impact of the change in seasons from month to month has on historical data. You will utilize regression to forecast the future and apply standard statistical diagnostics to the variable coefficients, such as standard errors, [t-statistics](#), and t-probabilities, to evaluate the model.

Log Likelihood

The joint probability density function of [actual values](#) expressed in terms of model parameters is called the likelihood function. Log Likelihood refers to the value taken by the likelihood function for a particular set of parameter values. The reported Log Likelihood value for a given model is associated with the set of reported [Coefficient Estimates](#).

Likelihood ratio tests offer a convenient method for evaluation of alternative model specifications that can be expressed in terms of parameter restrictions. The test statistic is based on relative Log Likelihood values between restricted and unrestricted versions of the model.

Throughout the short term industry forecasts system Coefficient Estimates are selected that minimize the [Sum of Squared Residuals](#). In most cases this objective is equivalent to maximum likelihood estimation.

Long Run Drift

Adding a constant linear trend to a [Random Walk](#) process produces a Random Walk with drift. Forecasts based on this specification will follow a long term trend (d) with the most recent observation $Y(t-1)$ as a starting point.

$$Y(t) = Y(t-1) + d + e(t)$$

Substitution of the industry employment growth pattern from long-term forecasts yields a meaningful combination of short-term information and long term analysis.

Mean Absolute Percentage Error (MAPE)

Mean Absolute Percentage Error is a summary measure of [forecast error](#). This forecast evaluation statistic is based on the difference between predicted values and [actual values](#) over the [forecast period](#). **The smaller the MAPE value, the better the forecasting model.**

In the STIP system, MAPE is estimated for a forecast horizon from a three-step calculation:

1. The forecast error in each quarter of the forecast horizon is expressed as a percentage
2. Each percentage is converted to an absolute value; and,

3. An arithmetic mean is derived from the quarterly absolute values.

MAPE is displayed in the [Project Single Region](#) module and is useful in the evaluation of alternative forecast models. MAPE also appears in the **View Past Performance** module to provide a standardized evaluation of the preceding round's employment forecasts with more recent employment patterns.

Mean of Zero

This set of assumptions, if applied strictly, would define each seasonally differenced time series as a [Random Walk](#). An [ARMA](#)(1,0) model requires that the first estimated coefficient be less than one. The other parameters in a standard [VAR model](#) may not be equal to zero.

Mix Method

Mix forecast that reflects a performance-weighted combination of the [univariate](#) and [multivariate](#) models.

Mix Models

Alternative forecasting approaches offer different insights to future patterns of employment growth. **Mix Models** combine information from a variety of methods to form a consensus forecast. In the system you are provided with a performance-weighted mix based on five different types of models.

Mix model forecasts are a weighted average of forecasts from other models. The weights applied to each of the displayed models are calculated using relative values of the [Mean Absolute Percentage Error](#) (MAPE). Mix model weights are updated as you conduct experiments with different [Sample Periods](#).

Weights in Step 1 reflect a full eight quarters of forecast evaluation. The same models are re-estimated in Step 2 using a Sample Period with additional recent observations (see [Step 1](#), [Step 2](#), [Step 3](#)). However, MAPE values in Step 2 are based on only four quarters of information on [Forecast Errors](#). Mix model weights from Step 1 are updated with the new set of relative MAPE outcomes. The resulting mix model weights combine two parts of Step 1 performance with one part of Step 2 performance. In Step 3, we do not produce Forecast Errors to update the weights again. The mix model forecasts in Step 3 are based on the same weights that were employed in Step 2.

Monthly, Quarterly, Annual

All data series provided to the system must be available on a monthly basis and should be entered without Seasonal Adjustments. The industry employment series and outlook variable series preview modules offer data exploration and editing features for monthly data. The statistical procedures for short term industry forecasts require monthly data to maximize [Degrees of Freedom](#). Monthly observations of data series in annually differenced form are used in many of the estimation procedures to control for seasonal elements (see Seasonal Adjustment).

For presentation purposes, all of the modules related to industry employment forecasts (report card of past performance, select forecasting models, and view industry forecasts) display quarterly outcomes. Implied annual growth rates over the eight quarter [Forecast Period](#) are also reported. Quarterly averages are employed throughout the identify [Leading Indicators](#) exercise. All of the required data transformations have been automated.

Moving Average Process

Moving Average Process is a form of regression where a dependent variable is associated with the past values of the error term ([residual](#)). In a moving average, as each new observation becomes available, a new average is computed that includes the most recently observed value and excludes the oldest value previously used.

Under a Moving Average Process, each observation deviates from a time-invariant mean (d_y) by a weighted average of past errors or disturbances. An MA(q) process will exhibit a "memory" of q periods as opposed to the greater degree of persistence in an [autoregressive process](#). The subtraction operation in the MA equation connotes a decay effect between the current period and the q prior periods. With an MA(2) process, for example,

$$Y(t) = d_y + e_y(t) - g_1 e_y(t - 1) - g_2 e_y(t - 2)$$

The current value of the Y time series is influenced by the errors (residuals) from the present (t) and each of the two prior periods (t - 1 and t - 2). The moving average model parameters (g_1 and g_2) may assume either a positive or negative value. The "memory" of the MA(2) stochastic process is two periods.

$$Y(t) = d_y + e_y(t) - g_1 e_y(t - 1)$$

With an MA(1) process, the one period ahead forecast will be influenced by the errors (residuals) from the present (t) and most recent past ($t - 1$); however, [Forecast Values](#) will quickly tend to the constant series mean. MA(q) forecasts can be generated by selecting [ARMA Models](#) without an autoregressive component: ARMA(0,1), ARMA(0,2).

Multivariate Methods

The multivariate regression method gives you a basis to explain what has happened in the past and to show what forces drive jobs in different industries in a particular state or region. It also allows you to create *what if* simulations about the past and the future.

Models you can use are:

- [OLS](#)
- [VAR](#)
- [BVAR](#)

NAICS

The **North American Industry Classification Systems (NAICS)** is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the United States' business economy.

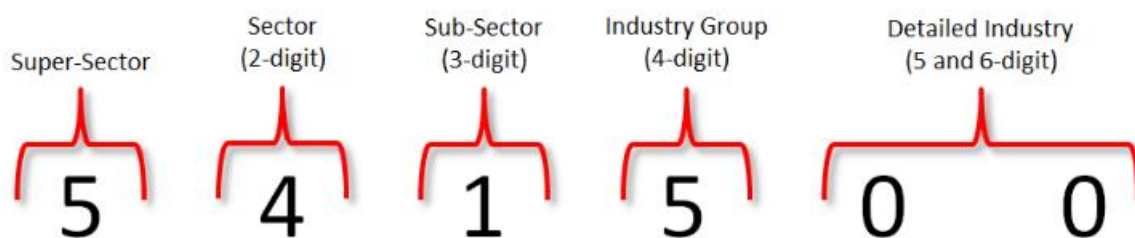


Figure 1: NAICS code designations

View the [NAICS Manual](#) (links to census.gov) for additional information on the system.

Nonlinear Function

A **Nonlinear Function** has a slope that changes value when its dependent variable changes (i.e., the slope is not constant). This describes [ARMA models](#) with moving average terms as well as [Exponential Smoothing](#).

Number of Observations

In most forecasting models, the **Number of Observations** is simply the total number of monthly values in the [Sample Period](#). In those models that include [Lagged Values](#) ([ARMA](#), [VAR](#) and [BVAR](#)), we lose a few of the sample observations to construct the explanatory variable series. In these cases, the Number of Observations reported will be less than the full Sample Period. The Number of Observations is displayed in "details" reports to help you determine [Degrees of Freedom](#) associated with statistical tests.

Occupational Separations

The separation methodology differs from the replacements methodology in that it incorporates the projections results. While replacement needs were calculated using only base year data for each occupation, separations require both base year and projected year data. That means separations cannot be calculated until [Occupational Projections](#) are finalized.

To calculate separations, the rates are applied to the midpoint of base and projected employment:

$$Emp_{mid} = \frac{Emp_{base} + Emp_{proj}}{2}$$

The calculation of midpoint employment is the same regardless of the projections length: 10, 9, or 2 year projections.

Once midpoint employment is calculated, annual average separations are simply the product of midpoint employment and the rate:

$$\text{Occupational Transfers} = Emp_{mid} \cdot OTRATE$$

$$\text{Labor Force Exits} = Emp_{mid} \cdot LFRATE$$

$$\text{Occupational Separations} = \text{Occupational Transfers} + \text{Labor Force Exits}$$

Once **Occupational Separations** have been calculated, they can be used to calculate annual openings. Separations differ from replacement needs in that they do not take into account declines in occupational employment, so while annual openings used to be

calculated using different methods for declining versus growing occupations, there is a single calculation for all occupations:

$$\text{Annual Average Openings} = \text{Annual Average Separations} + \text{Annual Average Employment}$$

OLS Correction for Serial Correlation

The **Ordinary Least Squares** ([OLS](#)) model uses a set of predictor variables to "explain" a single predicted variable. In the **Short-Term Industry Projections** ([STIP](#)) software, the range of predictor variables includes economic indicators, [Related Industries](#), or a combination of both indicators and Related Industries. The single predicted variable in STIP is employment in an industry.

OLS models can produce unbiased results when a pattern emerges in the residual term. This pattern is described as a serial correlation of the errors and occurs when the predicted value for employment in an industry systematically overestimates or underestimates the actual employment value in the historical series. The [Durbin-Watson Statistic](#) is a summary measure for serial correlation in the STIP software. A value that approximates 2 indicates the relative absence of serial correlation; thus, successive error terms (the difference between the predicted and [actual values](#) for industry employment) are randomly distributed. A lower value for the Durbin-Watson Statistic, especially below 1.5, suggests the presence of positive serial correlation: successive error terms are close in value to one another. A higher value for the Durbin-Watson Statistic, especially above 2.5, suggests the presence of negative serial correlation: successive error terms are much different in value to one another.

Several statistical approaches exist to reduce the severity of serial correlation in OLS models to enhance forecast reliability. Short-Term Industry Projections uses a modification of **Cochrane-Orcutt**, while Long-Term Industry Projections uses a modified combination of Cochrane-Orcutt and **Hildreth-Lu**. In brief, this approach adjusts the OLS model to include the unexplained error.

These are the steps:

1. Calculates an error adjustment weight based on the Durbin-Watson Statistic (weight = $(1 - (\text{DW Stat}/2))$).
2. Uses a form of quasi-differencing between the original OLS equation and an equation whereby the error weight is applied to the prior period value of each variable. The OLS routine is run against the quasi-differenced equation to yield an array of fitted industry employment values for the predicted variable that have been adjusted for serial correlation ($\text{IND238}(t)^{**}$).
3. Computes the OLS model using the original predictor variables and an adjusted industry employment variable ($\text{IND238}(t)^{**}$) that captures some magnitude of the

initial serial correlation. The forecasts for industry employment from Step 3 should reflect an improvement in the Durbin-Watson Statistic. To the extent that the coefficients for the initial predictor variables are statistically non-significant, then the OLS assumes the properties of a first order moving average model (MA(1)).

Step 1

Equation 1

$$IND238_{(t)} = C + \beta_1 X_{1(t)} + \beta_2 X_{2(t)} + \cup_{(t)}$$

where:

$X_1 = \text{interest rate spread}$

$X_2 = \text{money supply}$

$\cup = \text{unexplained error}$

where:

$$\cup_{(t)} = \beta_3 \cup_{(t-1)}$$

$$\beta_3 = 1 - (DW Stat/2)$$

Run OLS on Equation 1 to generate the Durbin-Watson Statistic for estimation of β_3 .

Equation 2

$$IND238_{(t-1)} = C + \beta_1 X_{1(t-1)} + \cup_{(t-1)}$$

Step 2

Equation 3 (quasi-differenced): multiply Equation 2 by β_3 and subtract from Equation 1.

$$(IND238_{(t)} - \beta_3 IND238_{(t-1)}) = (1 - \beta_3)C + \beta_1(X_{1(t)} - (\beta_3 X_{1(t-1)})) + \beta_2(X_{2(t)} - (\beta_3 X_{2(t-1)}))$$

Run OLS on Equation 3.

Save fitted and forecasted values from quasi-differenced variables.

Convert fitted and forecasted values back to original format.

$$IND238_{(t)} ** = (IND238_{(t)} - \beta_3 IND238_{(t-1)}) + \beta_3 IND238_{(t-1)}$$

Step 3**Equation 4**

$$IND238_{(t)} = C + \beta_1 X_{1(t)} + \beta_2 X_{2(t)} + \beta_4 IND238_{(t)} * *$$

Run OLS on Equation 4 (includes correction for serial correlation) to estimate summary statistical results and detailed statistical results for each variable. These results can be compared to those estimated on the basis of Equation 1.

OLS Models

Ordinary Least Squares (OLS) regression generates [Coefficient Estimates](#) which minimize the [sum of squared Residuals](#) throughout the [Sample Period](#). Because [Residuals](#) are the differences between the actual and the estimated values of the dependent variable, it would be true to say that OLS procedure minimizes these summed squared differences. Thus, the estimated model provides the best linear unbiased estimate or prediction of the historical series of dependent variable.

Single equation OLS regression, used extensively in the development of long term employment forecasts, is also an option for short term analysis. The primary appeal of this method involves intuitive interpretation of results. Observed changes in the dependent variable (Y) over time are attributed, through a linear relationship,

$$Y(t) = b_0 + b_1 x_1(t) + b_2 x_2(t) + b_3 x_3(t) + e_y(t)$$

to the behavior of explanatory variables (X_1 , X_2 , X_3) and purely random disturbances. The OLS regression procedure generates Coefficient Estimates, which minimize the sum of squared Residuals throughout the Sample Period. Thus, the estimated model provides the best linear prediction of the historical employment series.

Reliability of the estimated model over the Sample Period can be evaluated with the assistance of several diagnostic statistics (or "details"). These provide information on the estimated coefficients of the model ([t-statistics](#), [standard errors](#)), [Historical Fit \(R-Squared\)](#), and autocorrelation of Residuals ([Durbin-Watson](#) statistic).

Employment forecasts are related to [Forecast Period](#) values of the [Independent Variables](#). To the extent that explanatory variables are common across industry models, the [Independent Variable Forecasts](#) may constitute a shared scenario for interpretation. You can restrict the Sample Period to define a Forecast Period, which includes some actual employment values. In this case, [Forecast Errors](#) and the [Mean Absolute Percentage Error](#) are displayed for the purpose of forecast evaluation.

The forecasting system provides a family of OLS Models with different sets of explanatory variables. "Indicators" refers to a preset regression model based on the set of [Leading Indicators](#) that you have already identified. The "Industries" option calls for a preset regression model based on [Related Industries](#). Leading Indicators and Related Industries are combined to form the set of Independent Variables in the "full" option. With the "User" option you can define industry-specific OLS Models based on a more extensive set of explanatory variable combinations.

OLS is based on several assumptions regarding the Residuals (errors):

1. The average value equals zero.
2. They are independent of each other (not correlated).
3. Their variance is constant, which means that their standard deviation is zero.
4. They are normally distributed.

Optimization Process

The goal is to identify [Coefficient Estimates](#) that minimize the [Sum of Squared Residuals](#). When the solution to this problem is linear in the model parameters, we can develop equations that yield a unique solution. Where the solution is nonlinear in parameters, an alternative solution process is required. A variety of numerical optimization approaches that could be applied are described by Hamilton (1994, see [References](#)). In general, all of these procedures involve a search for parameter values that work best. Different combinations are considered, the resulting model predictions are calculated, and objective function values are compared. Prohibitive computational requirements of an exhaustive search represent a fundamental challenge.

Consider the search for a fugitive in which trained bloodhounds are released in a likely location. The hounds sniff for a strong scent to establish a search direction and follow the fugitive's trail as long as the scent grows stronger. An experienced trainer (or a wise old dog) will pause frequently to identify and respond to changes in direction. Our sequential search process works in much the same way. From a given starting position, we evaluate partial derivatives of the objective function to determine the best direction for search. That is, we identify the combination of very small parameter changes that is most effective in reducing [Residuals](#). The search moves a limited number of steps in that direction as long as the Sum of Squared Residuals continues to decline. We pause frequently to reevaluate partial derivatives and continue the process until all potential gains from search are exhausted.

Starting values matter. If you release the dogs in the wrong neighborhood, it will take a long time before they corner the fugitive. Bloodhounds have also been known to follow a trail left by a person or creature that is not the fugitive. Search procedures may be prone to find local solutions that are not global solutions. It is usually advisable to experiment with alternative starting values. We begin with a grid search for this purpose. For

starting [ARMA](#) estimates the routine searches across the full range of legitimate parameter combinations with refined precision near zero to account for scaling differences. A second pass applies a finer grid to establish precise starting values. The sequential Optimization Process, which follows, is not restricted by the initial grid pattern but begins with reasonable assurance that all "neighborhoods" have been investigated.

P-Value and the Test for Significance

The **Significance Test** can be carried out using a p-value approach. **P-value** is the probability of obtaining a value of the [t-statistic](#) at least as large in absolute value as the one actually obtained. A low p-value means a small probability of Type I error (rejecting a true hypothesis). A high value of p means a large probability of Type I error.

The following steps are necessary to test hypotheses using p-value(s):

1. Estimate a regression equation.
2. Specify a [Level of Significance](#) (e. g. $\alpha = 0.05$; 0.01). As a general rule, the significance level should be 0.05 or less.
3. Calculate p-value(s).
4. Set and test the null (H_0 = p-value is greater than the selected significance level) and alternative (H_a = p-value is less than the selected significance level) hypotheses.

Decision rule:

1. If the p-value is less than the selected significance level, then the null hypothesis is rejected. Under this condition, the tested coefficient is statistically significant.
2. If the null hypothesis cannot be rejected (p-value is less than the selected significance level), then the tested coefficient is not statistically significant.

The p-value method is equivalent to the t-test for the significance of the individual explanatory variables. The p-value approach may also be used to test for the overall significance of a regression model. A different p-value would be used.

Pre-Projections - Preview Employment

1. Compounded annual growth rate for industry (j)

$$= \text{ROUND} \left(\left(\left(\frac{X_{i(t)}}{X_{i(t-24)}} \right)^{\frac{1}{2}} - 1 \right) \cdot 100 \right), 2)$$

Where:

$X_i(t)$ = Employment level for industry (j) at month (t)

$X_{i(t-24)}$ = Employment level for industry (j) at month (t-24)

Exponent $\frac{1}{2}$ = denominator represents the span of years

Pre-projections - Preview Variables

1. Compounded annual growth rate for variable (j)

$$= ROUND((((\frac{X_{i(t)}}{X_{i(t-8)}})^{\frac{1}{2}}) - 1) \cdot 100), 2)$$

Where:

$X_i(t)$ = Employment level for variable (j) at month (t)

$X_{i(t-24)}$ = Employment level for variable (j) at month (t-24)

Exponent $\frac{1}{2}$ = denominator represents the span of years

The compounded annual growth rate (2 year) is used in the place of the year-over-year growth rate because the [Project Single Region](#) and [Multiple Region](#) forecast results are reported as the former. The use of the compounded formula establishes consistency between the diagnostic work done by the analyst in the pre-projections module (both the employment and variables) and the analyst decision on selection of a projection in the single region and multiple region modules.

The implementation of the compounded formula in [STIP](#) also establishes consistency with the [LTIP](#), which uses a compounded rate in its projections results. The importance of the consistent measurement of projections between the LTIP and the STIP is heightened as users often compare the sets of results and, moreover, the results are used in the [Occupational Projections](#) software, i.e., users often compare the occupational employment projections for the two horizons.

Projections - Leading Index

1. Year-over-year quarterly growth rate for industry (j) for actual

$$= ROUND((((\frac{X_{i(t)}}{X_{i(t-4)}})^{\frac{1}{1}}) - 1) \cdot 100), 2)$$

Where:

$X_i(t)$ = Actual employment level for industry (j) at quarter (t)

$X_{i(t-4)}$ = Actual employment level for industry (j) at quarter (t-4)

Exponent $\frac{1}{1}$ = denominator represents the span of years

2. Year-over-year quarterly growth rate for industry (j) for 2Q lead

$$= ROUND \left(\left(\left(\frac{X_{i(t)}}{X_{i(t-4)}} \right)^{\frac{1}{1}} - 1 \right) \cdot 100 \right), 2)$$

Where:

$X_{i(t)}$ = 2Q lead employment level for industry (j) at quarter (t)

$X_{i(t-4)}$ = 2Q lead employment level for industry (j) at quarter (t-4)

Exponent $\frac{1}{1}$ = denominator represents the span of years

3. Year-over-year quarterly growth rate for industry (j) for 4Q lead

$$= ROUND \left(\left(\left(\frac{X_{i(t)}}{X_{i(t-4)}} \right)^{\frac{1}{1}} - 1 \right) \cdot 100 \right), 2)$$

Where:

$X_{i(t)}$ = 4Q lead employment level for industry (j) at quarter (t)

$X_{i(t-4)}$ = 4Q lead employment level for industry (j) at quarter (t-4)

Exponent $\frac{1}{1}$ = denominator represents the span of years

The [Leading Index](#) module uses a year-over-year quarterly growth rate formula and not a 2-year compounded annual growth, as is the case in every other STIP module. The calculation of the Leading Index occurs in the C-library and its algorithms, including the determination of turning points, are predicated on year-over-year estimation. The changes in the other modules dealt with the display of the forecast results. If the display in the Leading Index is changed, then the designation of turning points (that occur within the C-library based on the year-over-year estimation) would not be consistent with the display of turning points (two-year compounded growth).

Project Single Region - Results tab

1. Compounded annual growth rate for industry (j)

$$= ROUND \left(\left(\left(\frac{X_{i(t)}}{X_{i(t-8)}} \right)^{\frac{1}{2}} - 1 \right) \cdot 100 \right), 2)$$

Where:

$X_{i(t)}$ = Final projected employment level for industry (j) at quarter (t)

$X_{i(t-8)}$ = Final actual employment level for industry (j) at quarter (t-8)

Exponent $\frac{1}{2}$ = denominator represents the span of years

Project Multiple Regions - Analyze Industry tab

1. Compounded annual growth rate for industry (j) in areas (m, n, o, ...) by quarter

$$= ROUND \left(\left(\left(\left(\frac{X_{i(t)}}{X_{i(t-8)}} \right)^{\frac{1}{2}} \right) - 1 \right) \cdot 100 \right), 2)$$

Where:

$X_{i(t)}$ = Final projected employment level for industry (j) at quarter (t)

$X_{i(t-8)}$ = Final actual employment level for industry (j) at quarter (t-8)

Exponent $\frac{1}{2}$ = denominator represents the span of years

Project Multiple Regions - Area View tab

1. Compounded annual growth rate for industry (j, k, l, ...) in area (m) by quarter

$$= ROUND \left(\left(\left(\left(\frac{X_{i(t)}}{X_{i(t-8)}} \right)^{\frac{1}{2}} \right) - 1 \right) \cdot 100 \right), 2)$$

Where:

$X_{i(t)}$ = Final projected employment level for industry (j) at quarter (t)

$X_{i(t-8)}$ = Final actual employment level for industry (j) at quarter (t-8)

Exponent $\frac{1}{2}$ = denominator represents the span of years

The average annual growth rate was replaced by the compounded annual growth rate (2 year) in both the project single region and multiple region forecast results. The use of the compounded formula establishes consistency between the diagnostic work done by the analyst in the pre-projections module and the analyst decision on selection of a projection in the single region and multiple region modules.

Projections - View Projections (Statewide and Sub-state Areas)

1. Compounded annual growth rate for industry (j)

$$= ROUND((((\frac{X_{i(t)}}{X_{i(t-8)}})^{\frac{1}{2}}) - 1) \cdot 100), 2)$$

Where:

$X_{i(t)}$ = Final projected employment level for industry (j) at quarter (t)

$X_{i(t-8)}$ = Final actual employment level for industry (j) at quarter (t-8)

Exponent $\frac{1}{2}$ = denominator represents the span of years

The compounded annual growth rate (2 year) is used in the place of the year-over-year growth rate because the [Project Single Region](#) and [Multiple Region](#) forecast results are reported as the former. The use of the compounded formula establishes consistency between the diagnostic work done by the analyst in the pre-projections module and the analyst decision on selection of a projection in the single region and multiple region modules.

The implementation of the compounded formula in [STIP](#) also establishes consistency with the [LTIP](#), which uses a compounded rate in its projections results. The importance of the consistent measurement of projections between the LTIP and the STIP is heightened as users often compare the sets of results and, moreover, the results are used in the [Occupational Projections](#) software, i.e., users often compare the occupational employment projections for the two horizons.

Output - Final Reports (display for both statewide and sub-state areas)

Q-Statistic

This test statistic is presented to determine if any systematic pattern of the [Residuals](#) remains after applying a given forecast model. An ideal model for a time series will result in Residuals that are "white noise," that is, completely uncorrelated over time (for a sequence of error terms, each value has a [Mean of Zero](#), a constant variance, and is serially uncorrelated). While the [Durbin-Watson](#) statistic relates to a pattern of first-degree autocorrelation, the **Q-Statistic** is a more general test for autocorrelation, testing whether a group of autocorrelations is significantly different from zero.

The Q-Statistic is based on the series of Residuals from the estimated model. Specifically, the [sum of squared](#) autocorrelations among Residuals provides the basis for the test statistic. As displayed, the Q-Statistic is distributed as chi-squared with [Degrees of Freedom](#) equal to the [Number of Observations](#) minus the number of autocorrelations. For an estimated [ARMA](#), Q has a chi-square distribution.

The STIP system provides the Q-Statistic in the “Details” screen. If this Q-Statistic is less than the critical value of chi-square, as a general rule of thumb below a value of 13, then the model can be considered free from autoregressive and moving average components.

R-Squared

R-Squared measures whether an estimated equation is accurate in explaining the sample observations of the dependent variable over the [Sample Period](#). The more accurate the estimated equation, the closer the estimated dependent variable values would be to the actual dependent variable values. The coefficient of determination, R-Squared, is a measure of the goodness of fit ([Historical Fit](#)) of the forecasting model; it estimates the proportion of the variation in the dependent variable explained by the [Independent Variables](#), and is represented by the ratio of the explained sum of squares to the total sum of squares.

R-Squared ranges from 0 to 1. The higher the R-Squared, the better is the overall fit of the estimated equation. R-Squared may be defined as the percentage of the variation of the dependent variable explained by the regression equation.

Although R-Squared is a good measure of fit in a simple regression model, it does not appear the same in a multiple regression. Adding another Independent Variable to an equation is likely to increase the R-Squared, but it would decrease the [Degrees of Freedom](#). Therefore, the [Adjusted R-Squared](#) would be a better measure of the goodness of fit when a regression equation contains more than one explanatory variable.

The Adjusted R-Squared relies on Degrees of Freedom to penalize models with a large number of Independent Variables. Thus, a small number of variables are preferred to a large number of variables, which explain the same amount of dependent variable variation.

Random Walk

A simple time series pattern in which the period-to-period change which produces each new observation, $Y(t)$, is a random step uncorrelated to past values or patterns.

$$Y(t) = Y(t - 1) + e_y(t)$$

Where:

$$e_y(t) = Y(t) - Y(t - 1)$$

The error term (**e**) is simply the first difference in successive values of **Y**. Several macro-economic time series appear to behave in a manner consistent with a **Random Walk** process. For the purpose of forecasting, the most recent observation of the dependent variable time series of interest is sufficient. Random Walk model forecasts off a useful standard for evaluation of alternative short run forecasts when the employment series does not exhibit an established pattern of growth or decline.

Related Industries

The [multivariate models](#) in the forecasting module use a mixture of macro-economic indicators and inter-industry relationships. The latter are useful to approximate the dynamic nature of the economy. For example, employment boosts in motor vehicle assembly often lead gains in fabricated metals. Hiring in retail trade, home furnishings lags upturns in construction activity.

The inter-industry relationships delineated in the **Related Industries** table are based on the [NAICS](#) (North American Industrial Classification System) and 1987 SIC Correspondence Tables, and expert review. The user has the flexibility to modify the table for describing linkages unique to a state's industry relationships. One or two Related Industries are optimum for the production of forecasts because some of the statistical methods require a large number of [Degrees of Freedom](#).

Residuals (Error Terms)

Residuals, or error terms, are the difference between the [actual](#) and [Fitted Values](#) of the dependent variable over the [Sample Period](#). Residuals provide an indication of the likely [Forecast Errors](#) that the regression would make in a forecasting application. A chart of Residuals is produced for each model in the [Details](#) section of [Project Single Region](#) module and for LTIP [Regression Models](#).

Rounded vs. Un-rounded Data

The recommendation for use of the STIP system is to import un-rounded data. The utilization of rounded data in the forecast process “builds-in” an unnecessary level of error. Typically, [BLS](#) (Bureau of Labor Statistics) estimates are rounded to the nearest hundred. An industry forecast in the range of 1% to 2% growth (typical) for an industry with an employment level below 10,000 falls victim to the BLS rounding criterion. Why begin the forecast process with such an impediment?

Sample Period

The set of available historical [observations](#) used in the estimation of a statistical model may be the full set of available observations; however, it is often useful to restrict the **Sample Period** to evaluate [Forecast Errors](#). The [Forecast Period](#) begins one period after the conclusion of the Sample Period. You can declare starting and ending points for the Sample Period in a number of system modules (industry employment series, identify [Leading Indicators](#)). The analogous ex-post evaluation of Forecast Errors in LTIP is captured in the [Theil-U](#) statistic. In select industry models, you must identify a starting quarter; however, the ending quarter is determined by your selection of [Step 1](#), [Step 2](#), or [Step 3](#).

The Sample Period is the frame of reference for all of the information presented in the "details" section of select industry forecasts.

Seasonal Adjustment

Forecasters are interested in seasonal fluctuations because:

1. Seasonality is second only to trend forces as the most prominent component of most time series data; and
2. From a short-term perspective, an understanding of seasonal variation is essential since the largest element in period-to-period (month-to-month) fluctuations is seasonal variation.

The STIP system requires monthly data series and it is recommended that all imported data be in the form of not seasonally adjusted levels. Data series and forecast results are presented as unadjusted levels; however, three different approaches to **Seasonal Adjustment** are employed in model estimation. First, the [Random Walk](#) and [Long Run Drift models](#) are based strictly on unadjusted levels and, consequently, do not employ any Seasonal Adjustment in forecast estimation.

Second, seasonal effects are estimated explicitly in the [linear trend model](#) and [Exponential Smoothing models](#). The former uses a set of monthly dummy variables to estimate seasonal patterns that remain fixed throughout the sample and [Forecast Periods](#). In Exponential Smoothing, the seasonal patterns are updated with each subsequent observation.

The third approach depends on a seasonally differenced monthly series and is used in the [ARMA](#), [OLS](#), [VAR](#), and [BVAR](#) model estimation. The system transforms the data series into over-the-year monthly differences. The change in industry employment from April (or September) of one year to April (or September) of the prior year is independent

of seasonal patterns. The display of [Forecast Values](#) exhibits a seasonal pattern as the forecasted annual changes are simply added to [actual values](#) from the last year of the [Sample Period](#).

SOC

The **Standard Occupational Classification (SOC)** system is a United States government system of classifying occupations. It is used by U.S. federal government agencies collecting occupational data, enabling comparison of occupations across data sets.

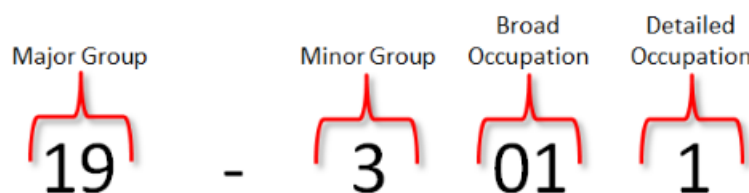


Figure 1: SOC code designations

- The first two digits in a SOC code represent the **major group**.
- The third digit represents the **minor group**.
- The fourth and fifth digits represent the **broad occupation**.
- The sixth digit represents the **detailed occupation**.

View the [SOC Manual](#) (links to bls.gov) for more information on the system.

Standard Errors of Coefficients

The **standard errors** of the [Coefficient Estimates](#) indicate their likely sampling variability and, therefore, their reliability. These estimates vary for each different data set and the standard error of the coefficients is a measure of their variation. The standard error is the square root of the variance of the distribution of the fitted coefficients; therefore, as the standard error increases, the probability for variation among the fitted coefficients increases.

In the STIP and LTIP systems, standard errors measure the statistical reliability of Coefficient Estimates, representing the distribution within which a statistic will fall when samples are obtained from the population. Standard errors of the coefficients are presented for all forecasting models.

Step Ahead Calculation

This is the calculation explanation for three methods used in **Step Ahead** tabs **4** and **5** (in [Projections Suite, 2019](#)).

☞ Step Ahead has been modified and does not match these modules and calculations, but these can be used as a reference for previous methods.

Header LT Compound Annual Growth Method

- LT Compound Annual Growth Method for 1-year Step Ahead = LT Base Value + (LT Base Value * LT Annual Compound Growth Rate)
- LT Compound Annual Growth Method for 2-year Step Ahead = 1-year Step Ahead value + (1-year Step Ahead Value * LT Annual Compound Growth Rate)

Header ST Quarterly Projected Compound Annual Growth Method

- ST Compound Annual Growth Method for 1-year Step Ahead = LT Base Value + (LT Base Value * ST Quarterly Projected Compound Annual Growth Rate)
- ST Compound Annual Growth Method for 2-year Step Ahead = 1-year Step Ahead Value + (1-year Step Ahead Value * ST Quarterly Projected Compound Annual Growth Rate)

Header ST Compound Annual Growth Method

- ST Compound Annual Growth Method for 1-year Step Ahead = LT Base Value + (LT Base Value * ST Annualized Compound Growth Rate)
- ST Compound Annual Growth Method for 2-year Step Ahead = 1-year Step Ahead Value + (1-year Step Ahead Value * ST Annualized Compound Growth Rate)

Step 1, Step 2, Step 3

[Forecast Values](#) can be compared to [actual values](#) when the [Forecast Period](#) begins within the range of available historical observations. Such "within-sample" experiments provide valuable information on the performance of proposed forecasting models. Run **Step 1** and the proposed models are estimated with the last eight quarters of historical data held out of the [Sample Period](#). Results include eight quarters of Forecast Values (period t-7 to base period t) and a corresponding set of eight [Forecast Errors](#) for each model.

An ideal forecasting model should remain effective over time. The sensitivity of each model's forecast performance over time can be evaluated by varying the end of Sample

Period. Therefore, **Step 2** re-estimates the set of proposed models with the Sample Period redefined to include all but the last four quarters of historical data. Results include eight quarters of Forecast Values (period $t-3$ to $t+4$) but only four quarters of Forecast Errors (from $t-3$ to base period t).

The Sample Period in **Step 3** is not artificially restricted. Resulting model estimates use data from the complete set of available historical observations ending at the base period. The final set of forecasts extends eight quarters beyond the base (period $t+1$ to $t+8$) and there are no Forecast Errors. At the conclusion of this step you are able to save Forecast Values from your choice of models.

Initially, you can either rely on the [Tournament](#) to propose models for evaluation or select your own set of alternatives. Individual models within each group can be replaced at any point; however, you will return to Step 1 after any change. As you re-estimate a given set of proposed models under Step 1 and Step 2 you are building a record of relative forecast performance used in Step 3 to select a model.

Sum of Squared Residuals

The **Sum of Squared Residuals** measures the unexplained variation in the dependent variable based on an estimation of [Residuals](#) over the [Sample Period](#). [Coefficient Estimates](#) which minimize the Sum of Squared Residuals are determined by ordinary least squares ([OLS](#)) regression (also see the [OLS Regression Models](#) module from LTIP) or an alternative [Optimization Process](#).

T-Statistic

The **T-Statistic** tests the hypothesis that a regression coefficient (b_1x_1 , b_2x_2 , $b_3x_3...$) has a particular value. The larger the absolute value of the T-Statistic, the better the possibility that the given regression [coefficient estimate](#) is significantly different from zero, thus implying that the [Independent Variable](#) would have an effect on the dependent variable.

T Test Steps

1. Estimate forecasting model and obtain the coefficients to be tested.
2. Compute T-Statistic, t , (regression coefficient/standard error of the coefficient).
3. Determine the [Degrees of Freedom](#) (number of [observations](#) minus number of coefficients, including constant term).
4. Derive the critical value(s) for the T-Statistic, t^* , considering the chosen significance level and the Degrees of Freedom. As a general rule, the significance level should be 0.05 or less. (See [reference](#) texts for the t distribution table.)

5. Set the test and null (H_0 = coefficient equals 0) and the alternative (H_a = coefficient does not equal 0) hypotheses.

Decision Rule

1. If the absolute value of t_c is great than t^* , then the null hypothesis is rejected. Under this condition, the regression coefficient (b_1x_1) is statistically significant from zero and the Independent variable (x_1) has an impact on the dependent variable.
2. If the null hypothesis cannot be rejected (the absolute value of t_c is less than t^*), then the regression coefficient (b_1x_1) is not statistically significant from zero. The Independent Variable (x_1) does not have an impact on the dependent variable.

Although the T-Statistic is a valuable tool for determining the significance of an individual explanatory variable, it does not allow testing for the overall goodness of fit of a model. The [F-Statistic](#) technique or [R-Squared](#) should be used to test for the overall goodness of fit of a model.

Theil-U

The **Theil-U** statistic is an ex post facto test of the predictability of the model. It measures how well the model predicts a certain number of years inside the historical series itself. The default number of years to include is four.

Tournament

This feature resides in the [Project Single Region](#) module and offers a set of “best-fit” specifications for each forecast model. You can proceed with these specifications or identify a set of alternatives for evaluation. After the **Tournament** feature is called, you must repeat [Step 1](#), [Step 2](#), and [Step 3](#) to produce industry forecasts. This is also the case whenever you alter or replace any of the choices in the "models" section.

The Tournament runs all of the available models in the system using the last eight periods of historical data to define the [Forecast Period](#). [Mean Absolute Percentage Error](#) values for each model are compared to identify the most effective model in each group. This automated process delivers a set of candidates; however, *you* select the model for industry forecasts. You are encouraged to evaluate models based on several criteria before making your selection.

Trend Models

A set of alternative approaches that project an established pattern of employment growth into the [Forecast Period](#). Differences between the various models in this group reflect the degree to which the most recent observation (as opposed to the entire [Sample Period](#)) is used to determine [Forecast Values](#).

[Linear Trend](#)

[OLS](#) estimation of a linear trend with seasonal controls. The regression equation includes a constant, a time trend and monthly dummy variables. Forecasts follow a very deterministic path based on series mean, trend and seasonal variations that are assumed to remain consistent throughout the Sample Period. Note that the most recent observation has no more effect on the forecasts than any other observation in the Sample Period.

[Exponential Smoothing](#)

Predicted values for the level, trend and seasonal components are updated with each successive observation. Estimated smoothing parameters determine the degree to which the model responds to new information. The particular framework implemented here can be described as Holt-Winters double Exponential Smoothing with linear trend and additive seasonal.

[Random Walk](#)

Forecasts from this model offer a useful standard for comparison of short term models when the employment series is subject to permanent shocks and growth does not appear to follow a trend. The most recent observation serves as the forecast for future periods.

[Long Run Drift](#)

Forecasts follow a deterministic trend with the most recent observation as a starting point. This model incorporates industry employment growth from long term forecasts to produce a meaningful combination of short-term information and long run analysis.

Turning Point Accuracy

One of the ultimate goals in short term forecasting is to accurately predict the timing and magnitude of cyclical fluctuations. Traditional measures of [Historical Fit](#) assess overall model performance in terms of residual magnitudes throughout the [Sample Period](#).

Turning Point Accuracy can be evaluated visually by inspecting the behavior of the predicted series at specific points where the actual series changes direction.

In identify [Leading Indicators](#) you select explanatory variables for statewide nonagricultural employment on the basis of several criteria. Effectiveness as a source of leading information on turning points should be a key factor. A summary measure of Turning Point Accuracy is provided for each of the leading indicator variables alone and in combination.

Turning points are defined as an increase or decrease in employment preceded by at least four consecutive quarters of movement in the opposite direction. The two or four quarter leading indicator series is said to predict a turn when the predicted series moves in the same direction as the actual series within one quarter of the turning point. The percentage of total upturns and downturns that are predicted in this manner serves as the measure of Turning Point Accuracy.

Univariate Methods

Univariate refers to an expression, equation, function, or polynomial of only one variable.

Methods include:

- [Trend](#)
- [ARMA](#)

VAR Models

For the purpose of short-term forecasting, it may be valuable to identify a set of influences that provide predictive information about our dependent variable even when the precise structure of the economic relationship remains elusive. **Vector Autoregression (VAR)** combines past information from the dependent series and other influences to form the most effective equation for prediction without adopting a host of restrictive behavioral assumptions. In general, these models have proven successful in short-term forecasting especially where the dependent variables are potentially interrelated.

A vector autoregression can be represented by a group of equations, sharing a common set of explanatory variables, including [Lagged Values](#), of all dependent variables. Consider the case of two dependent variables (X, Y) and lag length of two periods (t-1, t-2). A separate equation is specified for each of the variables based on a comprehensive set of lags as follows:

$$\begin{aligned}X(t) &= a_0 + a_1X(t-1) + a_2Y(t-1) + a_3X(t-2) + a_4Y(t-2) + e_x(t) \\Y(t) &= b_0 + b_1X(t-1) + b_2Y(t-1) + b_3X(t-2) + b_4Y(t-2) + e_y(t)\end{aligned}$$

[Forecast Values](#) are produced for each of the dependent variables in the VAR system of equations. A sequential process is used in which Forecast Values are generated one period at a time and then used as "inputs" in the next step.

Statistical details associated with VAR are consistent with [OLS](#) and [ARMA](#) with one exception. [Granger Causality](#) tests are performed for the *explanatory variables* in the employment equation.

A variety of VAR Models with different sets of explanatory variables are available in the system. "Indicators" refers to a preset VAR model based on Lagged Values of employment and the set of [Leading Indicators](#) that you have already identified. The "Industries" option calls for a preset VAR based on [Related Industries](#). Leading Indicators and Related Industries are combined to form the set of lagged [Independent Variables](#) in the "full" option. With the "User" option you can define industry-specific VAR Models based on a more extensive set of explanatory variable combinations and your choice of maximum lag length.

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