erwin Data Modeler

Scheduler

Release 2020 R1

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Introduction

One of the major features of erwin Data Modeler (DM) is its capability to reverse engineer from databases. However, you have to run reverse engineering (RE) processes manually and limit them to your work day. Thus, during the RE process, the other features of erwin DM are unavailable for use. Also, to configure and run another RE process, one needs to wait until the first process is complete.

erwin DM Scheduler enables you to schedule RE jobs in advance and run them without supervision. Thus, improving the original capability of reverse engineering. A live log keeps you updated about the job status.

Additionally, you can configure the scheduler to save reverse engineered models to a pre-defined location on your device and on the Mart.

Note: You need administrative privileges to be able to use erwin DM Scheduler.

Installing erwin DM Scheduler

erwin DM Scheduler is one of the components in erwin Data Modeler (DM) installer. Installing it installs erwin DM Scheduler Service in your environment.

Note: Installing erwin DM Scheduler installs Windows Resource Kit Tools. It is not a pre-requisite and you can uninstall it without affecting erwin DM Scheduler's function. However, this set of tools assists you to manage issues in permissions and security for erwin DM Sched-uler. It helps you troubleshoot in case you do not have appropriate privileges to use erwin DM scheduler windows service.

Follow these steps to install erwin DM Scheduler:

1. On erwin DM installer, select erwin DM Scheduler and click Next.
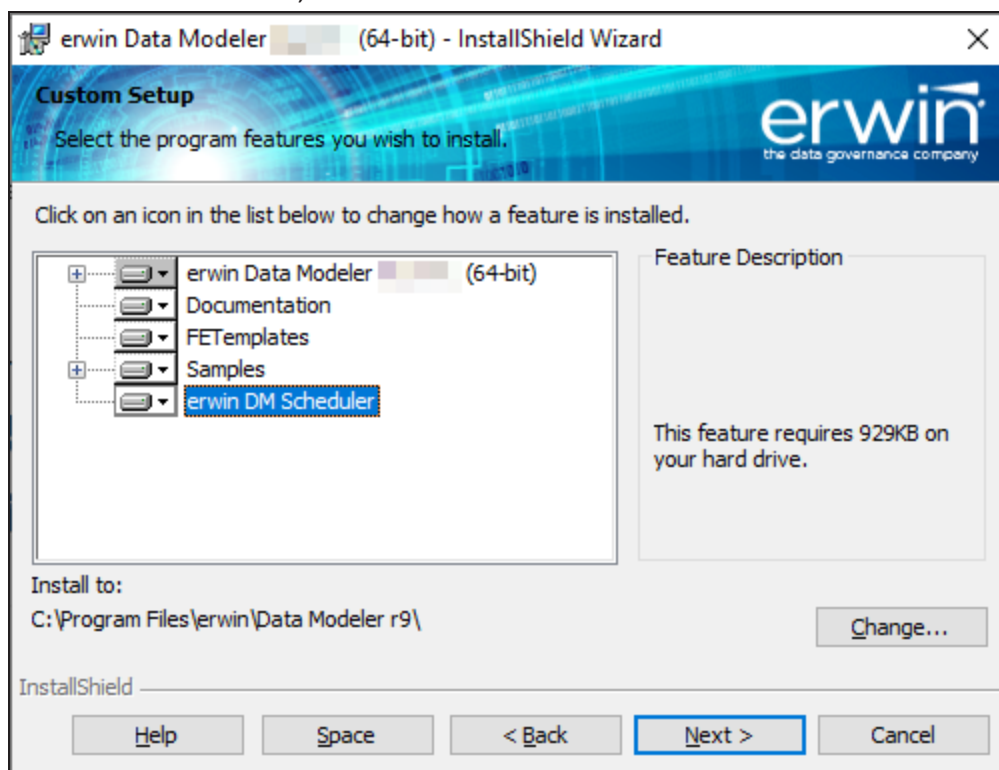
2. Select the type of erwin DM Scheduler Service that you want to create.
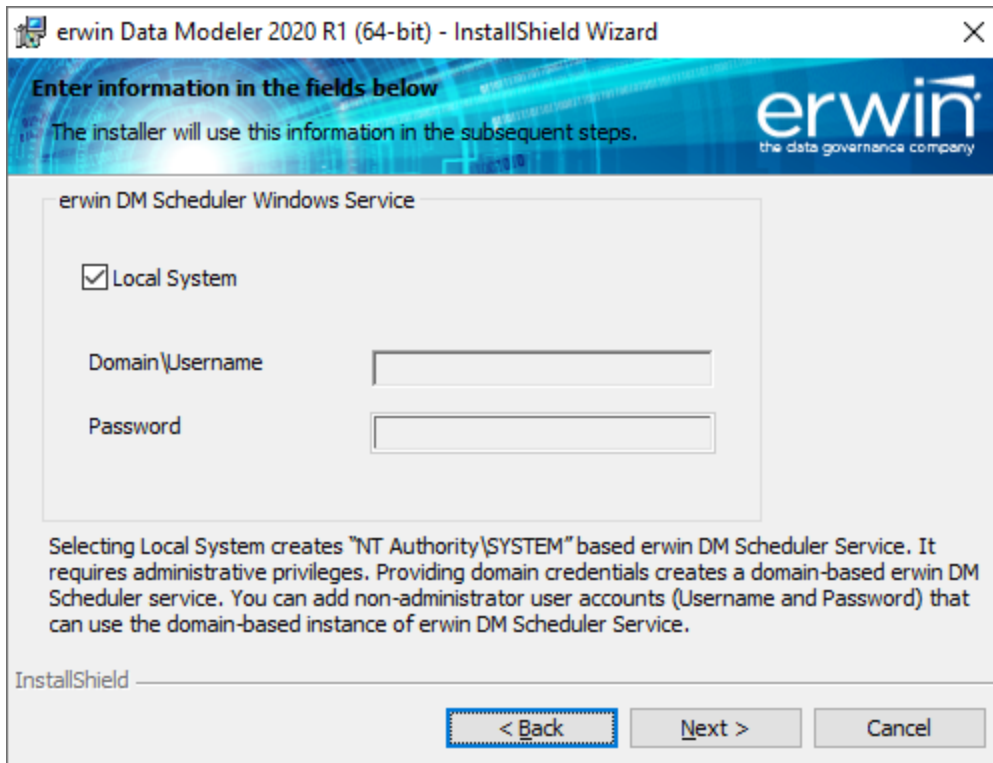
You may choose to create a local administrator user-based service or a domain-based non-administrator service.

Note: On erwin Data Modeler 32-bit version, for International OS (I18N), starting or stopping the erwin DM Scheduler Service may display a warning. In that case, use domain credentials to start or stop the service.

3. Finish the installation according to the instructions on next screens.
erwin DM Scheduler Service is installed in your environment and is added to erwin Data Modeler under the Tools tab.
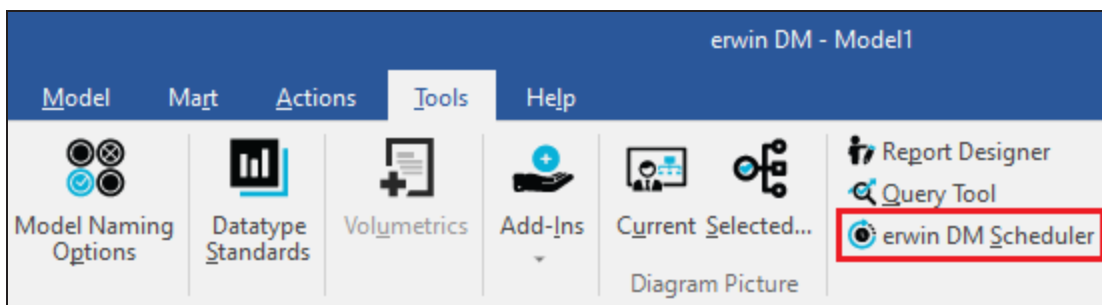
Getting Started

To get you started with using erwin DM Scheduler, this topic walks you through the scheduler UI and the tasks that you can accomplish using it.

Once you have installed erwin DM Scheduler, follow these steps to access and use it:

1. Start erwin Data Modeler (DM).
   Note: To be able to use the Scheduler, ensure that you run the DM as an administrator.

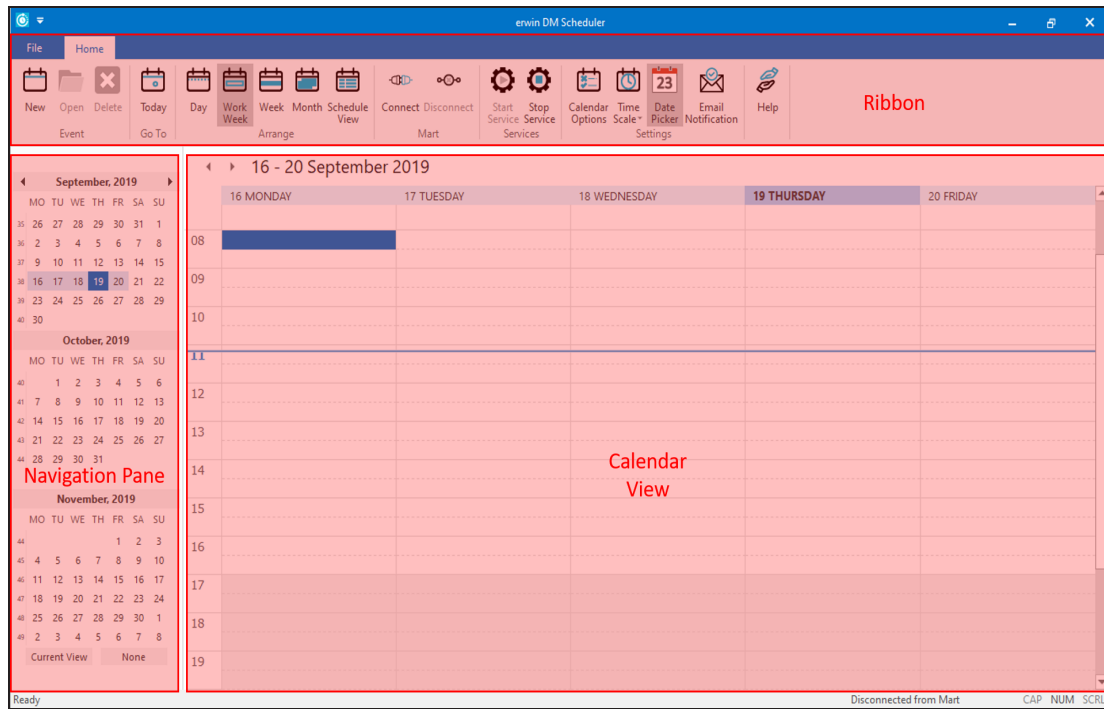2. On the ribbon, click **Tools**.

3. Click **erwin DM Scheduler**.
   This opens the Scheduler in a new window.
   Note: In Microsoft Windows 7 environment, starting or stopping the erwin DM Scheduler Service through erwin DM Scheduler may display a warning. In that case, use Windows Services to start or stop the service.

   erwin DM Scheduler uses a tri-pane layout that consists of the ribbon, navigation

pane, and calendar view.

Pane	Function
Ribbon	The Home tab of the ribbon is a collection of all the actions that you can perform in the Scheduler. It enables you to do the following: 1. Create/work on jobs 2. Customize the calendar view pane 3. Manage erwin Mart connection 4. Manage erwin DM Scheduler Service 5. Manage erwin DM Scheduler settings 6. Access help
Navigation (Date Picker)	The navigation pane (date picker) enables you to navigate to day, work week, week, or month depending on the calendar view that you have set.
Calendar view	The calendar view displays the detailed view and the jobs scheduled during the day, work week, week, or month depending on the calendar view

Pane	Function
	that you have set.

Using the Scheduler

The tasks that you can perform in erwin DM Scheduler can be classified into two types:

- **Core tasks**: These are the tasks that you perform to schedule and run a reverse engineering (RE) job.

- **Support tasks**: These are tasks that you perform to customize and configure the Scheduler.

Core Tasks

The core function of the Scheduler is scheduling and running a reverse engineering job. To schedule and run an RE job, do the following:

- Scheduling jobs

- Set reverse engineering options

Based on the options that you select or the way you want to set up jobs, perform the following tasks:

- Connect to erwin Mart

- Set recurrence

- Reschedule, copy, and delete jobs

- View job properties

- View event log

Support Tasks

You can customize the appearance of the Scheduler and configure the fields and options that are displayed on the interface. To customize and configure, do the following:

- Customize the calendar view layout

- Set Calendar Options

- Set Time Scale and Time Zone

- Display or hide the Navigation pane (Date Picker)

- Set up email notifications

Scheduling Jobs

To schedule reverse engineering (RE) jobs, do the following:

1. Create an event in one of the following ways:

   - On the ribbon, under the Home tab, click **New**.

   - In the Calendar view, double-click a time slot under the day of your choice.

   - In the Calendar view, right-click a time slot under the day of your choice and click **Add new event**.

   The erwin DM Scheduler Event Details dialog box opens.

2. Enter a **Job Name**.

3. Select the **Start Time** and **End Time**.
   Alternatively, to schedule an all day RE job, select the **All day event** check box .
   Also, to schedule an RE job immediately, select the **Schedule Now** check box.
   Note:

- Jobs are run serially. Hence, schedule a reasonable job duration. Ensure that you consider the DB, its size, and the approximate job duration of the current jobs, and then schedule a new job accordingly.

- Also, in case of multiple jobs scheduled at the same time with the Schedule Now option, it randomly selects a job to run. Therefore, it is recommended that you do not schedule multiple jobs to run at the same time.

4. Select the **Database** to reverse engineer from and its version.
   Note: If you set Redshift as the database, ensure that you do the following:

   1. On the ODBC Data Source Administrator dialog box, go to the **System DNS** tab.

   2. Select the Redshift data source and click **Configure**. The Amazon Redshift ODBC Driver DSN Setup dialog box opens.

   3. Under Encrypt Password For, ensure that the **All Users of This Machine** check box is selected.

5. To set reverse engineering options, click **Reverse Engineer**.
   The Reverse Engineer - Set Options dialog box is displayed. For more information,

refer to the [Setting Reverse Engineering Options](#) topic.
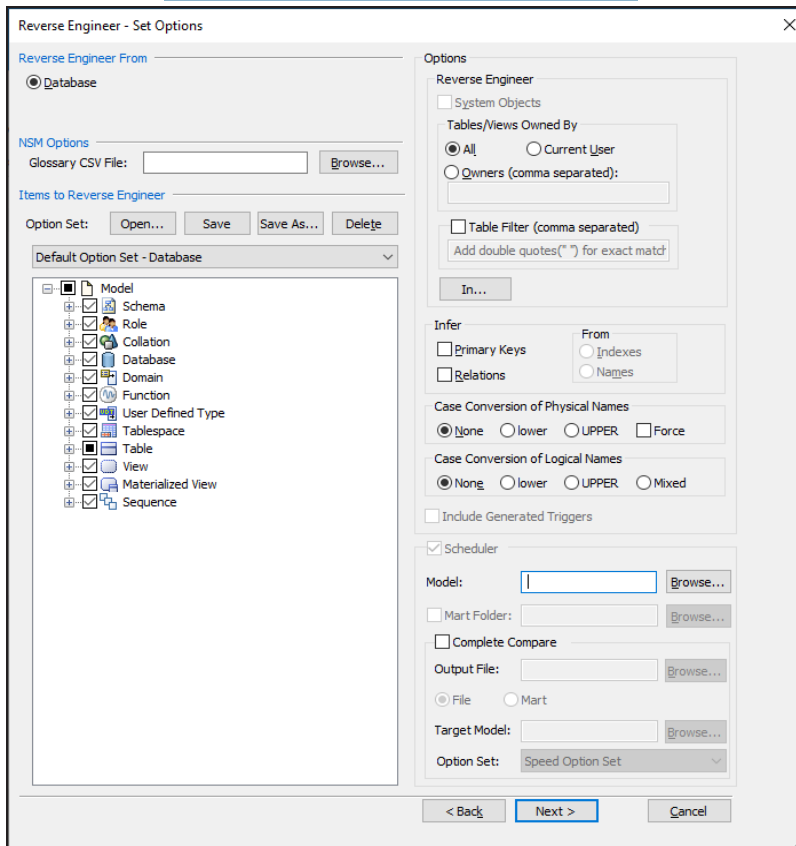
6. Select the appropriate options and click **Next**.

   The DBMS Connection dialog box is displayed.

7. Enter your credentials and click **Connect**.

8. Click **OK**.

   Your RE job is scheduled. It runs as configured, and the job status and its event log is displayed.
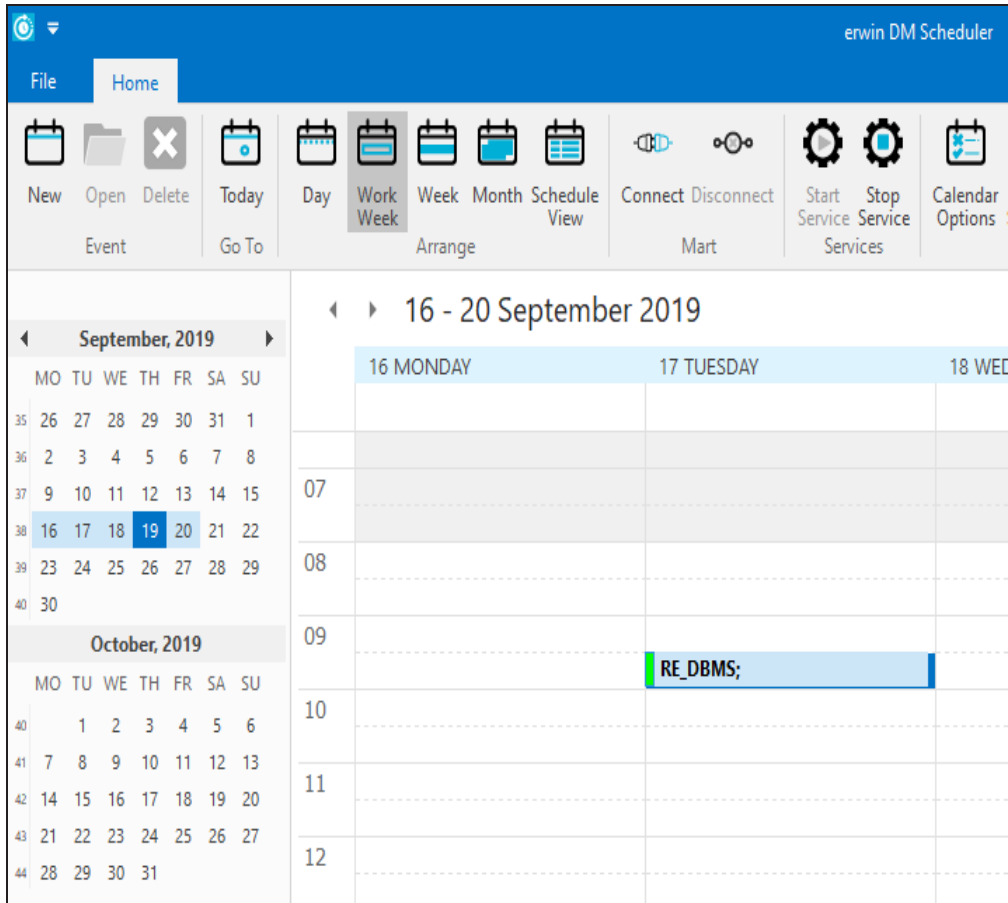
Depending on the settings you make and the job duration that you set, the job tile displays the following information about the job:

- Name

- Status

- Start and end times

- Run time

Setting Reverse Engineering Options

To set reverse engineering options, on the Reverse Engineer - Set Options dialog box, work with following options:

Reverse Engineer From

> Specifies that reverse engineering (RE) will happen from a database.

NSM Options

> Lets you select the naming standard glossary file (.CSV) that you want to apply to your model.

Items to Reverse Engineer

> Displays the default option set, which includes all the objects and properties for the selected target database. You can change the default option set and save it for future use. The option set can be saved as a model or as an XML file. If you save the option set as a model, the options are applicable only to that model. If you save the option set as an XML file, you can use it with other models as well.

Reverse Engineer

Specifies whether you want to reverse engineer system objects and user tables, or only user tables. If you select the System Objects check box the system tables, views, and stored procedures related to system tables are reverse engineered.

Note: For Redshift, selecting the S3Bucket Objects check box reverse engineers objects from Amazon S3Bucket.

Table/Views Owned By

> Reverse engineers tables and views by ownership. You must have read and write privileges on all the tables that you want to reverse engineer, regardless of whether you are the owner of the table. Select *one* of the following ownership options:

> **All**

>> Reverse engineers all tables and views in the database for which you have the

necessary permissions, regardless of the owner.

Current User

Reverse engineers only those tables and views that are owned by the current user. The current user details are entered in the <Database> Connection dialog.

Owners (comma separated)

Reverse engineers the tables and views that are owned by the users that are specified here. Enter the user names in capital letters.

Table Filter

Specifies the tables that you want to set as filter criteria.

To set the filter criteria, you must have table owner permissions. For exact matches, mention table names in upper case inside double quotes(for example, "TABLE1"). To use wild cards, mention table names without double quotes (for example, TABLE1).

To specify multiple tables, use a comma-separated list.

Click the **In** button to specify the table spaces to filter the tables from.

Infer

Specifies whether you want to infer primary keys or relationships, or both, during reverse engineering. Work with the following options:

Primary Keys

Infers primary key columns for the tables that are based on defined indexes.

Relations

Infers the relationships between tables that are based on either primary key column names or defined indexes. Select this option and then specify whether to use primary key column names or defined indexes:

Indexes

Infers the relationships from the table indexes. Relationships are inferred from table indexes only if the primary key columns of the parent table are part of the index in the child table.

Names

Infers the relationships from the primary key column names. Relationships are inferred from columns names only if all of the primary key columns of the parent are in the child table.

Note: If the target database or script supports primary and foreign key declarations, you do not need to use the Primary Keys, Relations, Indexes, or Names options.

Case Conversion of Physical Names

Specifies how the case conversion of physical names is handled during reverse engineering. Work with the following options:

None

Preserves the case exactly as it appears in the script file or database.

lower

Converts the names to lower case.

UPPER

Converts the names to upper case.

Force

Overrides the physical name property for all objects in logical/physical models automatically during reverse engineering.

If this option is not enabled, all logical and physical names are set to the same value after the process completes. If this option is enabled, the logical/physical link is broken between the logical and physical name.

Case Conversion of Logical Names

Specifies how the case conversion of logical names is handled during reverse

engineering. Work with the following options:

None

> Preserves the case exactly as it appears in the script file or database.

lower

> Converts the names to lower case.

UPPER

> Converts the names to upper case.

Mixed

> Preserves mixed-case logical names.

Include Generated Triggers

Specifies whether erwin-generated triggers are loaded during the reverse engineer process. This option is linked to the *Automatically Create RI Triggers* setting in the Model Editor, RI Defaults tab. When you choose to create RI triggers automatically, the triggers are treated as model objects. These objects can be forward-engineered into a model, database, or script file. You can include or exclude automatically generated triggers when you reverse engineer.

Scheduler

> Specifies the model and mart location for the RE job that is being scheduled.

Model

> Specifies the location where the reverse engineered model should be saved.

Mart Folder

> Specifies the location/library in erwin Mart where you wish to save the reverse engineered model. To use this option, ensure that you are connected to a mart. For more information, refer to the Connecting to Mart topic.

Complete Compare

> Specifies whether Complete Compare (CC) process should run.

Output File

Specifies the location of the CC output file generated after the reverse engineering process.

File/Mart

Specifies whether the CC process uses a file available locally or a model saved on mart.

Target Model

Specifies the location of the target model for CC.

Option Set

Specifies the option set that must be used for CC.

- **Advanced**: Includes all erwin DM metadata. CC works the slowest with this option set.

- **Speed**: Includes only essential metadata. This is the default option set. CC works the fastest with this option set.

- **Standard**: Includes standard metadata. CC works fast with this option set compared to the Advanced option set.

Setting Recurrence

You can set a recurrence schedule for reverse engineering (RE) jobs that you run repeatedly.

To set recurrence while scheduling a new RE job, do the following:

1. On the erwin DM Scheduler Event Details dialog box, click **Recurrence**.
   The Scheduling Recurrence dialog box opens.

2. Work with the following options:

   Schedule time

   > By default, the time and duration that you set on the erwin DM Scheduler Event Details dialog box is set at the recurrence start and end time, and duration.

   Recurrence pattern

Specifies whether the job should run daily, weekly, or monthly. Depending on the pattern that you select, further settings are available as follows:

- **Daily**: Set the day interval at which the job should run. Or, set it to run every work day. For example:

  - Run the job every 2 days.

  - Run the job every work day (Monday-Friday).

  Note: For the Daily-WorkDays combination to work, ensure that you have strictly set the work days to Monday through Friday in Calendar Options. For more information on setting work days, refer to the Setting Calendar Options topic.

- **Weekly**: Select the weekly interval and the days of the weeks on which the job should run. For example, run the job every 2 weeks on Monday and Thursday.

- **Monthly**: Select the day of the month and the monthly interval at which the job should run. For example:

  - Run the job every second day, every two months.
  - Run the job second Thursday, every two months.

Range of recurrence

Set the start date of the recurrence. Also, set either the end date or the number of occurrences of the job that you want to run.

3. Click **OK**.

To set recurrence for an existing job that has been scheduled, do the following:

1. Right-click a job event and click **Properties**.
   The erwin DM Scheduler Event Details dialog box opens.

2. Click **Recurrence**.
   The Scheduling Recurrence dialog box opens.

3. Follow step 2 given above.

Stopping Recurrence

To stop recurrence for a job, do the following:

1. Right-click a job event and click **Properties**.
   The erwin DM Scheduler Event Details dialog box opens.

2. Click **Recurrence**.
   The Scheduling Recurrence dialog box opens.

3. Click **Remove recurrence**.

Connecting to Mart

You can save a reverse engineered model at a predefined location on an erwin Mart. For more information, refer to the Setting Reverse Engineering Options topic. However, to save a model to a mart, you need to be connected to it.

Note: Ensure that you have configured and initialized erwin Mart Server.

To connect to a mart, do the following:

1. On the ribbon, in the Mart group, click **Connect**.

   The Connect to Mart dialog opens.

2. Work with following fields:

   Server Name

   Defines the name of the web server where you have installed the Mart.

   Port

   Specifies the port number to access the web server.

   Default: 18170

   Use IIS

   Specifies that you want to use the IIS web server to connect to Mart. This check box is enabled only if you have configured IIS. For more information about configuring IIS, see the Implementation Guide (Workgroup Edition).

   IIS Port

   Specify the IIS port number that you want to use. This field is enabled only if you select the Use IIS check box. The default is 80.

   Use SSL

   Specifies that you want to connect to the Mart through a secured connection. SSL lets you access the Mart through a secured connection. This check box is enabled only if you have configured SSL on your web server. For more information about configuring SSL, see the Implementation Guide (Workgroup Edition).

Application Name

Defines the application name of the Mart that you want to connect to.

Default: MartServer

Authentication

Specifies the type of authentication you want to use. You can use a user name that is authenticated either by the Mart Server application.
Note: Windows Authentication does not work for erwin Mart connection and reverse engineering from database.

User Name

Defines the name of the user that has access to the Mart. If you are using a Windows-authenticated user name, enter it in the <domain name>/<user name> format.

Note: A local Windows user who does not belong to a domain or who is not part of an Active Directory cannot log in to the Mart as a Windows user.

Password

Defines the password of the user.

Note: A password should fulfill the following criteria:

- Contains at least 1 lowercase character

- Contains at least 1 uppercase character

- Contains at least 1 number

- Is minimum 6 characters in length

- Is maximum 130 characters in length

Apart from the above criteria, special characters are optional.

3. Click **Connect**.

If you have selected Use SSL and the security certificate is installed, you are connected to the Mart.

Note: After you connect to the Mart, if you click Connect to Model Manager again, a dialog opens seeking your permission to disconnect from the Mart.

If your security certificate is not installed, a message, The certificate authority is invalid or incorrect, appears. You must install the security certificate to proceed.

   a. Click **OK** on the message.

   The SSL Certificate Install dialog opens.

   b. Click **Install**.

   The Certificate dialog opens.

   c. Click **Install Certificate**.

   The Certificate Import Wizard dialog opens.

   d. Click **Next**.

   e. Click the **Place all certificates in the following store option** button and click **Browse**.

   f. In the Select Certificate Store dialog, select **Trusted Root Certification Authorities** and click **OK**.

   g. Click **Finish**.

   The security certificate is installed and you are connected to the Mart.

Reading Job Status

The Scheduler indicates job status using several visual cues follows:

- When the job is running, its progress is indicated as approximate percentage of completion on the job event tile.

- Job schedule is indicated on on the job event tile and on job event tooltips.

- Job status is indicated on job event tile and job event tooltips, and by a color code as follows:

Color Code	Description
▯	Indicates that the job is scheduled
▯	Indicates that the job is running
▮	Indicates that the job has been completed successfully
▮	Indicates that the job encountered an error

Viewing Event Log

The Scheduler generates an event log for each RE job that you run. To view the event log, do the following:

1. In the Calendar View, right-click a job event tile.

2. Click **Event log**.

   The Event Log Viewer dialog box is displayed.
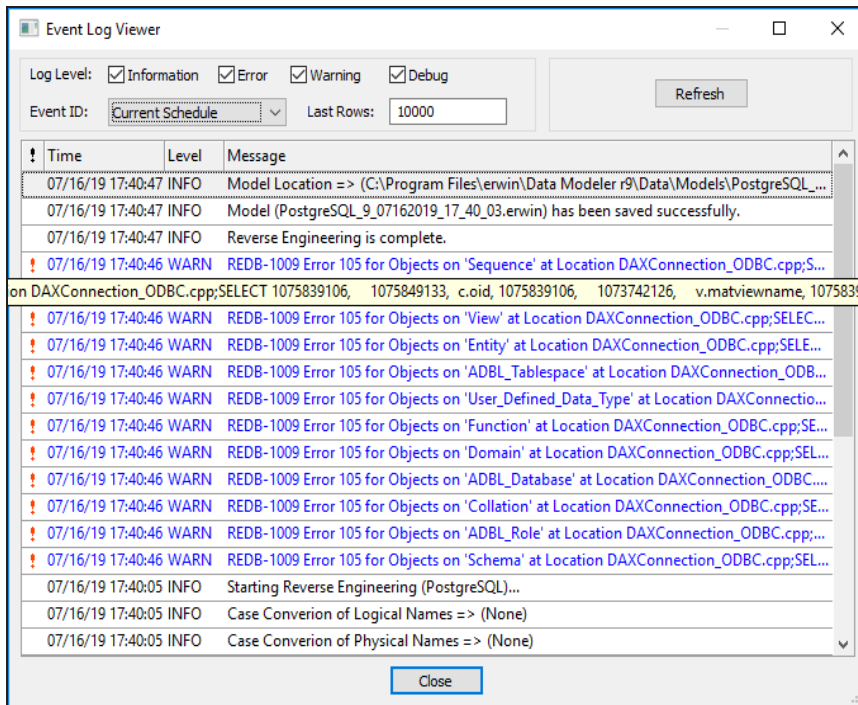
   By default, it displays all types of messages for the current schedule. Work with the following fields to customize the event log.

   a. **Log Level**: Select or clear the message type check boxes to include or exclude certain message types.

   b. **Event ID**: Choose to view the log for all events or the current schedule.

   c. **Last Rows**: Specify the number of latest rows of the event log that you want to display.

3. To regenerate the event log with any changes that you made, click **Refresh**.

Rescheduling, Editing, Copying, and Deleting Jobs

You can work on an existing job to reschedule, edit, copy, or delete it. Right-click a job and work on the following options:

- **Rerun Event**: Runs the job event again.

- **Copy Event**: Copies the job and its settings. You can then paste the copied job on the date and time of your choice.
  Note: You can copy only one job at a time.

- **Cancel Event**: Cancels the job event and stops it from running.

- **Delete Event**: Deletes the job from the calendar

- **Properties**: Opens the erwin DM Scheduler Event Details dialog box. Edit the required settings. For more information, refer to the Scheduling Jobs topic.

Customizing and Configuring the Scheduler

The customization and configuration that you make in the scheduler lets you define Scheduler settings with respect to its appearance and behavior. To customize and configure the Scheduler, do one or more of the following:

- Customize the calendar view layout

- Set Calendar Options

- Set Time Scale and Time Zone

- Display or hide the Navigation pane (date picker)

- Set up email notifications

Customizing the Calendar View

To customize the calendar view, do the following:

- On the ribbon, in the Arrange group, click one of the options given in the following table:

Option	Description
Day	Displays the day in the calendar view
Work Week	Displays only the work days of the week in the calendar view **Note**: In Calendar Options, under Week view, if you clear the **Multi-column mode** check box, the Work Week setting defaults to Week mode.
Week	Displays the complete week in the calendar view
Month	Displays the current month in the calendar view
Schedule View	Displays the selected calendar and the schedule in the calendar view. This option is useful while comparing two or more calendars.

Setting Calendar Options

To set calendar options,

- On the ribbon, in the Settings group, click **Calendar Options**. The Options dialog box opens.
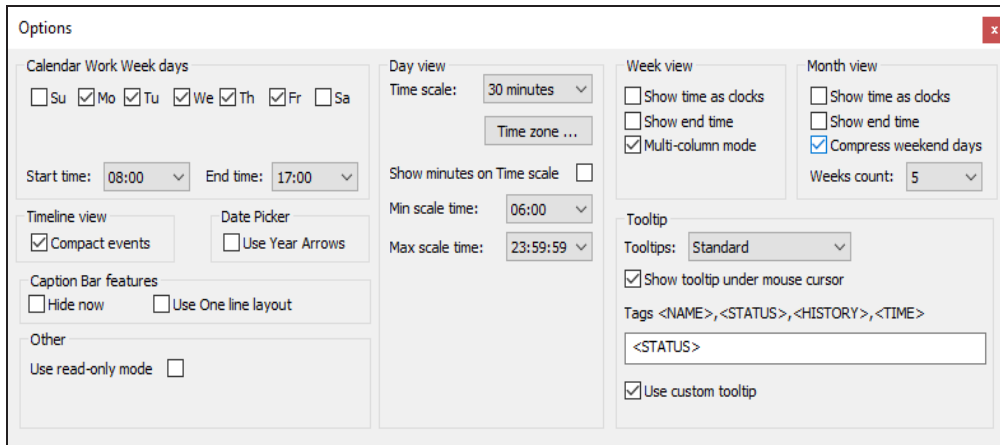
Work on the options given in the following table:

| Section	Option	Description
Calendar Work Week days		Select the days that form the work week and set the start and end time of a work day.
Timeline view	Compact Events	Specify whether the timeline displays events in a compact layout. This setting is applicable to the Schedule View of the calendar view.
Date Picker	Use Year Arrows	Specify whether the navigation pane (date picker) displays ways to navigate the year.
Caption Bar features		Set the appearance of Calendar view's caption bar.
	Hide now	Specify whether the caption bar is hidden.
	Use One line layout	Set the width of the caption bar to a single line.
Other	Use read-only mode	Specify whether job properties are editable.

Section	Option	Description
Day view		Set the appearance of the Day view of the calendar.
	Time scale	Set calendar view's time interval.
	Time zone	Set default time zone to be used. Also, you can set an additional time zone.
	Show minutes on Time scale	Specify whether the time scale displays minutes on it. This setting takes effect only when you set the time scale to less than 30 minutes.
	Min scale time	Set the time at which the time scale begins.
	Max scale time	Set the time at which the time scale ends.
Week view		Set the appearance of the Week view of the calendar.
	Show time as clocks	Specify whether a clock icon is used to display job times. **Note**: This option works only when the Multi-column Mode is not selected.
	Show end time	Specify whether the job tile displays the job end time. **Note**: This option works only when the Multi-column Mode is not selected.
	Multi-column mode	Specify whether the calendar view displays days in columns or tiles.
Month view		Set the appearance of the Month view of the calendar.
	Show time as clocks	Specify whether a clock icon is used to display job times.
	Show end time	Specify whether the job tile displays the job end time.
	Compress weekend days	Specify whether the weekend days are displayed in a single column.
	Weeks count	Set the number of weeks that the calendar view displays.

Section	Option	Description
Tooltip		Specify tooltip settings.
	Tooltips	Select the type of tooltip. • **Standard**: Displays job times, job name, job status, and job execution time • **Custom**: Displays the event ID, job times, and job name. This tooltip type overrides all the other tooltip settings. • **Disabled**: Disables the tooltip
	Show tooltip under mouse cursor	Specify whether the tooltip is displayed under the mouse cursor.
	Tags	Specify the items (tags) that are displayed in case of custom tooltips. **Note**: Due to a limitation from a third-party component, the keyboard shortcuts to cut, copy, and paste text do not work in this field.
	Use custom tooltip	Specify whether the custom tooltip set in the Tag field should be used.

Setting Time Scale and Time Zone

To set the Time Scale, do one of the following:

- **Using the ribbon**:

    - On the ribbon, in the Settings group, click **Time Scale** and select a time interval.
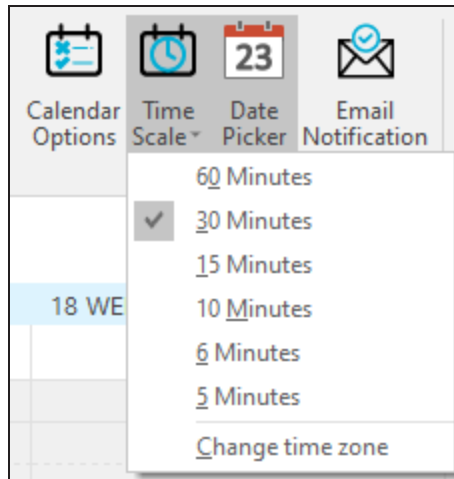
- **Using Calendar Options**:

    - On the ribbon, in the Settings group, click **Calendar Options**. The Options dialog box opens.

    - Under Day view, select the time interval. For more information, refer to the Setting Calendar Options topic.

By default, the current time zone is set according to your current location. However, you can set an additional time zone. To do that, do the following:

1. On the ribbon, in the Settings group, click one of the following:

    - **Calendar Options** > **Time zone**

    - **Time Scale** > **Change time zone**

    The Time Zone dialog box opens. You can set a label to the current time zone

2. Select **Show an additional time zone**.

3. Set a label to the additional time zone.

4. From the **Time zone** drop-down list, select a time zone.

5. Click **OK**.

Setting up Email Notifications

To set up email notifications, do the following:

1. On the ribbon, in the Settings group, click **Email Notification**.

   The Notification Configuration dialog box opens.

2. Select the **E-mail Notification** check box.
   The fields on the dialog box are enabled.

Note: Before you configure and send email notifications, ensure that the SendMail.ps1 file is available in the Config folder at C:\Program Files\erwin\Data Modeler r9\.

3. In the Mail Server Configuration section, work on the following:

   - **To and CC**: Add an email address or a list of comma-separated email addresses.

   - **Subject**: Enter a notification subject. By default, it is set to erwin DM Scheduler Automation.

   - **SMTP Server**: Enter your SMTP server name in the mail.domain.com format. Notification emails are sent from this server.

   - **SMTP Port**: Enter the port number of your SMTP server. The default port number is 25. If your organization uses an alternate port number for the mail server, enter the port number.

   - **Use SSL**: Specify whether you want to connect to the server through a secured connection. This check box is enabled only if you have configured SSL on your web server.

4. In the User Credentials section, work on the following:

   - **Username**: Enter the username of the account that you want to use to send notifications. Ensure that this account has the rights to send emails in a batch.

   - **Password**: Enter the password of your account.

   - **Send test message now**: Click Send test message now to verify the settings that you made.

5. In the Options section, select the event that triggers an email notification. You can send notifications on job creation, job start, job end, and job end due to an error.

6. Click **OK**.