# Table of Contents

## Part I  Getting Started

1. About CDM ................................................................. 6  
2. Install & Uninstall ......................................................... 7  
3. Quick Tutorials ............................................................. 7

### Starting CDM
- .................................................................................. 7

### CDM Tabs
- Start ........................................................................... 8
- My Series ....................................................................... 10
- My Workspace ............................................................. 10
- My Watchlist ............................................................... 12
- My Library .................................................................... 13
- Search ......................................................................... 14
- Release Schedule ......................................................... 15
- Footnotes ....................................................................... 16

### CDM Toolbars
- Download to Excel ....................................................... 17
- Export ........................................................................... 21
- Chart ............................................................................ 23
- Table ............................................................................. 26

- Research Links ............................................................. 26
- Global Indicator Watch .................................................. 27
- Add to My Series ............................................................ 28
- Add to My Watchlist ....................................................... 28
- Refresh .......................................................................... 28

- CDM Link MS Word and PowerPoint ............................... 29

## Part II  CDM Tabs

1. Start ........................................................................... 32

- Databases ....................................................................... 32
- Series ............................................................................ 33

- Series Selection ............................................................. 36
- Key Series ..................................................................... 37
- Metadata ........................................................................ 37
- New Series ..................................................................... 38
- Updated Series ............................................................... 38
- Calculate ......................................................................... 39

- Quick View .................................................................... 40

- Quick Chart .................................................................... 40
- Series Information .......................................................... 41
- Sample Data ................................................................. 43
- Series Statistics .............................................................. 44

2. My Series ..................................................................... 46

- My Workspaces ............................................................ 47

- Create Workspace .......................................................... 48
- Sort Workspaces ............................................................ 50

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### Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 Refresh</td>
<td>172</td>
</tr>
<tr>
<td>10 Feedback</td>
<td>172</td>
</tr>
<tr>
<td>11 Options</td>
<td>173</td>
</tr>
<tr>
<td>Settings</td>
<td>173</td>
</tr>
<tr>
<td>User</td>
<td>174</td>
</tr>
<tr>
<td>General</td>
<td>174</td>
</tr>
<tr>
<td>Login options</td>
<td>176</td>
</tr>
<tr>
<td>Workspace</td>
<td>177</td>
</tr>
<tr>
<td>Quick View</td>
<td>178</td>
</tr>
<tr>
<td>Layout Format</td>
<td>179</td>
</tr>
<tr>
<td>Data Option</td>
<td>180</td>
</tr>
<tr>
<td>Download to Excel</td>
<td>180</td>
</tr>
<tr>
<td>Table</td>
<td>181</td>
</tr>
<tr>
<td>Chart</td>
<td>183</td>
</tr>
<tr>
<td>Export CSV Format</td>
<td>184</td>
</tr>
<tr>
<td>Calculate</td>
<td>185</td>
</tr>
<tr>
<td>Advanced</td>
<td>186</td>
</tr>
<tr>
<td>Connection</td>
<td>186</td>
</tr>
<tr>
<td>Clear Cache/Reset Settings</td>
<td>188</td>
</tr>
<tr>
<td>12 Help</td>
<td>188</td>
</tr>
<tr>
<td>Send Error Logs</td>
<td>188</td>
</tr>
<tr>
<td>User Guide</td>
<td>189</td>
</tr>
<tr>
<td>About CEIC Data Manager</td>
<td>189</td>
</tr>
<tr>
<td>New CDM Release</td>
<td>190</td>
</tr>
<tr>
<td>13 Logout</td>
<td>193</td>
</tr>
<tr>
<td>Part IV FAQ</td>
<td>194</td>
</tr>
<tr>
<td>1 About the Data</td>
<td>194</td>
</tr>
<tr>
<td>Consensus Economics</td>
<td>194</td>
</tr>
<tr>
<td>2 Shortcut Keys</td>
<td>195</td>
</tr>
<tr>
<td>3 CDM Add-in</td>
<td>199</td>
</tr>
<tr>
<td>Index</td>
<td>204</td>
</tr>
</tbody>
</table>
1 Getting Started

This document applies to CEIC Data Manager (CDM) version 2.5 ONLY. Other versions can be accessed via the respective CDM application.

This section gives you an introduction to CDM, including installation instructions and basic navigation to get you started.

- About CDM
- Install & Uninstall
- Quick Tutorials

1.1 About CDM

Introduction

CEIC Data Manager (CDM) provides access to the entire CEIC database from within a standalone application. It aims to make it easier to find, analyze, present and share the information you need, to get results fast. CDM includes:

- access to over 3,600,000 time series in our databases:
  1. Global Database
  2. China Premium Database
  3. India Premium Database
  4. Indonesia Premium Database
  5. Brazil Premium Database
  6. Russia Premium Database
  7. WorldTrend Database
  8. Daily Database
  9. Sector Database
  10. Consensus Economics™ Forecasts

- A powerful search that also allows for you to refine and filter your results
- User-friendly Interface allowing a quick view of each time-series graphically, latest data available, statistics and footnotes
- Easy download of data into Excel and other MS Office applications that provides simple and seamless integration with CDM
- An impressive chart interface with numerous customization features
- Automatic and dynamic updates of all time-series
- Central repository, called My Library, to make it easier to organize your CDM charts and Excel files
- Simple one-click operation to share charts via email and more...

CDM will assist you to:

- achieve significant productivity and efficiency gains with its user-friendly interface and enhanced search engine
- deliver rich visualization both with current and historical views
- stay on top of the latest data available with automatic and dynamic updates
- provides an unsurpassed tool for monitoring economic, industrial and financial trends around the world.
1.2 Install & Uninstall

Information about how to install and uninstall CDM, including system requirements, can be found at:

http://www.ceicdata.com/client/downloads

Your CDM username and password is required for log in.

1.3 Quick Tutorials

This section provides a short overview to get you started on CEIC Data Manager (CDM). For more detailed information on using the product, please refer to the topics after this section.

1.3.1 Starting CDM

1. After CDM is successfully installed, you can access CDM by:

- Double-clicking on the CDM Shortcut on your Desktop OR;

- Click on Windows Start, where you will find CDM in your Programs directory.

2. Enter your User Name and Password to login and click "OK" (green tick) or press enter to proceed. Check the "Remember my username and password" if you want CDM to memorize your login details for next time.

3. Should there be any login problems, CDM will prompt you with an error message, where you can return to the login box to correct your details and try connecting again.
You can also access CDM via MS Excel, Word or PowerPoint. If the CDM add-in has been installed, the following ribbons will be show in MS Excel, and Word and PowerPoint.

Remember to log out when you have finished using CDM, by clicking on the Logout Button on the CDM toolbar.

1.3.2 CDM Tabs

After logging in successfully, you will see the application window as shown below.

The CDM application window is divided into the following areas:

- **Left Pane** - Displays the databases, functions available in the selected Tab
- **Right Pane** – Displays series information
- **Quick View Pane** – Displays sample graph and data of the selected series
- **CDM Toolbar** - Tools and utilities that are available
- **Left-hand Navigation Bar** - shows 6 different Tabs which enables you to switch between different features on CDM, they include:

1. Start
2. My Series
3. My Library
4. Search
5. Release Schedule
6. Footnotes
You can switch between the Tabs by clicking on the name on the left-hand navigation bar.

1.3.2.1 Start

This is the starting point of CDM. You can navigate the databases and series through this tab. By default, CDM displays the Start tab after you have logged in. (You can change this through Settings).

Left Pane - Databases
All the available databases are displayed here. Simply click on a database to display the series tree in the right pane.

Right Pane - Series
The series under a selected database are listed in a tree layout. The series tree consists of 4 levels:

Level 1 – Topics
   Level 2 - Sections
   Level 3 - Tables
   Level 4 - Series

Navigate through the series tree by clicking on the name of an item in the tree. When you click on an item on a level, it will expand and display the details of the next level under it. For example, if you click on a topic, the list of sections under that topic will be shown. If you click on a series name (level 4), sample data, sample chart and series information will be shown in the preview pane. Click the “Refresh” button on the Toolbar to keep the series observations up-to-date.

Quick View Pane
When a series is clicked, this section will appear and will display the data of the selected series at the bottom. By default, this section displays a graph and a quick table which lists: Series Information; Sample Data; and Series Statistics. You can configure the settings through Settings.

Series Selection Toolbar
The series selection toolbar allows you to: expand Topics; collapse Topics; expand Sections; Collapse Sections; shows just the selected series in selected database, shortlist the key series in the Global Database which are selected by CEIC analysts to provide an overview of economic performance. Above the series selection bar, you can see how many series you have selected in a particular database; the
total number of series selected; and also choose to clear all the series you have selected if required.

1.3.2.2 My Series

My Series is where you manage your customized workspaces and Watchlist. You can use the buttons in the CDM Toolbar to add series to your Workspaces or Watchlist if you require to use them and monitor them regularly.

- My Workspace
- My Watchlist

1.3.2.2.1 My Workspace

CDM provides a convenient way to save the series you frequently use through My Series. You can create your own workspaces with the combination of series you desire.

Create Your Workspace

1. You can get to the series you want by navigating through the Series tree. Click on an item in the tree to expand it to view the next level.

2. When you are at the Series level (level 4), select one or more series by selecting the checkbox to the left of the series name. Or when you are in Table level (level 3), there is a checkbox besides the table name to select all series in that table. Note that one workspace can save 1000 series at the most and a maximum of 250 workspaces can be saved in My Series.

3. Click on the “Add to My Series” button on the Toolbar, and the “Add to My Series” pop-up window
will be opened. Enter the name of the workspace in the input box. Click the "OK" button to add to the new workspace.

4. Your workspace is now saved in My Series, as you can see by switching to the My Series tab.

Apart from Download to Excel and Create Graph, you can also perform other actions on your saved workspaces, such as apply functions to transform the series, which is further explained in the Functions Section.

Left Pane - My Workspaces
This pane displays your list of workspace and the actions that you can perform on the workspaces and series in the workspaces. Click on a workspace to display the series that are being saved in this workspace in the right pane.

Right Pane - Series
This pane displays information of the series being saved in the selected workspace. If you click on a series name, sample data and series information will be shown in the Quick View pane.

Quick View Pane
When a series is clicked, this section will appear and will display the data of the selected series.
1.3.2.2.2 My Watchlist

CDM’s My Watchlist allows you to monitor up to 1,000 series for updates, and alerts you when updates occur.

1. To add series to My Watchlist, select series in the Start “tree”, a workspace, or search results, and click “Add to Watchlist”.

2. You can view your watchlist by clicking on “My Watchlist” in My Series.

- Series that have been updated since you logged in will be shown in red in the right pane.
- You can change the order of the series in your watchlist by using the Move Up and Move Down arrows (Rearrange Series Order) and group series by column header (Series Grouping).
When the series in your watchlist are updated, a pop-up alert will advise you. Update Time is Hong Kong time (GMT/UTC +8 hours).

1.3.2.3 My Library

The My Library tab is located on the left hand navigation bar. It is a central repository for Excel files and CDM Charts, where they can be organized, opened, saved, renamed and searched in one place.

- **Left Pane - My Library**
  Displays your CDM folders. By default there is a Public Folder for sharing Excel Files and CDM Charts amongst CDM users within the same company, while the Private Folder is designated for personal files. Mapping of these directories is compulsory during initial CDM setup where the Settings Wizard will prompt you to assign default folders.

- **Right Pane - Excel and Chart Files**
Displays files respective of the folder you have selected in the left pane. If you double-click on a file under Excel files, Excel will open with your file displayed, conversely, if you double-click on a file under Chart Files, Chart Manager will open with your chart displayed.

- **Search My File**
  
  Allows you to search for files by filename or description that are available in all your folders. Click on Search Tips to familiarize yourself with the search syntax available.

  Simply double click on the files that you wish to open to launch MS Word, or CDM Charting interface.

1.3.2.4 **Search**

There are 3 ways in which to search series in CDM to cater for your needs:

- **Quick Search**

  Quick search is always located at the top of your CDM screen for easy access.

  1. Simply enter a keyword word or series code in the search box, click on the Search Button (magnifying glass) or press enter.

  2. You will be directed to the Keyword screen, where you can view your search results.

  3. Further refine your search in the Keyword Search screen if required.

- **Keyword Search**

  Keyword Search can be opened directly using the tabs located in the left hand navigation bar. It provides a simple search layout with a faceted search algorithm, which allows you to refine and filter your results by selecting one or more multiple criteria randomly in each category.

  1. Use the Search Buttons to choose to search for Subscribed Series, Active Series, and/or Key
Series.

2. Then simply enter your keyword or series code, click on the Search Button or press enter. Search Tips helps you get familiar with the search syntax.

3. Your results will appear below split into 2 main panels. Left panel can show a maximum of 6 categories. You can use the Search Filters to filter results from any of the categories on the left. The results will dynamically refresh when filters are applied so that you can quickly see the respective results and find what you are looking for.

4. Search results are sorted according to the sequence on the layout tree, starting with the WorldTrend Database. There will not be any duplication of series with the same code from different databases, only the first series code found will be displayed in search results.

**Advanced Search**

Advanced Search Button is located in the Keyword Search Tab and this can be used to select more parameters to refine your search.

1. Click on the Advanced Search Button located on the top left corner of the Keyword Search Window.

2. After you have chosen additional parameters to search, click the Search button to start. Results will be returned back in the Keyword Search Window.

**1.3.2.5 Release Schedule**

Release Schedule allows you to get information on when the indicators are released or will be released. On the right-hand side of the landing page you see a list of the Latest Releases (published in the past 24 hours) from any country as well as Upcoming Releases (scheduled for release in the next 7 days). On the left-hand side of the screen you can perform a Search based on select criteria.
Search Criteria - You can search for release schedule information via 3 separate components:

1. **Indicator** - A list of category indicators appears in this tab, organized alphabetically by country. For example, select Argentina and check the box: Banking Statistics.

2. **Source** - You can select one or more Sources to search in by checking the checkbox besides the source, listed alphabetically by country.

3. **Series Code** - Enter one or more series codes to obtain release schedule information on those indicators.

Additionally, you can specify the following:

- **Select Period** - You can select a period from the drop-down menu (such as next 120 days or previous 90 days). If you want to specify a start and end date, click on **Define Date Range** in the drop-down menu and specify the dates in the pop-up calendar.

- **Status** - You can choose to search for Pending or Released sources by checking the checkbox besides the status. If you leave them unchecked, CDM will search for both status.

Use the Reset button to clear the criteria selection and change back to the CDM defaults. Click the magnifying glass icon to initiate the search.

### 1.3.2.6 Footnotes

Footnotes are detailed information about the series and the databases - background about the series, what is the source, and more.

1. Footnotes can be accessed using the last tab on the left-hand navigation bar
2. By right-clicking on the series from the Start Tab, My Series, and Search Results and selecting Footnotes.

Footnotes are displayed in a floating window and you can open an unlimited number if of footnote windows is required.

1.3.3 CDM Toolbars

You can perform the actions you want by clicking on the action menu on the CDM toolbars, or right-click on the right pane to show a list of actions on the fly.

For more about these functions, please refer to following sections for more detail.

- Download to Excel
- Export
- Chart
- Table
- Research Link
- Global Indicator Watch
1.3.3.1 Download to Excel

A key feature of CDM is being able to download series data to Excel.

**Download series data to Excel**

One way to download series data to Excel is from the Start tab.

1. Find the series that you want by navigating through the series tree. Click on an item in the tree to expand it to view the next level.

2. When you are at the Series level (level 4), select one or more series by selecting the checkbox to the left of the series name. For multiple selections, you can use Ctrl + mouse select or Shift + mouse select. Or when you are in Table level (level 3), there is a checkbox besides the table name to select all series in that table. Note that you are only allowed to download up to 1,000 series at a time.

3. Click on the Download to Excel button in the Toolbar, to proceed with download.

4. There will be a "Excel Download" popup which allows you to specify different download options. The Excel Download topic will explain each of these options in details. Click on the Download button to proceed.
5. Below screenshot shows a sample downloaded data file. By default, the 10 most recent observations of a series will be downloaded.
How to interpret the downloaded data using our example above:

- Cell A1: This is a special cell used for reloading data. Do not delete or change this field, otherwise the reloading function may not work properly. Go to the topic - After Downloading for more explanation on how to refresh data.
- Column A: Headings and titles of series
- Columns B onwards: When the orientation is "series in columns", one column will represent one series.

6. Remember to save the file if you intend to reuse the information again, as you would like a normal Excel document.

Please refer to Excel Download for more details on this feature.

Refresh Series

CDM provides an easy way for you to refresh your series data after you download. On the CEIC Toolbar in Excel, you will see a few Refresh buttons. They are disabled before you log into CDM. After you logged in successfully, they will be enabled automatically.

When data in Excel has been updated, revised, discontinued, or rebased, you will receive an alert message in Excel informing you of the changes.

- **Green Alerts** - Show newly released and revised data points compared with your last refresh.
• **Blue Alerts** - Show newly released and revised data points within the last 30 days.
• **Text in Italics** - Show Discontinued series.

1.3.3.2 **Export**

CDM's Export function allows you to save series in CSV format to facilitate their use in your internal systems and third-party software.
1. Select the series you wish to export from CDM’s Start Tab, your workspaces or Search results, and click **Export**. Then choose your export settings.

2. To identify the exported series, you can choose to export the Series Name, the Series Code or both pieces of meta-data.

3. Click **OK** (green tick), and then choose a file name and save location in the **Export File As** dialog box, and click **Save**.
1.3.3.3 Chart

CDM Charting can be as simple or as sophisticated as you require. You can use Quick Charts to quickly see the trend and perform simple customizations, or if you require something more, you can go to the Chart Manager to choose from a large range of customizations for your presentations and quickly share them with your colleagues. CDM Charts can be created from the following options.

1. Chart Button

- Click on the Chart Button from the CDM Toolbar to open the Charting interface named "New Chart". There are up to 3 panes available. Under Series Manager, choose a pane and select a blank box to start inserting series.
- Enter a series code (alphabetical or numeric) directly and press enter to plot, alternatively, click the Insert Series Button above to open the "Insert Series to Chart" window, where you can find series using keyword/series code search of browse from the layout tree and plot one or more series to your chart.
2. Start Tab - Create charts for selected series

- Find the series that you want by navigating through the series tree. Click on an item in the tree to expand it to view the next level.
- When you are at the Series level (level 4), select one or more series by selecting the checkbox to the left of the series name. Or when you are in Table level (level 3), there is a checkbox besides the table name to select all series in that table. Note that you are only allowed to create graph for at most 20 series at a time.
- Click on the Chart Button on the CDM Toolbar to plot your series.
3. Quick Chart

- Find the series that you want by navigating through the Start Tab, or Search. Click on an item in the series list to reveal the quick chart.
- **Quick Chart** provides more detail.

Chart Manager

The Chart Manager will be displayed with your series plotted, using default settings. By default, the chart will be plotted using 24 observations, you can change the settings using **Timeframe** menu on the left side of the graph.

For further customization, the you can make use of the tools available in the **Pane Toolbar** to manipulate the graph and save or share your chart using the **Chart Toolbar**.

Remember to save your charts, located on the Chart Toolbar and rename your chart, which will be saved in **My Library**

Refer to the chapter on Charts for more details.
1.3.3.4 Table

If you want to quickly review or compare a few series without having to download the data to Excel, then you can make use of the Table feature. You can click on table when you have selected series from the layout tree, My Series and Search.

This is available in the CDM Toolbar via the button "Table".

1.3.3.5 Research Links

Research Links is a feature exclusive to the Premium Databases, namely for China, India, Indonesia, Russia and Brazil. It gives you access to proprietary research commentaries produced by a team of regional experts specialized in these economies.

Research Links can be accessed by:

1. Research Links Tab (magnifying glass) in the CDM layout tree

2. Alternatively, click on the Research Links button from the CDM Toolbar to view documents from all Premium Databases.
An unlimited number of Research Link Tabs can be opened if required.

1.3.3.6 Global Indicator Watch

NOTE: THE GLOBAL INDICATOR WATCH DATA AND FUNCTIONALITY MAY REQUIRE AN ADDITIONAL SUBSCRIPTION AFTER ITS FREE BETA TRIAL.

Global Indicator Watch facilitates comparison of key economic data across the 121 countries of the Global Database.

1. Click on Global Indicator Watch

2. A pop-up window will guide you through the selection options: indicators, regions/countries for comparison and presentation options.

3. Use the Next, Previous or Cancel Buttons to navigate the selection pages.
1.3.3.7 Add to My Series

This button allows you to quickly add series to a workspace. Please refer to the following section My Workspace for more information.

1.3.3.8 Add to My Watchlist

This button allows you to quickly add series to a Watchlist. Please refer to the following section My Watchlist for more information:

1.3.3.9 Refresh

On the CDM toolbar, you can refresh and check for any data and information updates throughout the day. You can update any series that you are using under opened tables to get the latest series information including time points, metadata, series icons and the quick view. Refreshing also updates the workspaces you are using in My Series, My Watchlist, Release Schedule, etc. Note that to refresh the database, topics, sections and tables lists, re-login is required.
“Refresh Tab” refreshes the tab that you are currently using.
“Refresh All Tabs” refreshes all the tabs. The individual tab will be displayed in gray color when it is not in use and will be updated once it is in use.

The refresh status of the tab will be shown in the left bottom corner.

1.3.4 CDM Link MS Word and PowerPoint

CDM allows you to copy & paste charts and tables into Microsoft Word and PowerPoint and refresh data directly from the programs using CDM add-ins.

Note that the PowerPoint and Word CDM add-ins are installed as default when you install CDM unless you specifically choose not to in Custom Set-up.

Copying CDM Charts and Tables

- In Chart click on the “Download to MS Office” Button in the Chart Toolbar to show the options available.
For Tables right-click and select **Copy as a Linked Object**.

**Using the PowerPoint and Word CDM Add-Ins**

Once you have pasted your CDM graph(s) or table(s) into PowerPoint or Word, you can format and save them using standard Microsoft functionality.

Time-points in the graph(s) or table(s) can be refreshed using the CDM add-ins **Refresh** and **Refresh All** commands. **Refresh** is located in the CDM toolbar, or can be found by right-clicking on the graph or table (as illustrated below). **Refresh All** is located only in the CDM toolbar.

**Note:** You must be logged in to CDM to refresh data using the add-ins.
Note that the period plotted in your Table or Graph will be determined by the Timeframe settings in CDM.

2 CDM Tabs

This section provides more information into each of the CDM Tabs that are accessible from the left-hand navigation bar. Once you have clicked on an icon, you will see the tab elongated with the name of the tab. There are 6 CDM Tabs in total that provide you with different useful features on CDM.

1. Start
2. My Series
3. My Library
4. Search
5. Release Schedule
6. Footnotes
2.1 Start

By default, the Start Tab is the first screen you see after you log in. It is also located in the left hand navigation bar.

This section explains in detail how to use the different functions and features in the Start Tab:

- **Databases**
- **Series**
- **Quick View**

### 2.1.1 Databases

A list of CDM Databases are listed in the left pane. You can choose to view the full list of CDM databases available, or only ones that you have subscribed to in **General Settings**.

Click on the database name to view the series tree in the right pane.

The CEIC Global Database countries can be displayed in full ("All Countries") or by region.
2.1.2 Series

Series under a selected database are listed in a tree layout in the right pane. The series tree consists of 4 levels:

- **1. Topic**
- **2. Section**
- **3. Table**
- **4. Series**

You can navigate through the series tree by clicking on the name of an item in the tree.

When you click on an item on a level, it will expand and display the details of the next level under it. For example, if you click on a topic, the list of sections under that topic will be shown.

Apart from the series name, the series list also shows summary information of the series:

- **Unit** - the unit that the observations are reported in
- **Frequency** - how often the observations are captured - daily, quarterly, monthly or yearly
- **# Obs.** - the number of observations in the series
- **First Obs. Date** - the date of the first observation
- **Last Obs. Date** - the date of the last observation
- **Last Update Date** - the date when the series is last reviewed or updated
- **Series ID** - the unique identifier of the series
• Series Tag - another identifier but not all series have it
• Status - whether the series is Active, Rebased or Discontinued*

*Rebased or Discontinued series are displayed in italics in the database layout tree and show "Rebased"/ "Discontinued" under the Status field.

If you click on a series name (level 4), sample data, sample chart and series information will be shown in the Quick View pane.

CDM uses different colors or formats to indicate different status of a series:

• Black Text: You have subscription to this series and can have access to use the data
• Gray Text: You do not have subscription and can only view the series in the tree layout. You will not have access to use the data.
• Italic Text: Series are discontinued and have not been updated since Last Update date.

Copy Series Information

You can copy series information off the series tree by using the "Copy Checked Rows" on the context menu when you right-click. It will copy all the checked rows (this only works for series level and table level). You can then paste them to another document.

How to subscribe to more series

When you click on a series to which you are not subscribed, the following message will appear.
1. Enter your comments and submit to our sales and customer service team.
2. Click on the Subscribe button to send out the request.

**Operations on Series**

Various operations can be performed on series using the actions on the CDM Toolbars:

- Or right-click on a series and select the action from a context menu.
More information about these actions are detailed in this document:

- Research Links
- Global Indicator Watch
- Add to My Series
- Add to My Watchlist
- Refresh CDM
- Excel Download
- Export to CSV
- Table
- Charts
- Functions

2.1.2.1 Series Selection

The series selection toolbar allow you to perform the following actions when navigating series.

- **Expand Topics (Topics "+")** - click on it to expand all topics to show the sections level. If you are already on sections level or lower, this action will not affect you.

- **Collapse Topics (Topics "-")** - click on it to collapse the whole series tree and display topics level only.

- **Expand Sections (Sections "+")** - click on it to expand all section to show the tables level. If you are already on tables level or lower, this action will not affect you.

- **Collapse Sections (Sections "-")** - click on it to collapse the levels below the sections level. If you are just displaying the sections level or topics level, this action will not affect you.

- **Show Selected Series in this Database** - Shortlist of the series you have selected in that particular database and show you exactly what they are. Click once again to view the full series list in that particular database.

- **Show Key Series Only** - Shortlist of 300-500 key series in the Global Database, selected by CEIC analysts to provide an overview of economic performance. The chapter on Key Series will provide you more details.

- **Total Series Selected** - Shows the total count of series selected. Beneath this count, shows a break-down, indicating Geographical Regions of the series selected and the respective numbers of series selected in the region. (Note that when series are added from Global Database > All Countries, these series will appear in the count for Global AND its respective region. A such, Global Database counts are not included in the total to avoid double-counting).

- **Clear All** - Deletes your selected series so you can start over.

Note:
The order of which series will download to My Series, Chart, Table, Download to Excel, will follow the order of your selection.
2.1.2.2 Key Series

Key Series are carefully selected by our CEIC analysts to provide an overview of economic performance. There are around 300-500 Key series for each country and are only available in CEIC's Global Database only. Key Series are denoted with a yellow key icon and can be found wherever you have a list of series, such as in the Start Tab, your Workspaces, in Search and more.

- Click **Show Key Series Only** to view only in the Start Tab, and click once again to go back to viewing all series.

![Key Series Button](image)

- **Key Series Button** is set as on in the Search Tab to return only key series (shown highlighted in orange). Click on it again, to search for all series.

![Metadata Icon](image)

2.1.2.3 Metadata

Metadata is supplementary series information denoted with a red "i". Click on the metadata icon located between the series checkbox and the series title to display. Metadata is only displayed in the series layout tree in the Start Tab, My Series, Search and Release Schedule).

1. Click on the icon to view the Metadata. A small window opens up with the Metadata displayed.
2. Check the "x" in the box to close the window.
2.1.2.4 New Series

In the CDM Start “tree” you can see the new series freshly created in CEIC databases in 2 weeks’ time are flagged with an icon.

The icons are displayed in the series levels and its corresponding Table levels.

2.1.2.5 Updated Series

In the CDM Start “tree” you can see the series which is updated with new or revised time point observations during last 48 hours will be marked in red color with bold font on the “Last Updated Date” field.
2.1.2.6 Calculate

CDM allows you to make quick transformations of series on the fly and display result with just one or two clicks. With Calculation on the fly, you do not have to add series to My Series or download to Excel before calculations. You can calculate Change, Currency Conversion and Frequency Transform with Aggregate method.

Calculate options are located at the right click menu of series tress layout from the Start tab and My Series.

Access to Calculation on the fly

1. You can get to the series you want by navigating through the Series tree. Click on an item in the tree to expand it to view the next level.

2. When you are at the Series level (level 4), select one or more series by selecting the checkbox to the left of the series name. Or when you are in Table level (level 3), there is a checkbox besides the table name to select all series in that table.

3. Right click the context menu and select either "Calculate Checked Series" or "Calculate Highlighted Series"

4. Click on one of the function on the list and the calculated result will be displayed according to the Calculate Settings. The CDM default is show only calculated data in Table.

5. If you want to change the calculated data presentation on ad-hoc basis, you can go to the drill down menu and select "Change Calculated Data Presentation".
2.1.3 Quick View

When you click on a series on the right pane (not clicking on the checkbox which will just select a series), the quick view pane will appear and display sample data of the selected series.

The Pin on the top right of the pane allows you to:
1. Fix the Quick View at the bottom of your window
2. Auto-hide Quick View, where a button will appear at the bottom of your window. The Quick View will expand when you hover your mouse over the button.

Pins are also located in the Timeframe pane and Series Properties pane in Quick View (and also in other features in CDM) that allow you to fix or hide its respective pane.

By default, this section displays a chart and a Series Properties, where you can click on: Information, Sample Data and Statistics, to review their respective data.

- Quick Chart
- Series Information
- Sample Data
- Series Statistics

You can customize the display under Settings on the Toolbar.

2.1.3.1 Quick Chart

Quick Chart provides a convenient way to have a visual representation of a selected time-series. The quick chart can be customized.

- Time Period can be changed by clicking the Timeframe button on the left.
2.1.3.2 Series Information

This table contains information about the selected series. The information tab is displayed at the top. To display Sample Data or Statistics, you can click on the respective tab.
<table>
<thead>
<tr>
<th>Information</th>
<th>Sample Data</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series Code</td>
<td>297089502</td>
<td></td>
</tr>
<tr>
<td>Country</td>
<td>World Bank (WDI)</td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>Annual, Ending &quot;dec&quot; Of ...</td>
<td></td>
</tr>
<tr>
<td>Unit</td>
<td>RMB mn</td>
<td></td>
</tr>
<tr>
<td>Source</td>
<td>World Bank</td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>First Obs. Date</td>
<td>12/1995</td>
<td></td>
</tr>
<tr>
<td>Last Obs. Date</td>
<td>12/2009</td>
<td></td>
</tr>
<tr>
<td>Last Update time</td>
<td>12/2012</td>
<td></td>
</tr>
</tbody>
</table>

- Series Code - Unique identifier of each series
- Country - Where this series belongs to
- Frequency - How often the series is reported
- Unit - Measure of this series
- Source - Where the series information is obtained
- Status - Whether the series is active or discontinued*
- First Obs. Date - Date of the first observation
- Last Obs. Date - Date of the last observation
- Last Update time - Date of when the series was last reviewed or updated

*Series that have been discontinued or rebased by their official reporting source will appear in italics in the database layout and will show "Discontinued" / "Rebased" in the Status field of the Quick View Information tab.

Copy Series Information

You can make a copy of all the information shown in this table.

1. Right-click on the series information table, a pop-up menu will be opened.
2. Select the Copy link.

3. Then use Windows’ Paste function to paste the data to other applications such as Microsoft Excel, Microsoft Word.

2.1.3.3 Sample Data

CDM shows Sample Data in Quick View, displaying the latest 24 observations of the selected series by default. Defaults can be changed using Quick View Settings tab in Settings.
A quick way to copy series data is to do so from the sample data table.

1. Right-click on the sample data table, a pop-up menu will be opened

2. Select the Copy link.

3. Then use Windows' Paste function to paste the data to other applications such as Microsoft Excel, Microsoft Word.

2.1.3.4 Series Statistics

The Series Statistics table contains statistics data about the selected series. Calculations are dependent on the observations you have selected in Timeframe.
Copy Series Statistics

You can make a copy of all the information shown in this table.

1. Right-click on the series statistics table, a pop-up menu will be opened.

2. Select the Copy link.

3. Then use Windows’ Paste function to paste the data to other applications such as Microsoft Excel, Microsoft Word.
2.2 My Series

My Series Tab is located in the left-hand navigation bar. My Series allows you to:

- Group series into Workspaces for easier reference
- Apply functions to your series
- Download series (original and transformed) to Excel
- Create charts using the series (Original and transformed)

- **Left Pane - My Workspaces**
  Displays your Workspaces and My Watchlist. Click on the item to display the respective series saved in the right pane.
  Use Import Workspaces and Save Workspaces to share your workspaces with colleagues (Sharing Workspaces).

- **Right Pane - Series**
  Displays series information saved in the selected workspace or your watchlist. If you click on a series name, a quick chart and series information will be shown in the quick view pane below.

- **Search My Series**
  Allows you to search for series that are available in all workspaces.

- **Quick View Pane**
  Click on the series to see a quick view pane. Refer to the topic Quick View for more details.

- **Find Series Tag** is a search box that helps locate a series in My Series by searching the Series Tag information. Just enter the series tag (or part of the series tag) that you want to find in the box. The first series matching the specified word will be highlighted. Clicking the "Up" or "Down" arrow will jump to the previous or next matching series. The Series Tag column is editable to make it easier for you to identify and locate your most frequently used series. Simply click on the cell in the Series Tag column to rename the series.
2.2.1 My Workspaces

*It is strongly advised that you regularly backup your Workspace files in case of corruption of CDM files.

The left pane displays your list of workspace and My Watchlist. Note that you are limited to save a maximum of 250 workspaces in My Series and a maximum of 1000 series in a workspace.

The box below displays the workspace information you are using and whether you have selected any series in this workspace.

If you have selected one or more series in the right pane, the "Clear Selection" link will be shown. Click on it to clear your selection.

The box below displays the workspace information you are using and whether you have selected any series in this workspace.

Manage My Series

You can organize My Series using the right-click context menu which allows you to organize My Series:
• New Folder
• New Workspace
• Sort Workspaces
• Rename Workspace
• Clone Workspace
• Delete Workspace

Show Series in Workspace
1. Click on the workspace that you would like to view from the left pane
2. The series that are being saved in this workspace will be displayed in the right pane.

2.2.1.1 Create Workspace

CDM provides a convenient way to save the series you frequently use in My Series.

1. Locate the series you want to add by navigating through the Series tree. Click on an item in the tree to expand it to view the next level.

2. When you are at the Series level (level 4), select one or more series by selecting the checkbox to the left of the series name. Or when you are in Table level (level 3), there is a checkbox besides the table name to select all series in that table. Note that you are only allowed to add up to 1000 series to any workspace and create 250 workspaces at most.
3. Click on the Add to My Series button on the Toolbar

or

Right-click on the right pane to open the pop-up menu, then select Add to My Series

4. "Add to My Series" popup window will open. Enter the name of the workspace in the input box.

5. Select a Folder to save to. Click OK to save the workspace.
Apart from Download to Excel and Create Graph, you can also perform other actions on your saved workspaces. For example, you can apply functions to transform the series. The chapter on Functions will discuss more about these operations.

2.2.1.2 Sort Workspaces

You can sort the workspaces by Name or Date Added:

1. Right-click on any workspace
2. Click on "Sort" > "By Name" in the pop-up menu. The workspaces are sorted by alphabetical order.
3. Click on "Sort" > "By Date Added" in the pop-up menu. The workspaces are sorted by the time of
workspaces creation. Sort by Date Added is the default option.

2.2.1.3 Search Workspaces

You can search across all the workspaces by keywords and series code:

1. Expand the search box by clicking the arrow.

2. Enter Keyword or Series Code in the search box.
3. In the search result, you can see the location of the series. Click onto the blue arrow will bring you to the workspace.

<table>
<thead>
<tr>
<th>Series Name</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>CN: Population</td>
<td>China</td>
</tr>
<tr>
<td>CN: Population: Male</td>
<td>China</td>
</tr>
<tr>
<td>CN: Population: Female</td>
<td>China</td>
</tr>
<tr>
<td>CN: Population: Urban</td>
<td>China</td>
</tr>
<tr>
<td>CN: Population: Rural</td>
<td>China</td>
</tr>
<tr>
<td>CN: Population: Age 0 to 14</td>
<td>China</td>
</tr>
<tr>
<td>CN: Population: Age 15 to 53</td>
<td>China</td>
</tr>
<tr>
<td>CN: Population: Age 15 to 64</td>
<td>China</td>
</tr>
</tbody>
</table>

2.2.1.4 Rename Workspace

You can change the name of a workspace:

1. Right-click on the workspace you want to rename

2. Click on "Rename" in the pop-up menu

   or

   Press "F2" when workspace is selected.

3. The workspace name will changed to edit mode. Enter the new workspace name in the input box.

4. Press Enter or tab out of the input box. The name change will take effect immediately.
Note that duplicate names are not allowed.

### 2.2.1.5 Clone Workspace

You can make a copy of a workspace and save it with a different name:

1. Right-click on the workspace you want to clone
2. Click on "Clone" in the pop-up menu
3. The new workspace will be created and use the original workspace name plus a '2' at the end of the name.

### 2.2.1.6 Delete Workspace

You can delete a workspace from the list:

1. Right-click on the workspace you want to delete
2. Click on "Delete" in the Workspace Actions area
3. You will be asked whether you are sure you want to delete.
4. Click the Yes button to proceed or the No button to cancel this action.
2.2.1.7 Add to My Series

You can add more series to an existing workspace.

1. Locate the series you want by navigating through the Series tree in the Start tab. Click on and item in the tree to expand it to view the next level.

2. When you are at the Series level (level 4), select one or more series by selecting the checkbox to the left of the series name. Or when you are in Table level (level 3), there is a checkbox besides the table name to select all series in that table. Note that you are only allowed to add up to 1000 series a workspace.

3. Click on the Add to My Series button on the Toolbar

or

Right-click on the right pane to open the pop-up menu, then select Add to My Series.

4. The "Add to My Series " popup window will open. Select the workspace you want to add to by clicking on the corresponding row or if you want to create a new Workspace enter a name in the row "Save to" and a new workspace will be created. Click green tick button to proceed or red cross button to cancel this action.
5. If the workspace already has the series you selected, you will get a message prompt. Click OK to add those series into the same workspace or click Cancel to Exit.
2.2.1.8 **Remove Series**

You can remove series from a workspace:

1. Select the workspace from the list in left pane.

2. Select the series you want to remove from the workspace and then do a right-click.

3. Select Delete

4. You will be asked whether you are sure you want to delete.

5. Click the Yes button to proceed or the No button to cancel this action.

![Remove Series Confirmation Dialog](image)

6. After you clicked Yes, the series will be removed from the selected workspace immediately and cannot be recovered. Note this will only delete the series selection in workspace (it is just a grouping), will not impact the actual series.

2.2.1.9 **Create Folder**

You can organize your workspaces by creating folders/sub-folders in My Series:

1. Select "My Workspaces" or any workspace that you want to create a folder under.

2. Right-click to open the pop-up menu and select New Folder link

3. Enter the new folder name at the New Folder prompt. Click the green tick button to save or the red cross button to Cancel.

4. The new folder will be created immediately.

![Create Folder Dialog](image)

2.2.1.10 **Delete Folder**

You can delete your folders in My Series:

1. Right-click on the folder that you want to delete
2. Select the Delete link on the pop-up menu

3. You will get a prompt to confirm whether you want to proceed. Note that all workspaces and sub-folders under the selected folder will be deleted as well. Click on the Yes button to proceed or the No button to cancel.

2.2.11 Sharing Workspaces

You can easily share your CDM workspaces with colleagues by saving them as a .cdmw file. This file can then be saved to a shared drive, e-mailed, sent by Skype, etc.

You can also import .cdmw and .cdm files to which you have access.

- Save Workspaces
- Import Workspaces

2.2.11.1 Save Workspaces

To save one or more of your workspaces,

1. Tick the checkbox next to workspace you wish to share.

2. Click Save Workspaces in My Series.

3. Choose a file name and save location, and click Save.
Your .cdmw file is now available to be shared in the same way as you would with a .doc or .xls file.

### 2.2.1.11.2 Import Workspaces

To import workspaces colleagues have shared with you,

1. Click **Import Workspaces** in My Series.
2. Select the .cdmw file you wish to import, and click **Open**.

The workspaces contained in the file will be added to **My Workspaces**.

You can delete, rename and otherwise manage imported workspaces using **My Workspaces** functionality.

**Note - Workspace Files From Older Versions of CDM.**

Workspace files from versions of CDM earlier than 2.1 can also be imported, but have the extension **.**
To find these files on your computer, select “All files (*.*)” in the “Files of type:” drop-down in the Open dialog. This will display all files, allowing you to select and open .cdm files.

2.2.2 My Series

The right pane is used to show the list of series that are in a workspace. You can manipulate how this list is shown.

2.2.2.1 Series Grouping

You can group the series by different columns in the list. Drag the column heading to the grouping bar (gray area below the workspace name).

You can change the sort order of the group by clicking on the arrow to the right of the group name.

You can also define sub-group by dragging more column headers to the grouping bar like the example below.
2.2.2.2 Jump to Series Tree

There is a small green arrow to the right of the series name which will direct you to the Table that the series belongs to in the Series Tree in Start tab.

The particular series will also be selected on the Series Tree like the example shown below.

2.2.2.3 Rename Series

You can change the series name, series code and unit that are being saved in your workspaces. (Not applicable for series in Start tab).

1. Click on the name of the series you want to change, the Series Name cell will change to edit mode.

or

Right-click on a series to show the pop-up menu.
2. After changing the name, simply click on another cell to leave the edit mode. You can differentiate between renamed series with the pencil icon shown.

### 2.2.2.4 Insert Function

You can insert calculations by using **Insert Function**.

To insert CDM functions to My Series, select them in the series list box and click **Insert Function**. CDM Function window will be prompted. Refer to the topic [CDM Functions](#) for details.

### 2.2.2.5 Insert Title

You can insert/remove an editable title for a self-defined group of series. (Not applicable for series in Start tab)

1. Check/Highlight the series that you want to insert title
2. Click **Insert Title** in the toolbar
   
   or

   Right-click to show the pop-up menu.
1. You can insert the title in the row with the minus sign and press Enter to confirm.

2. Click on + / - sign to expand/ collapse the series within the title.

3. The title can be removed by selecting **Delete** in the toolbar.

### 2.2.2.6 Insert Separator

You can insert/remove an editable row between two series. (Not applicable for series in Start tab)

1. Check a series that you want to place a separator above. Select **Insert Separator** in the toolbar.

or

Right click to show the pop-up menu and select **Insert Separator**.
2. You can insert any texts in the separator and it will be displayed in italic fonts.

3. The separator can be removed by selecting **Delete** in the toolbar.

2.2.2.7 **Rearrange Series Order**

You can rearrange the series order by using **Move Up/Move Down**.

1. Highlight one or more series and click **Move Up/Move Down**

2. The series will be moved to your desired location.
2.2.2.8 Undo-Redo Actions

You can undo/redo any action you preformed in a particular workspace within an active CDM session.

1. You can click undo button to reverse the action you have done. You can redo those actions that you undid.

2.2.2.9 Change Column Ordering

You can change the order of the columns by dragging the column heading to the position you want.

2.2.2.10 Show/Hide Column

Some of the columns can be added or removed. Right-click on the grouping bar to open the Field Chooser pop-up box.

The box shows the columns that are being hidden. Double-click on the column to show it in the list and drag & drop it to the location you want.

To hide a column, drag the column heading and drop into the Field Chooser box.

Note that the "Series Name" column cannot be hidden.

2.2.2.11 Copy Series List

You can make a copy of all the information shown in the list. Note this only copy the values in the list as text.
1. Right-click anywhere on the series list, a pop-up menu will be opened.
2. Select the Copy Highlighted Rows link.
3. Then use Windows’ paste function to paste the data to other applications such as Microsoft Excel, Microsoft Word.

### 2.2.3 Functions

CDM provides a number of mathematical functions that can be applied to the series in CEIC databases. You can then use the transformed series to create charts or download to Excel for further analysis. Functions can be accessed in the following ways:

1. After selecting the series you want to apply functions to, click on "Insert Function" from the Toolbar in My Series.

2. You can also access functions from the pop-up menu on the right pane after selecting your series. Right-click on the right pane, select Insert Function.
CDM Function Window

1. After selecting your series and accessing the Functions Window from the methods above. Depending on the function, you may be asked to enter parameters and/or select options. Choose a function from the list on the left, refine with parameters in the middle and click on the plus (blue cross) to see your function added on right pane. You can select more than one function. Delete functions by highlighting and click on the deleted (red cross). The next sections will explain these functions in more details.

2. Tick the "Replace original series" to download just your transformed series at the bottom. If you leave this unchecked, both the original and transformed series will be downloaded.
3. When done, click the OK button (green tick) to transform the series. The transformed series will be added after the original series in the series list with (*P*) where * denotes the function number in that workspace. More descriptive information about the function applied will be shown in columns, "Function Description" and "Unit".

### Editing Functions

You can also edit functions on transformed series. There is no known limit to the number of functions that can be applied to already transformed series.

1. Select one or more transformed series in the right pane. Click on Insert Function Button, or Right-click Insert Function to open the Function pop-up window.

2. You will see that your previously applied function(s) is already showing, choose other functions to apply to your transformed series.

3. Depending on the function, you may be asked to enter parameters and/or select options. The next sections will explain the different functions in more details.

4. After you entered the required information, click the OK button (green tick) to transform the series. The transformed series will be added after the original series in the series list with (*P*) where * denotes the function number in that workspace. More descriptive information about the function applied will be shown in columns, "Function Description" and "Unit".
In the example below, "Sum" is first applied, then is "Change".

<table>
<thead>
<tr>
<th>#</th>
<th>Series Name</th>
<th>Unit</th>
<th>Function Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CH: Population Age 0 to 14</td>
<td>Person</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>CH: Population Age 0 to 14 [II]</td>
<td>Person</td>
<td>Sum (CH: Population Age 15 to 64)</td>
</tr>
<tr>
<td>3</td>
<td>CH: Population Age 0 to 14 [II] [II]</td>
<td>%</td>
<td>Sum (CH: Population Age 15 to 64) &gt; Changes (Per. Over Year)</td>
</tr>
<tr>
<td>4</td>
<td>CH: Population Age 15 to 64</td>
<td>Person</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>CH: Population Age 15 to 64</td>
<td>Person</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>CH: Population Age 65 and Above</td>
<td>Person</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>CH: Population Age 65 and Above</td>
<td>Person</td>
<td></td>
</tr>
</tbody>
</table>

The function information row also shows what parameters are used.

You can also apply functions from Download to Excel, Table and in Edit Download under Excel Add-in.

**Note:**
When multiple series have been selected (some of which may have already been transformed series), the summary window will be empty as it cannot show the functions applied to every series. However, users can still continue to apply new functions to this set of series selected if required.

### 2.2.3.1 Accumulate

The "Accumulate" function is used to calculate the cumulative sum-to-date of a selected series. The result is a series equal to the sum of data points over an interval defined by the number of periods, $P$.

In addition to the standard Accumulate operation, you also have the ability to apply a **Rolling Sum** or a **Rolling Average**. A Period value must be entered for these options and it must be a positive integer. The Period value may not exceed the number of Observations of the base series.

1. Select "Accumulate, Rolling Sum, or Rolling Average" from the CDM Functions window.

2. If you have selected Rolling Sum or Rolling Average, enter a value for the Period.
3. Click on the Add Button (blue plus) to add your list of functions in the above box. Click on OK (green tick) to proceed or the No (red cross) to cancel the operation.

**Rolling Sum**

Returns a series where the values of the (Date, Value) elements is equal to the sum over a given number (P) of previous observations. Formerly we have:

\[ f(X(t)) = \{X(t) + X(t-1) + \ldots + X(t-P+1)\} \]

Where \( f(X(t)) \) is the numerical value of the t-th element of the resultant series and \( X(t) \) is the value of the latest date of the source series, and \( X(t-1) \) is the numerical value of the previous element of so on. If any of the observations from \( X(t) \) to \( X(t-P+1) \) are missing, then \( f(X(t)) \) of the resultant series will be a missing observation.

**Rolling Average**

Returns a series where the values of the (Date, Value) elements is equal to the average over a given number (P) of previous observations. Formerly, we have:

\[ f(X(t)) = \frac{\{X(t) + X(t-1) + \ldots + X(t-P+1)\}}{P} \]

Where \( f(t) \) is the numerical value of the t-th element of the resultant series and \( X(t) \) is the value of the latest date of the source series and \( X(t-1) \) is the numerical value of the previous element of so on. If any of the observations from \( X(t) \) to \( X(t-P+1) \) are missing, then \( f(X(t)) \) of the resultant series will be a missing observation.

**Reference:**

<table>
<thead>
<tr>
<th>Function</th>
<th>Formula</th>
</tr>
</thead>
</table>
| Accumulate | \[ f(x_n) = \begin{cases} 
\text{Null} & \text{if } x_n \text{ is null} \\
\text{Null} & \text{if any preceding elements } (x_1, x_2, x_3, \ldots, x_n) \text{ are } \text{missing} \\
\sum_{i=1}^{n} x_i & \text{if all } (x_1, x_2, x_3, \ldots, x_n) \text{ are not missing} 
\end{cases} \] |

Note: If any preceding element(s) is/are missing in the row, for all elements afterward the result should be all Null.

### 2.2.3.2 Period to Date

The Period To Date function is used to calculate the period-to-date summation, or to derive the period-end difference of a selected series, over intervals corresponding to the designated frequency.

You can only apply a frequency lower than that of the original series. For example, if the original series is Monthly, you can use Period = Quarterly or Yearly.

1. Select Period To Date from CDM Functions window.
2. In the Period drop-down box, select the frequency

3. Dependent on the frequency you chose, the Period End drop-down box will be show different values. For example, if you selected Weekly for frequency, the Period End box will show day of week values as shown below. Click on Sum or Difference to choose whether to calculate the sum or difference.

4. Click on the Add Button (blue plus) to add your list of functions in the above box. Click on OK (green tick) to proceed or the No (red cross) to cancel the operation.

**Note:**
- If Period to Date is not applicable for your selected series, selection boxes will be grayed out.
- If you have selected more than one series but the selected parameters do not apply to one or more of
them, CDM will show a prompt and after you clicked OK, it will just transform the series where the parameters are applicable.

### Reference:

<table>
<thead>
<tr>
<th>Function</th>
<th>Formula</th>
</tr>
</thead>
</table>
| **Sum** | $f(X_{mn}) = \sum_{j=1}^{n} X_{mj}$ if all components are not missing  
Period-end | Period-to-date  
$X_{mn}$ is Null  
if any elements $(X_{m1}, X_{m2}, ..., X_{mn-1})$ are missing  
Null  |
| **Difference** | $f(X_{mn}) = X_{mi+i}$  
Period-end | Period-to-date  
$X_{mn}$ is Null  
if either $X_{mn}$ or $X_{m(n-1)}$ is null or missing  
if $n > 1$  
$X_{mn} - X_{m(n-1)}$  
where $X_{mi+i}$ is the closest non-null element, if $X_{m1}, X_{m1+1}, X_{m1+2}, ...$ is null.  
Null  |

Note: $X_{mj}$ indicate the value of the $j$th observation in $m$th period, e.g. $X_{21}$ is the first observation in the 2nd quarter period.

#### 2.2.3.3 Changes

This function is used to calculate the percentage changes, absolute difference or logarithmic difference (exponential growth) of a selected series over a period of time or over a year earlier.

When calculating a "Over a year" change, CDM automatically sets the time lag to the number of period within a year for the frequency of the selected series.
“Over period” is to calculate a period-on-period change with user defined time lag. The annualized growth of the defined period can be obtained by checking the “Annualize” checkbox.

1. Select "Changes" from CDM Functions window.

2. Select the Change Type.

3. Select the parameters - Over a year or Over period. If you select "Over period", then the input box for time lag and the “Annualize” checkbox will be enabled.

4. Click on the Add Button (blue plus) to add your list of functions in the above box. Click on OK (green tick) to proceed or the No (red cross) to cancel the operation.

Reference:
### Note:
For <Parameters> Over a year, t = N (refer to the table below)
For <Parameters> Over a period, t = 1, 2, 3 ...

### Annualize

<table>
<thead>
<tr>
<th>Series Frequency</th>
<th>Number of period within a year (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual / Yearly</td>
<td>1</td>
</tr>
<tr>
<td>Semannual</td>
<td>2</td>
</tr>
<tr>
<td>Quarterly</td>
<td>4</td>
</tr>
<tr>
<td>Monthly</td>
<td>12</td>
</tr>
<tr>
<td>Weekly</td>
<td>52</td>
</tr>
<tr>
<td>Weekday</td>
<td>260</td>
</tr>
<tr>
<td>Everyday</td>
<td>365</td>
</tr>
</tbody>
</table>

### Function | Formula
--- | ---
Percentage Change | \[ f(x_i, t) = \begin{cases} \text{Null} & \text{if (1) } x_i \text{ or } x_i \text{ is null / missing OR (2) } x_i = 0 \\ 100 \left( \frac{x_i}{x_i} \right)^{\frac{N}{t}} - 1 & \text{OR (3) } x_i \text{ and } x_i \text{ have different sign} \\ \text{Null} & \text{if (1) } x_i \text{ and } x_i \text{ have same sign} \end{cases} \] for (1) \( x_i \) and \( x_i \) is not null nor missing

Difference | \[ f(x_i, t) = \begin{cases} \text{Null} & \text{if } x_i \text{ or } x_i \text{ is null / missing} \\ (x_i - x_i) \times (N/t) & \text{if } x_i \text{ and } x_i \text{ is not null nor missing} \end{cases} \] for (1) \( x_i \) and \( x_i \) is not null nor missing

Exponential Growth Rate | \[ f(x_i, t) = \begin{cases} \text{Null} & \text{if (1) } x_i \text{ or } x_i \text{ is null / missing OR (2) } x_i = 0 \\ 100 \times \ln \left( \frac{x_i}{x_i} \right) \times (N/t) & \text{OR (3) } x_i \text{ and } x_i \text{ have different sign} \\ \text{Null} & \text{if (1) } x_i \text{ and } x_i \text{ have same sign} \end{cases} \] for (1) \( x_i \) and \( x_i \) is not null nor missing
where: \( t \) is Time Lag.

**Note**: The field 'Time Lag' and the 'Annualized' check box only apply with option 2 'Over a period'.

- **Contribution to Growth**

Contribution to Growth function evaluates the contribution of the selected series \( Y \) to the growth of the base series. The new series created represents an additive decomposition of the percentage change (growth) in the aggregate series. Formerly for a series \( X(t) \), when an aggregate series \( Y(t) \) is selected from the drop-down list-box (it can be either a series of a sum of all series contained in the list-box) the resultant series is given by:

\[
f(X(t), Y(t)) = 100 \times \frac{(X(t) - X(t-P))}{Y(t-P)}
\]

Where \( P \) is time lag or number of periods selected.

For this function the user can select an option “Over a year” where the number of periods used is calculated internally depending on the type of frequency of the series (e.g. if the frequency is quarterly then the number will be 4). Below to provide a worked example for a series \( X(t) \), and \( Y(t) \) when the period \( P \) used is 2:

\[
F(X(06/2007), Y(06/2007)) = 100 \times \frac{1159-1295}{483,575} = 100 \times \frac{-136}{483,575} = -0.028124
\]

<table>
<thead>
<tr>
<th>Date</th>
<th>Source Series ( X(t) )</th>
<th>Source Series ( Y(t) )</th>
<th>( f(X(t), Y(t)), P=2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>03/2006</td>
<td>1,254.988</td>
<td></td>
<td></td>
</tr>
<tr>
<td>06/2006</td>
<td>1,273.311</td>
<td></td>
<td></td>
</tr>
<tr>
<td>09/2006</td>
<td>1,298.141</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12/2006</td>
<td>1,295.000</td>
<td>483,575.000</td>
<td></td>
</tr>
<tr>
<td>03/2007</td>
<td>1,273.000</td>
<td>507,169.000</td>
<td></td>
</tr>
<tr>
<td>06/2007</td>
<td>1,159.000</td>
<td>537,172.000</td>
<td>-0.028124</td>
</tr>
<tr>
<td>09/2007</td>
<td>1,180.000</td>
<td>550,244.000</td>
<td>-0.018337</td>
</tr>
<tr>
<td>12/2007</td>
<td>1,167.000</td>
<td>632,560.000</td>
<td>0.001489</td>
</tr>
<tr>
<td>03/2008</td>
<td>1,157.000</td>
<td>654,015.000</td>
<td>-0.004180</td>
</tr>
<tr>
<td>06/2008</td>
<td>1,201.000</td>
<td>761,418.000</td>
<td>0.005375</td>
</tr>
<tr>
<td>09/2008</td>
<td>1,176.000</td>
<td>774,682.000</td>
<td>0.002905</td>
</tr>
<tr>
<td>12/2008</td>
<td>1,118.000</td>
<td>820,385.000</td>
<td>-0.010901</td>
</tr>
</tbody>
</table>

Where for example the first element of \( F(X^t), Y^t) \) is evaluated as:

\[
F(X(06/2007), Y(06/2007)) = 100 \times \frac{1159-1295}{483,575} = -0.028124
\]

**2.2.3.4 Frequency Transform**

This function is used to generate an aggregate/disaggregate figure of a selected series from its original frequency to a new frequency. You can apply a frequency that is either higher or lower than that of the original series.
1. Select "Frequency Transform" from the CDM Functions list.

2. Select the calculation method.

3. Select a frequency from the Frequency drop-down box. Depending upon the frequency chosen, the Period End drop-down box will be loaded with different values. For example, if you selected Weekly for frequency, the Period End box will be loaded with day of week values.

4. To obtain a disaggregate figure, select one of the parameters under Disaggregation: Distribute or Replicate.

5. Click on the Add Button (blue plus) to add your list of functions in the above box. Click on OK (green tick) to proceed or the No (red cross) to cancel the operation

Reference:
where

M is the Method.
P is the Period End.

**Disaggregation**

Two functions, Replicate and Distribute, allow series to be mapped to a higher frequency.

- **Replication**

Maps to a series of a higher frequency by populating all the elements within a period of the source series with its single value. Distribution would be applied when the source series represents a price level where his data was required to be described in terms of a higher frequency series. For example, if \( X(t) \) is a quarterly series and we apply Replication to map to a monthly series then we have:

<table>
<thead>
<tr>
<th>Dates of Quarterly Source Series</th>
<th>Values of Quarterly Source Series</th>
<th>Dates of Resultant Monthly Series</th>
<th>Values of Resultant Monthly Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1/2002</td>
<td>9</td>
<td>1 Jan 2002</td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Method</th>
<th>Formula</th>
<th>( y_m = f(x_m) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>I (Sum)</td>
<td>( y_m = \sum_{j=1}^{P} x_{mj} )</td>
<td>if all components are not missing</td>
</tr>
<tr>
<td></td>
<td>( y_m = \max(x_m1, x_m2, x_m3, \ldots, x_mN) )</td>
<td>if one of the observation ( (x_m1, x_m2, \ldots, x_mj) ) is missing</td>
</tr>
<tr>
<td></td>
<td>( y_m = \min(x_m1, x_m2, x_m3, \ldots, x_mN) )</td>
<td>if all components are not missing</td>
</tr>
<tr>
<td>First</td>
<td>( y_m = \begin{cases} \text{null} &amp; \text{if } x_m1 \text{ is missing} \ x_m1 + i &amp; \text{where } x_m1 + i \text{ is the closest non-null element, if } \ x_m1, x_m1+1, x_m1+2, \ldots \text{ is null.} \ x_m1 &amp; \text{if } x_m1 \text{ is not null} \end{cases} )</td>
<td>if one of the observation ( (x_m1, x_m2, x_m3, \ldots, x_mN) ) is missing</td>
</tr>
<tr>
<td>Last</td>
<td>( y_m = \begin{cases} \text{null} &amp; \text{if } x_mP \text{ is missing} \ x_mP + i &amp; \text{where } x_mP + i \text{ is the closest non-null element, if } \ x_mP, x_mP-1, x_mP-2, \ldots \text{ is null.} \ x_mP &amp; \text{if } x_mP \text{ is not null nor missing} \end{cases} )</td>
<td>if one of the observation ( (x_m1, x_m2, x_m3, \ldots, x_mN) ) is missing</td>
</tr>
<tr>
<td>( \bar{N} )</td>
<td>( y_m = \begin{cases} \text{null} &amp; \text{if } x_mN \text{ is missing} \ x_mN + i &amp; \text{where } x_mN + i \text{ is the closest non-null element,} \ x_mN, x_mN+1, x_mN+2, \ldots \text{ is null} \end{cases} )</td>
<td>if one of the observation ( (x_m1, x_m2, x_m3, \ldots, x_mN) ) is missing</td>
</tr>
</tbody>
</table>
### Distribution

Maps a series to a higher frequency by populating all the elements within a period of the source series by equal sub-dividing the value equal between to resultant elements. Distribution would be applied when the source series represents a rate of change such as price level change and this data was required to be described in terms of a higher frequency series. For example, if \( X(t) \) is a quarterly series and we apply Distribution to map to a monthly series then we have:

<table>
<thead>
<tr>
<th>Dates of Quarterly Source Series</th>
<th>Values of Quarterly Source Series</th>
<th>Dates of Resultant Monthly Series</th>
<th>Values of Resultant Monthly Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1/2002 (1st March 2002)</td>
<td>9</td>
<td>1 Jan 2002</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Feb 2002</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Mar 2002</td>
<td>3</td>
</tr>
<tr>
<td>Q2/2002 (1st June 2002)</td>
<td>12</td>
<td>1 Apr 2002</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 May 2002</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Jun 2002</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Aug 2002</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Sep 2002</td>
<td>6</td>
</tr>
</tbody>
</table>

### Linear Interpolation

Maps a series to a higher frequency series by populating sub-period observations with the linearly interpolated observations of the source series. Linear interpolation ensures that the (additive) difference between an interpolated element and next/preceding elements is constant. As such this approach is appropriate for example when the series represent the number of some entity rather than a derivative of a natural phenomenon such as a growth rate.

Formerly, if we have series \( X(t) \), then the Linear Interpolation of this series \( f(X(t)) \) is:

\[
f(X(t)) = X(q) + \left\{ \frac{(X(p) - X(q))}{(p-q)} \right\} * (t-q)
\]

where:

- \( X(q) \) is the previous known observation excluding NA and missing observations.
• X(p) is the next known observation excluding NA and missing observations.

• t, p, q are the relative positions of the observations within the series.

For example, if X(t) is the following quarterly series by applying Linear Interpolation to map to a monthly series we would have:

<table>
<thead>
<tr>
<th>Dates of Quarterly Source Series</th>
<th>Values of Quarterly Source Series</th>
<th>Dates of Resultant Monthly Series</th>
<th>Values of Resultant Monthly Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1/2002 (1st March 2002)</td>
<td>9</td>
<td>1 Jan 2002</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Feb 2002</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Mar 2002</td>
<td>9</td>
</tr>
<tr>
<td>Q2/2002 (1st June 2002)</td>
<td>12</td>
<td>1 Apr 2002</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 May 2002</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Jun 2002</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Aug 2002</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Sep 2002</td>
<td>18</td>
</tr>
</tbody>
</table>

• Cubic Spline Interpolation

Maps a series to a higher frequency series by populating sub-period observations with the (natural) Cubic Spline Interpolation of each observation of the source series. The interpolated series has the qualitative property of being ‘smooth’ at the interpolation points, in the sense that a cubic polynomial (i.e. a smooth function) can be fitted over 3 adjacent elements. As such the Cubic Spline Interpolation would be applied for example when the user expects the rate of change of the series to vary in a continuous fashion. The formal formulae are derived from the fact that the Cubic Spline Interpolation points are uniquely determined by requiring that the series elements value(s) between two known points lie of a cubic polynomial and at these points its second derivative is zero.

For example, if X(t) is the following quarterly series by applying Cubic Spline Interpolation to map to a monthly series we would have:

<table>
<thead>
<tr>
<th>Dates of Quarterly Source Series</th>
<th>Values of Quarterly Source Series</th>
<th>Dates of Resultant Monthly Series</th>
<th>Values of Resultant Monthly Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1/2002 (1st March 2002)</td>
<td>9</td>
<td>1 Jan 2002</td>
<td>7.277…</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Feb 2002</td>
<td>8.222…</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Mar 2002</td>
<td>9</td>
</tr>
<tr>
<td>Q2/2002 (1st June 2002)</td>
<td>12</td>
<td>1 Apr 2002</td>
<td>9.777…</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 May 2002</td>
<td>10.722…</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Jun 2002</td>
<td>12</td>
</tr>
</tbody>
</table>
### 2.2.3.5 Index

The Index function is used to convert a series into a index number using the base period and base value specified.

1. Select "Index" function from CDM Functions list.

```
<table>
<thead>
<tr>
<th>Q3/2002</th>
<th>18</th>
<th>1 Jul 2002</th>
<th>13.722...</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1st September 2002)</td>
<td></td>
<td>1 Aug 2002</td>
<td>15.777...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Sep 2002</td>
<td>18</td>
</tr>
</tbody>
</table>
```

2. In the Base Begin field, type over the value in the input box (by default, it is the current date), or click on the down arrow to the right of the input box and select a date from the pop-up calendar.

3. If you want to specify a time period, check the box beside Base End field and the input box will be enabled. Type over the value in the input box (by default, it is the current date), or click on the down arrow to the right of the input box and select a date from the pop-up calendar. If you do not specify the Base End date, only one base period is use which is the Base Begin date.

4. Enter the Base Value to use. It must be between 1 to 1000 and the default is 100.

5. Click on the Add Button (blue plus) to add your list of functions in the above box. Click on OK (green tick) to proceed or the No (red cross) to cancel the operation.

**Note:**
- If you selected dates that do not fall between the first and last observation dates, the Function Name will be highlighted in red, prompting you to change the date. Go back and change the date and proceed to add the function to the series.
If you have selected more than one series but the selected parameters do not apply to one or more of them, CDM will show a prompt and after you clicked OK, it will just transform the series where the parameters are applicable.

Reference:
If both 'Base begin' and 'Base end' defined, the formula of this function is:

\[ I_i = \frac{Y \times P}{X_b + X_{b+1} + \ldots + X_{b+p-2} + X_e} \]

where

- **Base begin** \( (b) \) is the start date of the base period.
- **Base end** \( (e) \) is the end date of the base period. If it is omitted, the system assumes **Base period** equal 1, and take the base begin date as the only base date.
Base period (P) is the number of period between the Base begin & Base end date.
Base Value (V) is the value amount the observation within the base period. It must a positive integer in the range 1-1000 with default value is 100.

If only ‘Base begin’ is defined, that means the indexing is calculated by single base date, the formula will simplify as:

\[ I_i = V \times \frac{X_i}{X_b} \]

where

- Base begin (b) is the start date of the base period.
- Base Value (V) is the value amount the observation within the base period. It must a positive integer in the range 1-1000 with default value is 100.

2.2.3.6 Moving Average

This function is used to calculate moving average. There are 5 functions available:

- Exponentially Weighted Moving Average
- Geometric Moving Average
- Simple Moving Average
- Linearly Weighted Moving Average of selected series
- Centered Moving Average

1. Select the “Moving Average” function from the CDM Functions list.

2. In the first drop-down box, select the moving average function to use.

3. In the Period input box, type over the value (range: 1 - 36500), or use the up/down arrows besides the input box to increase/decrease the value.

4. If you selected “Exponentially Weighted Moving Average”, then the Smoothing Factor field will be enabled. Input the value to use.
5. Click on the Add Button (blue plus) to add your list of functions in the above box. Click on OK (green tick) to proceed or the No (red cross) to cancel the operation

Reference:

<table>
<thead>
<tr>
<th>Function</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple Moving Average (SMA)</td>
<td>[ f(x_n, P) = \begin{cases} \text{Null} &amp; \text{if (1) } x_n \text{ is null / missing OR (2) any observation within the specified interval is missing OR (3) } n &lt; P \ \sum x_i / P &amp; \text{Arithmetic mean of } x_n \text{ over } P \text{ non-null periods, given that all observations are not missing} \end{cases} ]</td>
</tr>
<tr>
<td>Exponentially Weighted Moving Average (EWMA)</td>
<td>[ f(x_n, c, P) = \begin{cases} \text{Null} &amp; \text{if (1) } x_n \text{ is null OR (2) } x_n \text{ or } x_{n-1} \text{ is missing OR (3) } n &lt; P \ \text{SMAn} &amp; \text{where } n = P \ c^*P + (1-c)^*f(x_{n-1}, c, P) &amp; \text{where } n &gt; P \end{cases} ]</td>
</tr>
<tr>
<td>Geometric Moving Average (GMA)</td>
<td>[ f(x_n, P) = \begin{cases} \text{Null} &amp; \text{if (1) } x_n \text{ is null / missing OR (2) any observation within the specified interval is missing OR (3) } n &lt; P \ \sqrt[n]{\prod x_i} &amp; \text{Geometric mean of } x_n \text{ over } P \text{ non-null periods, given that all observations are not missing} \end{cases} ]</td>
</tr>
<tr>
<td>Linearly Weighted Moving Average (LWMA)</td>
<td>[ f(x_n, P) = \begin{cases} \text{Null} &amp; \text{if (1) } x_n \text{ is null / missing OR (2) any observation within the specified interval is missing OR (3) } n &lt; P \ \sum x_i t_i / \sum t_i &amp; \text{where } t_i = 1, 2, \ldots, P \end{cases} ]</td>
</tr>
</tbody>
</table>

where
- \( P \) is the Number of Period.
- \( c \) is the Smoothing Factor.

Note: \( N = \text{the total number of observation in the selected series which could not larger} \)

- **Centered Moving Average**

The Centered Moving Average method is an additional option within the Moving Average function group and requires a Period to be input.

This function evaluates the arithmetic average centered about each element of the source series over a given (strictly positive) number of periods (\( P \)). Depending on whether \( P \) is even or odd the numeric differ slightly. Formerly for a source series \( X(t) \) when \( P \) is an odd integer the elements of the resultant series are given by:

\[ f(X(t), P) = \{X(t+n) + \ldots + X(t) + \ldots + X(t-n)\} / P \]
Where:

- \( n = \frac{(P - 1)}{2} \)
- If any of \( X(t-n), \ldots, X(t+n) \) are Null or missing than the resultant element is Null or missing.

However, this relationship does not naturally extend to the case when \( P \) is even, because you would have half periods. In order to address this we applied a half weight to either of the elements at the extremities. Formerly when \( P \) is even for a source series \( X(t) \) the elements of the resultant series are given by:

\[
f(X(t), P) = \frac{\{ [X(t+n)*0.5] + \ldots + X(t) + \ldots + [X(t-n)*0.5] \}}{P}
\]

Where:

- \( n = \frac{P}{2} \)
- If any of \( X(t-n), \ldots, X(t+n) \) are Null or missing than the resultant element is Null or missing.

Note in the simplest case if \( P = 1 \), this function reduces to the identical mapping.

For example:

<table>
<thead>
<tr>
<th>Date</th>
<th>Source Series X (t)</th>
<th>( f(X(t), 4) ) [P is even]</th>
<th>( f(X(t), 3) ) [P is odd]</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/2002</td>
<td>12</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>02/2002</td>
<td>13</td>
<td>NA</td>
<td>15</td>
</tr>
<tr>
<td>03/2002</td>
<td>20</td>
<td>22.125</td>
<td>21</td>
</tr>
<tr>
<td>04/2002</td>
<td>30</td>
<td>30</td>
<td>29.66666…</td>
</tr>
<tr>
<td>05/2002</td>
<td>39</td>
<td>39.125</td>
<td>39.33333…</td>
</tr>
<tr>
<td>06/2002</td>
<td>49</td>
<td>48.250</td>
<td>48.33333…</td>
</tr>
<tr>
<td>07/2002</td>
<td>57</td>
<td>57.509</td>
<td>57.33333…</td>
</tr>
</tbody>
</table>

### 2.2.3.7 Adjustment

Adjustment is used to:

- **Fill Gaps** using different methods
- **Replace Observation** or null with a specified value
- Complete / update a series using **Update X with Y** or **Splice X onto Y**
- Shift series by number of periods using **Lag**

1. Select **Adjustment** from the CDM functions list.
2. Select Fill Gaps, Replace Observation, Update X with Y, Splice X onto Y, or Lag.

- In Fill Gaps, you can select from the available options: Previous or Next value, specified Value, Linear Interpolation, Exponential Interpolation or Cubic Spline.
- In Replace Observation, you enter the Value to replace and the Replacement value. You can also replace null values by a new value. Click on the Replace null by checkbox and the value box will be enabled. Input the new value.
- In Update X with Y and Splice X onto Y you will need to Select the series (Y) to operate with.
- In Lag you will need to enter the number of lag (+) or lead (-) periods.

3. Click on the Add Button (blue plus) to add your list of functions in the above box. Click on OK (green tick) to proceed or the No (red cross) to cancel the operation.

**Linear interpolation**

Fill in any missing values (excluding first, last elements) by drawing a line from the previous to next known values to the series. For example, if we have series \( X(t) \), then the Linear Interpolation of this series \( f(X(t)) \) is:

<table>
<thead>
<tr>
<th>Date</th>
<th>( X(i) )</th>
<th>( f(X(t)) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/2002</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>3/2002</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>4/2002</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>5/2002</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>

Formerly we have:

\[
f(X(t)) = X(q) + \left[ \frac{(X(p) - X(q))}{(p-q)} \right]^{*}(t-q)
\]
where:
- \( X(q) \) is the previous last known observation excluding NA and missing observations.
- \( X(p) \) is the next known observation excluding NA and missing observations.
- \( t, p, q \) are the relative positions of the observations within the series.

Hence, for the example above we have:
- \( f(X(3/2002)) = 10 + \left[ \frac{(25-10)}{(4-1)} \right] * (2-1) = 15 \)
- \( f(X(4/2002)) = 10 + \left[ \frac{(25-10)}{(4-1)} \right] * (3-1) = 20 \)

**Exponential Interpolation**

Fill in any missing values (excluding first, last elements) by using exponential interpolation, which intuitively assumes the rate of change between the previous to next known values to be constant and fills in the intermediate values accordingly. For example, if we have series \( X(t) \), then the Exponential Interpolation of this series \( f(X(t)) \) is:

<table>
<thead>
<tr>
<th>Date</th>
<th>( X(i) )</th>
<th>( f(X(t)) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/2002</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>3/2002</td>
<td>13.5720880…</td>
<td></td>
</tr>
<tr>
<td>4/2002</td>
<td>18.4201574…</td>
<td></td>
</tr>
<tr>
<td>5/2002</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>

In general, for a series \( X(t) \) the Exponential Interpolation \( f(X(t)) \), is given by the iterative formulae:
\[
f(X(q+1)) = X(q) \cdot (CAGR)^n
\]
\[
f(X(q+2)) = X(q+1) \cdot (CAGR)^n
\]

Where:
- \( CAGR = \frac{X(p)}{Q(q)} \), where \( X(q) \) is the previous last known observation, \( X(p) \) is the next known observation. "Known" observations refers to observations which are not NA or missing. The term CAGR stands for Constant Aggregate Growth Rate.
- \( n = \frac{1}{p-q} \)
- \( t, p, q \) are the relative positions of the observations within the series.

Hence, for the example above we have:
- \( f(X(3/2002)) = 10 \cdot (2.5)^{0.3333…} = 13.5720880… \)
- \( f(X(4/2002)) = 13.57288… \cdot (2.5)^{0.3333…} = 18.421574… \)

If we apply the same ‘constant rate of change’ again we obtain exactly the (known) observation for 5/2002, since:
\[
f(X(5/2002)) = 10 \cdot (2.5)^{0.3333…} \cdot (2.5)^{0.3333…} \cdot (2.5)^{0.3333…} \cdot (2.5)^{0.3333…} = 10 \cdot 2.5 = 25
\]

**Cubic Spline Interpolation**
Fill in any missing elements (excluding first and last) by applying (natural) cubic spline interpolation. Intuitively, the (natural) cubic spline interpolation fills in a series in such a fashion that when the original and filled values are plotted on a chart all the filled nodes lie on a ‘smooth polynomial of degree three’ (i.e. are smooth). The interpolation points are uniquely determined by requiring that the series elements value(s) between two known points lie of a cubic polynomial and at these points its second derivative is zero.

For example, given the series \( Y(t) \), the Cubic spline \( f(Y(t)) \) is:

<table>
<thead>
<tr>
<th>Date</th>
<th>X(i)</th>
<th>f(X(t))</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/2002</td>
<td>53,700.000</td>
<td>53,700.000</td>
</tr>
<tr>
<td>03/2002</td>
<td>51,600.000</td>
<td>51,600.000</td>
</tr>
<tr>
<td>06/2003</td>
<td>52,577.961</td>
<td></td>
</tr>
<tr>
<td>09/2003</td>
<td>58,963.558</td>
<td></td>
</tr>
<tr>
<td>12/2003</td>
<td>69,800.00</td>
<td>69,800.00</td>
</tr>
<tr>
<td>03/2004</td>
<td>83,473.956</td>
<td></td>
</tr>
<tr>
<td>06/2004</td>
<td>95,745.950</td>
<td></td>
</tr>
<tr>
<td>09/2004</td>
<td>101,719.969</td>
<td></td>
</tr>
<tr>
<td>12/2004</td>
<td>96,500.000</td>
<td>96,500.000</td>
</tr>
<tr>
<td>03/2005</td>
<td>83,800.000</td>
<td>83,800.000</td>
</tr>
<tr>
<td>06/2005</td>
<td>91,155.356</td>
<td></td>
</tr>
<tr>
<td>09/2005</td>
<td>108,537.645</td>
<td></td>
</tr>
<tr>
<td>12/2005</td>
<td>114,900.000</td>
<td>114,900.000</td>
</tr>
<tr>
<td>03/2006</td>
<td>103,500.000</td>
<td>103,500.000</td>
</tr>
<tr>
<td>06/2006</td>
<td>109,700.000</td>
<td>109,700.000</td>
</tr>
<tr>
<td>09/2006</td>
<td>124,746.506</td>
<td></td>
</tr>
<tr>
<td>12/2006</td>
<td>138,500.000</td>
<td>138,500.000</td>
</tr>
<tr>
<td>03/2007</td>
<td>149,600.000</td>
<td>149,600.000</td>
</tr>
<tr>
<td>06/2007</td>
<td>170,700.000</td>
<td>170,700.000</td>
</tr>
</tbody>
</table>

- Update X with Y
Returns a series containing all observations from Y together with observations from X where they do not overlap. To be able to apply this function the updated source series X and the series from which updates are taken Y must have the same frequency. Formerly, the resultant series dates will be the union of the dates of X and Y and the corresponding observations are evaluated by the relation:

\[ f(X(t), Y(t)) = \begin{cases} 
Y(t), & \text{where } Y(t) \text{ is not missing} \\
X(t), & \text{where } Y(t) \text{ is missing}
\end{cases} \]

For example, if we have the following inputs X(t), Y(t) then the output ‘Update X with Y’ \( f(X(t), Y(t)) \) will be:

<table>
<thead>
<tr>
<th>Date</th>
<th>X(t)</th>
<th>Date</th>
<th>Y(t)</th>
<th>Date</th>
<th>f(X(t), Y(t))</th>
</tr>
</thead>
</table>

**Splice X onto Y**

Returns a series containing all observations from Y together with adjusted observations from X where they do not overlap. Series X is adjusted by a constant factor equal to average ratio of the series where series X and Y overlap. In order to be able to apply this function both series X and Y must have the same frequency and overlap.

Applying the Spline function to a Series Y(t), and selecting a series X(t), the resultant observations will be given by:

\[ f (X(t), Y(t)) = Y(t), \text{ where } Y(t) \text{ is not missing} \]

\[ \rho \times X(t), \text{ where } Y(t) \text{ is missing and } X(t) \text{ is not missing} \]

With:

\[ \rho = [S (Y(t) / X(t))] / n, \]

Where we sum over all overlapping elements where X(t) is not Null or zero, and n is the number of overlapping series elements where X(t) is not Null or zero. Since the series is required to overlap n = 1, and \( \rho \) is referred to as the adjustment factor.

**Worked Example:** Let’s consider to example:
The resultant series observations \( f(X(t), Y(t)) \) for 2/2002, 3/2002, 5/2002 are just the values of \( X(t) \) for those dates. The observation on 4/2002 of the resultant series (i.e. 10) is evaluated by first evaluating the adjustment factor \( r \) with:

\[
\hat{r} = \frac{\text{S} \left( \frac{Y(t)}{X(t)} \right)}{n} = \frac{[0.5 + 0.5 + 0.5]}{3} = 0.5
\]

Then we have:

\[
f(X(5/2002), Y(5/2002)) = \hat{r} \cdot X(4/2002) = 0.5 \times 20 = 10.
\]

Note: The function Splice \( X \) onto \( Y \) can be applied to two series collections by selecting the tick-box labeled ‘Use a different \( Y \) series for each \( X \) series’ (which is selected within the screenshot above). The apply this feature the user will need to select two series collections \( X \) and \( Y \), and on applying the function the \( n \)-th series from collection \( X \) will be spliced with the \( n \)-th series from the collection \( Y \).

- **Lag**

Returns a series where each observation of the resultant series takes the value of the selected series on the lagged date where by lagged we refer to the date shifted by the integer number of periods given. Intuitively the elements are just shifted forward or backwards by a given number of periods. That is, if \( P \) is the integer number of Lagging periods given then the element \( X(t) \) of the selected series is mapped to the resultant series observation \( f(X(t)) \) where:

\[
f(X(t)) = X(t-P)
\]

**Example:** Given a daily series \( X(t) = \{(1 \text{ Jan 2011}, 1), (2 \text{ Jan 2011}, 2), (3 \text{ Jan 2011}, 3)\} \), then we have:

1. If \( P = 1 \), then lagged series \( f(X(t)) = \{(2 \text{ Jan 2011},1), (3 \text{ Jan 2011},2), (4 \text{ Jan 2011},3)\} \)
2. If \( P = -1 \), then lagged series \( f(X(t)) = \{(31 \text{ Dec 2010},1),(1 \text{ Jan 2011},2),(2 \text{ Jan 2011},3)\} \)

**Remark:** Though we use the term lag, if the period given happens to be a negative integer then the series will be mapped to later periods and as such the resultant series will be leading the series selected (rather than lagging it).

**Application:** The lag function can be applied to a series of any frequency, which may have gaps and/or missing elements. However we do require that the integer number of periods must lie in the range -99,999 to 99,999.

### 2.2.3.8 Arithmetic Operations

This function allows you to apply simple arithmetic operations on the series by selecting the operation and the value to apply on.

1. Select "Arithmetic Operations" function from the CDM Functions list.
2. Select the operation to use.

3. In the Constant k field, enter the value to apply the operation with. The Constant K supports up to 6 decimal places.

4. Click on the Add Button (blue plus) to add your list of functions in the above box. Click on OK (green tick) to proceed or the No (red cross) to cancel the operation.

2.2.3.9 Series Operations

This function allows you to apply simple arithmetic operations on the series by selecting the operation and the value to apply on.

1. Select "Series Operations" function from the CDM Functions list.
2. Select the other series to operate with from the drop down list.

3. Select the operation to use.

4. Click on the Add Button (blue plus) to add your list of functions in the above box. Click on OK (green tick) to proceed or the No (red cross) to cancel the operation.

### 2.2.3.10 Sum Selected

Sum Selected allows you to add together an unlimited number of base series.

1. First select the series you wish to sum. Note that series to be summed must share the same **Unit** and **Frequency**.

<table>
<thead>
<tr>
<th>#</th>
<th>Series Name</th>
<th>Function Description</th>
<th>Frequency</th>
<th># Obs</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>CH: Population Beijing</td>
<td></td>
<td>Yearly</td>
<td>26</td>
</tr>
<tr>
<td>13</td>
<td>CH: Population Shanghai</td>
<td></td>
<td>Yearly</td>
<td>32</td>
</tr>
</tbody>
</table>

2. Click on Insert Function Button, or Right-click Insert Function to open the Function pop-up window, choose your preferred options.
3. Click on the Add Button (blue plus) to add your list of functions in the above box. Click on OK (green tick) to proceed or the No (red cross) to cancel the operation.

2.2.3.11 Currency Conversion

This function is used to convert series to a target currency.

There are five target currencies - USD, EUR, JPY, RMB and GBP.

You can convert series from any CDM currency into the target currencies.

1. Select "Currency Conversion" function from the CDM Functions list.
2. Select a Target Currency from the drop down list.

3. Select Unit of Account from the drop down list.

4. Click on the Add Button (blue plus) to add your list of functions in the above box. Click on OK (green tick) to proceed or the No (red cross) to cancel the operation.

**Note:**
- Target Currency needs to be selected before you can do the conversion, otherwise a warning message will prompt you.
- Unit of Accounts is optional. If you do not select, system default will use the unit same as original series to do conversion.
- Currency conversion function works only with series from CEIC Database. Series from other database (i.e. Consensus and Feri Database) are NOT supported
- Information on exchange rates used can be found in CDM Footnotes (under Global Indicator Watch> Interest and Foreign Exchange Rate > [Region]: Exchange Rate against US$). Note particularly the "Country Specific Information").
- CDM will only convert time-points for which it has a contemporary exchange rate. For example, if our Chilean peso exchange rate series begins in 1957. If you convert a base series starting earlier than 1957, CDM will not convert the pre-1957 time-points.

### 2.2.3.12 Mathematics

The "Mathematics" function is for applying standard mathematical functions to series. The following functions are available:

- Natural logarithm
- Anti-logarithm
- Exponential
- Square root
- Base 10 logarithm
- Reciprocal
- Power*

One application of these functions is to allow the conversion of the base series to a different compounding frequency and/or unit. Note that this set of functions is complete in the sense that each function has an inverse.

*Selecting this parameter enables the Power entry box. Enter any real number with up to 5 decimal places.

1. Select "Mathematics" function from the CDM Functions list.
2. Select a parameter (is using Power, enter a number into the Power box).

3. Click on the Add Button (blue plus) to add your list of functions in the above box. Click on OK (green tick) to proceed or the No (red cross) to cancel the operation.

Reference:

1. **Natural Log**: By selecting Natural Log and applying each numerical value of the source series will be mapped to its logarithm with natural base e, and assigned to the resultant series with the same date.

2. **Exponential**: Selecting Exponential and applying each numerical value of the source series will be mapped to its exponential and assigned to the resultant series with the same date.

3. **Base 10 log**: By selecting Base 10 Log and applying each numerical value of the source series will be mapped to its logarithm with base 10, and assigned to the resultant series with the same date.

4. **Power**: When the Power function is selected the user will need to input within the ‘Power’ text field a real number. When the function is applied the numerical values of the source series will be raised to this power and assigned to the resultant element with the same date.

5. **Anti-Log**: Selecting Anti-Log the inverse of the Logarithm with base 10, will be applied, that is we will return the value $X$ such the $10^X$ equal the input with the resultant have the same date as the input value.

6. **Square Root**: Applied the square root to each element of the source series and assigned the same date with the resultant series. Note the square root is just a short cut means to applying the Power function with the input $1/2$.

7. **Reciprocal**: Take each value of the source series elements $X$, and return the value $1/X$, and assigns the same date within the resultant series. In the special case when $X = 0$, the element returns will be Null.

**Treatment of Null elements**: For all the functions (excluding the Power function), if any of the elements of the source series is Null then the corresponding element of the resultant series will also be Null. The Power function behaves in exactly the same manner except in the instance which the power input in zero, in which case all elements of the resultant series will be 1, including those elements where the source series is Null.
2.2.3.13 Smoothing

The "Smoothing" function is used to extract important trends or patterns in a data set.

Two weighted average techniques of either Simple or Exponential Smoothing can be applied. In the case of Exponential Smoothing a Smoothing factor is required within the range (0, 1) where is has a default value of 0.1.

You can input up to 5 decimal places.

1. Select "Smoothing" function from the CDM Function list.

2. Select Method

3. Select a Type: Simple or Exponential.

4. Select Smoothing parameter: Single or Double.

5. Enter a Smoothing Factor from 0-1.

6. Click on the Add Button (blue plus) to add your list of functions in the above box. Click on OK (green tick) to proceed or the No (red cross) to cancel the operation

- Single Smoothing

Evaluates the weighted average between the present observation and the previous weighted average where the base of this inductive process is the average of all elements of the series. That is, the evaluation of the weighted averages it given by the inductive relation:

\[ f(X(t)) = a \times X(t) + (1 - a) \times f(X(t-1)) \]

with base:

\[ f(X(0)) = \frac{X(0)+X(1)+\ldots+X(n)}{(n+1)} \]
Where:
- \( X(0) \) is the first element of the series.
- \( a \) is the smoothing constant which lies in the range \((0, 1)\).

If the series \( X(t) \) has a missing observation say \( X(a) \), then \( f(X(t)) \) will have a missing observation for the elements \( f(X(a)), f(X(a+1)) \) of the resultant series.

- **Double Single Smoothing**

  Double Single Smoothing is just to application of Single Smoothing to the same Series consecutively.

- **Single Exponential Smoothened**

  Evaluates the weighted average between the prevent observation and the previous weighted average where the base of this inductive process is the first element of the series. The evaluation of the weighted averages it an inductive procedure defined by the relations:

  \[
  f(X(t)) = a \times X(t) + (1 - a) \times f(X(t-1)) \\
  f(X(0)) = X(0)
  \]

  Where:
  - \( X(0) \) is the first element of the series.
  - \( a \) is the smoothing constant which lies in the range \((0, 1)\).

  If the series \( X(t) \) has a missing observation say \( X(a) \), then \( f(X(t)) \) will have a missing observation for the elements \( f(X(a)), f(X(a+1)) \) of the resultant series.

- **Double Exponential Smoothened**

  Double Exponential Smoothing is just to application of Exponential Smoothing to the same series consecutively.

- **Hodrick-Prescott Filter**

  The Hodrick-Prescott Filter is a smoothing function that provides an estimation of the long-term trend component of a series, decomposing the series into “smoothed” and “cycle” components. The lambda smoothing parameter values used in CDM are:

  - Daily, “everyday” = 1.10762e+11
  - Daily = 2.88323e+10
  - Weekly = 46132800
  - Monthly = 129120
  - Quarterly = 1600
  - Semiannual = 101.262
  - Annual = 6.65545

  The Hodrick-Prescott function can be applied to a series of:

  - any frequencies
  - without gaps and/or missing elements.

  1. Select Hodrick-Prescott Filter
2. Select a Type: Smoothed or Cycle or check both.

3. Click on the Add Button (blue plus) to add your list of functions in the above box. Click on OK (green tick) to proceed or the No (red cross) to cancel the operation

Note: If you have selected more than one series but the selected parameters do not apply to one or more of them, CDM will show a prompt and after you clicked OK, it will just transform the series where the parameters are applicable.

Formula:

$$f(X(t)) = S(X(t)) + C(X(t)),$$

where $f(X(t))$ is the resultant series observation, $X(t)$ is the selected series observation and $S(X(t))$ is the smoothed series and $C(X(t))$ is the cycle series.

The method will return two types of Series, which is identified with the label: Hodrick-Prescott (Smoothed), Hodrick-Prescott(Cycle).

### 2.2.3.14 Seasonal Adjustment & Forecasting

This function is for removing the seasonal component of a time series to analyze non-seasonal trends. Select any number of the Operations listed on the panel.

1. Select "Seasonal Adjustment & Forecasting" function from the CDM Functions list.
2. Select one or more of the Operations: Seasonally adjust series; Trend series; and Forecast series.

3. Click on OK (green tick) to proceed or the No (red cross) to cancel the operation.

2.2.3.14.1 TRAMO-SEATS

TRAMO-SEATS

These functions apply techniques for the automated time series analysis of the Seasonal Adjustment, Trend and Forecast, which is broadly in line (in most cases) with the implementation known as TRAMO-SEATS originally developed by Victor Gomez and Agustin Maravall. The term TRAMO stands for “Time series Regression with ARIMA noise, Missing values and Outliers” and SEATS for “Signal Extraction in ARIMA Time Series”. Quoting from TSW (Revised Reference Manual) July 2004, by Gianluca Caporello and Agustin Maravall, on page 1, paragraph 2:

“TRAMO ("Time Series Regression with ARIMA Noise, Missing Observations and Outliers") is a program for estimation and forecasting of regression models with possibly non-stationary (ARIMA) errors and any sequence of missing values. The program interpolates these values, identifies and corrects for several types of outliers, and estimates special effects such Trading Day and Easter and, in general, intervention variable type of effects. Fully automatic model identification and outlier correction procedures are available.

SEATS ("Signal Extraction in ARIMA Time Series") is a program for estimation of unobserved components in time series following the ARIMA-model-based method. The Trend, Seasonal, Irregular and Transitory components are estimated and forecasted with signal extraction techniques applied to ARIMA models. The standard errors of the estimates and forecasts are obtained and the model-based structure is exploited to answer questions of interest in short-term analysis of the data.”

For more details on the methodology, motivation and justification of the TRAMO-SEATS techniques please go to the Bank of Spain Statistics and Econometrics Software website.

TRAMO-SEASTS implementation has been adopted with assistance of Gianluca Caporello for CEIC
infrastructure and performance requirements, and provides the key functionality of Seasonal Adjustment, Trend and Forecast using the default suggested automatic model calibration procedure. Note that the Bank of Spain’s TWS 197 desktop application available from http://www.bde.es/servicio/software/programase.htm, when the automatic default model calibration is set will reproduce the results of our offering on the one hand, and also allow a seamless means by which users can apply additional TRAMO-SEATS analysis using a broad range of model calibration and options.

In CDM the following options are available:

- **Seasonally Adjusted**: The series selected is seasonally adjusted by the application of the Bank of Spain’s SEATS (“Signal Extraction in ARIMA Time Series”) algorithm. Intuitively this algorithm removes the effect of irregular observations (i.e. outliers) and factors out the cyclical behavior of the series.

- **Trend**: For the series selected the trend function applies the Bank of Spain’s algorithm which intuitively returns the underlying series netting out the seasonal cyclical effects and irregular outlier elements (i.e. ‘the trend’).

- **Forecast**: Used to predict additional elements of the given series by estimating its intrinsic (constant) growth rate. The additional elements are simply the last element iteratively increased by the growth rate for each subsequent period. The number of additional elements returned is twenty four for monthly series and eight for all other frequencies.

- **Remark on maximum number of observations**: The maximum number of observations the functions will work with is 600. In the case of a series with more than 600 observations the seasonal adjustment will only consider the first 600 values.

- **Seasonal Adjustment additional outputs**: View various other metrics and model parameters of the Seasonal Adjustment algorithm. To request these additional outputs select the ‘Model calibration, metrics and statistics’ tick box and/or click the Additional outputs button, as shown below:

![CDM Function](image)

When the ‘Model calibration, metrics and statistics’ tick box is selected in addition to one of the
main algorithms, after one (or more) of the primary algorithms has been run and the output series returned, you can view both the model calibration, and the various qualitative metrics and statistics of the output series. This data can be viewed either when the output series is downloaded to Excel (see below) or by viewing the output series within a CDM data-table (i.e. right click on output series and select ‘Show as Data-Table’).

By clicking on the ‘Additional outputs’ button a new dialog-box will appear (as shown below) allowing various additional outputs to be selected.

The additional outputs selected are returned as series and displayed within the CDM workspace with a corresponding label.
Remark: If more than one object series is selected then all the additional outputs selected will be calculated for all the object series.

As an example consider the Series with ID = 36477601, is selected, and Seasonal Adjustment is applied with the ‘Model calibration, metrics and statistic’ is requested via the tick-box. Then if the output series is downloaded to Excel you will obtain the output as shown below:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select this link and click Refresh/Edit Download</td>
<td>Money Supply M0 (f1)</td>
<td>Money Supply M0 (f1)</td>
</tr>
<tr>
<td>Country</td>
<td>China</td>
<td>China</td>
</tr>
<tr>
<td>Frequency</td>
<td>Monthly</td>
<td>Monthly</td>
</tr>
<tr>
<td>Unit</td>
<td>RMB bn</td>
<td>RMB bn</td>
</tr>
<tr>
<td>Source</td>
<td>The People’s Bank of China</td>
<td>The People’s Bank of China</td>
</tr>
<tr>
<td>Status</td>
<td>Active</td>
<td>Active</td>
</tr>
<tr>
<td>Series Code</td>
<td>7027301 (CKSAAA)</td>
<td>7027301 (C)</td>
</tr>
<tr>
<td>Function Information</td>
<td>TRAMOSEATS(Seasonally Adjusted)</td>
<td>TRAMOSEAT</td>
</tr>
<tr>
<td>First Obs. Date</td>
<td>01/1997</td>
<td>01/1997</td>
</tr>
<tr>
<td>Last Obs. Date</td>
<td>04/2013</td>
<td>04/2013</td>
</tr>
<tr>
<td>Last Update time</td>
<td>23/05/2013</td>
<td>23/05/2013</td>
</tr>
<tr>
<td>Arima Model</td>
<td>(3,0,1)(0,1,1)</td>
<td>(3,0,1)(0,1,1)</td>
</tr>
<tr>
<td>Tramo BIC on Residuals</td>
<td>-8.648</td>
<td>-8.648</td>
</tr>
<tr>
<td>Box-Pierce Residuals</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Box-Pierce Squared Residuals</td>
<td>5.596</td>
<td>5.596</td>
</tr>
<tr>
<td>Number of Easter days</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Tramo Kurtosis on Residuals</td>
<td>3.578</td>
<td>3.578</td>
</tr>
<tr>
<td>Arima Mean</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Tramo Normality Test</td>
<td>3.198</td>
<td>3.198</td>
</tr>
<tr>
<td>Number of trading day variables</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Tramo Skewness on Residuals</td>
<td>0.179</td>
<td>0.179</td>
</tr>
<tr>
<td>Tramo Standard Error of Residuals</td>
<td>0.010</td>
<td>0.010</td>
</tr>
<tr>
<td>Tramo Ljung-Box Q-value on Squared Residuals</td>
<td>26.654</td>
<td>26.654</td>
</tr>
<tr>
<td>Tramo Ljung-Box Q-value on Residuals</td>
<td>16.504</td>
<td>16.504</td>
</tr>
<tr>
<td>01/1997</td>
<td>983.543</td>
<td>931.301</td>
</tr>
<tr>
<td>02/1997</td>
<td>941.299</td>
<td>936.726</td>
</tr>
<tr>
<td>03/1997</td>
<td>937.864</td>
<td>940.511</td>
</tr>
<tr>
<td>04/1997</td>
<td>940.740</td>
<td>945.281</td>
</tr>
<tr>
<td>05/1997</td>
<td>951.698</td>
<td>952.331</td>
</tr>
<tr>
<td>06/1997</td>
<td>964.785</td>
<td>959.581</td>
</tr>
<tr>
<td>07/1997</td>
<td>961.571</td>
<td>965.891</td>
</tr>
<tr>
<td>08/1997</td>
<td>977.321</td>
<td>971.891</td>
</tr>
<tr>
<td>09/1997</td>
<td>969.898</td>
<td>978.281</td>
</tr>
<tr>
<td>10/1997</td>
<td>986.733</td>
<td>986.821</td>
</tr>
<tr>
<td>11/1997</td>
<td>1,002.151</td>
<td>995.921</td>
</tr>
</tbody>
</table>

Examples

To illustrate the nature of the TRAMO-SEATS functions and to illustrate there application we provide the
following examples. Note within all the examples the functions themselves return discrete data points below denoted with bullet/square/triangular points where we interpolate between these points using linear interpolation.

1. The following example considers an Agricultural expenses series which has two outliers around 12/1995 and 12/1996. Both the seasonal adjustment and the trend functions factor out these two outliers.

![Graph: (DC) Government Exp: Supporting Agricultural Expenses](image)

2. The following example illustrates how the trend function smooth a given series, with the seasonal adjusted series oscillating above and below the trend series representing the cyclical portion of the series.

![Graph: CDM Series ID: 5724501](image)

3. The Forecast function returns the elements of a given series and some additional future predicted elements. The predicted elements grow at a contact growth rate which is estimated by TRAMO using global properties of the series given. The Forecast function offered is TRAMO Forecast and predicts elements of the given series which has not been seasonally adjusted (i.e. outlier and cyclical features do effect the results). [Within the appendix we compare the CAGR model with the TRAMO Forecast]
• Requirements of Seasonal Adjustment, Trend and Forecast functions

The TRAMO-SEATS functionality requires that the selected series satisfies the following requirements:

a) Minimum Number of Different Observations: The Seasonal Adjustment, Trend and Forecast functions can only be applied to series of frequency yearly, semi-annual, quarter or monthly. Moreover, for each of these frequencies the series are required to have the following number of (non-null) different observations:

- **Yearly:** Minimum of 12 observations with different values.
- **Semi-annual:** Minimum of 12 observations with different values.
- **Quarterly:** Minimum of 16 observations with different values.
- **Monthly:** Minimum of 36 observations with different values.

For example: The two yearly series with numerical values:

i) \{100, 101, 100.5, 103, 104, 102, 105, 102.5, 108, 109, 107, 115\}

ii) \{100, 101, 100.5, 103, 104, 108, 105, 102.5, 108, 109, 107, 115\}

Both series (i), (ii) each have 12 elements satisfying the (implicit) minimum number of elements requirement, however only series (i) has 12 different numerical values since series (ii) has two identical values, namely 108 and hence only has 11 different numerical values.

b) Too Many Identical Observations and/or Gaps: The algorithm may trigger exceptions if the series selected has many identical values or gaps. In such instances of series with too many gaps we advise the users to apply the fill gap function provided and/or populate/clean the data with your preferred technique.

• Automated Default Calibration of TRAMO-SEATS

The TRAMO-SEATS functions offered here use an automated model calibration procedure. Below we provide explicit details of this calibration and compare this selection to the options available within the TWS 177 TRAMO-SEATS desktop application.
The core component of the TRAMO-SEATS set of procedures is known as the ARIMA algorithms (in particular, regular auto-regressive order, regular difference order, regular moving average order, seasonal auto-regressive order, seasonal difference order and Seasonal moving average order) and are defined within the Bank of Spain documentation. These techniques calibrate (or set) the model parameters automatically through analysis of the values of the series given. That is, Seasonal Adjustment is in fact a class of algorithms where the algorithm is selected by the qualitative properties of the series on which Seasonal Adjustment is performed. We also refer the reader to the following document which below we will refer to as the PROGRAM Document for additional information:

Programs TRAMO (Time Series Regression with ARIMA Noise, Missing Observations, and Outliers) and SEATS (Signal Extraction in ARIMA Time Series)

Instructions for the User
(Beta Version: November 1997)
By Víctor Gómez and Agustín Maravall


Below we provide an overview of how the implementation provided of TRAMO-SEATS has been calibrated

1. **Automatic Procedure Selected** - Quoting from the TWS 177 TRAMO-SEATS documentation

“The program tests for the log/level specification, interpolates missing observations (if any), and performs automatic model identification and outlier detection. Three types of outliers are considered: additive outliers, transitory changes and level shifts; the level of significance is set by the program and depends on the length of the series. The full model is estimated by exact maximum likelihood, and forecasts of the series up to a two-year horizon are computed. The model is decomposed and optimal estimators and forecasts of the components are obtained, as well as their mean squared error. These components are the trend-cycle, seasonal, irregular and (perhaps) transitory component. If the model does not accept an admissible decomposition, it is replaced by a decomposable one.

*Note on the Automatic procedure:*

The automatic configurations associated with the RSA parameter can be modified: after setting the RSA parameter, enter the modified parameters (if the value desired is the default one, you still have to re-enter the parameter).”

**Remark:**
Within the TWS 177 application you are able to set the automate model calibrated to be performed by the same means by setting the parameter RSA =3.

2. **ARIMA Model Calibration**

Within the implementation offer the following default ARIMA Polynomials which we document using standard ARIMA notation. Within brackets we also specify how this calibration can be set up within the TWS 177 application.

- **ARIMA Polynomials**

  a) **P** the order of regular autoregressive polynomial is zero (i.e. P = 0 in TWS 177)
  b) **Q** the order of regular moving average polynomial is one (i.e. Q = 1 in TWS 177)
  c) **D** the order of regular differences is one (i.e. D = 1 in TWS 177)
d) **BP** the order of seasonal autoregressive polynomial is zero (i.e. **BP = 0** in TWS 177)
e) **BQ** the order of seasonal moving average polynomial is one (i.e. **BQ = 1** in TWS 177)
f) **BD** the order of the seasonal differences is one (i.e. **BD = 1** in TWS 177)

**ARIMA Model Parameters**

a) All unknown ARIMA parameters will be estimated and the starting values from which estimates searches will start is computed by the program. That is, they are not fixed or given as inputs. (In TWS 177 this option is specified by setting **INIT = 0**.) In the following section ‘Additional ARIMA Parameters’ we provide more details of how the ARIMA parameters are estimated.
b) Mean correction is applied as defined in the PROGRAM Document which is used in the correction of outliers. (In TWS 177 this is set with **IMEAN = 1**.)
c) Source data is not transformed by the application of logs or program tests using log-level specification as detailed on page 15 with section 1.3.4 of the PROGRAM Documentation. (In TWS 177 this is set with **LAM = 1**.)
d) The real value which controls the bias in the log/level pre-test has been set to 1; this notion is detailed in section 2.5.4 of the PROGRAM Document. (In TWS 177 this is set with **FCT = 1**.)
e) Applies the Exact Maximum Likelihood algorithm (rather than Least Squares technique) to set the parameters for (i) the detection and control and outliers, (ii) compute optimal forecasts for the series. Further details and references are provided on page 2 of the product documentation. (In TWS 177 this is set with **TYPE = 1**.)

**Additional ARIMA Parameters:**

There we detail the additional ARIMA parameters which are automatically estimated by the default implementation we provide. Note in TWS 177 this corresponds to setting **INIT = 0**, where the alternative settings with TWS 177 are:

a) **INIT = 1**: Corresponding to allowing users to specify the starting point from where ARIMA polynomials parameters will be searched from by TRAMO-SEATS program.
b) **INIT = 2**: Corresponding to allowing users to give the ARIMA polynomials parameters which will be used by TRAMO-SEATS with no additional parameter estimation done.

For further details see Section 1.3 of the PRODUCT documentation. Here we detail the additional ARIMA parameters automatically estimated by TRAMO-SEATS within our offering:

a) The following **parameters** of the Regular, Regular Moving, Seasonal and Seasonal Moving Autoregressive ARIMA polynomials are estimates by TRAMO-SEATS (referred to as the ‘ARIMA fixed Parameters’ in TWS 177):

i. **JPR (1), JPR (2), JPR (3)**: Are the parameters of the regular autoregressive polynomial.
ii. **JQR (1), JQR (2), JQR (3)**: Are the parameters of the regular moving average polynomial.
iii. **JPS (1)**: The parameter of the seasonal autoregressive polynomial.
iv. **JQS (1)**: The parameter of the seasonal moving average polynomial.

b) The following **starting points** from which the Regular, Regular Moving, Seasonal and Seasonal Moving Autoregressive ARIMA polynomials parameters are estimated by TRAMO-SEATS (referred to as the ‘ARIMA Parameters’ in TWS 177):

i. **PHI(1), PHI(2), PHI(3)**: Initial estimates of regular autoregressive polynomial parameters from where the program will estimate the parameters **JPR (1), JPR (2), JPR (3)**.
ii. **TH(1), TH(2), TH(3)**: Initial estimates of regular moving average polynomial parameters from where the program will estimate the parameters **JQR(1), JQR(2), JQR(3)**.
iii. **BPHI(1)**: Initial estimate of seasonal autoregressive polynomial parameter from where the program will estimate the parameter **JPS(1)**.

iv. **BTH(1)**: Initial estimate of seasonal moving average polynomial parameter from where the program will estimate the parameter **JQS(1)**.

**Note**: The above notionally devices are standard ARIMA terminology and in particularly consistent with TWS 177.

3. **Calendar Effects**

Calendar effects such as trading day/holiday and Easter effects are not taken into account. However, in TWS 177 these effects can be taken into account and conclude the possibility to specify:

a) Easter effect by setting **IEAST = 1**. To replicate the behaviour in our offering you will need to set **IEAST = 0** in TSW 177.

b) The trading day effect by setting **ITRAD = ±1, ±2, ±6 or ±7**. To replicate the behaviour in our offering you will need to set **ITRAD = 0** in TSW 177.

c) The duration given as a number of integer days of the period affected by Easter. To replicate the behaviour of our offering you will need to set **IDUR = 0**.

d) In the instance when trading days are taken into account the trading day regression variable can be set, allowing multiply resulting models (or day count conventions) for the selection of days of the weeks of each month. To replication the behavior of our offering set **SMPDAY = 0** in TSW 177.

4. **Outliers**

The general methodology and approach to the treatment of outlier is detailed within: G?mez, V. and Maravall, A. (1994), Estimation, Prediction and Interpolation for Nonstationary Series with the Kalman Filter”, Journal of the American Statistical Association 89, 611 624. With the default calibration for outlier detection and correction procedures applied here being as follows:

a) There is no automatic detection and correction for outliers. In TWS 177 this behaviour is set with the parameter **IATP = 0**.

b) However, additive outliers, transitory changes and level shifts are considered, corresponding to the behaviour in TWS 177 of setting **AIO = 2**.

c) Rather than the maximum likelihood estimation technique the fast method of Hannan-Rissanen is applied for intermediate automation detection and correction of outliers. Note in TWS 177 is can be set with the parameter **IMVX = 0**.

d) The critical value used for outlier detection (**VA**) depends on number of observations in a series which we denote be N, and is given by:

1. **VA = 3.0**, if \(N \leq 50\),
2. **VA = 3.0 + 0.0025(N-50)**, if \(50 < N < 450\),
3. **VA = 4.0**, otherwise.

In TWS 177 this parameter though can be given is evaluated using these relations by default.

**Remark**: By default the outlier are search over the entire series given however the range over which outlier are consider can be restriction with the TWS 177 application which would increase performance.

5. **Automatic Model Identification**
We refer to the reader to section 1.3.5 of the PRODUCT documentation and limit ourselves here and just detailed the setting of the default TRAMO-SEATS offered here. These setting are:

a) No automatic model identification is performed for the stationary model (i.e. **INIC = 0** in TSW 177), and no searches for regular polynomials up to order 3 or seasonal polynomials up to order 1 (stationary model) are made.
b) No automatic model identification for non-stationary roots (i.e. **IDIF = 0** in TSW 177), and no search for regular differences up to order 2 or seasonal differences up to order 1 are made.
c) The level of 0.97 for which “if one of the roots in the “AR(2) x ARs(1) plus mean” estimation in the first step of the automatic identification of the differencing polynomial is larger that, in modulus”, will be set to unity. In TWS 177 this behaviour is set with **UB1 = 0.97**.
d) The level of 0.88 for which “if one of the roots in the “ARMA(1, 1) x ARMAs(1, 1) plus mean” estimation in the second step if the automatic model identification is larger, in modulus”, will be set to unity. In TWS 177 this behaviour is set with **UB2 = 0.88**.
e) The level of the significance used within the Ljung-Box Q-test is 95% and used in automatic model identification. In TWS 177 this would be set with **PCR = 0.95**.
f) The percentage by which the critical value used for outlier detection (**VA**, described above) is reduced by 12% in the second round. In TWS 177 this is set with **PC = 0.12**, and only applies in cases when **IATIP = 1**, i.e. no automatic model for stationary model as is the case here.
g) The minimum for the significant mean is set to 1 (i.e. **TSIG = 1** in TSW 177).

6. Interpolation and Forecasting

a) Missing observations are treated as additive outlier and interpolated by setting the initial value as the sum of the two adjacent observations. In TWS 177 this is set with **INTERP = 2**, where the user can also use the skipping interpolation approach of missing observations and possibility to ignore unobserved values.
b) Number of additional period observation returned by the forecast function
   i. 24 for series of monthly frequency.
   ii. 8 for series of quarterly semi-annually and yearly.

   With the TWS 177 application the number of additional observations returned is given by the parameter **NPRED**.

**Remarks:** In TWS 177 you are also able to undertake an out-of-sample forecast test, which does not affect the estimation of the model (i.e. reproducing CDM implementation results can use **NBACK = 0** in TWS 177. These tests offer the ability to model the error estimates of the forecast function, and apply an F-test comparing the sample forecast errors with the in sample residues through back testing where the user can specify the observations omitted from the end of the series.

7. Seats Parameters

This section details (for completeness) the parameters used for application of SEATS (we definition above which is applied after the TRAMO procedures which the so called ARIMA based methods.

a) The modulus of a root passed by TRAMO or estimated in SEATS falls in the range (0.99, 1), it is set equal to 1 if root is in AR polynomial. If root is in MA polynomial, it is set equal to 0.99. Within the TWS 177 application (i.e. **XL = 0.99** in TSW 177)
b) When the regular AR polynomial φ(B) contains a complex root, this root is allocated to the seasonal if its frequency differs from one of seasonal frequencies by less than 3 (measured in degrees). Otherwise, it goes to the transitory component.
c) The cutting point for the modulus of an AR real root. If modulus < 0.5 it goes to the transitory component; if ≥ 0.5, to the trend-cycle (positive roots) or to the seasonal component (negative
roots).

d) When model does not accept an admissible decomposition, no approximation is made and SEATS ends. In TWS 177 this behaviour is set with NOADMISS = 0.
e) The number of autocorrelations used in computing Ljung-Box Q-statistics. The number if autocorrelations used in computing Ljung-Box Q-statistics depends on the frequency of the series considered and is set to 24 for monthly frequency, 12 for quarterly, 8 for semi-annual and yearly frequency.

Note: Within TWS 177 you will also notice that the variable BIAS = 1, however since the source data is not transformed, that is, LAM = 1, this variable will be ignored when reproduced our default implementation. In a similar fashion the variable MAXIBAS in TWS 177 can also be ignored.

Appendix:

- CAGR Model comparison with TRAMO Forecast

Here we consider what it known as the Constant Annual Growth rate (CAGR) metric as a means to illustrate the TRAMO Forecast function which also produces predictive future values by estimating a series future growth rate. CAGR assumes the future growth rate is equal to the average growth rate over the entire series and is given by:

\[
\text{CAGR} = (\frac{\text{End Value}}{\text{Start Value}})^{\frac{1}{\text{Periods} - 1}} - 1
\]

Now with regard to the example corresponding to series ID = 17386402, entitled “Exports: Non CIS: Russia” used to illustrate the TRAMO Forecast functions, we have:

Constant Annual Growth Rate (CAGR) = 85.59%

Which compares with the average growth rate implied from the results of the TRAMO Forecast function of 71.54% That is, the magnitude of the two results are similar, with the TRAMO Forecast differing due to its ability to model the intricate nature of the series, versus rough model of CAGR which only considers the first and last elements.

2.2.3.14.2 X-12 ARIMA

X-12 Arima is a seasonal adjustment model offered by US Census Bureau available from ‘Seasonal Adjustment & Forecasting’ menu within CDM. X-12 Arima provides the following functions which can only be applied to Monthly and Quarterly series:

- **Seasonally Adjusted**: The series selected is seasonally adjusted by the application of the US Census Bureau X-12 Arima algorithm. Intuitively this algorithm removes the effect of irregular observations (i.e. outliers) and factors out the cyclical behavior of the series.

- **Trend**: For the series selected the trend function applies the X-12 Arima algorithm which intuitively returns the underlying series netting out the seasonal cyclical effects and irregular outlier elements (i.e. ‘the trend’).

- **Forecast**: Used to predict additional elements of the given series, which the US Census Bureau refers to as projected seasonal factors.
1. Select "Seasonal Adjustment & Forecasting" function from the CDM Functions list after you have selected some series.

2. Select the X-12 Arima tab and select one of the options.

3. Click on OK (green tick) to proceed or the No (red cross) to cancel the operation.

**Note of Restrictions:** X-12 Arima can only be applied to monthly series of at least (non-null) 36 (non-null) elements and quarterly series of at least 12 (not null) elements.

For more information please refer to the following link: [http://www.census.gov/srd/www/x12a/](http://www.census.gov/srd/www/x12a/)

### 2.2.3.14.3 X-13 ARIMA

X-13 Arima is a seasonal adjustment model offered by US Census Bureau available from 'Seasonal Adjustment & Forecasting' menu within CDM. X-13 Arima provides the following functions which can only be applied to Monthly and Quarterly series:

- **Seasonally Adjusted:** The series selected is seasonally adjusted by the application of the US Census Bureau X-13 Arima algorithm. Intuitively this algorithm removes the effect of irregular observations (i.e. outliers) and factors out the cyclical behavior of the series.

- **Trend:** For the series selected the trend function applies the X-13 Arima algorithm which intuitively returns the underlying series netting out the seasonal cyclical effects and irregular outlier elements (i.e. "the trend").

- **Forecast:** Used to predict additional elements of the given series, which the US Census Bureau refers to as projected seasonal factors.

1. Select "Seasonal Adjustment & Forecasting" function from the CDM Functions list after you have selected some series.
2. Select the X-13 Arima tab and select one of the options.

3. Click on OK (green tick) to proceed or the No (red cross) to cancel the operation.

**Note of Restrictions:** X-13 Arima can only be applied to monthly series of at least (non-null) 36 (non-null) elements and quarterly series of at least 12 (not null) elements.

For more information please refer to the following link: [http://www.census.gov/srd/www/x13as/](http://www.census.gov/srd/www/x13as/)

### 2.3 My Library

The My Library tab is located on the left hand navigation bar. It is a central repository for Excel files and CDM Charts, where they can be organized, opened, saved, renamed and searched in one place.
Left Pane - My Library
Displays your CDM folders. By default there is a Public Folder for sharing Excel Files and CDM Charts amongst CDM users within the same company, while the Private Folder is designated for personal files. Mapping of these directories is compulsory during initial CDM setup where the Settings Wizard will prompt you to assign default folders.

Right Pane - Excel and Chart Files
Displays files respective of the folder you have selected in the left pane. If you double-click on a file under Excel files, Excel will open with your file displayed, conversely, if you double-click on a file under Chart Files, Chart Manager will open with your chart displayed.

Search My File
Allows you to search for files by filename or description that are available in all your folders. Click on Search Tips to familiarize yourself with the search syntax available.

2.3.1 Settings Wizard
There is a compulsory settings window to configure the Public Folder Directory and Private Folder Directory for My Library folders.

Compulsory Settings
- Public Folder Directory
- Private Folder Directory

Optional Setting
- Default Startup Folder - assign a start up folder when My Library loads.
To configure the Public Folder Directory and Private Folder Directory under My Library.

**My Library**

- Public Folder Directory
- Private Folder Directory
- Default Startup Folder

If you require to change the default settings later, you can go to Options > Settings > Workspaces. You can also change the settings for File Options if necessary and Startup Options from here.
2.3.2 My Excel Files

You can create Excel Files with selected series and store them in My Library.
2.3.2.1 **Open Excel Files**

My Library Tab, is a central repository for CDM Excel Files and CDM Charts. Excel Files can be opened in the following ways:

1. Double-click on your CDM Excel File to launch Excel with your respective file opened.

   or

2. right-click on your CDM file in My Library, to show the context menu and click on "Open".
3. Alternatively, you can also open your CDM Excel Files directly from the Windows Directory that it was saved in.

2.3.2.2 Create Excel Files

A key feature of CDM is being able to download series data to Excel.

For a Quick Tutorial refer to Download to Excel or for more details refer to the section Excel Download.

2.3.2.3 Rename Excel Files

Excel files can be renamed in My Library:

1. Right-click on the Excel file you want to rename

2. Click on "Rename" in the pop-up menu

3. The Excel file name will changed to edit mode. Enter the new Excel file name in the input box.

4. Press Enter or tab out of the input box. The name change will take effect immediately.

Note that duplicate workspace or Excel file names are not allowed.

2.3.2.4 Clone Excel Files

You can make a clone of an Excel File by copying it and pasting it in My Library.
1. Right-click on the Excel file you want to make a copy of.

2. Click on "Copy" in the pop-up menu and then "Paste"

3. The new Excel file will be created and will have "Copy 1 of" at the beginning of the original Excel file name.

2.3.2.5 Delete Excel Files

You can delete an Excel file from the list in My Library:

1. Right-click on the Excel file you want to delete

2. Click on "Delete" in the pop-up menu

3. You will be asked whether you are sure you want to delete.

4. Click the Yes button to proceed or the No button to cancel this action.

2.3.2.6 Rearrange Excel Files

You can move Excel files to other folder locations:

1. Right-click on the Excel file you want to move

2. Click on "Cut" in the pop-up menu, the text of your original Excel file will change to gray italics

3. Choose a folder directory to move your Excel file to and Click on "Paste"
When you move an Excel file with the same name to the same location, a popup box will appear to validate your action and prevent overwriting a file. Choose an option then click yes to proceed, or no to cancel.

2.3.3 My Chart Files

You can create charts with selected series and store them in My Library.
2.3.3.1 Open Charts

Chart Files can be opened using the My Library Tab, which is a central repository for CDM Excel Files and CDM Charts.

1. Double-click on your Chart File to launch Chart Manager with your respective chart opened.

2. Right-click on your Chart in My Library, to show the context menu and click on "Open".
2.3.3.2 Create Charts

You can create charts with a combination of any series you require.

1. Locate the series you want at the Series level (level 4), select one or more series by selecting the checkbox to the left of the series name. Or when you are in Table level (level 3), there is a checkbox besides the table name to select all series in that table.

2. Click on the Chart button on the Toolbar

or

Right-click on the right pane to open the pop-up menu, then select Chart Manager

3. The Chart Interface will open with your checked series plotted for further customization if required.

4. To save your chart, click on the Save As button.
5. A popup box will appear called Custom Save.
   - Choose a Folder where you want the file to be saved on the left pane
   - Name your chart (if you do not enter a name, the chart will be named "NewChart").
   - You also have an optional choice to add a description of up to 100 words to help you differentiate the file better.
   - Set permissions to your chart file as "Read Only" or "Read & Write". (Defaulted as "Read & Write")

6. The chart is now saved in My Library. You can also access this tab directly from the left hand navigation bar.

Note that Charts saved can only be opened from My Library/Chart Library. They cannot be opened from CDM Chart files from Windows Explorer. If the Public Folder or Private Folder cannot be located, a Temp folder will be automatically created for you to save your chart files.
2.3.3 Rename Charts

Charts can be renamed in My Library:

1. Right-click on the Chart you want to rename
2. Click on "Rename" in the pop-up menu
3. The chart name will changed to edit mode. Enter the new chart name in the input box.
4. Press Enter or tab out of the input box. The name change will take effect immediately.

Note that duplicate workspace or chart names are not allowed.

2.3.3.4 Clone Charts

You can make a clone of a chart by copying it and pasting it in My Library:

1. Right-click on the chart you want to make a copy of.
2. Click on "Copy" in the pop-up menu and then "Paste"
3. The new chart will be created and will have "Copy 1 of" at the beginning of the original chart name.
### 2.3.3.5 Delete Charts

You can delete a chart from the list in My Library:

1. Right-click on the chart you want to delete
2. Click on "Delete" in the pop-up menu
3. You will be asked whether you are sure you want to delete.
4. Click the Yes button to proceed or the No button to cancel this action.

![Delete Chart Confirmation](image)

### 2.3.3.6 Rearrange Charts

You can move charts to other folder locations:

1. Right-click on the chart you want to move
2. Click on "Cut" in the pop-up menu, the text of your original chart will change to gray italics
3. Choose a folder directory to move your chart to and Click on "Paste"

![Chart Files](image)

When you move a chart with the same name to the same location, a popup box will appear to validate your action and prevent overwriting a file. Choose an option then click yes to proceed, or no to cancel.
2.4 Search

CDM provides simple search interfaces to find the series that you need in the CEIC databases. Start your search using either:

- Quick Search
- Keyword Search
- Advanced Search

2.4.1 Quick Search

Quick search is always located at the top of your CDM screen for easy access.

1. Simply enter a keyword word or series code in the search box, click on the Search Button (magnifying glass) or press enter.

2. You will be directed to the Keyword screen, where you can view your search results.

3. Further refine your search in the Keyword Search screen if required.

2.4.2 Keyword Search

Keyword Search can be opened directly using the tabs located in the left hand navigation bar. Keyword Search provides a simple search layout with a faceted search algorithm, which allows you to refine and filter your results by selecting one or more multiple criteria randomly in each category.

1. Use the Search Buttons to choose to search for Subscribed Series, Active Series, and/or Key Series.
2. Then simply enter your keyword or series code, click on the Search Button or press enter. Search Tips helps you get familiar with the search syntax.

3. Your results will appear below split into 2 main panels. Left panel can show a maximum of 6 categories. You can use the Search Filters to filter results from any of the categories on the left. The results will dynamically refresh when filters are applied so that you can quickly see the respective results and find what you are looking for.

4. Search results are sorted according to the sequence on the layout tree, starting with the WorldTrend Database. There will not be any duplication of series with the same code from different databases, only the first series code found will be displayed in search results.

2.4.2.1 Search Filters

Search Filters are a quick way to refine your search, there is a maximum of 6 filters available. The results will dynamically refresh when filters are applied so that you can quickly see the respective results and find what you are looking for. The following Search Filters are available:

- **Economic Classification (EC) and Indicator Filters**

  EC consists of 20+ categories of macroeconomic concepts provided by our Database managers. Each EC has a sub-category, called Indicator, for further refinement.

  EC will be displayed when a search is performed with Key Series Button on. The Indicator pane will only be displayed when an EC is selected by the user. EC and Indicator has a “Parent-Child Relationship” – if you want to de-select the EC, you need to de-select the indicator first.

  For parent categories, such as EC, there are 2 types of selection:

  Tick - Automatically selects all the EC’s indicators (so indicator pane will not show below).

  Highlighting - Displays the respective indicator below, so the user can further select one or multiple indicators related to the EC chosen).
• Region and Country

Region is classified into Geographical (Asia, Americas, Europe, Middle East and Africa) & Economic Groups (G7, G20, ASEAN and BRIC).

Region and Country are displayed by default in the left panel; regardless if key series toggle is on/off.

For flexibility, you can either choose to filter by region or country first.

If you highlight a region first, the respective countries will be shown below, so the user can further select one or multiple countries of that region. However, if you highlight a country first, the region pane will be hidden and respective regions will not show. (This is because some countries are related to multi-regions and causes complexity in the search).

Similar to EC, Region has 2 types of selection. Ticking the Region will automatically select all related countries, so no countries will be displayed below. This facilitates you to search for a whole region or a particular economic grouping quickly.
• **Source**
Select the sources you would like to refine your search results with.

<table>
<thead>
<tr>
<th>Source</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada Natural Resources Canada</td>
<td>1</td>
</tr>
<tr>
<td>India Reserve Bank of India</td>
<td>1</td>
</tr>
<tr>
<td>Ireland Central Statistics Office of Ireland</td>
<td>1</td>
</tr>
<tr>
<td>Kazakhstan The Agency of Statistics of the</td>
<td>1</td>
</tr>
<tr>
<td>Laos Ministry of Industry and Commerce</td>
<td>2</td>
</tr>
<tr>
<td>Latvia Bank of Latvia</td>
<td>1</td>
</tr>
<tr>
<td>Morocco Bank Al Maghrib</td>
<td>1</td>
</tr>
<tr>
<td>Oman National Center for Statistics and Inform</td>
<td>1</td>
</tr>
</tbody>
</table>

• **Frequency**
Select from the list of frequencies you would like to refine your search results with.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly</td>
<td>17</td>
</tr>
<tr>
<td>Quarterly</td>
<td>9</td>
</tr>
<tr>
<td>Yearly</td>
<td>9</td>
</tr>
</tbody>
</table>

**Select & De-Select Filters**

Multiple selections can be made by using the mouse or Ctrl + mouse select for non-adjacent selections. Selected items will be placed at the top of the category to make it easier to see what has been chosen.
There are checkboxes next to EC and Region. Ticking the checkbox will refresh the search result in the right hand result panel. While highlighting items on EC and Region will show the respective Indicator and Country but not refresh the result panel. Highlighting the items on Indicators, Country, Source and Frequency will refresh the results page.

2.4.2.2 Search Buttons

There are 3 options you select before running a search. An orange button indicates the option is on.

1. **Subscribed Series** shows the series that you have subscribed if turned on. This is turned on by default.

2. **Active Series** will filter out discontinued series from your search, if turned on.

3. **Key Series** will show around 300-500 series of significance, specially selected by our CEIC analysts, if turned on.

There are also 3 more buttons for you use Advanced Search and Save and Open searches that you have used before.

1. **Advanced Search** - You can select search criteria such as database, source and units.

2. **Save Search** - Search criteria can be saved. Just type in a description name so you can load the search again for future use.

3. **Load Search** - Loads a previously saved search including filters applied. The filters will be highlighted for easy reference.

2.4.2.3 Use Previous Search Selection

Tick "Use Previous Search Selection" to keep the same filters you are currently using for your next keyword search. This is useful when you want to re-run a search for another keyword, or if you want to re-run a search with changes in search button options (subscribed, active, key series) saving you time to select filters again.

2.4.2.4 Keyword Suggestions

Similar to other search engines, as you type the keyword you are searching for, suggested keywords will show below. You can use the Up and Down arrow keys to select a word and press return to start
the search.

2.4.2.5 Search in non-English Languages

A language detection tool has been incorporated to automatically search the respective local language database when a local language is recognized in the search box.

If you are using Advanced Search, you can enter your non-English keyword and select the database to search the database.
2.4.3 Advanced Search

Advanced Search Button is located in the Keyword Search Tab and this can be used to select more parameters to refine your search.

1. Click on the Advanced Search Button

2. The default search provider is CEIC. Alternatively select another database from the drill down. In addition, specify a Topic such as National Accounts or Inflation for example.

3. Enter your search keyword(s).

4. Choose to specify a Unit or Source. Begin typing the name of the Unit or Source and select a result
from the drop-down list. You can search multiple Sources by Adding and Removing them from the Source box list.

5. Select additional criteria (frequency, timeframe, etc.).

6. After you have entered the parameters to search, the Search button will be enabled. Click the Search button to start the search. Results will be returned back in the Keyword Search Window.

6. Click Reset Options to delete all criteria and begin a new search.

**Topics Selection**

You can select one or more topics (level 1) to search in. If no topic is selected, CDM will search in all topics available in the database. When you change the database selection, this list will automatically refresh and load with the topics of the newly selected database.

Below is an example from the China Premium database:
You can use the checkbox besides the Topic title to select all categories. If no topic is selected, CDM will search in all topics available in the database. If multiple databases are selected, the topic list will not be shown.

**Other Criteria**

**Unit**

You can select one Unit which is available from the list to search in. You can start typing the unit to shortlist the Unit which matches. If no Unit is selected CDM will search in all units available in the database.

**Sources**

You can select one or more Source to search in. You can type any words which matches the source. Click Add to Confirm and it will be added to the field down below. Check the source added and select Remove to take out the unwanted sources.

**Frequency**

You can select one or more frequency to search in. If no frequency is selected, CDM will search in all frequencies available in the database.

**First Observation Before**

You can use this to search for series with first observation date before the specified date. By default, this field is disabled, click the checkbox in front of it to enable it. You can type over the field or click on the down arrow on the right side to bring up the pop-up calendar.
Last Observation After

You can use this to search for series with last observation date after the specified date. By default, this field is disabled, click the checkbox in front of it to enable it. You can type over the field or click on the down arrow on the right side to bring up the pop-up calendar.

Active Series Only

Select this to search only in the active series. CDM consists of active and discontinued series. Active series are those currently being maintained and updated. Discontinued series are those no longer being updated after the last observation date.

Search in Subscribed Products

Select this search only in the products you have subscribed. By default, CDM shows you all the products even though you may not have subscribed to them all. For unsubscribed products, you will be able to see up to the series information and not the observations.

Search in Series Name Only

You can use this to search for your keywords in the series names only. This will only return the series records that match your keyword criteria. By default, CDM use your keyword to search in topic (level 1), section (level 2), table (level 3) and series name (level 4). If they keywords are found at any level, all series under that table will be returned as results.

2.4.4 Search Tips

Keywords

The accuracy of your search results are dependent on what you have entered into the search box. Entering search syntax can increase the accuracy of your search and save time. The following illustrates the different search syntax used:

- **Import Export** Return series with both words
- **Import AND Export**
- **Import; Export** Return series with either word, as well as series with both words
- **Import OR Export**
- **Import NOT Export** Return series without the specified word after NOT
- **"Import Export"** Return series with the exact phrase in the speech marks
- **Im** Return series with the words starting before * e.g. import, imports, immigration, implicit etc.

Series Code

- Type a series code into the search box to retrieve its corresponding series from the database. The series code can be a alphabetical or numeric. For example: 113569201 OR CZAAYM both retrieve the following series: China: Turnover: Vol: Fuel Oil Forward
- When searching multiple series codes at once, separate the codes with a semicolon.
For example, 11356201;105012801 retrieves both series corresponding to these codes.

Search Tip links are shown in Keyword Search and Advanced Search which will open a pop-up box explaining the search syntax when required.

By default, CDM use your keyword to search in topic (level 1), section (level 2), table (level 3) and series name (level 4). If the keywords are found at any level, all series under that table will be returned as results. If you only want to search the series name, go to Advanced Search and select: "Search in Series Names". Please refer to Advanced Search for more details.

### 2.4.5 Search Results

Search results are shown at series level and is split into 2 main panels.

- The left panel shows a maximum of 6 Search Filters to refine your results. Filter results from any of the categories on the left and the results will dynamically refresh when filters are applied.

- The right panel shows the search results. Click on the green arrow next to a series name to see the location of the series in the database. You can tick the checkbox next to the series to present as a table, create a chart, download to excel, add to My Series or open related Footnotes, using the CDM Toolbar, or right-click on the series to view the context menu. You can also click on a series to bring out the Quick View pane to view its respective quick chart and series properties. Go to Quick View for more information.

#### 2.4.5.1 Result Grouping

You can group the series by different columns in the list. Drag the column heading to the grouping bar (gray area above the result title bar).

You can change the sort order of the group by clicking on the arrow to the right of the group name.
You can also define sub-group by dragging more column header to the grouping bar like the example below.

### 2.4.5.2 Jump to Series

Click on the green arrow to the left of a series name to be taken to the location of the series in the Start layout tree.

The series will also be automatically selected for you when you go back to the layout tree.

### 2.4.5.3 Change Column Ordering

You can change the order of the columns by dragging the column heading to the position you want.
2.4.5.4 Show/Hide Column

Some of the columns can be added or removed. Right-click on the grouping bar to open the Field Chooser pop-up box.

The box shows the columns that are being hidden. Double-click on the column to show it in the list.

To hide a column, drag the column heading on the list and drop it into the Field Chooser box.

2.4.5.5 Copy Series List

You can make a copy of all the information shown in the list. Note this only copy the values in the list as text.

1. Right-click any where on the series list, a pop-up menu will be opened.

2. Select the Copy Highlighted Rows link.

3. Then use Windows' Paste function to paste the data to other applications such as Microsoft Excel, Microsoft Word.
2.5 Release Schedule

Release Schedule allows you to get information on when the indicators are released or will be released. On the right-hand side of the landing page you see a list of the Latest Releases (published in the past 24 hours) from any country as well as Upcoming Releases (scheduled for release in the next 7 days). On the left-hand side of the screen you can perform a Search based on select criteria.

Search Criteria - You can search for release schedule information via 3 separate components:

1. **Indicator** - A list of category indicators appears in this tab, organized alphabetically by country. For example, select Argentina and check the box: Banking Statistics.

2. **Source** - You can select one or more Sources to search in by checking the checkbox besides the source, listed alphabetically by country.

3. **Series Code** - Enter one or more series codes to obtain release schedule information on those indicators.

Additionally, you can specify the following:

- **Select Period** - You can select a period from the drop-down menu (such as next 120 days or previous 90 days). If you want to specify a start and end date, click on **Define Date Range** in the drop-down menu and specify the dates in the pop-up calendar.

- **Status** - You can choose to search for Pending or Released sources by checking the checkbox besides the status. If you leave them unchecked, CDM will search for both status.

Use the Reset button to clear the criteria selection and change back to the CDM defaults. Click the magnifying glass icon to initiate the search.
Search Results

The search result are listed in the right pane. You can use the page links at the bottom of the right pane to go to different result page. Click on the yellow icon next to any series in Search Results or from the Homepage to bring you to the location of all relevant series pertaining to that Indicator in the Tree layout display.

All search results or landing page information can be printed or exported to Excel.

As in My Series, you also have the ability to narrow the Search Results, Coming Releases, or Latest Releases display via the Filter Box shown below. The filter can be applied to any of the series attributes displayed in the fields at the top of the page (i.e. Indicator, Country, Last Observation Date, etc.).

Once you have the desired results on display, you can Export the data to Excel or Print it.

Click "Export" to export release schedule data to Excel.

Click "Print" to open the print preview window and print release schedule results.

Note you will only see Release Schedules for series in the databases to which you are subscribed.

2.6 Footnotes

Footnotes are detailed information about the series and the databases - background about the series, what is the source, and more.

1. Footnotes can be accessed using the last tab on the left-hand navigation bar

or

2. By right-clicking on the series from the Start Tab, My Series, and Search Results and selecting Footnotes.

Footnotes are displayed in a floating window and you can open an unlimited number if of footnote windows is required.
Third Party Databases

They are available in:

- Consensus Forecast Footnotes

2.6.1 Consensus Economics Footnotes

Background

CEIC and Consensus Economics Inc. have jointly launched a forecast database on the CEIC data platform. The Consensus Forecast data series has been fully integrated within CEIC data, allowing users to manipulate the forecast data for charts and reports using the CEIC Time Series Manager and other functions.

Each month Consensus Economics polls more than 700 economists around the world to obtain their economic forecasts and views for the principal macro and some micro-economic variables, for over 80 countries. The Consensus Economics database is unique because of its inclusion of an extensive historical dataset of forecasts, allowing users to examine changes in the economic outlook during critical historical periods. In addition to this feature, the database enables the user to perform global analysis, examining comparable forecast data across different economies.

Depending upon the modules subscribed, a user can access current data in real time going forward and historical monthly Consensus Economics estimates for key variables across an extensive range of countries in the Asia Pacific region, North America, Europe (including Eastern Europe) and Latin America.

Modules Offered:

The database of current and monthly historical data dating back to October 1989, depending upon the country, is offered in four separate modules including:

Consensus Forecasts (Main Industrialized Countries) – United States, Japan, Germany, France, United Kingdom, Italy, Canada, Euro zone, Netherlands, Norway, Spain, Sweden, Switzerland, Austria, Belgium, Denmark, Egypt, Finland, Greece, Ireland, Israel, Nigeria, Portugal, Saudi Arabia, South Africa.

Asia Pacific Consensus Forecasts – Australia, China, Hong Kong, India, Indonesia, Japan, Malaysia, New Zealand, Singapore, South Korea, Taiwan, Thailand, Bangladesh, Pakistan, Philippines, Sri Lanka, Vietnam.
Eastern Europe Consensus Forecasts – Czech Republic, Hungary, Poland, Russia, Turkey, Bulgaria, Croatia, Estonia, Latvia, Lithuania, Romania, Slovakia, Slovenia, Ukraine, Albania, Armenia, Azerbaijan, Belarus, Bosnia & Herzegovina, Cyprus, Georgia, Kazakhstan, Macedonia, Moldova, Serbia, Turkmenistan, Uzbekistan.

Latin American Consensus Forecasts – Argentina, Brazil, Chile, Mexico, Venezuela, Colombia, Peru, Bolivia, Costa Rica, Dominican Republic, Ecuador, Panama, Paraguay, Uruguay.

An annual subscription to a module entitles access to historical data series as well as 12 monthly updates going forward; monthly hard-copy publications are also provided for the subscription period. The historical estimates are useful in allowing back testing of forecast accuracy and modeling of country expectations.

Survey Process:
Panellists are provided with professional survey forms each month containing comprehensive variable definitions which, along with a specified survey deadline, ensures that all responses are comparable. Close interaction with the forecasting economists and careful verification of their responses, and the subsequent mean, high, low and standard deviation calculations, ensure a consistent and comprehensive response underpinning the high quality of the survey results.

The Data Itself:
The data features the current month ‘consensus’ (or mean) average forecast for the current and following year. In addition to the mean estimate, the high, low and standard deviation for each economic indicator are also calculated by Consensus Economics. Also available is the history of consensus forecast data, which have been collected on a consistent monthly basis.

Number of data series: Approximately 1,000

Number of countries: Over 80

Number of contributors: Over 700 forecasting panelists. Common definitions and time horizons are imposed by the rigorous survey methodology, to insure consistency and accuracy.

Data history: From October 1989 for the G7 Industrialized countries; From January 1995 for the major Asia Pacific countries; From May 1998 for the main Eastern European countries and From March 1993 for the major Latin American countries.

Update cycle: Monthly

Period Estimates: Current year and following year.

Example: Consensus Forecast Variables for the United States
Gross Domestic Product (% change on previous year)
Personal Consumption (% change on previous year)
Business Investment (% change on previous year)
Pre-Tax Profits (% change on previous year)
Industrial Production (% change on previous year)
Consumer Prices (% change on previous year)
Producer Prices (% change on previous year)
Employment Costs (% change on previous year)
Auto and Light Truck Sales (mn units)
Housing Starts (mn units)
Unemployment (%)
Current Account (US$ bn)
Federal Budget Balance (US$ bn)
3 month Treasury Bill rate (%)
10 year Treasury Bond yield (%)

Exchange Rates:
Forecasts of the main cross rates against the US dollar or the euro (for some European countries) are included monthly in the respective Modules to which the currencies relate.

About Consensus Economics Inc.

Consensus Economics, founded in 1989, is the world’s leading international economic survey organisation and polls more than 700 economists each month to obtain their forecasts and views. Its simultaneous monthly surveys cover forecasts for the principal macro and several micro-economic variables for more than 80 countries, as well as topical issues of interest to investment managers, corporate planning executives and economists. As a survey firm, Consensus Economics’ principal objective is to achieve the highest standards of compilation accuracy and representativeness, together with insightful commentary and presentation of survey results.

If you would like further information regarding this service, please contact your local CEIC representative or Consensus Economics Inc. directly at:

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Email: editors@consensuseconomics.com

Date: December 12, 2007

3 CDM Toolbars

This section provides more information into each of the CDM Toolbars that are accessible from the top section of the CDM user interface. These buttons provide useful “actions” for your selected series and some provide useful settings and information when you are working with CDM.

3.1 Download To Excel

A key feature of CDM is being able to download series data to Excel for further manipulation. The following topics provide more information on different ways of
manipulating data using CDM.

- **How to Download**
- **Download Settings**
- **After Downloading**
  - **Auto Refresh**
  - **Manual Refresh**
  - **Edit Download**
  - **Open Workbooks**
  - **Send as Email**
  - **Read Only**
  - **Alerts**

Save, share and retrieve your files from My Library in [My Excel Files](#).

CDM Link with MS Excel allows you to:

- Download and build your models directly in Excel
- Download multiple series with different frequencies at the same time (maximum of 1,000 series, if over 256 series in columns with Excel 2003 or older, CDM will open new worksheets as necessary).  
- Choose to customize your series download in Edit Download
- Save, Present and Share your Files using the CDM Link Toolbar
- Receive useful alert messages in Excel informing you of updated, revised, discontinued or rebased data.
- Set write protection on your important files using the Read Only Button
- Share your files instantly using the Send as Email Button

### 3.1.1 How to Download

A key feature of CDM is being able to download series data to Excel and you can do this quickly from various tabs within CDM. You can also download multiple links and data of different frequencies in one worksheet, more details are shown below.

- **Start Tab**
- **My Series**
- **Search**
- **Chart**
- **Table**

**Download to Excel from Start Tab**

1. Refer to [Start](#) to find the series that you want by navigating through the series tree. Tick the checkbox next to the series you would like to download.

2. Click on the Download to Excel button in the Toolbar.

3. There will be a “Excel Download” popup which allows you to specify different download options, click ok to proceed. Refer to [Excel Download](#) topic for more details.
• Download to Excel from My Series

1. Navigate through your folders in the left pane and click on a workspace.

2. In the right pane you will see the respective series list associated with your chosen workspace. Tick the checkbox of the series you would like downloaded to Excel.

3. Click on the Download to Excel button in the Toolbar.

4. There will be a "Excel Download" popup which allows you to specify different download options, click ok to proceed. Refer to Excel Download topic for more details.

• Download to Excel from Search

1. Refer to Search to find your results. You will see your results refined in the right pane. Tick the checkbox of the series you would like to download.

2. Click on the Download to Excel button in the Toolbar, to proceed with download.

3. There will be a "Excel Download" popup which allows you to specify different download options, click ok to proceed. Refer to Excel Download topic for more details.

• Download to Excel from Chart

1. Refer to Create Charts to plot charts of your chosen series. You can plot series across 1-3 panes. Downloading to Excel will plot all series across all 3 panes.

2. Click on the Download to Excel button in the Toolbar, to proceed with download.

3. There will be a "Excel Download" popup which allows you to specify different download options, click ok to proceed. Refer to Excel Download topic for more details.

• Download to Excel from Table
1. Refer to Table to download series in a table format within CDM.

2. Click on the Download to Excel button in the Toolbar, to proceed with download.

3. There will be a "Excel Download" popup which allows you to specify different download options, click ok to proceed. Refer to Excel Download topic for more details.

**Multiple links in one worksheet**

You can ask CDM not to download the data in a new worksheet. And by positioning the active cell the worksheet, you can control where to put the downloaded data and download more than one link on the same worksheet. To do so, uncheck the "Download in a New Sheet" and "Download in a New Workbook" option when you are prompted with the Download Settings window, CDM will load the data on the current worksheet, starting at the position of the active cell.

**Download Series with Different Frequencies**

You can download series with different frequencies. Below is an example of downloading one monthly series and one quarterly series.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Select this</td>
<td>HK: Production Index: Manufacturing</td>
</tr>
<tr>
<td>2</td>
<td>Country</td>
<td>IMF</td>
</tr>
<tr>
<td>3</td>
<td>Frequency</td>
<td>Quarterly, Ending &quot;mar, June, Sep, Dec&quot;</td>
</tr>
<tr>
<td>4</td>
<td>Unit</td>
<td>2005=100</td>
</tr>
<tr>
<td>5</td>
<td>Source</td>
<td>International Monetary Fund</td>
</tr>
<tr>
<td>6</td>
<td>Status</td>
<td>Active</td>
</tr>
<tr>
<td>7</td>
<td>Series Code</td>
<td>224672701 ()</td>
</tr>
<tr>
<td>10</td>
<td>Last Update</td>
<td>2/2/2011</td>
</tr>
</tbody>
</table>

The download result will merge the time points of both series and sort them in chronological order. In the above example, you can see that data is only loaded for the time point that applies to the series.

3.1.2 **Download Settings**

Before exporting your series data to Excel, you can specify your download options.
**Data Format**

- **Date** - The format of the observation date that will appear in Excel after downloading the series. By default, CDM set it to "Automatic" which means depending on the frequency of the selected series, CDM will apply a specific format based on the regional setting of the machine you are using. If the selection has mixed frequencies, then CDM will apply different format to different frequencies. The following table shows samples of the automatic display formats used in CDM.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Value in Cell</th>
<th>Display Format</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>The exact date</td>
<td>DD/MM/YYYY</td>
<td>20/12/2006</td>
</tr>
<tr>
<td>Monthly</td>
<td>First day of the month</td>
<td>MMM, YYYY</td>
<td>Dec, 2006</td>
</tr>
<tr>
<td>Quarterly</td>
<td>First day of the LAST month in quarter</td>
<td>MMM, YYYY</td>
<td>Dec, 2006</td>
</tr>
<tr>
<td>Yearly</td>
<td>First day of the year</td>
<td>YYYY</td>
<td>2006</td>
</tr>
</tbody>
</table>

Note that you may change the "Display Format" but the "Value in Cell" will not be affected.

- **Decimal Places** - This defines the number of decimal places for the display format of the observation.
- **Autofit Columns to Contents** - Check this to adjust the column width in Excel to display the full contents.
- **Wrap Text** - Check this to wrap content in a cell to next line, works the same way as Excel.
- **Download Graph in Excel Format** - Create a Excel graph which is editable with Excel.
functionalities together with the data series. You can change the settings of the graph in Excel as you would with a regular graph created in Excel.

- **New Workspace Name** - Create a Workspace of the data you are downloading to Excel. Enter a name for the Workspace and it will be automatically added to your Workspace list in My Series.

**Data Placement**
- **Date Order** - Sort observations in ascending or descending order
- **Orientation** - Use to define whether the data should be put in **Columns** or **Rows** when downloading to Excel.
- **Download To** - Check **New Sheet** to download the data into a new worksheet in the current workbook; check **New Workbook** to download the data in a new workbook. If neither of the above is checked, CDM will load the data on the current worksheet, starting at the position of the active cell. Therefore, by positioning the active cell, you can control where to put the downloaded data and download more than one link on the same worksheet.

**Functions and Transformations**
- Click on **Insert Function** to apply functions "on the fly" to the series you are downloading. Check "Download only transformed series" to download only those series to which you have applied functions (base series will not be downloaded to Excel).

**Blank Observations**
Sometimes some observation data may be missing for certain time points in the time period you defined.
- **Filter out dates with no observations** - Check this to filter out those time point that do not have observation data. By default, CDM checked this option.
- **Leave as blank** - Do not filter the blank observation
- **Fill blank observations with N/A** - For those cells with no observations, fill it with N/A instead

**Every time I download data**
- **Ask me about settings** - Select this and CDM will prompt you with the Excel Download Settings window every time you download data.
- **Use these settings, do not ask again** - Select this to use these settings every time you download data to Excel. CDM will not show the Excel Download Settings window before it downloads. If you need to change the settings, you can access them from the Settings menu.
- **Show confirmation after each download** - Select this and CDM will alert you after each download.

**Timeframe**
By default, CDM downloads the 10 latest observations of a series.
- **Date Range** - Specify the period which you want to get observations from. Selecting **No End Date** will give you indefinite updates to those series.
  - You may specify a Start Date that is earlier than the series’ First Obs. Date and/or an End Date that is later than the series’ Last Obs. Date. If, under **Blank Observations**, you have checked **Leave as blank** or **Fill blank observations with N/A**, CDM will create the requested time-points.
- **Number of Observations up to End Date** - Specify the number of observations to get, up to the last observation date.
- **All Observations** - Select this to download all observations in the selected series.

**Show Series Properties**
Check the relevant information you want to also include in your download.

**Reset Options**
Click this to revert back to the default settings.
After you made your selections, click the green tick button to proceed with the download. You can also use the Reset Options button to revert back to the default settings.

3.1.3 After Downloading

Below screenshot shows a sample downloaded data file. By default, the 10 most recent observations of a series will be downloaded.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th></th>
<th>B</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Select this link and choose</td>
<td></td>
<td>Exports: Live Pig</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Country</td>
<td>China</td>
<td>Exports: Live Poultry</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Frequency</td>
<td>Monthly</td>
<td>Monthly</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Unit</td>
<td>USD mn</td>
<td>USD mn</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Source</td>
<td>General Administration of Customs</td>
<td>General Administration of Customs</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Status</td>
<td>Active</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Series Code</td>
<td>6287401 (CIGAA)</td>
<td>6287581 (CIGAB)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Function Information</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>First Obs. Date</td>
<td>1/1999</td>
<td>1/1999</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Last Obs. Date</td>
<td>5/2013</td>
<td>5/2013</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Last Update Time</td>
<td>6/8/2013</td>
<td>6/21/2013</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>5/2013</td>
<td>36.644</td>
<td>1.713</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>4/2013</td>
<td>36.691</td>
<td>2.425</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>3/2013</td>
<td>35.716</td>
<td>2.763</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>2/2013</td>
<td>38.791</td>
<td>2.581</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>1/2013</td>
<td>10.412</td>
<td>0.944</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>12/2012</td>
<td>67.069</td>
<td>4.766</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td>11/2012</td>
<td>35.730</td>
<td>2.566</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td>10/2012</td>
<td>39.993</td>
<td>2.634</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>9/2012</td>
<td>38.942</td>
<td>2.563</td>
</tr>
<tr>
<td>21</td>
<td></td>
<td>8/2012</td>
<td>39.286</td>
<td>2.558</td>
</tr>
</tbody>
</table>

How to interpret the downloaded data using our example above:

- **Cell A1**: This is a special cell used for reloading data. Do not delete or change this field, otherwise the reloading function may not work properly.
- **Column A**: Headings and titles of series
- **Columns B onwards**: When the orientation is "series in columns", one column will represent one series.

Note that the data may be downloaded in different destination cells depending on where the active cell on the worksheet.

The downloaded data is in an Excel "table" object and if you try to download another set of data to an existing table, CDM will return an error message.

**Refresh Series**

CDM provides an easy way for you to refresh your series data after you download. On the CEIC Toolbar in Excel, you will see a few Refresh buttons. They are disabled before you log into CDM. After you logged in successfully, they will be enabled automatically.
When you Refresh or Edit a Link, Sheet, or Workbook containing newly Discontinued or Rebased series, or series with Updated or Revised time-points, an alert message will subsequently pop up in Excel informing you of the change:
Furthermore, Discontinued and/or Rebased series will appear in Italics in your Excel download. Newly updated and/or revised time-points will appear in green until a subsequent Refresh or Reload has been initiated.

3.1.3.1 Auto Refresh

The Auto Refresh Button is a toggle button. It gives you the option for CDM to automatically update the series in your file every time the workbook is opened, alternatively, you can use the Manual Refresh Buttons to update the data yourself.

![Auto Refresh Button]

When the button is gray, the auto refresh is off.

When the button is highlighted, auto refresh is on.

Note: You must be logged into CDM to ensure your CDM links refresh automatically when you open your workbooks. If not, the workbook will be opened but data will not be refreshed and CDM will be prompted to launch.

3.1.3.2 Manual Refresh

If you have not chosen auto refresh, you can make use of the Manual Refresh options. There are 3 options available.
1. Refresh Link/Object
You can use this function to refresh data of one or more downloads. You can apply it to one or more refresh links in an active worksheet. It refreshes the data based on the download settings that were used when you first downloaded it. If you need to change to the download settings, use the Edit Download Button to make changes.

- Select the refresh link of the data set that you to refresh. You can select more than one link to refresh at the same time.
- Click on the Refresh Links button under Manual Refresh.

2. Refresh Sheet
Use this function to refresh data of all data sets in the active worksheet. You do not need to select any refresh links. It refreshes the data based on the download settings that were used when you first downloaded it. If you need to change to the download settings, use the Edit Download Button,

- Go to the worksheet that you want to refresh.
- Click on the Refresh Sheet button under Manual Refresh.
3. Refresh Workbook

Use this function to refresh data of all data sets in the active workbook. You do not need to select any refresh links. It refreshes the data based on the download settings that were used when you first downloaded them. If you need to change to the download settings, use the Edit Download function instead.

- Open the workbook that you want to refresh.
- Click on the Refresh Workbook button under Manual Refresh.
- The refresh may take time depending on how many data sets you have on the workbook. Click the Yes button to confirm to proceed.

Note that CDM will take the position of the link(s) as the starting point of the download. Thus, if you have moved the link, the new data will be loaded at the new position.

3.1.3.3 Edit Download

Use the Edit Download Button to change your download settings, insert, delete, and/or reorder series, insert functions and space separators in Excel. The Edit Download Window consists of the Properties and the Manage Series Section. Use the arrow button to collapse and expand the Properties section to have more room to Manage Series.
1. Select a CDM link and click “Edit Download” on the CDM toolbar. You can select only one link to edit at one time.
2. There are 2 sections in Edit Download. For Properties, please refer to Download Settings. In the Manage Series section, you will see the series corresponding to your download will be displayed and the following options.

- **Insert Series**
  Click on the Insert Series Button under Manage Series. A pop-up box called "Insert Series to Download" will appear.
  You can search for series using either the Search Tab or Browse Database.
  - In the **Search Tab**, enter a keyword, or series code (alphabetical or numeric) and press enter to
search
- Alternatively, use the **Browse Database** Tab to look for series under a particular chosen database, using the layout tree.

Tick the checkbox of the series you want to include in your download and click on the "Add Series" button below. Notice at the bottom, there is a count of series that you have selected for easy reference.

You can then choose to insert functions (see section below) to these selected series before clicking on the Add Series button, which will insert your series to your download.

Click on OK to proceed, where you will see your selected series in the Edit Download > Manage Series list.

- **Insert Separator**
  Add a blank column or row in Excel. Select the position where you want the row/column to be added in the series list box and click **Insert Separator**.

- **Insert Function**
  Insert CDM functions to the series downloaded, select them in the series list box and click **Insert Function**. CDM Function window will be prompted. Refer to the topic **CDM Functions** for details.

- **Delete**
  To delete a series from a download, select it in the series list box and click **Delete**.

- **Move Up / Move Down**
  To reorder the display of series in Excel, select a series and click Move Up or Move Down. You
can also use drag and drop to manage the order of your series (Note, click on a white area on the table, clicking on the blue column will select the row only). Use Ctrl + mouse select or Shift + mouse select to highlight multiple series (which will turn the rows to blue) and drag to desired location in the list.

- **Move Top / Move Bottom**
  Select a series that you want to be moved right to the top or to the bottom of your series list. The bottom row is marked with a *, instead of a number.

### 3.1.3.4 Open Workbooks

Open Workbooks will direct you to the My Library which is the central depositary for CDM Excel and Chart Files.

Multiple selections in My Library are allowed to open more than one workbook in one click to save time.

### 3.1.3.5 Send as Email

Click on then Send as Email button to automatically attach the Excel file you are working on to an MS Outlook email in one click to share with colleagues.

![Email Icon]

### 3.1.3.6 Read Only

Read Only is a toggle button.

![Read Only Icon]

When turned on, it protects CDM Links from being modified with Edit Download and prevents other CDM users inserting new CDM Links. Other CDM users can still refresh the links, sheets and workbooks. Only the person who set the file as Read Only can change the permission.

### 3.1.3.7 Alerts

When data in Excel has been updated, revised, discontinued, or rebased, you will receive an alert message in Excel informing you of the changes.

- **Green Alerts** - Show newly released and revised data points compared with your last refresh.
- **Blue Alerts** - Show newly released and revised data points within the last 30 days.
- **Text in Italic** - Show Discontinued series.

<table>
<thead>
<tr>
<th>Year</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>816.50</td>
</tr>
<tr>
<td>2006</td>
<td>1260.10</td>
</tr>
<tr>
<td>2007</td>
<td>1118.80</td>
</tr>
<tr>
<td>2008</td>
<td>851.60</td>
</tr>
<tr>
<td>2009</td>
<td>851.60</td>
</tr>
<tr>
<td>2010</td>
<td>110.00</td>
</tr>
<tr>
<td>2011</td>
<td>12.00</td>
</tr>
<tr>
<td>2012</td>
<td>15.00</td>
</tr>
</tbody>
</table>
3.2 Export

CDM's Export function allows you to save series in CSV format to facilitate their use in your internal systems and third-party software.

1. Select the series you wish to export from CDM's Start Tab, your workspaces or Search results, and click **Export**. Then choose your export settings.

2. To identify the exported series, you can choose to export the Series Name, the Series Code or both pieces of meta-data.

3. Click **OK** (green tick), and then choose a file name and save location in the **Export File As** dialog box, and click **Save**.
3.3 Charts

CDM Chart allows you to customize your charts in many different ways. It is an independent interface and you can Create Charts using:

- Chart Button
- Start Tab - create charts for selected series
- Quick Chart

Saved Chart Files are shown and can be opened from My Library.

CDM Charting allows you to:

- Plot time-series in 3 panes in a single view
- Plot a maximum of 20 time-series across 3 panes
- Open a maximum of 8 chart tabs in CDM
- Choose from a wide-range of customizations for each pane using the Pane Toolbar
- Save, Present and Share your Charts using features in Chart Toolbar
- Update your charts in MS Office applications

3.3.1 Create Charts

CDM Charting is an independent interface and charts can be created using:

- Chart Button
- Start Tab - create charts for selected series
- Quick Chart
You can open your chart files in Chart Files located in My Library.

**Chart Button**

1. Click on the Chart Button from the CDM Toolbar to open the Charting interface named "New Chart".

2. There are up to 3 panes available. Under Series Manager, choose a pane and select a blank box to start inserting series.

3. Enter a series code (alphabetical or numeric) directly and press enter to plot, alternatively, click the Insert Series Button above to open the "Insert Series to Chart" window, where you can find series using keyword/series code search of browse from the layout tree and plot one or more series to your chart.
Start Tab - Create charts for selected series

Alternatively create charts for selected series from the Start tab.

1. Find the series that you want by navigating through the series tree. Click on an item in the tree to expand it to view the next level.

2. When you are at the Series level (level 4), select one or more series by selecting the checkbox to the left of the series name. Or when you are in Table level (level 3), there is a checkbox besides the table name to select all series in that table. Note that you are only allowed to create graph for at most 20 series at a time.

3. Click on the Chart button on the CDM Toolbar to plot your series.

Chart Manager

The Chart Manager will be displayed with your series plotted using the default settings. By default, the chart will be plotted using 24 observations, you can change the settings using Timeframe menu on the left side of the graph.

For further customization, the Chart Manager Toolbar You can make use of the tools available on the Graph Manager Toolbar to manipulate the graph. Refer to the chapter on Charts for more details.
3.3.2 Chart Toolbar

The chart toolbar provides the following functions that apply to the whole charting interface, such as:

- **Save** the chart (and all chart panes plotted) to the Chart Library. Note the file will be saved to the defaulted location that has been chosen. The location can be changed if preferred, in Options > Settings. Add a description up to 100 words to your chart file to help you find it in My Library. Set permissions to your chart file as “Read Only” or “Read & Write”. Note that Charts saved can only be opened from My Library/Chart Library. They cannot be opened from CDM Chart files from Windows Explorer. If the Public Folder or Private Folder cannot be located, a Temp folder will be automatically created for you to save your chart files.

- **Open** charts from Chart Library using this button. You can open up a maximum of 8 chart files within CDM.

- **Print** to send the selected pane(s) to printer. A print preview will be populated for you to change the print settings if required.

- **Download to MS** downloads the selected chart pane(s) as refreshable objects to MS Excel, Word and/or PowerPoint.

- **Email to Outlook** will capture a snapshot of all chart panes with series plotted into a new email in MS Outlook.

- **Copy to clipboard** copies a snapshot of a selected chart pane(s) and allows you to paste it to a destination outside CDM. Note that the information copied will not be refreshable. If you would like
to copy and paste a chart as a refreshable object use "Download to MS".

- **Show Subscribed Series** returns results for series that you have access to when turned on (The button will be indented in a darker gray color). The default is set as off, to show the names of all the series in the CDM database, but no data is accessible unless you have subscription.

### 3.3.3 Pane Toolbar

The Pane Toolbar provides the following functions for you to customize 1 to 3 of any of the selected chart panes.

- **Chart Type** allows you to select from 6 different charts to apply to all the series in a selected chart pane. They include: column, line, bar (cone is no longer supported), Areas, Scatter and Others. There are over 30 chart types in total. In the case when you select multiple chart panes by Ctrl + Select, note that the change in chart type will only be applied to the last pane in your selection.

- **Insert** is used to add annotations to the chart area. Choices include: text box, picture, shape such as circle, arrow, line, balloon and rectangle (annotations like arc, polygon are no longer supported) and also vertical or horizontal shadow bar.

- **Properties** button is used to change the colors, effects, source name and 3-D effects of a chart pane. You can also change properties of all series, X-Axis and Y-Axis.

- **Zoom** is used to magnify a particular part of the Chart Area. Click on the icon, place and cursor and drag on a chart area that you want to magnify.

### 3.3.4 Series Manager

The **Series Manager** provides functions for you to choose and plot your series in each pane:
Series Manager contains the following functions to choose and plot your series in chart panes.

- **Insert Series Button** opens the "Insert Series to Chart" window, where you can find series using keyword/series code search or browse from the tree layout and add one or more series to your chart.

- **Insert Function** transforms series with CDM Math Library. You can apply multiple functions to one series if required.

- **Remove Series** deletes the highlighted series from the chart. You can delete multiple series by Ctrl + mouse select.

- **Insert Blank Series Button** creates a blank box to enter a series code (alphabetical or numeric code). Press enter to plot the line.

The following prompts will show if an incorrect series code is entered.

Or if you have entered the same series code twice in the same pane, the following will be shown.
• (4 of 4) **The Series Count** displays the number of series you have plotted over the total plotted across panes.

You can overwrite an existing series by selecting the series (shown with an orange highlight) then use Insert Series Button. This is only applicable to replace a single series at a time. If you add more than one series during replacement, the highlighted series will be overwritten and new boxes will be created for the others. (Insert Series Button will not open if you highlight multiple series).

### 3.3.5 Timeframe

This feature allows you to control the data range to use to plot the graph. Click on the Timeframe button on the left side of the graph in Chart Manager to show the Timeframe settings pane.

Note that sometimes, just the Timeframe button will be shown next to the chart, click on the button to expand. Similar to when you see the pin in other features of CDM, click on the pin to fix the position, auto-hide or hide the pane.
You can specify the data range in 4 ways:

1. **Select Timeframe** - specify the date range of the observations and use all observations available in this date range. Click on the radio button next to the dates to select and choose a Start Date and End Date. Change the dates by typing over the input fields, or click on the arrow to enable the calendar.

2. **# of Observations up to End Date** - specify a specific number of observations to plot on the chart. Enter a number by typing or use the arrows to choose.

3. **Last** - choose a time period to plot on your chart. Options include the last: 6 Months; 2, 5, 10, 15 and 20 Years.

   - **All Observations** - all the observations available in the series will be used to plot the graph

To apply your changes, click on the **Refresh** button.

To choose options again, click on **Reset Options** button.

If you are plotting a chart for cross comparison, click the button **Apply to all** to set the same timeframe.
and decimal places to all chart panes.

3.3.6 Editing Charts

Right-clicking your mouse on specific areas of the chart will show context menus for editing. The following lists the options available:

Left clicking your mouse on a chart pane allows you to move annotation objects or source title with the mouse and drag to any destination within the chart pane.

<table>
<thead>
<tr>
<th>Right Click on...</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Line</td>
<td>• Series Chart Type</td>
</tr>
<tr>
<td></td>
<td>• Color</td>
</tr>
<tr>
<td></td>
<td>• Data Labels</td>
</tr>
<tr>
<td></td>
<td>• Properties</td>
</tr>
<tr>
<td>Chart Pane</td>
<td>• Chart Type</td>
</tr>
<tr>
<td></td>
<td>• Color</td>
</tr>
<tr>
<td></td>
<td>• Data Labels</td>
</tr>
<tr>
<td></td>
<td>• Legend Box</td>
</tr>
<tr>
<td></td>
<td>• Show / Hide X-Axis</td>
</tr>
<tr>
<td></td>
<td>• Properties</td>
</tr>
<tr>
<td>Annotations</td>
<td>• Copy</td>
</tr>
<tr>
<td></td>
<td>• Paste</td>
</tr>
<tr>
<td></td>
<td>• Fill Color</td>
</tr>
<tr>
<td></td>
<td>• Line Color</td>
</tr>
<tr>
<td></td>
<td>• Text Color</td>
</tr>
<tr>
<td></td>
<td>• Line Width</td>
</tr>
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<td></td>
<td>• Line Style</td>
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<tr>
<td></td>
<td>• Edit</td>
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<td>• Delete</td>
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<td>• Font</td>
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<tr>
<td></td>
<td>• Group *</td>
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<td>• Ungroup</td>
</tr>
<tr>
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<td>• Flip</td>
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<td></td>
<td>• Bring to Front</td>
</tr>
<tr>
<td></td>
<td>• Send to Back</td>
</tr>
<tr>
<td>X-Axis / Y-Axis</td>
<td>• Edit Title</td>
</tr>
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<td></td>
<td>• Title Font</td>
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<td></td>
<td>• Axis Font</td>
</tr>
<tr>
<td></td>
<td>• Properties</td>
</tr>
<tr>
<td>Title of X-Axis / Y-Axis</td>
<td>• Alignment</td>
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<td></td>
<td>• Text Color</td>
</tr>
<tr>
<td></td>
<td>• Font</td>
</tr>
<tr>
<td>Chart Title / Source Title</td>
<td>• Edit</td>
</tr>
<tr>
<td></td>
<td>• Font</td>
</tr>
<tr>
<td>Legend</td>
<td>• Left</td>
</tr>
<tr>
<td></td>
<td>• Top</td>
</tr>
<tr>
<td></td>
<td>• Right</td>
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<td>• Bottom</td>
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<tr>
<td></td>
<td>• Hide Legend</td>
</tr>
<tr>
<td></td>
<td>• Edit</td>
</tr>
</tbody>
</table>
**Right Click on...** | **Options**
--- | ---
Data Point | - Font  
            |  - Single Data Label Font  
            |  - Series Data Label Font

* When non-text annotation is grouped with textual annotations, the context menu will just show Group, as other options will not apply.

### 3.3.7 Default Settings

Chart Default Settings can be pre-defined for options that you use most often, under Options> Settings> Chart.

![Chart Default Settings](image)

### 3.4 Table

You can click on table when you have selected series from the layout tree, My Series and Search.

1. Select a Series from:
   - **Layout Tree in Start Tab** - When you are at the Series level (level 4) from the layout tree, select the series by selecting the checkbox to the left of the series name or if you are in Table level (level 3), there is a checkbox besides the table name to select all series in that table.
   - **My Series** - Simply check the box next to the series
   - **Search** - Simply check the box next to the series
2. Click on the Show as Table button in the CDM Toolbar

3. Specify your Table Settings:

In addition to viewing the raw data, you also have the ability to Insert Function and view the transformed series in Table format. For example, you can calculate the YoY change of a base series and review the results, side-by-side.
The table will be created as a new tab page on the right pane. You can open an unlimited number of tables in CDM if required.

Note that tables cannot be saved and they will be removed when you exit CDM.

### 3.5 Research Links

Research Links is a feature exclusive to the Premium Databases, namely for China, India, Indonesia, Russia and Brazil. It gives you access to proprietary research commentaries produced by a team of regional experts specialized in these economies.

**Research Links can be accessed in 2 ways**

1. Click on the Research Links Tab (magnifying glass) in the CDM layout tree to view documents of the Section related to the database you are viewing. Click down to the Section and Table levels of Premium Databases (i.e. sub-categories of major macro and industry concepts: National Accounts, Government and Public Finance, Inflation, Telecommunications, etc.)

2. Alternatively, click on the Research Links button from the CDM Toolbar to view documents from all Premium Databases.
The Research Pane shows a list of documents that you can click on to view in a new CDM window. The list is filterable by database and also by language (English or Chinese or All).

Research documents are in pdf format and can be Saved or Printed directly from CDM.

For China Database, research documents are bilingual.
An unlimited number of Research Link Tabs can be opened if required.

### 3.6 Global Indicator Watch

**NOTE: THE GLOBAL INDICATOR WATCH DATA AND FUNCTIONALITY MAY REQUIRE AN ADDITIONAL SUBSCRIPTION AFTER ITS FREE BETA TRIAL.**

Global Indicator Watch facilitates comparison of key economic data across the 121 countries of the Global Database.

1. To access the indicators, click **Global Indicator Watch**.

2. Select the indicators that you are interested in, and click **Next**.
3. Select the regions and / or countries you wish to compare. You will receive a notice of any indicators that are not available. Click **Continue With Available Series** or **Cancel Operation**.
4. Finally, choose how you would like to see the indicators. You can download them to Excel, add them to My Series, show them in a table or plot a chart. **Click Finish.**
You can use the Previous button to revisit your selections of indicators and countries.

3.7 Add to My Series
This section is covered in Add to My Series.

3.8 Add to My Watchlist
This topic has been covered in My Watchlist.

3.9 Refresh
This topic is covered in Refresh.

3.10 Feedback
You can send us feedback and questions through the Feedback button available on the main CDM toolbar.

Feedback will be sent via your default e-mail application, e.g. Outlook. Your message will be sent to our customer service whose local representative will contact you regarding your query.
3.11 Options

The Options menu is accessible from the CEIC Toolbar.

3.11.1 Settings

The settings menu is accessible from the CEIC Toolbar.
Modify settings

- You can switch between these settings panel by clicking on the title bar on the left side of this window.
- Click on the green tick button to save the changes, or click red cross to close the Settings window without saving.
- After the changes are saved, the Settings window will close.

3.11.1.1 User

You can customize general application behavior and the display in this section.

3.11.1.1.1 General

You can change your options for log in and start up of CDM.
• Default Startup Options

**Database** - Select the database to show in the Start tab when CDM is started. By default, it shows the first database in the database list on left pane. If you have previously selected to "Show only subscribed products in start tab", then this list will only contains those databases that you have subscribed. Otherwise, you will see both subscribed and unsubscribed databases in this list.

**Tab** - Select the CDM Tab to display when CDM is started. By default, it shows the Start tab.

**Show only subscribed products in start tab** - By default, CDM shows you all available products in CDM no matter you have subscribed to them or not. If you do not wish to see the unsubscribed ones, check this option. If this is selected, all unsubscribed databases or series will be hidden. Note that whenever you check or uncheck this option and then save the changes, CDM will prompt to notify you that it needs to close and restart in order for this change to be effective.

• Language

**Interface** - This option defines the language of the interface, i.e., the labels, buttons, messages, and so on. It has no impact on the display language of the databases and series. The default setting is "English - United States". If you changed this option, you need to restart CDM after saving the changes for it to take effect.

The following languages are available for the CDM interface: English (default); Chinese (Simplified); Japanese; Polish; and Russian.
**Database Language** - Some databases have a non-English version which are usually defined in the native language of the region(s) it covers. For example, China Premium Database has a version in Simplified Chinese and Russia Premium Database in Russian. Besides, WorldTrend Database has a version in Japanese.

If you checked this option, the data of the corresponding databases will be shown in the database language specified in the menu, regardless of what the “interface language” is. For example, you can have interface in English and China Premium Database in Simplified Chinese.

**Footnotes in Local Language** - Some databases have a non-English version of footnotes. If you checked this option, the footnotes of that database will be displayed in native language.

- **General**

  **CDM Auto Refresh** - Select CDM to never refresh or automatically refresh after 10, 20 or 30 minutes.

  **Clear CDM Cache** - Select this option to force CDM to refresh the first three levels of the layout tree every time it starts. By default, CDM locally cached the first 3 levels of the layout tree information such that it does not need to reload it every time it starts. Note that series list (level 4) are not stored locally and are retrieved from the server every time you expand a table or request series information.

  **Show Exit Confirmation** - Select this option to have CDM prompt you every time you close the application.

  **Settings Directory** - Choose the location of where your settings are saved or choose to save in a default folder by ticking the checkbox below.

    Check **Reset Options** if you want to return to the default settings. Click on OK to save changes.

- **Login options**

  - **Connection Settings**

    **Username and Password** - These are filled with the values you entered when you logged into CDM

    **Remember my username and password** - Check this if you want CDM to remember your log-in information and you will not need to re-enter these information next time you log in.

    **Ask me username and password every time I login** - If this is selected, CDM will show you the log in prompt every time you start up CDM. This is the default setting, but you can change to "Log me in automatically"

    **Log me in automatically** - If this is selected, CDM will not show the log in prompt any more from the next time you start up CDM. CDM will use the log in information in this General Settings panel to log into CDM.

  - **Update Settings**

    **Update application manually** - choose to update patch updates for CDM software manually

    **Automatic Updates (Default Setting)** - If updates are available, CDM will automatically install patch updates.
3.11.1.3 Workspace

- **File Option**
  
  **My Series Directory** - Specify where your workspace files are located. By default, it is under the "My Documents" directory of the logged in windows account.

  **My Series File Name** - Specify the file name which stores your workspace information. By default, it is "Workspace.cdm".

- **My Library**
  
  There is a compulsory settings window to configure the Public Folder Directory and Private Folder Directory for My Library folders at startup. The [Settings Wizard](#) guides you through this. However, if you decide later that you want to change those directories, you can change the options in this section.

- **Startup Options**
  
  The list of workspaces currently in the workspace file will be listed here.

  **Automatic Update** - If ticked, CDM will automatically update the workspace when it starts up, with
latest information on series information.

Startup - Choose one workspace to display in My Series when you startup CDM and open My Series. By default, it shows the first database in the workspace list on the left pane.

Confirm deletion of workspace - Select to ask CDM to prompt you every time you try to delete workspace.

3.11.1.4 Quick View

You can change the settings of Quick View in this panel. You can specify which quick table to display by default, the formatting of quick graph and also the number of observations to show and plot chart with in Quick View.

Modify Settings

1. Make your parameter changes

2. Click on the Apply button to save the changes, or click Cancel to close the Settings window without saving.

3. After the changes are saved, you will receive a confirmation message.

4. Click OK to close the message prompt and return to the setting window.
5. Click the Close button to close the Settings window.

**Reset Options** - Click this to revert back to the default settings.

3.11.1.5 Layout Format

You can specify how to display the layout tree in Start tab by adjusting the color and font style.

**Reset Options** - Click this to revert back to the default settings.
3.11.1.2 Data Option

You can specify your default settings for data download, graphing and table generation. For Download to Excel, you have the option to adjust the settings every time you request for a download.

3.11.1.2.1 Download to Excel

You can modify the parameters being used when you download observation data to Excel.

The parameters are the same as what you see when you do a Download to Excel action. Refer to the topic Download Settings for information on how to use these parameters.

Modify Settings

1. Make your parameter changes

2. Click on the Apply button to save the changes, or click Cancel to close the Settings window without saving.

3. Click the Close button to close the Settings window.
You can specify how to generate tables.

**Data Format**
- **Date** - The format of the observation date that will appear in Excel after downloading the series. By default, CDM set it to "Automatic" which means depending on the frequency of the selected series, CDM will apply a specific format based on the regional setting of the machine you are using. If the selection has mixed frequencies, then CDM will apply different format to different frequencies. The following table shows samples of the automatic display formats used in CDM.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Value in Cell</th>
<th>Display Format</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>The exact date</td>
<td>DD/MM/YYYY</td>
<td>20/12/2006</td>
</tr>
<tr>
<td>Monthly</td>
<td>First day of the month</td>
<td>MMM, YYYY</td>
<td>Dec, 2006</td>
</tr>
<tr>
<td>Quarterly</td>
<td>First day of the LAST month in quarter</td>
<td>MMM, YYYY</td>
<td>Dec, 2006</td>
</tr>
<tr>
<td>Yearly</td>
<td>First day of the year</td>
<td>YYYY</td>
<td>2006</td>
</tr>
</tbody>
</table>

Note that you may change the "Display Format" but the "Value in Cell" will not be affected.

- **Decimal Places** - This defines the number of decimal places for the display format of the observation.

**Data Placement**
- **Date Order** - Sort observations in ascending or descending order
- **Orientation** - Use to define whether the data should be put in **Columns** or **Rows** when downloading to Excel.
Blank Observations
Sometimes some observation data may be missing for certain time points in the time period you defined.

- **Filter out dates with no observations** - Check this to filter out those time point that do not have observation data. By default, CDM checked this option.
- **Leave as blank** - Do not filter the blank observation
- **Fill blank observations with N/A** - For those cells with no observations, fill it with N/A instead

Timeframe
By default, CDM downloads the 24 latest observations of a series.

- **Date Range** - Specify the period which you want to get observations from. Selecting **No End Date** will give you indefinite updates to those series.
  
  You may specify a Start Date that is earlier than the series’ First Obs. Date and/or an End Date that is later than the series’ Last Obs. Date. If, under **Blank Observations**, you have checked **Leave as blank** or **Fill blank observations with N/A**, CDM will create the requested time-points.
- **Number of Observations up to End Date** - Specify the number of observations to get, up to the last observation date.
- **All Observations** - Select this to download all observations in the selected series.

Show Series Properties
Check the relevant information you want to also include in your download.

Reset Options - Click this to revert back to the default settings.
3.11.1.2.3 Chart

You can specify how to extract data for plotting charts:

**Data Format**
- **Decimal Places** - This defines the number of decimal places for the display format of the observation.

**Timeframe**
By default, CDM downloads the 24 latest observations of a series.
- **Date Range** - Specify the period which you want to get observations from. Selecting **No End Date** will give you indefinite updates to those series.
  - You may specify a Start Date that is earlier than the series’ First Obs. Date and/or an End Date that is later than the series’ Last Obs. Date. If, under **Blank Observations**, you have checked **Leave as blank** or **Fill blank observations with N/A**, CDM will create the requested time-points.
- **Number of Observations up to End Date** - Specify the number of observations to get, up to the last observation date.
- **Last** - choose a time period to plot on your chart. Options include the last: 6 Months; 2, 5, 10, 15 and 20 Years.
- **All Observations** - Select this to download all observations in the selected series.

**Default Settings**
- **Chart Type** - Choose from a selection of 6 main chart types to set as your default
• **Background** - Set the background color to your chart from palette available
• **Legend** - tick if you would like the chart to automatically display Legend, Chart Title and Source

3.11.1.2.4 Export CSV Format

You can specify how to generate data in CSV format.

**Data Format**
- **Date** - The format of the observation date that will appear in Excel after downloading the series. By default, CDM set it to "Automatic" which means depending on the frequency of the selected series, CDM will apply a specific format based on the regional setting of the machine you are using. If the selection has mixed frequencies, then CDM will apply different format to different frequencies. The following table shows samples of the automatic display formats used in CDM.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Value in Cell</th>
<th>Display Format</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>The exact date</td>
<td>DD/MM/YYYY</td>
<td>20/12/2006</td>
</tr>
<tr>
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<td>Quarterly</td>
<td>First day of the LAST month in quarter</td>
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<td>Dec, 2006</td>
</tr>
<tr>
<td>Yearly</td>
<td>First day of the year</td>
<td>YYYY</td>
<td>2006</td>
</tr>
</tbody>
</table>

Note that you may change the "Display Format" but the "Value in Cell" will not be affected.

• **Decimal Places** - This defines the number of decimal places for the display format of the observation.
Data Placement
- **Date Order** - Sort observations in ascending or descending order
- **Orientation** - Use to define whether the data should be put in **Columns** or **Rows** when downloading to Excel.

Every time I download data
- **Ask me about settings**
- **Use these settings, do not ask again**

Timeframe
By default, CDM downloads the 24 latest observations of a series.
- **Date Range** - Specify the period which you want to get observations from. Selecting **No End Date** will give you indefinite updates to those series.
  - You may specify a Start Date that is earlier than the series' First Obs. Date and/or an End Date that is later than the series' Last Obs. Date.
  - If, under **Blank Observations**, you have checked **Leave as blank** or **Fill blank observations with N/A**, CDM will create the requested time-points.
- **Number of Observations up to End Date** - Specify the number of observations to get, up to the last observation date.
- **All Observations** - Select this to download all observations in the selected series.

Reset Options - Click this to revert back to the default settings.

3.11.1.2.5 Calculate

You can specify the output format and how to calculate series in Calculate.

- **Show Calculated Series In:**
1. **Table** - Display the calculate series in Table when using calculate function in Start Tree or My Series
2. **Graph** - Display the calculate series in Graph when using calculate function in Start Tree or My Series
3. **Excel** - Display the calculate series in Excel when using calculate function in Start Tree or My Series

- **When I calculate series:**

  1. **Include base series** - By default, only calculated series will be shown in the above format. Change the settings here to include base series.
  2. **Show settings window** - Display the settings window of Download to Excel or Table when showing the calculated series in the above format.

**Reset Options** - Click this to revert back to the default settings.

---

**3.11.1.3 Advanced**

You can specify your default settings to connect to our server.

**3.11.1.3.1 Connection**

If you are a first time user, it is recommended that you check the connection setting before logging into CDM and make changes if required. Once the settings are defined, CDM will use the selected setting...
every time it logs in.

The Connection Setup button is accessible through Options menu of CDM toolbar. The button is active when CDM is not opened and logged in. If the settings are changed after logged in, those changes will be applied during your next login.

Connection Methods

There are two ways to connect to CDM:

1. **Direct Connection** - The default setting is Direct Connection without Proxy. NO MANUAL CONFIGURATION REQUIRED.

2. **Connection through Proxy Server** - If connecting through a proxy server is required, do the setup through the Connection Setup page.

Setting Options

**Enter URL of Web Services**
- The default setting is https://cdm.ceicdata.com/cdm/CDMWS
- Normally no changes is required

**Use Proxy Setting**
- To use Direct Connection, leave this unchecked
- Check this option to connect through proxy server and then select one of the four ways to look up
proxy settings as described below. If none is checked, CDM will try to detect which way works.

1. **Auto Detect (No IE)** - Use the proxy setting of the machine
2. **Auto Detect (With IE)** - Use the proxy setting defined in Internet Explorer
3. **Manual PAC File** - Use the proxy setting defined in the PAC file specified by the user. Enter the path to the PAC file. It is required to be available through HTTP (http:// is prefixed in the file path input box)
4. **Manual Configuration** - Manually define the proxy configurations
   - Proxy Address and Proxy Port - Enter the proxy address and port to be used
   - Use Credentials - Check this option if a specific set of credentials is to be used. Otherwise, the default credentials of the user logged into the machine will be used. If checked, enter User, Password and Domain to be used.

**Test the Connection**

After setting the configurations, click on the Test Connection button to test whether CDM can connect using the information provided. The system will return a message indicating the result of the configuration detection, which connection method it used and the results of the test.

For the manual PAC File method, the message will indicate whether the PAC file is set with direct connection or through proxy server.

**Reset Options** - Click this to revert back to the default settings.

### 3.11.2 Clear Cache/ Reset Settings

These options are rarely used. These functions are only used if requested by our Customer Support to resolve issues with CDM. A pop-up box will warn you of the implications for proceeding. More details are outlined below:

- **Clear Cache** - Select this option to force CDM to refresh the first three levels of the layout tree every time it starts. By default, CDM locally caches the first 3 levels of the layout tree information such that it does not need to reload it every time it starts. Note that series list (level 4) are not stored locally and are retrieved from the server every time you expand a table or request series information. Clearing the Cache will increase your next log-in time.

- **Reset Settings** - will reset everything to default, so you will have to customize your preferences again.

### 3.12 Help

#### Drill down

### 3.12.1 Send Error Logs

Use the Send Logs option in the Help menu on the CDM toolbar to send us technical details about any interruptions in your use of the application or other error messages received.
Click Send Logs button. The “appTraceV20.log” and “ProxyLogV20.log” under My Documents\CEIC Data Manager\Settings will be sent to our technical team for troubleshooting. Click Cancel to cancel this action.

An copy of the log files sent will be e-mailed to your account for your records.

3.12.2 User Guide

This help document is accessible from the User Guide button under Help Menu on CDM Toolbar. A PDF User Guide is downloadable from

http://www.ceicdata.com/client/downloads

3.12.3 About CEIC Data Manager

This information window is accessible from the Help menu on the CDM menu bar. Here you can view the CDM version number and other application information.
3.12.4 New CDM Release

Patch Updates can now be automated so CDM updates seamlessly. Alternatively, manual update is still available if preferred.

- **Automatic Updates (Default Setting)** - If updates are available, CDM will automatically install patch updates.
- **Manual Updates** - To change settings to manual go to Options > Settings > Login Options > Update Settings > Update application manually.

**Automatic Update**

1. Login to CDM. Patch Updates will be downloaded automatically and a notification will show at the bottom right of CDM window.
2. Close all the Microsoft applications (including MS Word, MS Excel, MS PowerPoint… etc.)
3. Logout of CDM to run the update.
4. Login to CDM.

**Manual Update**

1. Login to CDM.
2. Go to Help > Check for Updates
   - Click the “Update” icon at the right bottom of CDM
3. A pop-up screen will show that CDM is checking for updates.

4. If updates are available, a pop-up screen will show the updates. You can click on "Download & Install" to proceed or cancel. Note that when you continue to use CDM when updates are being downloaded and installed. The Help button directs users to the CDM User Guide that can provide more information. Remember to close all Microsoft applications (including MS Word, MS Excel, MS PowerPoint... etc.)
5. After downloading, click **YES** to immediately install the updates, or click **NO** to use install later.

6. If you choose to update **CDM**, click **OK** to continue. A pop-up then reminds you to not start **CDM** while updates are being installed and **CDM** will logout automatically and you will see a box informing that updates are being applied.
7. Once update is completed, click on Close and CDM will login automatically with the latest build.

**Patch Update Indicators**

On the bottom right corner of the CDM screen, you will see a Patch Management icon, that can indicate the status of your patch updates.

- ![Check for Available Updates](image)
- ![Connection Problems](image)
- ![Successful download](image)
- ![Updates available](image)
- ![CDM is Up-to-date](image)

**Point to Note:**
If your company has any concerns with users installing their own patch updates, your CEIC customer representations can provide guidelines on how to control patch updates via your server. Note that users will not receive notification of patch updates as they will be centralized by authorized IT personnel at your company.

### 3.13 Logout

As an issue of security and to avoid unauthorized access of your CDM login, remember to click on the Logout Button when you have finished using CDM.

- When you have clicked on Logout, a prompt will confirm whether you want to exit CDM. Enter Yes, or
4 FAQ

This section provides a quick overview on how to trouble-shoot some frequently asked issues.

- **CDM Add-in** - How to reactivate if CDM Add-in is missing from Excel?

4.1 About the Data

About CEIC & our databases

For information about CEIC, visit our website: [http://www.ceicdata.com](http://www.ceicdata.com).

For information about our database, visit our website: [http://www.ceicdata.com/Our_Products.html](http://www.ceicdata.com/Our_Products.html).

Third Party Databases

Apart from CEIC’s own databases, we also work with other data providers to provide their data under the CDM platform.

Third party databases available in CDM:

- **Consensus Economics**

4.1.1 Consensus Economics

CEIC and Consensus Economics, Inc. have jointly launched a forecast database on the CEIC data platform. The Consensus Forecast data series has been fully integrated within CEIC data, allowing users to manipulate the forecast data for charts and reports using the CEIC Time Series Manager and other functions.

Each month Consensus Economics polls more than 700 economists around the world to obtain their economic forecasts and views for the principal macro and some micro-economic variables, for over 80 countries. The Consensus Economics database is unique because of its inclusion of an extensive historical dataset of forecasts, allowing users to examine changes in the economic outlook during critical historical periods. In addition to this feature, the database enables the user to perform global
analysis, examining comparable forecast data across different economies.

## 4.2 Shortcut Keys

Below is a list of shortcut keys that you can use in CDM.

**CDM Toolbar**

<table>
<thead>
<tr>
<th>Action</th>
<th>Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>Login</td>
<td>Alt + L</td>
</tr>
<tr>
<td>Feedback</td>
<td>Alt + F</td>
</tr>
<tr>
<td>Options</td>
<td>Alt + N</td>
</tr>
<tr>
<td>Settings</td>
<td>Alt + N; E</td>
</tr>
<tr>
<td>Connection Setup</td>
<td>Alt + N; U</td>
</tr>
<tr>
<td>Clear Cache</td>
<td>Alt + N; A</td>
</tr>
<tr>
<td>Help</td>
<td>Alt + P</td>
</tr>
<tr>
<td>Send Logs</td>
<td>Alt + P; E</td>
</tr>
<tr>
<td>Contact Us</td>
<td>Alt + P; A</td>
</tr>
<tr>
<td>User Guide</td>
<td>Alt + P; U/ F1</td>
</tr>
<tr>
<td>About CDM</td>
<td>Alt + P; M</td>
</tr>
<tr>
<td>Exit/ Logout</td>
<td>Alt + T</td>
</tr>
<tr>
<td>Add To Watchlist</td>
<td>Alt + L</td>
</tr>
<tr>
<td>Checked Series in Add to Watchlist</td>
<td>Alt + L; C</td>
</tr>
<tr>
<td>Highlighted Series in Add to Watchlist</td>
<td>Alt + L; H</td>
</tr>
<tr>
<td>Add To Workspace</td>
<td>Alt + K</td>
</tr>
<tr>
<td>Highlighted Series in Add to Workspace</td>
<td>Alt + K; C</td>
</tr>
<tr>
<td>Checked Series in Add to Workspace</td>
<td>Alt + K; H</td>
</tr>
<tr>
<td>Download to Excel</td>
<td>Alt + D</td>
</tr>
<tr>
<td>Checked Series in Download to Excel</td>
<td>Alt + D; C</td>
</tr>
<tr>
<td>Highlighted Series in Download to Excel</td>
<td>Alt + D; H</td>
</tr>
</tbody>
</table>
Graph
Alt + G

Checked Series in Graph
Alt + G; C

Highlighted Series in Graph
Alt + G; H

Table
Alt + B

Checked Series in Table
Alt + B; C

Highlighted Series in Table
Alt + B; H

Export
Alt + X

Checked Series in Export
Alt + X; C

Show Key Series Only/ Show All Series
Alt + I

Global Indicator Watch
Alt + W

Research Links
Alt + C

Refresh
Alt + S /F5

Refresh Tab
Alt + S; E

Refresh All Tabs
Alt + S; A

Start tab

**Action**

Highlight previous (and deselect current) row in the active tree level
Arrow Up

Highlight next row (deselect current) in the active tree level
 Arrow Down

Multiple series selection (continuous) –
Start point row A, mouse click row B will select all series between row A and B.
Shift + mouse click

Multiple series selection (not continuous) - each click will change the select/unselect state of the row
Ctrl + mouse click

Multiple series selection (continuous) - each click will change the select/unselect state of the row
Shift + Arrow Up/ Down

Expand level
Right Arrow

Collapse level
Left Arrow

Show quick view for current series
Enter

Highlight all series in current table (when focus is on table or series within
Ctrl + A
table)

Copy selection (highlighted series)  
Ctrl + C

Check or uncheck a set of highlighted series or a table (all series in table)  
Option is Ctrl+H / Ctrl+U

Check or uncheck single highlighted series  
Space bar

To show the Start Panel  
Alt + A

To show the My CDM Panel  
Alt + M

To show the Search Panel  
Alt + H

To show the Release Schedule Panel  
Alt + R

To show the Footnotes Panel  
Alt + O

My CDM tab

<table>
<thead>
<tr>
<th>Action</th>
<th>Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highlight previous (and deselect current) row in the active workspace</td>
<td>Arrow Up</td>
</tr>
<tr>
<td>Highlight next row (deselect current) in the active workspace</td>
<td>Arrow Down</td>
</tr>
<tr>
<td>Show quick view for current series</td>
<td>Enter</td>
</tr>
<tr>
<td>Insert Series</td>
<td>Ctrl + E</td>
</tr>
<tr>
<td>Insert Function</td>
<td>Ctrl + F</td>
</tr>
<tr>
<td>Insert Function for Checked Series</td>
<td>Ctrl + F, C</td>
</tr>
<tr>
<td>Insert Function for Highlighted Series</td>
<td>Ctrl + F, H</td>
</tr>
<tr>
<td>Insert Title</td>
<td>Ctrl + T</td>
</tr>
<tr>
<td>Insert Title for Checked Series</td>
<td>Ctrl + T, C</td>
</tr>
<tr>
<td>Insert Separator</td>
<td>Ctrl + T, H</td>
</tr>
<tr>
<td>Delete</td>
<td>Ctrl + D</td>
</tr>
<tr>
<td>Delete Checked Items</td>
<td>Ctrl + D, C</td>
</tr>
<tr>
<td>Delete Highlighted Items</td>
<td>Ctrl + D, H</td>
</tr>
<tr>
<td>Multiple series selection (continuous) – Start point row A, mouse click row B will select all series between row A and B.</td>
<td>Shift + mouse click</td>
</tr>
</tbody>
</table>
Multiple series selection (not continuous) - each click will change the select/unselect state of the row

Multiple series selection (continuous) - each click will change the select/unselect state of the row

Copy selection in the active workspace

Highlight all series in the active workspace

Check or uncheck a set of highlighted series or a table (all series in table)

Check or uncheck single highlighted series

Search tab

<table>
<thead>
<tr>
<th>Action</th>
<th>Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highlight previous (and deselect current) row in the active search result page</td>
<td>Arrow Up</td>
</tr>
<tr>
<td>Highlight next row (deselect current) in the active search result page</td>
<td>Arrow Down</td>
</tr>
<tr>
<td>Multiple series selection (continuous) – Start point row A, mouse click row B will select all series between row A and B.</td>
<td>Shift + mouse click</td>
</tr>
<tr>
<td>Multiple series selection (not continuous) - each click will change the select/unselect state of the row</td>
<td>Ctrl + mouse click</td>
</tr>
<tr>
<td>Multiple series selection (continuous) - each click will change the select/unselect state of the row</td>
<td>Shift + Arrow Up/Down</td>
</tr>
<tr>
<td>Show quick view for current series</td>
<td>Enter</td>
</tr>
<tr>
<td>Copy selection in the search result</td>
<td>Ctrl + C</td>
</tr>
<tr>
<td>Select all series in the search result</td>
<td>Ctrl + A</td>
</tr>
<tr>
<td>Next page</td>
<td>F7</td>
</tr>
<tr>
<td>Previous page</td>
<td>Shift + F7</td>
</tr>
<tr>
<td>Check or uncheck a set of highlighted series or a table (all series in table)</td>
<td>Option is Ctrl+H / Ctrl+U</td>
</tr>
<tr>
<td>Check or uncheck single highlighted series</td>
<td>Space bar</td>
</tr>
</tbody>
</table>

Release Schedule

<table>
<thead>
<tr>
<th>Action</th>
<th>Key</th>
</tr>
</thead>
</table>

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4.3 CDM Add-in

1. How to reactivate the CDM Add-in if its missing from Excel?

In some cases, though CDM is installed on the machine (you can find CDM in "Add or Remove Programs") but you can't find CDM from Excel Menu. This might caused by CDM is being disabled, not activated or not loaded in Excel.
In CDM 2.4.x versions we get the below error message when user tries to download data to Excel without CDM Add-in present in Excel.

![Error Message](image)

- CDM Add-in is missing in Excel 2003

  1. Goto "Help" >> Select "About Microsoft Office Excel" >> Click "Disabled Items" button
  2. Select "Ceic Data Manager 2.4.x" >> Click "Enabled" button >> Restart Excel

- CDM Add-in is missing in Excel 2007

![Disabled Items](image)
1. Go to Office Button >> Select "Excel Options" >> Select "Add-Ins".
2. Select "Manage: COM Add-ins" >> Tick "CEIC Data Manager 2.4.x" >> Click "OK" button >> Restart Excel.

- If above attempts not working, please also try this for Excel 2007 / 2010:
1. **Excel Options >> Trust Center >> Trust Center Settings...**

2. **Trusted Locations >> Add new location... >> Browse... >> choose “C:\Program Files\SI Emerging Markets” or “C:\Program Files (x86)\SI Emerging Markets - if Windows 64bits”**

3. **Ticked Checkbox “Subfolders of this location are also trusted” >> OK button**
Index

- A -
About CDM 6
About the Database 194
Accumulate 69
Action Menu 17
Active Series 132
Add to workspace 28
Adding New Series 54
Adjustment 84
Advanced Search 129
After downloading to Excel 146
Anti-logarithm 93
Arithmetic Operations 89
Ask me about settings every time I download data 180

- B -
Base 10 logarithm 93
Base begin 80
Base end 80

- C -
CDM Agreement 189
CDM Tabs 17
CDM Version 189
Centered Moving Average 82
Change column order 134
Change column ordering 65
Changes 72
Clear CDM Cache 174
Clone Graph 115, 121
Clone workspace 53
Coefficient Variation 44
Collapse & Expand Sections 32
Collapse & Expand Topics 32
Company 189
Connection Methods 186
Connection Settings 176, 186
Connection url 186
Consensus Economics 194
Consensus Economics Footnotes 138
Constant 89
Copy graph 29
Copy series 33
Copy series list 65, 135
Copy tables 29
Country 41
Create Data Table 26, 36
Create Folder 56
Create Graph 23, 110, 114, 115, 118, 119
Create Graph with Multiple Frequencies 110
Create Graph with Single Frequency 110
Create workspace 28, 48
Currency Conversion 92

- D -
Data Table Option 181
Database list 32
Databases & Series Layout 32
Delete Folder 56
Delete Graph 116, 122
Delete workspace 53
Difference 72
Disaggregation 75
Distribute 75
Divide 89
Double Exponential Smoothed 95
Double Single Smoothing 95
Download in a new sheet 180

- E -
Edit Download 150, 154
Enquiry 172
Excel Download 18, 140
Excel Download Settings 143, 180
Exponential 93
Exponentially Weighted Moving Average 82
Export to CSV 155

- F -
Feedback 172
Fill Gaps 84
First Obs. Date 41, 44
Footnotes 137
Forecast series 97, 98, 108, 109
Frequency 41
Frequency Transform 75
Functions on series 66

- G -
General Settings 174
Geometric Moving Average 82
Global Database 32
Global Indicator Watch 21, 27
Graph Manager 110
Graph Manager Settings 183
Graph Manager Toolbar 110
Graphs and Tables 29
Growth Rate 72

- H -
How To Download Series To Excel 111, 141

- I -
Import Workspaces 58
Index 80
Insert Separator 63
Insert Title 62
Install 7
Install & Uninstall 6

- J -
Jump to series tree 61, 134

- K -
Key Series 37
Kurtosis 44

- L -
Lag 84
Language 174
Last Obs. Date 41, 44
Last Update Time 41
Layout Format Settings 179

- M -
Make these settings my default settings 180
Mathematics 93
Max 44
Mean 44
Median 44
Metadata 37
Min 44
Moving Average 82
Multiply 89
My CDM 46
My Workspace Series 60

- N -
Natural logarithm 93
New CDM Release 190
New Series 38
Number of Observations 162
NumPoints 44

- P -
Password 174
Percentage Change 72
Period to Date 70
Power 93
Pre-requisites 7
Proxy Settings 186

- Q -
Quick Graph 40, 178
Quick Search 123, 127
Quick Table 178
Quick Tutorials 6, 7
Quick view 40
Quick View Settings 178

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- R -
Rearrange Series Order 64
Reciprocal 93
Refresh CDM 28
Refresh download links in Excel 148
Release Schedule 136
Removing Series 56
Rename Graph 115, 121
Rename series 61
Rename workspace 52
Replace Observation 84
Replicate 75
Research Links 167
Result grouping 133
Rolling Average 69
Rolling Sum 69

- S -
Sample Data 40, 43
Save Workspaces 57
Search 123
Search by Category 132
Search By Database 132
Search Criteria 132
Search in Series Name 123
Search in Subscribed Products 123
Search Options 132
Search results 133
Search Tips 132
Search Workspaces 51
Seasonal Adjustment &Forecasting 97, 98, 108, 109
Seasonally adjusted series 97, 98, 108, 109
Section 33
Select multiple series 48
Select Timeframe 180
Send Error Logs 188
Series 33
Series grouping 60
Series ID 41
Series Information 40, 41
Series limitation 54
Series navigation 32
Series Operations 90
Series Statistics 40, 44
Series Tag 41
Series tree 32, 33
Series with different frequencies 54
Set Timeframe 162
Settings 173
Sharing Workspaces 57
Shortcut Keys 195
Show & hide column 65
Show & Hide Series Column 135
Show only subscribed products 174
Show series in workspace 47
Simple Moving Average 82
Single Exponential Smoothed 95
Single Smoothing 95
Skewness 44
Smoothing 95
Sort Workspaces 50
Source 41
Splice X onto Y 84
Square root 93
Standard Deviation 44
Start 32
Status 41
Subtract 89
Sum Selected 91

- T -
Table 33
Third Party Database 194
Timeframe 162
Topic 33
Trend series 97, 98, 108, 109

- U -
Undo and Redo Actions 65
Uninstall 7
Unit 41
Update X with Y 84
Updated Series 38
User Guide 189
User ID 189
Username 174
- V -
Variance 44

- W -
Watchlist 28
Workspace 47
Workspace Directory 177
Workspace Settings 177

- Z -
Zoom In 110
Zoom Out 110