



FactoryTalk Report Expert User Guide

Version 14.00.00



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Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.



WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.



ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence.

IMPORTANT: Identifies information that is critical for successful application and understanding of the product.

These labels may also be on or inside the equipment to provide specific precautions.



SHOCK HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.



BURN HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.



ARC FLASH HAZARD: Labels may be on or inside the equipment, for example, a motor control center, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protective Equipment (PPE). Follow ALL Regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).

The following icon may appear in the text of this document.



Tip: Identifies information that is useful and can help to make a process easier to do or easier to understand.

Rockwell Automation recognizes that some of the terms that are currently used in our industry and in this publication are not in alignment with the movement toward inclusive language in technology. We are proactively collaborating with industry peers to find alternatives to such terms and making changes to our products and content. Please excuse the use of such terms in our content while we implement these changes.

Welcome to Report Expert

FactoryTalk® Report Expert is a reporting environment based on SQL Server Reporting Services (SSRS) for Microsoft® SQL Server® that allows you to report on data generated by FactoryTalk® Metrics.

Report Expert is an optional component that is installed separately from RSBizWare™ and the FactoryTalk Metrics software. To use Report Expert, you must install one of the supported versions of Microsoft SQL Server. For more information, refer to [Report Expert prerequisites on page 12](#). Read the release notes (on your Report Expert CD) to learn about software and hardware requirements.

Report Expert provides a web interface to view and interact with two types of reports that display FactoryTalk Metrics data:

- SQL Server Reporting Services reports, which are created using the SSRS report designer tools.
- [Report Expert report templates on page 32](#), which are specially modified SSRS reports.

A fixed number of Report Expert report templates are installed automatically with Report Expert. These report templates, when combined with the parameter sets you can create, will satisfy a wide range of reporting requirements. You can also create Report Expert report templates using SSRS. Creating reports is an advanced topic that is not covered in this user guide.

Rockwell Automation recognizes that some of the terms that are currently used in our industry and in this publication are not in alignment with the movement toward inclusive language in technology. We are proactively collaborating with industry peers to find alternatives to such terms and making changes to our products and content. Please excuse the use of such terms in our content while we implement these changes.

Features of Report Expert

Report Expert provides the following features:

- Uses standard SQL Server Reporting Services (SSRS) for Microsoft SQL Server.
- Includes value-added content not available in SSRS, such as:
 - Interactive filtering using the plant model and other FactoryTalk Metrics key fields (for example, any of the five flex fields).
 - Dynamic grouping and sorting.
 - Expanded date and time filtering, including shift filtering.
 - Pre-defined named filters such as Today, Yesterday, and This Week.
 - Drilldown and drillthrough.
- Allows you to:
 - View Report Expert report templates and standard SSRS reports through a single web interface.
 - Create a custom reporting tree.
 - Create parameter sets that define filtering, grouping, and sorting behaviors and apply these to report templates to create custom reports.
 - Create and modify your own report parameter sets, as well as save parameter sets with report templates to create custom reports.
 - Use the parameter settings interactively to perform ad-hoc reporting.
 - Modify standard SSRS RDL reports to take advantage of Report Expert parameter passing (passing values from the Report Expert parameter set into the report).
 - Enter event and production data manually.

- View and modify event and production data.
- View and modify shift information.

Benefits of Report Expert

Report Expert uses an industry-standard reporting package from Microsoft, not a proprietary reporting package from Rockwell Automation. This means it can be much easier and more cost-effective for you to create and maintain a reporting system.

Expertise on SSRS can be obtained from Microsoft training classes, publications, and contractors. SSRS could be the reporting standard for other applications in your company, allowing for easier integration of FactoryTalk Metrics data with other data and applications.

Intended audience

The user guide is designed to help you understand how to install, configure, access, use, and maintain your Report Expert software. The document is intended for the following three types of users:

- [Report Expert implementor on page 10](#)
- [Report Expert administrator on page 10](#)
- [Report Expert user on page 10](#)

Report Expert implementors

Report Expert implementors install Report Expert and set it up for use by the administrator and other users.

They should be familiar with:

- Microsoft Windows® operating systems.
- Microsoft SQL Server (including SQL Server Reporting Services (SSRS)).
- Microsoft Internet Information Services (IIS).
- Microsoft Visual Studio® .

Report Expert administrators

Report Expert administrators define the parameter sets and reports accessible to Report Expert users.

They should be familiar with:

- The layout and content of the lines and plant for which the reports will provide information.
- Microsoft Windows operating systems.
- Microsoft® Internet Explorer® 11, Microsoft Edge™ (Chromium core), or Google® Chrome™ browser.
- Microsoft SQL Server (including SQL Server Reporting Services (SSRS)).

Report Expert users

Report Expert users use the reports created by the administrator in order to perform their job.

They should be familiar with:

- Microsoft Windows operating systems.
- Microsoft Internet Explorer 11 or Microsoft Edge (Chromium core).

Getting help

Consult the following resources for additional information about the product:

- **Release Notes**
The release notes contain current information about the product, including hardware and software requirements, new features, known and fixed anomalies.
- **FactoryTalk Metrics Administration Guide**
The administration guide helps the RSBizWare administrator install and configure the software as well as understand the architecture of the RSBizWare suite and its components.
- **Online help**
The online help provides general information and step-by-step procedures for working with the product.
- **Rockwell Automation Support Center**
The [support center](#) provides a variety of services, such as trainings, webinars, and online support that will improve your experience using the RSBizWare suite.

Report Expert prerequisites

Before you install Report Expert, keep the following in mind:

- Report Expert must be installed on the same computer as SQL Server Reporting Services (SSRS).
- Make sure you have configured your System DSN (Data Source Name) in your ODBC Data Source Administrator.

If you have RSBizWare installed, you may already have System DSN configured.

To verify the System DSN configuration on Microsoft Windows Server

1. In the file explorer, go to the following directory:

%windir%\SysWOW64

2. Double-click **odbcad32.exe**.

The **ODBC Data Source Administrators (32-bit)** dialog box appears.

3. Click the **System DSN** tab.

If the system DSN is configured, your RSBizWare database is listed under **System Data Sources**.

If the System DSN is not configured, create a DSN for the RSBizWare database on the server containing the Report Expert website. For more information on creating a DSN, refer to the *FactoryTalk Metrics Administration Guide*.

Hardware and software requirements

For up-to-date information on the hardware and software requirements of Report Expert, refer to the *FactoryTalk Report Expert Release Notes*, available on the RSBizWare installation DVD.

Installation and upgrade

This section describes how to install and upgrade the Report Expert software.

If you are installing and upgrading Report Expert, you must have the Windows System Administrator privileges, and your user account must be a member of the local administrator user group.

Report Expert uses HTTPS by default.

If you select HTTPS,

1. [Apply for a certificate in the Internet Information Services \(IIS\) Manager on page 13.](#)
2. [Configure HTTPS for SQL Server Reporting Services on page 15.](#)
3. [Install Report Expert on page 17.](#)
4. [Bind the certificate to the Report Expert website on page 20.](#)

You can also select HTTP. If you select HTTP, [install Report Expert on page 17](#) directly.

IMPORTANT: If you encounter problems during the Report Expert installation and need to call support, make sure that you have access to the log files created during installation. These files are named **Rockwell - Report Expert <version> Install.log** and **Rockwell - Report Expert Deployment <version>.log**. Depending on your installation options, only one of these files may appear.

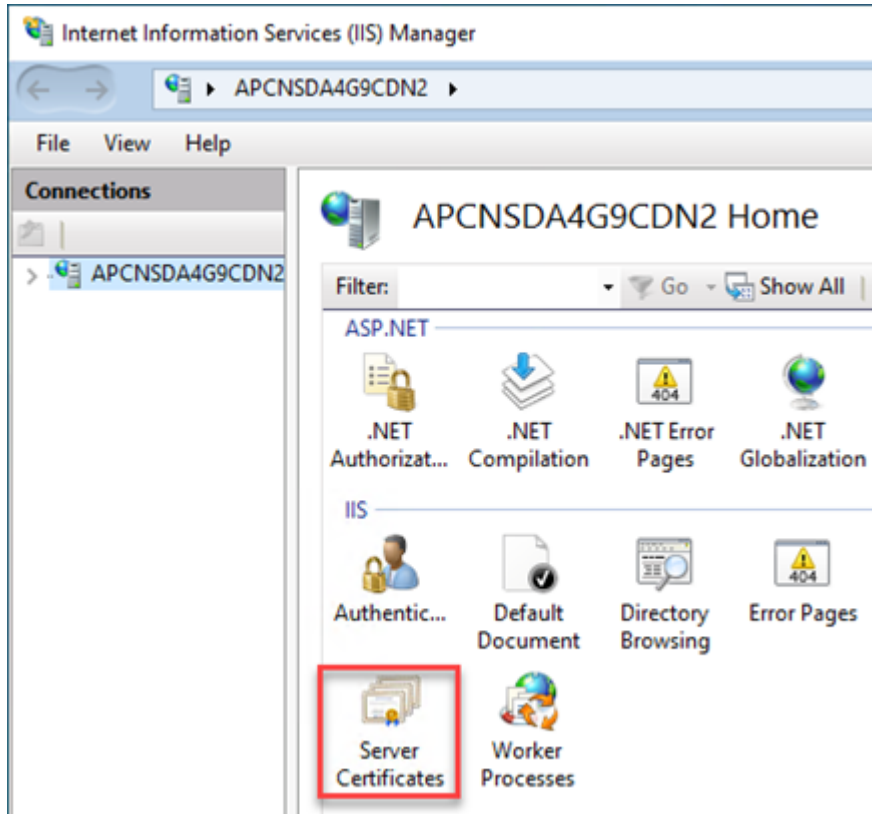
The log files are usually located in the **\Documents and Settings\username\Local Settings\Temp** folder, where `username` is the name of the installing user. However, this location can vary depending on the value of the %TEMP% environment variable. This file contains information that can help identify the cause of your installation problem.

Apply for a certificate

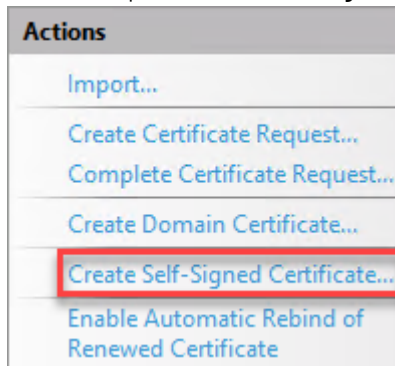
To apply for a certificate in the Internet Information Services (IIS) Manager

NOTE: In this Manual, we use the self-signed certificate as an example. You may need other types of certificates.

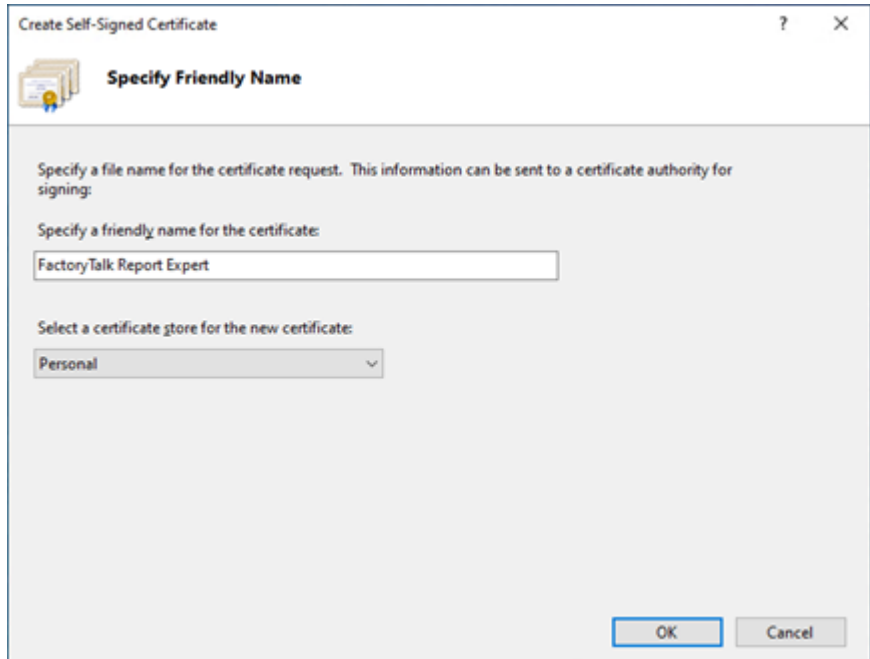
1. Go to **Start > Windows Administrative Tools > Internet Information Services (IIS) Manager**.
2. Double-click **Server Certificates**.



- In the **Actions** pane, click **Create-Self-Signed Certificate**.



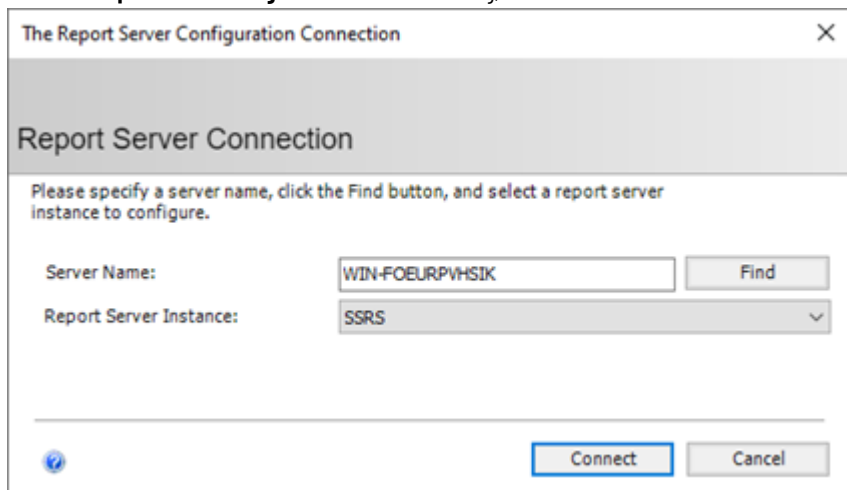
- In the **Create Self-Signed Certificate** dialog, specify a name for the certificate, and then click **OK**.



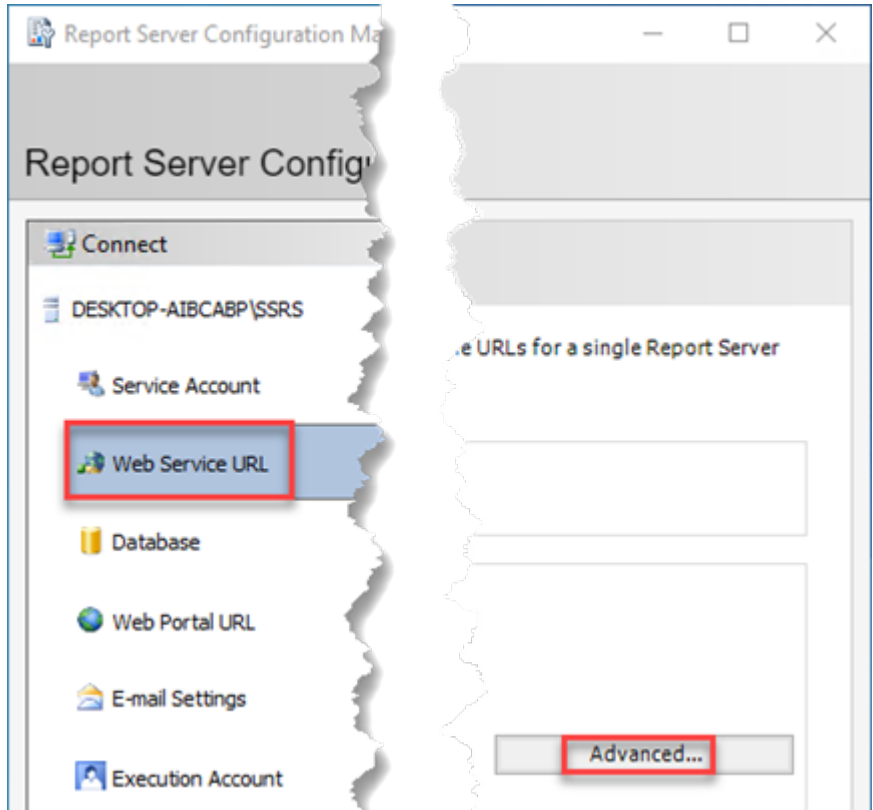
Configure HTTPS

To configure HTTPS for SQL Server Reporting Services

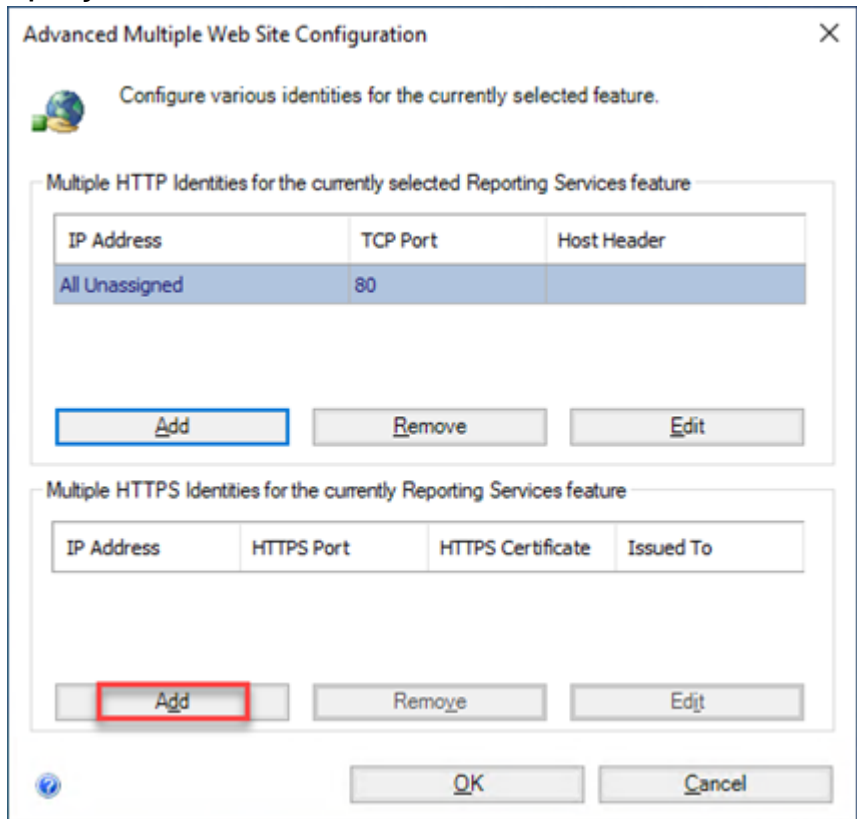
- Go to **Start > Microsoft SQL Server Reporting Services > Report Server Configuration Manager**.
- In the **The Report Server Configuration Connection** dialog, click **Connect**.



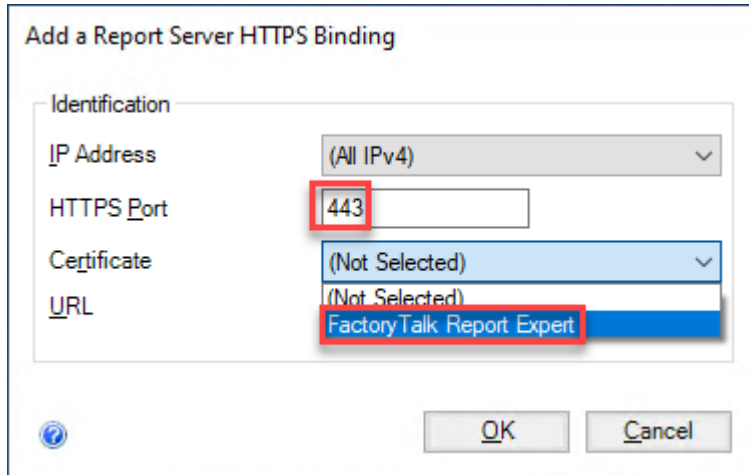
- 3. Click **Web Service URL**, and then click **Advanced**.



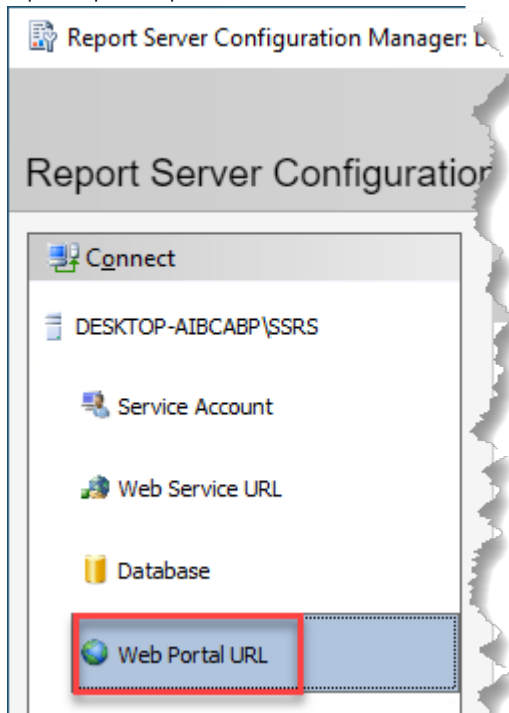
- 4. In the **Advanced Multiple Web Site Configuration** dialog, under **Multiple HTTPS Identities for the currently Reporting Services feature**, click **Add**.



- In the **Add a Report Server HTTPS Binding** dialog, verify that the **HTTPS Port** is **443**, and then select your **Certificate**, and then click **OK**.



- In the **Advanced Multiple Web Site Configuration** dialog, click **OK**.
- Repeat step 3 to step 6 for **Web Portal URL**.



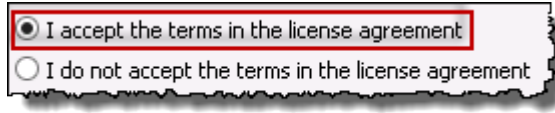
Install Report Expert

You must have administrator privileges to perform the following steps.

To install Report Expert on the server

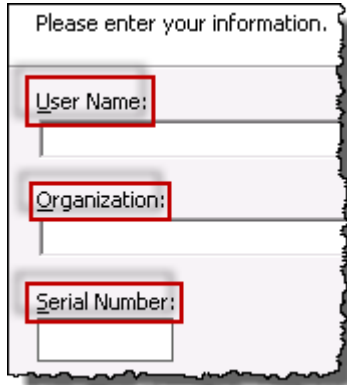
- Close the SSRS website, if it is open.
- Run the RSBizWare installation media.
The RSBizWare installation wizard appears.
- On the **Welcome** page, click **FactoryTalk Metrics > Installation > Install Report Expert**.
The installation program checks for installed applications.
- On the **Welcome** page, click **Next**.

5. On the **License Agreement** page, click:



6. Click **Next**.

7. On the **Customer Information** page, type the following:

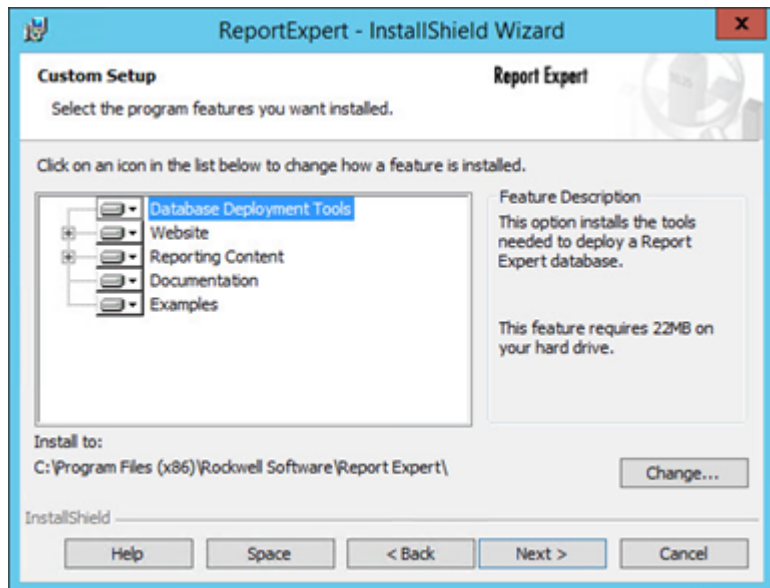


8. Click **Next**.

9. On the **Setup Type** wizard page, select:

- **Complete**, if you want to install all the features.
- **Custom**, if you want to install specific components.

If you choose this option, the **Custom Setup** page appears. Select the components that you want to install and their locations on the computer. Select **Change...**, and then specify the paths that you want to install.

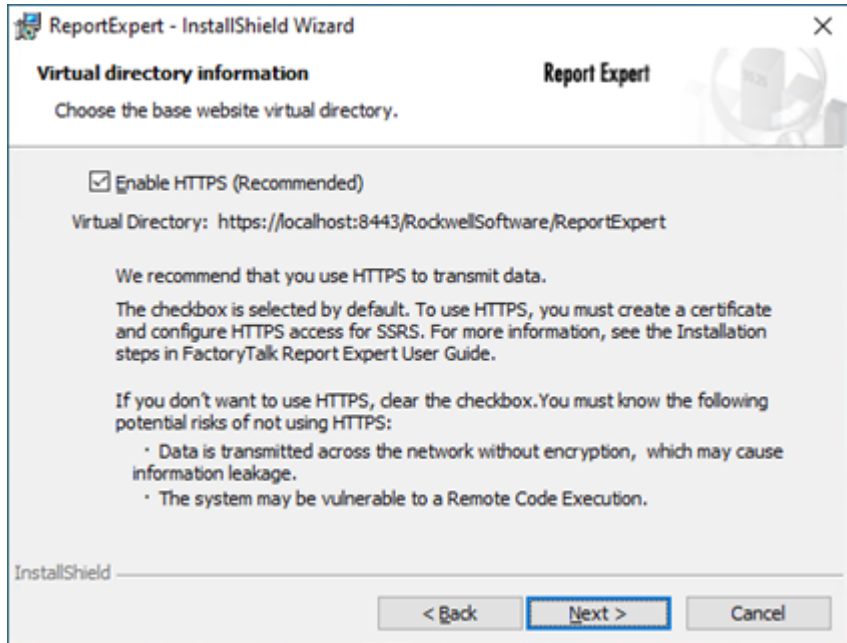


10. Click **Next**.

The **Virtual directory information** page appears. It displays the default virtual directory of the Report Expert website:

<https://localhost:8443/RockwellSoftware/ReportExpert>

The installation mode is HTTPS by default. If you select HTTP, clear the **Enable HTTPS** checkbox.



11. Click **Next**.
12. On the **Database connection information** page, select the **System DSN Name** that is the ODBC data source name of your RSBizWare SQL Server database. Under **Connect using**, you can select one of the following options according to the authentication mode you configured.

- **Windows authentication credentials of current user**

NOTE:

- Windows authentication requires additional steps, refer to *Create an RSBizWare database user in FactoryTalk Metrics Administration Guide*.
 - Windows authentication is supported only when FactoryTalk Report Expert and the SQL Server database are installed on the same machine.
-

- **Server authentication using the Login ID and password below**

If you select the first option, go to step 13.

If you select the second option, enter the **Username** and **Password**. They are the same as the **Login name** and **Password** of your RSBizWare database user.

13. Click **Next**.
14. On the **Ready to Install the Program** page, click **Install**.
The **Installing...** page presenting the installation status appears.
Restart the computer if prompted.
15. On the **InstallShield Wizard Completed** page, click **Finish**.
16. On the **Welcome** page, click **Next**.
17. On the **Product and Database Connection** page, select the **System DSN Name** that is the ODBC data source name of your RSBizWare SQL Server database. In the **Authentication** list, you can select one of the two options according to the authentication mode you configured.
 - **Windows Authentication**
 - **SQL Server Authentication**

If you select **Windows Authentication**, go to step 18.

If you select **SQL Server Authentication**, enter the **Database User ID** and **Database Password**. They are the same as the **Login name** and **Password** of your RSBizWare database user.

- 18. Click **Connect**. The **Available Product Modules** list is populated with FactoryTalk components.
- 19. Under **Available Product Modules**, select **Report Expert**.



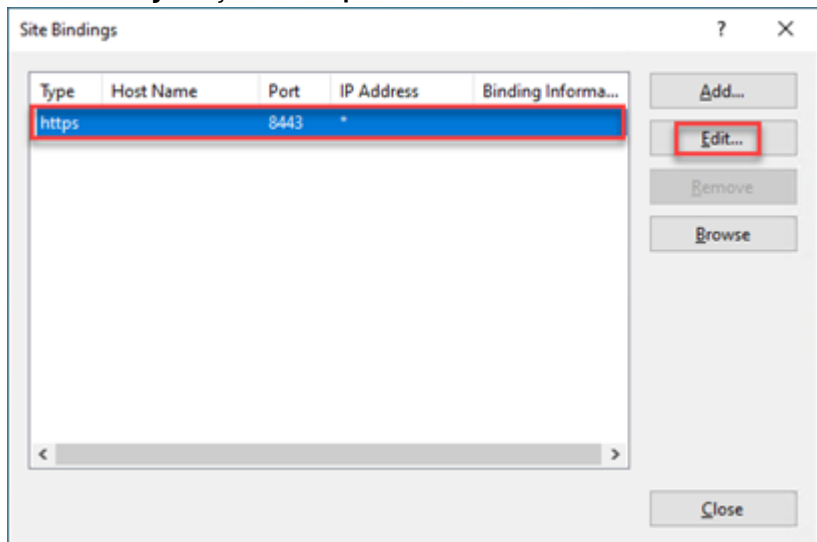
Tip: Select **FactoryTalk Metrics examples** if you want to load sample data.

- 20. Click **Finish** to load data.
- 21. On the **Completing the Database Load and Update Wizard** page, click **Close** to exit the wizard.

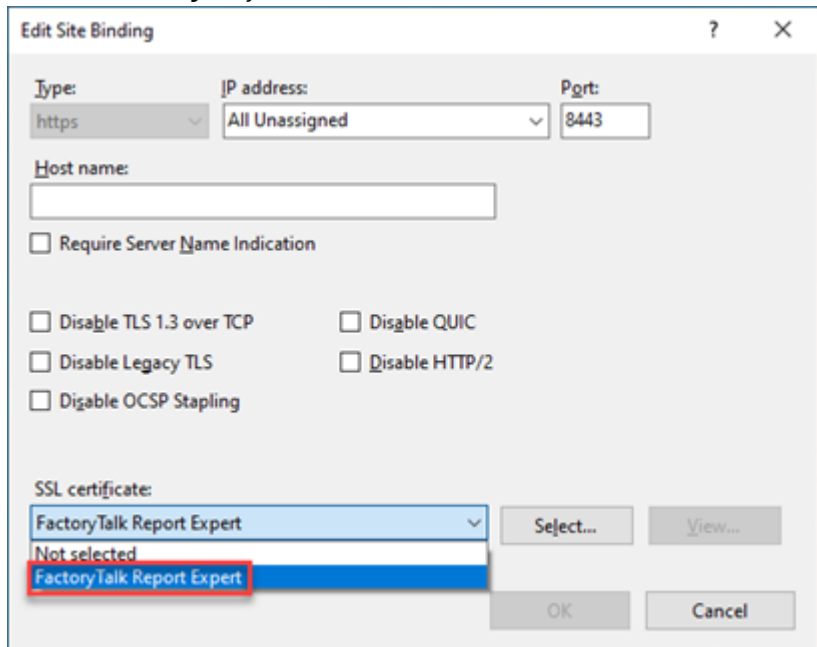
Bind the certificate

To bind the certificate to the Report Expert website

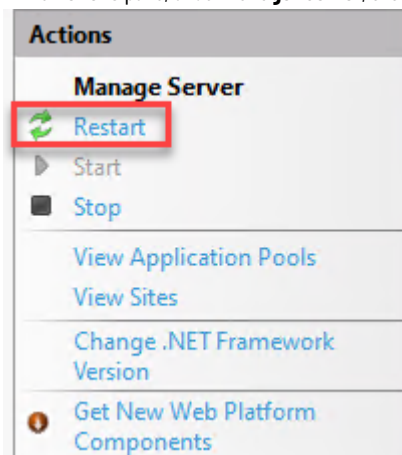
- 1. Go to **Start > Windows Administrative Tools > Internet Information Services (IIS) Manager**.
- 2. In the **Connections** pane, expand the **localhost** and **Sites**, and then select **Report Expert**.
- 3. In the **Actions** pane, under **Edit Site**, select **Bindings**.
- 4. In the **Site Bindings** dialog, select the **https** row, and then click **Edit**.



5. In the **Edit Site Binding** dialog, select the **SSL certificate**, and then click **OK**.



6. In the **Site Bindings** dialog, click **Close**.
7. Go to **Start > Windows Administrative Tools > Internet Information Services (IIS) Manager**.
8. In the **Actions** pane, under **Manager Server**, click **Restart**.



Upgrade the software

If you want to upgrade FactoryTalk Report Expert, you must remove the current version on your computer.

When upgrading from a previous version of Report Expert, all standard Report Expert report template rdl files will be overwritten. If you have changed any of the report template rdl files and you wish to preserve your changes, you should make a copy of your changed report template files before performing the upgrade.

Remove Report Expert

Before removing Report Expert, you must delete all of the scheduled reports you created while using Report Expert. You can delete the reports from the **Subscriptions** tab, for more information, refer to [Deleting report subscriptions on page 122](#). Or you can stop the Microsoft SQL Server Agent (MSSQLSERVER) service (note that **MSSQLSERVER** is the default Microsoft SQL Server instance name that must be replaced with an appropriate one).

To stop the SQL Server agent service

1. Go to **Start > Administrative tools > Services**.
The **Services** dialog box appears.
2. Right-click the **SQL Server Agent** service, and then click **Stop**.

To remove Report Expert from the computer

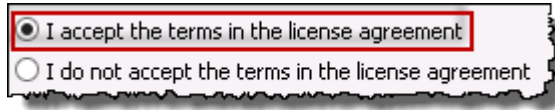
- Run the Report Expert installation again, click **Next**, and then select **Remove**.
- Select **Start > Settings > Control Panel > Add/Remove Programs**. The Windows **Add/Remove Programs** utility appears.
To remove Report Expert, select **Report Expert** and click **Remove**.

Upgrade Report Expert

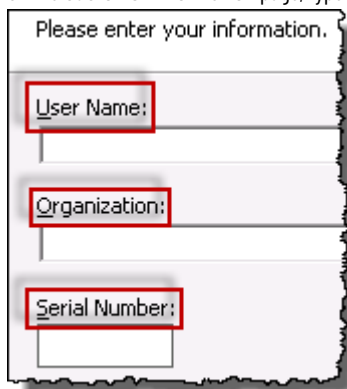
You must have the administrator privileges to perform the following steps.

To upgrade Report Expert on the server

1. Close the SSRS website if it is open.
2. Run the RSBizWare installation media.
The RSBizWare installation wizard appears.
3. On the **Welcome** page, click **FactoryTalk Metrics > Installation > Install Report Expert**.
The installation program checks for installed applications.
4. On the **Welcome** page, click **Next**.
5. On the **License Agreement** page, click:

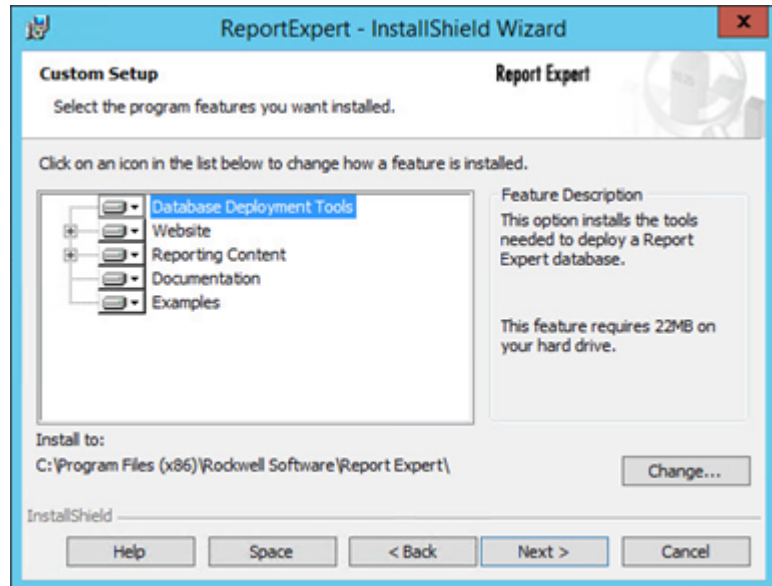


6. Click **Next**.
7. On the **Customer Information** page, type the following:



8. Click **Next**.

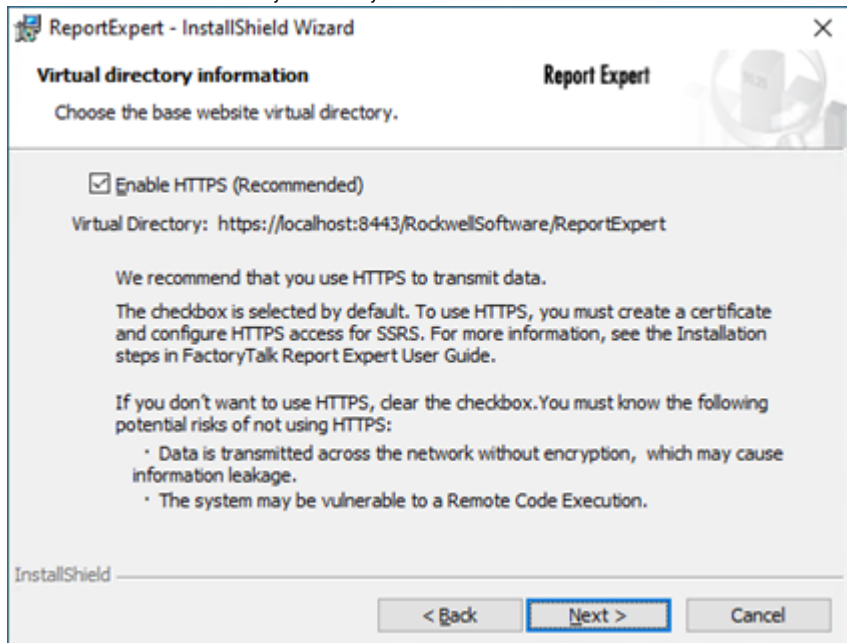
9. On the **Setup Type** wizard page, select:
- **Complete**, if you want to install all the features.
 - **Custom**, if you want to install specific components.
- If you choose this option, the **Custom Setup** page appears. Select the components that you want to install and their locations on the computer. Select **Change...**, and then specify the paths that you want to install.



10. Click **Next**.
The **Virtual directory information** page appears. It displays the default virtual directory of the Report Expert website:

`https://localhost:8443/RockwellSoftware/ReportExpert`

The installation mode is HTTPS by default. If you select HTTP, clear the **Enable HTTPS** checkbox.



11. Click **Next**.
12. On the **Database connection information** page, select the **System DSN Name** that is the ODBC data source name of your RSBizWare SQL Server database. Under **Connect using**, you can select one of the following

options according to the authentication mode you configured. See *FactoryTalk Metrics Administration Guide* for configuring authentication modes.

- **Windows authentication credentials of current user**

NOTE:

- Windows authentication requires additional steps, refer to *Create an RSBizWare database user* in *FactoryTalk Metrics Administration Guide*.
 - Windows authentication is supported only when FactoryTalk Report Expert and the SQL Server database are installed on the same machine.
-

- **Server authentication using the Login ID and password below**

If you select the first option, go to step 13.

If you select the second option, enter the **Username** and **Password**. They are the same as the **Login name** and **Password** of your RSBizWare database user.

13. Click **Next**.
14. On the **Ready to Install the Program** page, click **Install**.
The **Installing...** page presenting the installation status appears.
Restart the computer if prompted.
15. On the **InstallShield Wizard Completed** page, click **Finish**.
16. On the **Welcome** page, click **Next**.
17. On the **Product and Database Connection** page, select the **System DSN Name** that is the ODBC data source name of your RSBizWare SQL Server database. In the **Authentication** list, you can select one of the two options according to the authentication mode you configured. See *FactoryTalk Metrics Administration Guide* for configuring authentication modes.
 - **Windows Authentication**
 - **SQL Server Authentication**
If you select **Windows Authentication**, go to step 18.
If you select **SQL Server Authentication**, enter the **Database User ID** and **Database Password**. They are the same as the **Login name** and **Password** of your RSBizWare database user.
18. Click **Connect**. The **Available Product Modules** list is populated with FactoryTalk components.
19. Under **Available Product Modules**, select **Report Expert**.



Tip: Select **FactoryTalk Metrics examples** if you want to load sample data.

20. Click **Finish** to load data.
21. On the **Completing the Database Load and Update Wizard** page, click **Close** to exit the wizard.

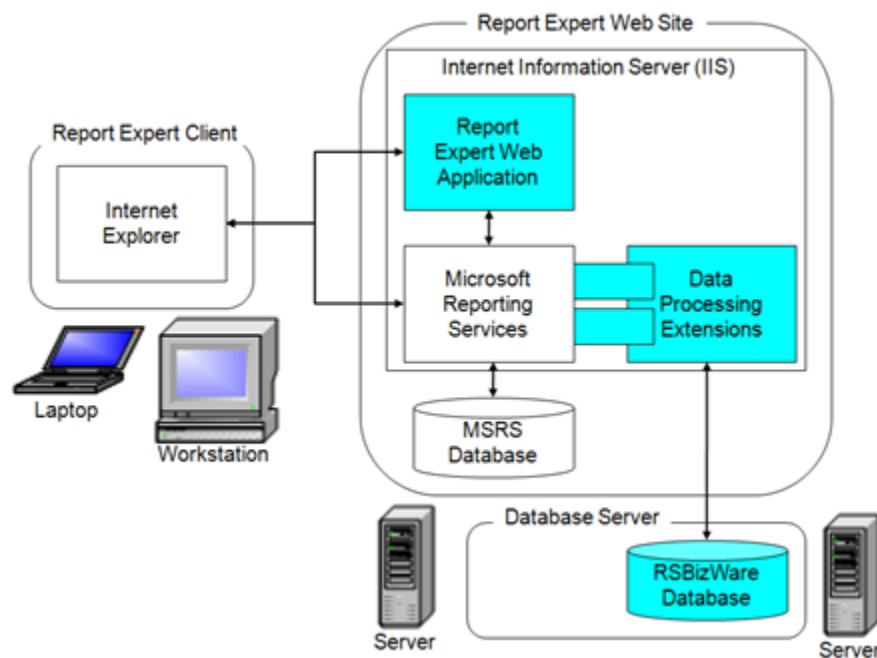
Getting started

In this section, you will learn the following:

- [What are the components of the Report Expert architecture on page 25.](#)
- [How to connect to Report Expert on page 26.](#)
- [What are the components of the Report Expert web page on page 28.](#)
- [Where Report Expert-related errors are logged on page 31.](#)

Software architecture

The following diagram provides a high-level architecture of Report Expert.



The Report Expert architecture is a scalable, multi-tiered, distributed architecture consisting of the following main components:

Item	Description
Report Expert client	(One or more.) A laptop or workstation running Internet Explorer or Microsoft Edge, and accessing Report Expert Content on the Report Expert website.
Report Expert website	A server computer running Report Expert software, Microsoft SQL Server Reporting Services (SSRS), and Internet Information Server (IIS).
Database server	A server computer running Microsoft SQL Server. This computer contains the RSBizWare database with the FactoryTalk Metrics data from which the content of the Report Expert report templates is derived.

The Report Expert components can be configured to run on a single computer, or it can be distributed across multiple computers. In the simplest case, the Report Expert website can be installed on the same machine as the database

server and a user can access the Report Expert client on the same server computer. In a distributed setting, these components may reside on separate computers.

The Report Expert client connects to the Report Expert service to view an HTML report, while it connects directly to the SQL Server Reporting Services (SSRS) to generate a PDF or an Excel version of a report or to print a report. The scalability of the Report Expert architecture allows many clients to connect to a single Report Expert website.

The Report Expert web application interacts with the SSRS web application. The SSRS web application uses the FactoryTalk Metrics Data Provider (an SSRS Data Processing Extension) to retrieve FactoryTalk Metrics data.

To generate FactoryTalk Metrics-related Report Expert report templates, the Report Expert Service must have a connection to the RSBizWare database containing the FactoryTalk Metrics tables and views. In addition, SSRS need access to its own separate database at run time.

NOTE: The same instance of Microsoft SQL Server can host both the SSRS database and the RSBizWare database. However, if Microsoft SQL Server is included with a FactoryTalk Metrics server, only one instance of Microsoft SQL Server is licensed. Therefore, if you want to distribute the two databases across two different computers, you must acquire an additional Microsoft SQL Server license.

Connect to Report Expert

Use Microsoft Internet Explorer or Microsoft Edge to connect to Report Expert.

To start Report Expert, do either of the following:

- Go to **Start > All Programs > Rockwell Software > Report Expert > Report Expert**.
- Open Internet Explorer or Edge.

Go to:

https://hostcomputer:8443/rockwellsoftware/reportexpert

where `hostcomputer` is the name of the computer on which Report Expert is installed.

Report Expert administrators should open Report Expert in Internet Explorer or Edge using the **Run as administrator** option so that the **Administration** page is visible. For more details, refer to [Administering Report Expert on page 107](#).

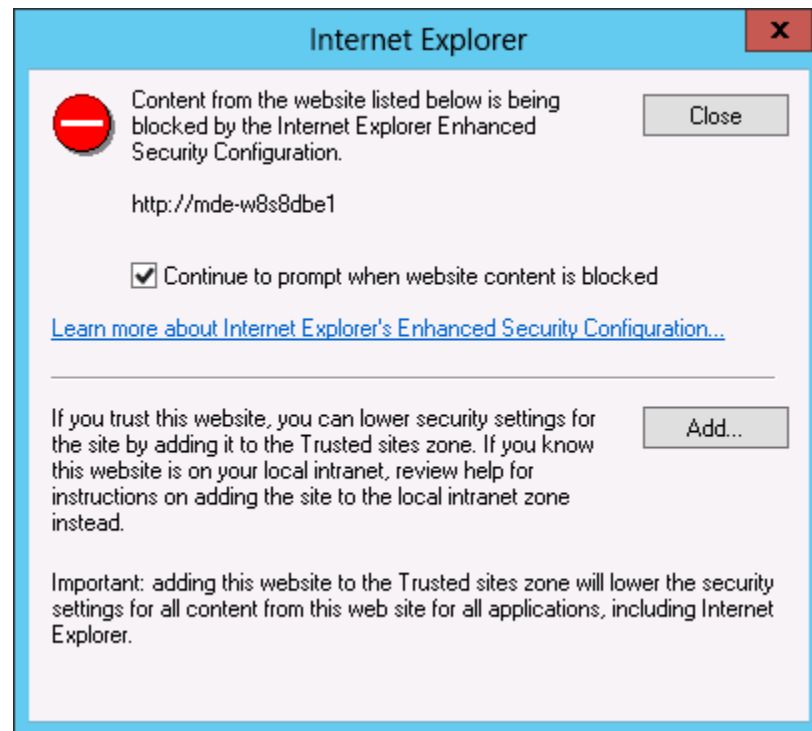
Settings for Internet Explorer 11

To make sure that Report Expert is displayed correctly in Internet Explorer 11, configure the following:

- [Add the Report Expert site to the Trusted sites zone on page 27](#).
- [Set Internet Explorer 11 to open the Report Expert site in Compatibility View on page 27](#).

The Trusted sites zone

When you open the Report Expert site in Internet Explorer for the first time, the following message may display:



To help prevent Internet Explorer from blocking Report Expert, add the Report Expert site to the Trusted sites zone.

To add the Report Expert to the Trusted sites zone

1. In the **Internet Explorer** dialog box, click **Add**.
The **Trusted sites** dialog box appears.
The address of the Report Expert site appears under **Add this website to the zone**.
2. Click **Add**.
The site is added to the Websites list.
3. Click **Close**.
The Report Expert site is reloaded and is displayed in the browser with its content.

The Compatibility View

Perform the following steps to open the Report Expert site in Compatibility View.

To open the Report Expert site in Compatibility View

1. Open Report Expert in Internet Explorer 11.
2. Right-click the window bar of Internet Explorer, and click **Menu bar**.
The menu bar appears.
3. On the **Tools** menu, click **Compatibility View settings**.
The **Compatibility View Settings** dialog box appears.
The address of the Report Expert site appears under **Add this website**.
4. Click **Add**.

The site is added to the **Websites you've added to Compatibility View** list.

5. Click **Close**.










Navigate Report Expert

Report Expert consists of the following modules and pages:

This module:	Contains these pages:
Administration on page 28	Administration
Manual editor on page 29	<ul style="list-style-type: none"> Parameters Editor
Report viewer on page 30	<ul style="list-style-type: none"> Parameters Explorer

Use the toolbar at the top of the Report Expert page to navigate to different areas of the product, and to control which components are displayed.

The toolbar contains the following icons:

Click this button	To:
 Home	Open the Report Expert home page. By default, it is the Report Expert - Report Viewer page.
 Administration	Open the Administration page on page 28 .
 Editor	Open the Editor page on page 30 .
 Explorer	Open the Explorer page on page 31 .
 Parameters	Display or hide the Parameters page for either the Manual Data Editor on page 29 or the Report Viewer on page 30 .
 Heading	Display or hide the red heading bar at the top of the Report Expert webpage. The heading bar indicates your current location within the Report Expert.
 Status	Display or hide the red status bar at the bottom of the Report Expert webpage. The status bar shows tooltips and messages as you work within Report Expert.
 Info	Display a new browser window containing a list of the various components (and their version numbers) being used by Report Expert, and the version number of Report Expert.
 Help	Display the help for Report Expert.

Administration page

On the **Administration** page, administrators can:

- Manage the content of the tree on the **Report Explorer** page.
- Configure report subscriptions.
- Schedule reports for future delivery.

- Create, edit, and delete Parameter Sets.
- Configure a line order for work cells.
- Configure Terminologies for translating terms used in report templates.
- Configure Localization for translating terms used in the Report Expert User Interface.

To open the **Administration** page, click  **Administration** on the Report Expert toolbar.

For more information on using the **Administration** page, refer to [Administering Report Expert on page 107](#).

Manual Data Editor

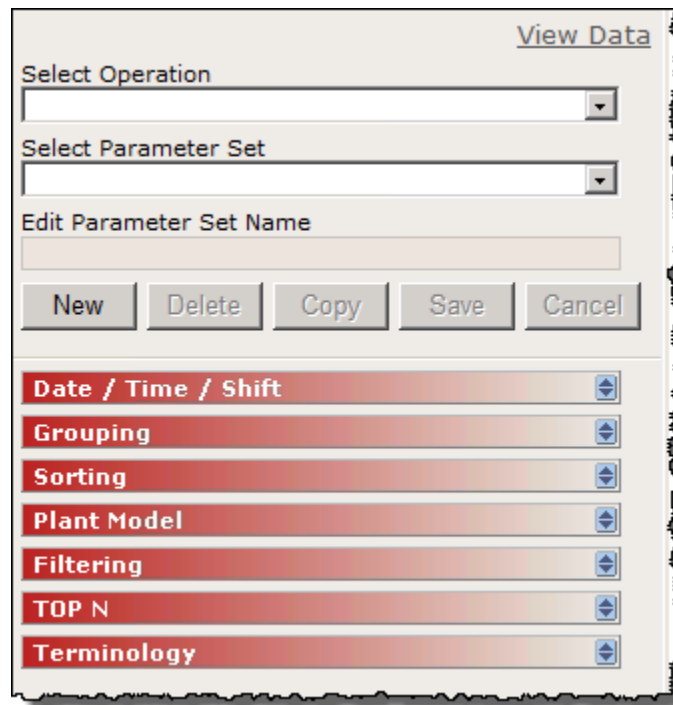
The Manual Data Editor allows you to display and modify production data from a FactoryTalk Metrics database. It consists of the following pages:

- [Parameters page on page 29](#)
- [Editor page on page 30](#)

For more information on using the Editor, refer to [Editing event and production data on page 85](#).

Parameters page for the Editor

On the **Parameters** page, you can select operations and the parameter sets for which you want to perform the operations.




To open the **Parameters** page for the Manual Data Editor for the first time, click  **Editor** on the Report Expert toolbar.

To show or hide the **Parameters** page, click  **Parameters** on the Report Expert toolbar.

Editor page

On the **Editor** page, you can perform various operations on the production data you have selected:

- Edit events
- Edit production data
- Edit shift information
- Enter data manually

To open the **Editor** page, click  **Editor** on the Report Expert toolbar.

Report Viewer

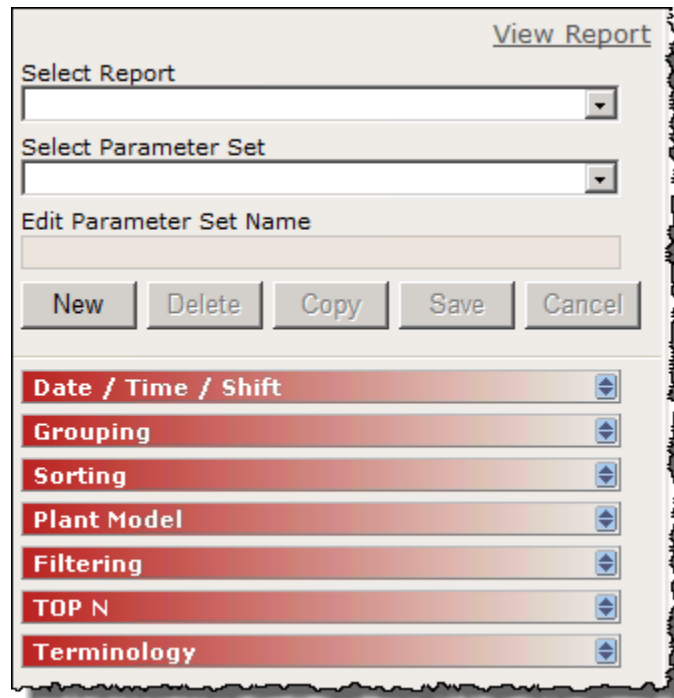
The Report Viewer allows you to view available reports. It consists of the following pages:

- [Parameters page on page 30](#)
- [Explorer page on page 31](#)

For more information on using the Viewer, refer to [Viewing and generating reports on page 81](#).

Parameters page for the Viewer

On the **Parameters** page, you can associate report templates with parameter sets and generate ad-hoc reports.

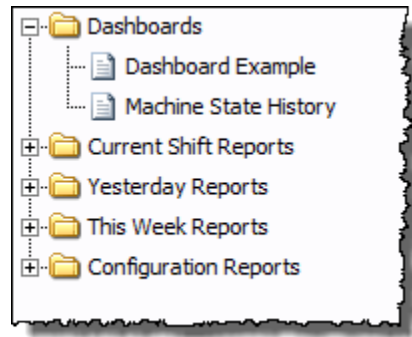



To show or hide the **Parameters** page, click  **Parameters** on the Report Expert toolbar.

For more information on using the **Parameters** page, refer to [Generating reports using the Parameters page on page 81](#).

Explorer page

On the **Explorer** page, you can select a report from the tree to display that report in the display area.



To open the **Explorer** page, click  **Explorer** on the Report Expert toolbar.

For more information on using the **Explorer** page, refer to [Viewing saved reports on the Explorer page on page 81](#).

Troubleshoot

Errors for Report Expert are logged in the following locations, depending on the task you are performing at the time of the error:

- Microsoft Event Viewer
Errors that occur while you are running the software (with the exception of generating reports).

- The SSRS log
Errors that occur when you are generating reports.
The log file is in the following folder:

```
Program Files\Microsoft SQL Server\<the name of the folder of the Reporting Services instances, for example, the default name>\Reporting Services\LogFiles
```

- The Report Expert service log
Errors that occur when you are using the Editor.
The log file is in the **\Website\Logs** folder of your Report Expert installation directory, for example:

```
C:\Program Files (x86)\Rockwell Software\Report Expert\Website\Logs
```

Understanding report templates

Report Expert includes a fixed number of report templates. These are partial reports where the data fields to be displayed are already defined. The data fields and behavior of these templates are fixed, so you cannot easily change them. However, you can apply parameter sets to report templates to change both the content and the appearance of the resulting report.

In this section, you will learn about the standard [report templates on page 32](#) that are available with Report Expert.

You will use this information to create your own reports. For more information, refer to [Viewing and generating reports on page 81](#).

For information regarding the source of all raw data used by Report Expert, refer to [Raw data on page 64](#).

For a list of the report templates, the queries the report templates use, and the fields in each of those queries, refer to [Query fields on page 61](#).

Drillthrough

When you use the Report Expert drillthrough capability by clicking a data value in a report template, the resulting report displays data based on the new row grouping. There is a set hierarchy of data groupings as you drill through a report. For example, if you drill through a report that contains a week's data for a single work cell, the resulting report will be grouped by day.

Following is the drillthrough hierarchy for the report templates supporting Report Expert drillthrough capability:

- Site
- Area
- Line
- Work Cell
- Month
- Week
- Day
- Shift
- Hour

Report templates that do not support drillthrough are identified in the report template descriptions.

Report templates

This section presents descriptions of the Report Expert report templates that are installed with Report Expert.

Depending on the type of a report template, the descriptions may include the following information:

- The definition of the report template
- The query on which the report template is based
- The fields of the report template grid
- The maximum number of rows allowed in the report template
- The information on the drillthrough hierarchy
- The description of the bar charts included in the report template
- The calculations used by Report Expert to prepare the resulting report

The definitions of report template fields are also available in [Glossary on page 142](#).

All report templates are available on the **Parameters** page, under **Select Report**. For more information, refer to [Viewing and generating reports on page 81](#).

The **Parameters** page has the following report templates:

- [Dashboard on page 33](#)
- [Parameter settings and widgets on page 37](#)
- [Event All Detail on page 38](#)
- [Event Chart on page 40](#)
- [Event Configuration on page 41](#)
- [Event Detail on page 42](#)
- [Event Detail Paged on page 42](#)
- [Event History String/Value on page 43](#)
- [Event Overview on page 44](#)
- [Event Summary on page 45](#)
- [Fault on page 46](#)
- [Performance on page 48](#)
- [Production on page 49](#)
- [Production Overview on page 51](#)
- [Quality on page 54](#)
- [Root Cause Analysis on page 55](#)
- [State Detail on page 57](#)
- [State Summary on page 57](#)
- [Throughput on page 58](#)
- [Uptime on page 60](#)

Dashboard

The Dashboard report template is combined with the Dashboard Current Shift parameter set. The Dashboard Current Shift parameter set contains the following settings:

Item	Description
Date/Time/Shift	All Time Current Shift
Grouping	Event Category (Col), Event Name (Col), Shift (Row)
Sorting	None
Plant Model	None
Filtering	None
TOP N	None

NOTE: For information on how the dashboard widgets (and this report template) respond to changes in parameter settings, refer to [Parameter settings and widgets on page 37](#).

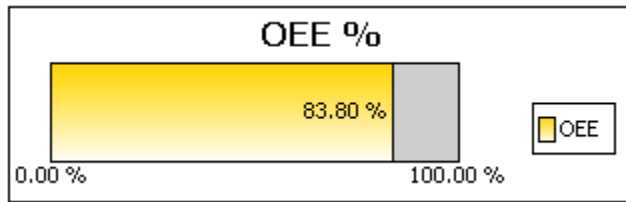
The Dashboard report template has the following dashboard widgets:

- [OEE % on page 34](#)
- [3 OEE Components on page 34](#)
- [Last State on page 35](#)
- [Production Summary on page 35](#)
- [Uptime Summary on page 35](#)
- [Fault Summary on page 36](#)
- [Good Parts vs. Scrap Parts on page 36](#)
- [Uptime vs. Downtime on page 36](#)
- [Machine States on page 37](#)
- [Event Count and Duration on page 37](#)
- [Additional Report Expert templates on page 37](#)

OEE % widget

The OEE % widget displays the OEE % value as a horizontal bar chart for the work cells selected over the time period selected.

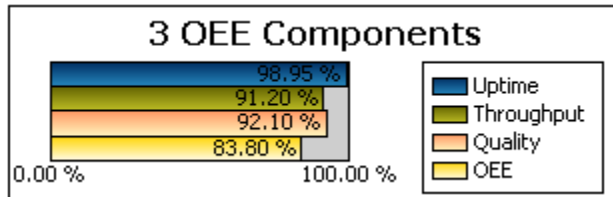
The color of the bar changes depending on the OEE value. The color values are taken from the respective Color fields in the RptSetting table. The values that cause a change from one color to another are also set in the RptSetting table in the Threshold fields (refer to [Configuring Report Expert settings on page 110](#)).



3 OEE Components widget

The 3 OEE Components widget displays the OEE % and the three OEE components (availability, throughput, and quality) as four bars in a horizontal bar chart.

The color of the OEE bar changes depending on the OEE value. The color values are taken from the respective Color fields in the RptSetting table. The values that cause a change from one color to another are also set in the RptSetting table in the Threshold fields (refer to [Configuring Report Expert settings on page 110](#)).



Last State widget

The Last State widget displays the current machine state and the time that the machine has been in that state. The data is shown as text. This widget is not useful if you select more than one work cell. However, if you select more than one work cell, this widget displays the machine state with the latest starting time.

Last State	
State Name:	Running
Duration:	00:00:35

Machine states are not configured so you must configure them manually. If you do not configure machine states, this widget will not contain data. For information on configuring machine states, refer to the *FactoryTalk Metrics User Guide*.

Production Summary widget

The Production Summary widget displays the number of good parts, scrap parts, total parts, and scrap % for all the selected work cells for the time period.

Production Summary	
Good Parts:	8,117
Scrap Parts:	428
Total Parts:	8,546
Scrap %:	5.01 %

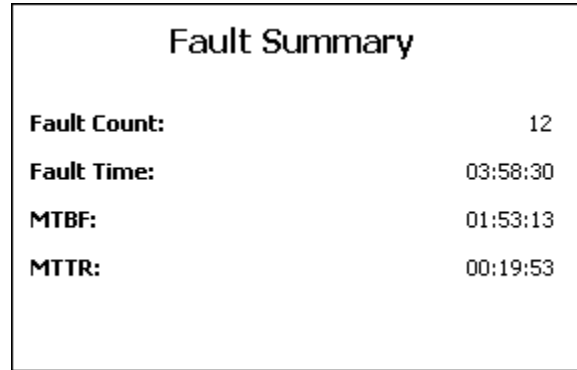
Uptime Summary widget

The Uptime Summary widget displays total available time, running time, and down time for all selected work cells for the time period. Each is shown in the format HH:MM:SS.

Uptime Summary	
Available Time:	14:19:53
Running Time:	10:49:08
Down Time:	03:30:46

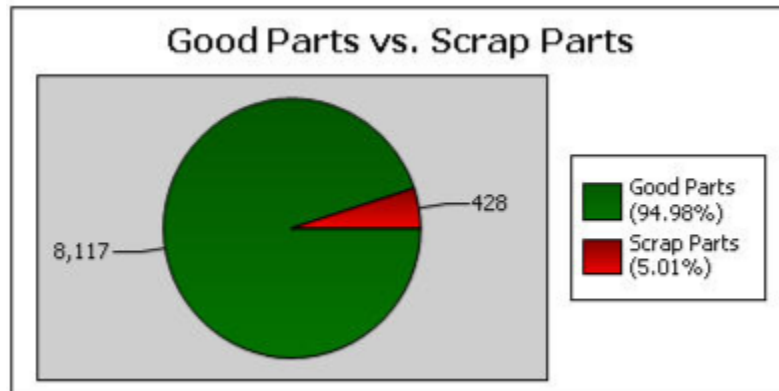
Fault Summary widget

The Fault Summary widget displays the aggregated fault-related data: fault count, fault time, mean time between failures and mean time to repair.



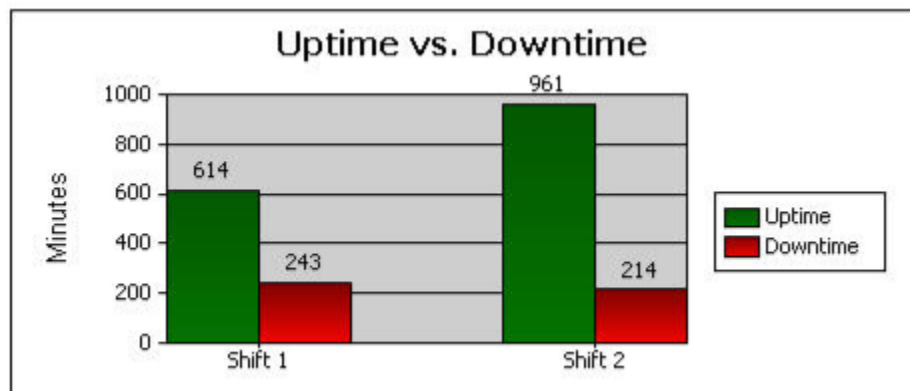
Good Parts vs. Scrap Parts widget

The Good Parts vs. Scrap Parts widget displays the total good parts and scrap parts by percentage in a pie chart.



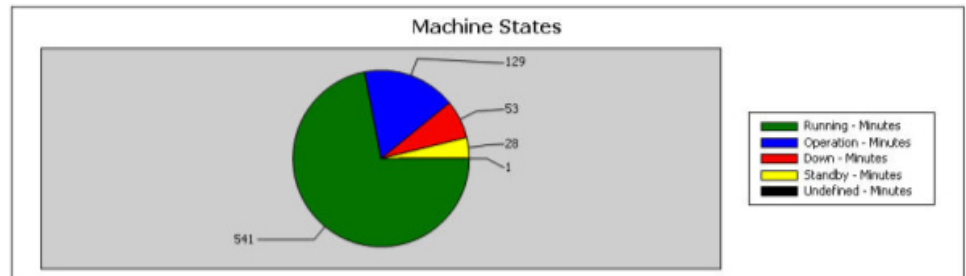
Uptime vs. Downtime widget

The Uptime vs. Downtime widget displays the total uptime and total downtime (in minutes) as a vertical bar chart. If shift is configured for the selected work cells, and more than one shift is included in the time selection, the data is grouped by shift.



Machine States widget

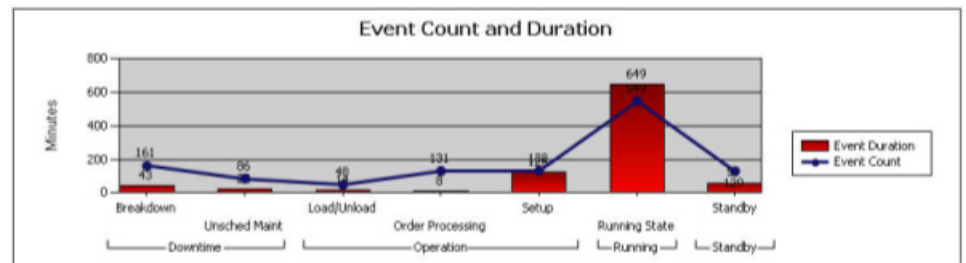
The Machine States widget displays the total time (in minutes) in each of the defined machine states in pie chart format.



Machine states are not configured so you must configure them manually. If you do not configure machine states, this widget will not contain data. For information on configuring machine states, refer to the *FactoryTalk Metrics User Guide*.

Event Count and Duration widget

The Event Count and Duration widget displays information for user-defined events, including the event name, total event duration (in minutes), and total event count. Duration is shown as a vertical bar chart, and event count as a line. The chart is grouped by event category and event name within each category.



Additional Report Expert templates

Additional Report Expert templates can be added to the system in two ways:

1. Download the templates from the Rockwell Sample code site: [Sample Code Library](#). Search for the keyword "Report Pack".
2. Create your own templates. For more instructions of creating your own templates, refer to Knowledgebase Document ID: [QA13035 - Creating Custom Reports Using Report Expert DPE](#).

Parameter settings and widgets

The widgets will respond to most changes you make to the Report Expert parameters. However, not all parameter settings affect all the widgets. In general, the widgets will respond to the following parameters:

Item	Description
Date/Time/Shift	All widgets in a report template use the selected setting for time and shift.

Item	Description
Plant Model	All widgets in a report template use the selected setting for the Plant Model filter.
Terminology	All widgets in a report template use the selected setting for terminology. You can use the Terminologies feature to change the titles that appear in each widget. For more information, refer to Using the Terminology parameter on page 80 .

If the selected widget uses the data fields in the parameter settings, the widget will respond to the following parameters:

Item	Description
Sorting	With the exception of the Event Count and Duration widget, the data in the widgets is not sorted. If you select a data field in the Event Count and Duration widget (Event Count or Event Duration), you can sort the data in the Event Count and Duration widget. For more information, refer to Using the Sorting parameter on page 75 .
Filtering	The widgets respond to filtering, depending on the data being filtered. If you filter on Part Id or one of the flex fields, filtering will affect all widgets. If you filter on event category or event description, filtering only affects the Event Count and Duration widget. For more information, refer to Using the Filtering parameter on page 78 . Filtering that is not appropriate for a particular widget is ignored.

NOTE: If you change the grouping parameters, the widgets will not respond and an error message will appear. Do not change the grouping parameters (Event Category (Col), Event Name (Col), Shift (Row)) in the default parameter set (Dashboard - Current Shift).

Event All Detail

The Event All Detail report template displays information on every occurrence of events. It contains more details than the Event Detail and Event Detail Paged report templates.

The report does not support any grouping.

NOTE: Due to a large amount of data that can be displayed with this report we recommend that you filter your data thoroughly to shorten the report generation time, and/or limit the number of records to be returned with the [EventDetailExtRowLimit setting on page 110](#) available in the RptSetting table.

Query: EventDetailExt.

The fields of the report template grid:

Item	Description
Line	A level of the plant model (which is constructed by enterprise, site, area, line, and then work cell).
Workcell	
Event Category	The category of the event.
Event Name	The name of the event.
Event Severity	The numeric severity level assigned to the event.
Start Time	The date and time that the event or state started.
End Time	The date and time that the event or state ended.
Duration	The length of the event, calculated as the difference between start time and end time and displayed using the format HH:MM:SS.mmm. The calculation for this field is: <i>Duration = End Time - Start Time</i>
Start Value	The value collected at the start of the event.
End Value	The value collected at the end of the event.
Shift Start Time	The start time of the shift during which the data was collected.
Shift Number	The number of the shift.
Shift Name	The name of the shift.
Record State	The numeric state of the database record.
Event During Scheduled Time	Information whether the event occurred during the scheduled time.
Event Start Num	The numeric value collected at the start of the event.
Event End Num	The numeric value collected at the end of the event.
Event During Num	A numeric information on the event calculated as the difference between Event End Num and Event Start Num. The calculation for this field is: <i>Event During Num = Event End Num - Event Start Num</i>
Event Is Fault	Information on whether the event is used for Faults metrics.
Event Reason Code	The numeric code representing the event reason.
Event Reason	The string value representing the event reason.
Event Occurrence	The identifier of a single event occurrence.
PartId	The ID of the part that was being produced when the event occurred.
Event Comment	The wording of a comment that you have typed for an event in the Editor on page 30 .

The drillthrough hierarchy: none.

Calculations used by Report Expert to obtain values in the resulting report:

- *Duration = End Time - Start Time*
- *Event During Num = Event End Num - Event Start Num*

Event Chart

The Event Chart report template aggregates all event-related data. It contains a chart that displays data of the number and duration of all events together, and links to Event Detail reports concerning specific events.

Query: Event.

The fields of the report template grid:

Item	Description
Event Count	The number of events that occurred during the reporting period.
Total Duration	The total time (HH:MM:SS.mmm) in the reporting period during which an event or state was occurring.
Min. Duration	The shortest event or state occurrence.
Max. Duration	The longest event or state occurrence.
Avg. Duration	The average length of event or state occurrences.
Detail	Link to an Event Detail report referring to a specific fault, filtered to display only faults and grouped by event name.

The values of the report template and other report templates to which the values link using the drillthrough hierarchy:

Click a value in this column:	To display this report template:
Event Count	Event Chart
Total Duration	Event Chart
Min. Duration	Event Chart
Max. Duration	Event Chart
Avg. Duration	Event Chart
Detail	Event Detail

The report template bar charts: **Event Count** and **Event Duration** on separate charts, and a chart that displays both these values together.

Event Count and Event Duration chart fields (sorted according to the type of sorting criteria selected):

Item	Description
Values	Event Count and Total Duration
X axis grouping	First non-page grouping parameter
Series	Second non-page grouping

Event Count chart fields (sorted by Event Count):

Item	Description
Value	Event Count
X axis grouping	First non-page grouping parameter
Series	Second non-page grouping

Event Duration fields (sorted by Total Duration):

Item	Description
Value	Total Duration
X axis grouping	First non-page grouping parameter
Series	Second non-page grouping

Event Configuration

The Event Configuration report template displays FactoryTalk Metrics configuration data related to events.

Query: EventConfiguration.

The fields of the report template grid:

Item	Description
Enterprise Site Area Line Work Cell	A level of the plant model (which is constructed by enterprise, site, area, line, and then work cell).
Event Category	The category of the event.
Event Name	The name of the event.
Machine State Name	The name of the machine state associated with the event.
Severity Level	The numeric severity level assigned to the event.
Fault Metric Use	Defines how the event affects the calculation of Fault Metrics.
Event Trigger	A textual description of the data point used as a trigger for the event.
Event Trigger Expression	A FactoryTalk Transaction Manager expression used to determine the event trigger value.
Event Value	A text description of the data point used for the event value.
Event Value Expression	A FactoryTalk Transaction Manager expression used to determine the event value.
Event Value Lookup List Name	A name of the value lookup list that provides descriptive names for each event value, if there is any list associated with the event.

The report template supports the following:

Item	Description
Sorting by	<ul style="list-style-type: none"> • Site • Area • Line • Work Cell • Event Name

Item	Description
	<ul style="list-style-type: none"> Event Category Work Cell Ordered
The standard plant model filtering	
Filtering by	<ul style="list-style-type: none"> Event Name Event Category Terminology

The drillthrough hierarchy: none.

Event Detail

The Event Detail report template displays raw event data.

Query: EventDetail.

The fields of the report template grid:

Item	Description
Start Time	The date and time that the event or state started.
End Time	The date and time that the event or state ended.
Duration	The length of the event, calculated as the difference between start time and end time and displayed using the format HH:MM:SS.mmm. The calculation for this field is: $Duration = End\ Time - Start\ Time$
Start Value	The value collected at the start of the event.
End Value	The value collected at the end of the event.
Event Comment	The wording of a comment that you have typed for an event in the Editor on page 95 .

The maximum number of rows in the resulting report: 5000.

NOTE: If the data returned exceeds the maximum number of rows allowed in the resulting report, the **Max row limit reached** message appears in red above the grid. The maximum row number can be changed in the RptSettings table. For more information, refer to [Modifying the RptSetting table on page 114](#).

The drillthrough hierarchy: none.

Calculations used by Report Expert to obtain values in the resulting report:

- $Duration = End\ Time - Start\ Time$

Event Detail Paged

The Event Detail Paged report template displays raw event data, divided into pages.

Query: EventDetail.

The fields of the report template grid:

Item	Description
Start Time	The date and time that the event or state started.
End Time	The date and time that the event or state ended.
Duration	The length of the event, calculated as the difference between start time and end time and displayed using the format HH:MM:SS.mmm. The calculation for this field is: <i>Duration = End Time - Start Time</i>
Start Value	The value collected at the start of the event.
End Value	The value collected at the end of the event.
Event Comment	The wording of a comment that you have typed for an event in the Editor on page 95 .

The maximum number of rows in the resulting report: 5000.

NOTE: If the data returned exceeds the maximum number of rows allowed in the resulting report, the **Max row limit reached** message appears in red above the grid. The maximum row number can be changed in the RptSettings table. For more information, refer to [Modifying the RptSetting table on page 114](#).

The drillthrough hierarchy: none.

Calculations used by Report Expert to obtain values in the resulting report:

- *Duration = End Time - Start Time*

Event History String/Value

The Event History String and Value report templates display row-level data from the OEEEvent table. The difference between the reports is that the *Start Value*, *End Value*, and *Reporting Value* columns are displayed as either strings or values in the Event History String and Event History Value report templates respectively.

Query: EventDetailExt.

The fields of the report template grid:

Item	Description
Line Workcell	A level of the plant model (which is constructed by enterprise, site, area, line, and then work cell).
Shift Start Time	The start time of the shift during which the data was collected.
Event Occurrence	The identifier of a single event occurrence.
Event Category	The category of the event.

Item	Description
Event Name	The name of the event.
Event Reason	The string value representing the event reason.
Start Time	The date and time that the event or state started.
End Time	The date and time that the event or state ended.
Duration	The length of the event, calculated as the difference between start time and end time and displayed using the format HH:MM:SS.mmm. The calculation for this field is: <i>Duration = End Time - Start Time</i>
Start Value	The value collected at the start of the event.
End Value	The value collected at the end of the event.
Reporting Value	The string value representing the event reason.
Event Severity	The numeric severity level assigned to the event.

The drillthrough hierarchy: none.

Calculations used by Report Expert to obtain values in the resulting report:

- *Duration = End Time - Start Time*

Event Overview

The Event Overview report template displays row-level data from the QEEEvent table.

Query: EventDetailExt.

The fields of the report template grid:

Item	Description
Line	A level of the plant model (which is constructed by enterprise, site, area, line, and then work cell).
Work Cell	
Event Category	The category of the event.
Event Name	The name of the event.
Event Reason	The string value representing the event reason.
Shift Start	The start time of the shift during which the data was collected.
Event Occurrence Count/Id	The number of the event occurrences (for grouping rows). / The identifier of the single event occurrence (for detail rows).
Start Time	The date and time that the event or state started.
End Time	The date and time that the event or state ended.
Total Duration	The total time (HH:MM:SS.mmm) in the reporting period during which an event or state was occurring.

Item	Description
Min. Duration/Event Severity	The shortest event or state occurrence (for grouping rows). / The numeric severity level assigned to the event (for detail rows).
Max. Duration/Event Start Num	The longest event or state occurrence (for grouping rows). / The numeric value collected at the start of the event (for detail rows).
Avg. Duration/Event End Num	The average length of event or state occurrences (for grouping rows) / The numeric value collected at the end of the event (for detail rows).

The drillthrough hierarchy: none.

Event Summary

The Event Summary report template displays aggregated event data. This report template allows you to determine how often and for how long events occurred during the manufacturing process.

Query: Event.

The fields of the report template grid:

Item	Description
Event Count	The number of events that occurred during the reporting period.
Total Duration	The total time (HH:MM:SS.mmm) in the reporting period during which an event or state was occurring.
Min. Duration	The shortest event or state occurrence.
Max. Duration	The longest event or state occurrence.
Avg. Duration	The average length of event or state occurrences.
Detail	Link to an Event Detail report for the selected event.

The values of the report template and other report templates to which the values link using the drillthrough hierarchy:

Click a value in this column:	To display this report template:
Event Count	Event Summary
Total Duration	Event Summary
Min. Duration	Event Summary
Max. Duration	Event Summary
Avg. Duration	Event Summary
Detail	Event Detail

The report template bar charts: **Event Count** and **Total Duration**.

Event Count chart fields:

Item	Description
Value	Event Count
X axis grouping	First non-page grouping parameter
Series	Second non-page grouping

Total Duration chart fields:

Item	Description
Value	Total Duration
X axis grouping	First non-page grouping parameter
Series	Second non-page grouping

Fault

The Fault report template displays aggregated data related to faults of the machinery. It allows you to assess how often and for how long the faults occurred during the manufacturing process, and provides links to Event Summary reports concerning faults for a specific work cell.

Query: Performance.

The fields of the report template grid:

Item	Description
Running Time	Running Time is the amount of time the work cell was Running. The calculation of Running Time is determined by the settings for the Running performance parameter in the work cell's configuration. In the reports Running Time is usually represented as HH:MM:SS, although in the calculations it is represented in seconds.
Fault Time	The time when the fault occurred.
Fault Count	The number of faults that occurred in the reporting period.
MTBF (Mean Time Between Failures)	Mean Time Between Failures (MTBF) is the ratio of running time to the total number of failures. It measures the average amount of time when a piece of equipment was in a running state between failures. MTBF is a derived field that contains aggregate functions and, as such, can only be used in summary report objects and cannot have aggregate functions applied. The calculation for this field is: $MTBF = Uptime / FaultCount$
MTTR (Mean Time To Repair)	Mean Time to Repair (MTTR) is the ratio of the time spent in a failure state to the total number of failures. It measures the average amount of time when a piece of equipment was in a failure state. MTTR is a derived field that contains aggregate functions and, as such, can only be used in summary report objects and cannot have aggregate functions applied.

Item	Description
	The calculation for this field is: $MTTR = \text{FaultTime} / \text{FaultCount}$
Faults per Hour	The average number of faults per hour during the reporting period. The calculation for this field is: $\text{Faults per Hour} = \text{Faults Count} / \text{Uptime}$
Fault %	The percentage of time the machine spent in a fault state. The calculation for this field is: $\text{Fault \%} = \text{FaultTime} / \text{Uptime}$
Detail	Link to an Event Summary report referring to a specific fault, filtered to display only faults and grouped by event name.

The values of the report template and other report templates to which the values link using the drillthrough hierarchy:

Click a value in this column:	To display this report template:
Running Time	Fault (grouped by the next value in the drillthrough hierarchy)
Fault Time	
Fault Count	
MTBF	
MTRR	
Faults per Hour	
Fault %	
Detail	Event Summary

The report template bar charts: **MTBF** and **MTRR**.

MTBF chart fields:

Item	Description
Value	MTBF (in hours)
X axis grouping	First non-page grouping parameter
Series	Second non-page grouping

MTRR chart fields:

Item	Description
Value	MTRR (in minutes)
X axis grouping	First non-page grouping parameter
Series	Second non-page grouping

Calculations used by Report Expert to obtain values in the resulting report:

- $MTBF = \text{Uptime} / \text{FaultCount}$
- $MTRR = \text{FaultTime} / \text{FaultCount}$

- $Faults\ per\ Hour = Faults\ Count / Uptime$
- $Fault\ \% = FaultTime / Uptime$

Performance

The Performance report template provides the OEE (Overall Equipment Effectiveness) rating that can be used to assess a single machine's performance over time or to compare the performance of machines to each other.

Query: Performance.

The fields of the report template grid:

Item	Description
Uptime %	The percentage of the time the work cell was running when it was expected to be running. Also may be referred to as Availability or Availability % . The calculation for this field is: $Uptime\ \% = Running\ Time / Available\ Time$
Throughput %	The actual performance of a work cell as a percentage of its ideal performance. Ideal performance is determined by Ideal Cycle Time, which is the number of seconds required to produce one part at the machine's maximum speed. Ideal Cycle Time may change as different products are produced. Also may be referred to as Performance or Performance % . The calculation for this field is: $Throughput = (TotalParts \times IdealCycleTime) / Running\ Time$
Quality %	The percentage of Total Parts produced that were Good Parts. The calculation for this field is: $Quality\ \% = Good\ Parts / Total\ Parts$
OEE %	Overall Equipment Effectiveness (OEE %) is a measure of work cell efficiency, and the product of Uptime %, Throughput %, and Quality %. The calculation for this field is: $OEE\ \% = Uptime\ \% \times Throughput\ \% \times Quality\ \%$

The values of the report template and other report templates to which the values link using the drillthrough hierarchy:

Click a value in this column:	To display this report template:
Uptime %	Uptime
Throughput %	Throughput
Quality %	Quality
OEE %	Performance

The report template bar charts: **OEE %**.

Item	Description
Value	OEE %
X axis grouping	First non-page grouping parameter
Series	Second non-page grouping

Calculations used by Report Expert to obtain values in the resulting report:

- $Uptime \% = RunningTime / AvailableTime$
- $Throughput \% = (TotalParts \times IdealCycleTime) / RunningTime$
- $Quality \% = GoodParts / TotalParts$
- $OEE \% = Uptime \times Throughput \times Quality$

Or

$$OEE = \frac{RunningTime}{AvailableTime} \times \frac{TotalParts \times IdealCycleTime}{RunningTime} \times \frac{GoodParts}{TotalParts}$$

This reduces to:

$$OEE = \frac{IdealCycleTime \times GoodParts}{AvailableTime}$$

NOTE: Typically, the OEE calculation will be performed over a time range with numerous IdealCycleTime values. In this case, the calculation is done for each unique IdealCycleTime using the GoodParts and AvailableTime during that IdealCycleTime. Each individual calculation is then multiplied by its fraction of the TotalAvailableTime (AvailableTime/TotalAvailableTime) and then summed together.

The following formula illustrates the calculation with multiple IdealCycleTimes:

$$OEE = \frac{(ICT1 \times GP1) + (ICT2 \times GP2) + (ICTn \times GPn)}{A1 + A2 + An}$$

where:

- ICT = IdealCycleTime
- GP = GoodParts
- A = AvailableTime

Production

If you group a report by work cell, using the Production report template allows you to determine the production success of a single work cell or to compare the production successes of multiple work cells.

Query: Performance.

The fields of the report template grid:

Item	Description
Good Parts	The number of Good Parts produced by the work cell.

Item	Description
	<p>The calculation of Good Parts is determined by the settings for the Good Parts performance parameter in the work cell's configuration. If Good Parts is not configured, but Total Parts and Scrap Parts are configured, then Good Parts will be calculated:</p> $\text{Good Parts} = \text{Total Parts} - \text{Scrap Parts}$
Scrap Parts	<p>The number of Scrap Parts produced by the work cell.</p> <p>The calculation of Scrap Parts is determined by the settings for the Scrap Parts performance parameter in the work cell's configuration. It is assumed that Scrap Parts are associated with the work cell that caused the quality issue that rendered the parts to be unacceptable. If Scrap Parts is not configured, but Total Parts and Good Parts are configured, then Scrap Parts will be calculated:</p> $\text{Scrap Parts} = \text{Total Parts} - \text{Good Parts}$
Total Parts	<p>The number of Total Parts produced by the work cell.</p> <p>The calculation of Total Parts is determined by the settings for the Total Parts performance parameter in the work cell's configuration. If Total Parts is not configured, but Scrap Parts and Good Parts are configured, then Total Parts will be calculated:</p> $\text{Total Parts} = \text{Good Parts} + \text{Scrap Parts}$
Ideal Parts	<p>The total number of parts that could have been produced in the Available Time if OEE was 100%.</p> <p>The calculation for this field is:</p> $\text{Ideal Parts} = \text{Available Time} / \text{Ideal Cycle Time}$ <p>Where multiple Ideal Cycle Times exist, the calculation is, more precisely:</p> $\text{Ideal Cycle Time} = (\text{Available Time}(1) / \text{Ideal Cycle Time}(1)) + \dots + (\text{Available Time}(n) / \text{Ideal Cycle Time}(n))$
Ideal %	<p>A measurement of how close the activity area was to ideal performance.</p> <p>The calculation for this field is:</p> $\text{Ideal \%} = \text{GoodParts} / \text{IdealParts}.$ <p>It calculates the percentage of the ideal part count that was produced.</p>
Scrap %	<p>The percentage of total parts produced that were rejected due to poor quality.</p> <p>The calculation for this field is:</p> $\text{Scrap \%} = \text{ScrapParts} / \text{TotalParts}$
Running Time	<p>Running Time is the amount of time the work cell was Running. The calculation of Running Time is determined by the settings for the Running performance parameter in the work</p>

Item	Description
	cell's configuration. In the reports, Running Time is usually represented as HH:MM:SS, although in the calculations it is represented in seconds.
Uptime %	The percentage of the time the work cell was running when it was expected to be running. Also may be referred to as Availability or Availability % . The calculation for this field is: $Uptime \% = \text{Running Time} / \text{Available Time}$

The values of the report template and other report templates to which the values link using the drillthrough hierarchy:

Click a value in this column:	To display this report template:
Good Parts	Production
Scrap Parts	Quality
Total Parts	Production
Ideal Parts	Production
Ideal %	Production
Scrap %	Production
Running Time	Production
Uptime %	Uptime

The report template bar charts: **Good Parts vs. Ideal Parts**.

Item	Description
Value	Good Parts, Ideal Parts
X axis grouping	First non-page grouping parameter
Series	Second non-page grouping

Calculations used by Report Expert to obtain values in the resulting report:

- $IdealParts = \text{AvailableTime} / \text{IdealCycleTime}$
- $Ideal \% = \text{GoodParts} / \text{IdealParts}$
- $Scrap \% = \text{ScrapParts} / \text{TotalParts}$
- $Uptime \% = \text{RunningTime} / \text{AvailableTime}$

Production Overview

The Production Overview report template displays overall performance of machines, aggregating data related to quality, time and performance.

Query: Performance

The fields of the report template grid:

Item	Description
Uptime %	<p>The percentage of the time the work cell was running when it was expected to be running.</p> <p>Also may be referred to as Availability or Availability %.</p> <p>The calculation for this field is:</p> $Uptime \% = \frac{Running\ Time}{Available\ Time}$
Throughput %	<p>The actual performance of a work cell as a percentage of its ideal performance. Ideal performance is determined by Ideal Cycle Time, which is the number of seconds required to produce one part at the machine's maximum speed. Ideal Cycle Time may change as different products are produced.</p> <p>Also may be referred to as Performance or Performance %.</p> <p>The calculation for this field is:</p> $Throughput \% = \frac{(Total\ Parts \times Ideal\ Cycle\ Time)}{Running\ Time}$
Quality %	<p>The percentage of Total Parts produced that were Good Parts.</p> <p>The calculation for this field is:</p> $Quality \% = \frac{Good\ Parts}{Total\ Parts}$
OEE %	<p>Overall Equipment Effectiveness (OEE %) is a measure of work cell efficiency, and the product of Uptime %, Throughput %, and Quality %.</p> <p>The calculation for this field is:</p> $OEE \% = Uptime \% \times Throughput \% \times Quality \%$
Available Time	<p>Available Time is the amount of time the work cell was expected to be Running and producing parts. It can also be thought of as "Available to Run".</p> <p>The calculation of Available Time is determined by the settings for the Scheduled Availability and Monitored Availability performance parameters in the work cell's configuration. In the reports Available Time is usually represented as HH:MM:SS, although in the calculations it is represented in seconds.</p>
Downtime	<p>The amount of time the work cell was Available but not Running.</p> <p>The calculation for this field is:</p> $Downtime = Available\ Time - Running\ Time$
Running Time	<p>Running Time is the amount of time the work cell was Running. The calculation of Running Time is determined by the settings for the Running performance parameter in the work cell's configuration. In the reports Running Time is usually represented as HH:MM:SS, although in the calculations it is represented in seconds.</p>
Good Parts	<p>The number of Good Parts produced by the work cell.</p> <p>The calculation of Good Parts is determined by the settings for the Good Parts performance parameter in the work cell's configuration. If Good Parts is not configured, but Total Parts</p>

Item	Description
	<p>and Scrap Parts are configured, then Good Parts will be calculated:</p> $\text{Good Parts} = \text{Total Parts} - \text{Scrap Parts}$
Scrap Parts	<p>The number of Scrap Parts produced by the work cell.</p> <p>The calculation of Scrap Parts is determined by the settings for the Scrap Parts performance parameter in the work cell's configuration. It is assumed that Scrap Parts are associated with the work cell that caused the quality issue that rendered the parts to be unacceptable. If Scrap Parts is not configured, but Total Parts and Good Parts are configured, then Scrap Parts will be calculated:</p> $\text{Scrap Parts} = \text{Total Parts} - \text{Good Parts}$
Total Parts	<p>The number of Total Parts produced by the work cell.</p> <p>The calculation of Total Parts is determined by the settings for the Total Parts performance parameter in the work cell's configuration. If Total Parts is not configured, but Scrap Parts and Good Parts are configured, then Total Parts will be calculated:</p> $\text{Total Parts} = \text{Good Parts} + \text{Scrap Parts}$
Ideal Parts	<p>The total number of parts that could have been produced in the Available Time if OEE was 100%.</p> <p>The calculation for this field is:</p> $\text{Ideal Parts} = \text{Available Time} / \text{Ideal Cycle Time}$ <p>Where multiple Ideal Cycle Times exist, the calculation is, more precisely:</p> $\text{Ideal Cycle Time} = (\text{Available Time}(1) / \text{Ideal Cycle Time}(1)) + \dots + (\text{Available Time}(n) / \text{Ideal Cycle Time}(n))$
Scheduled Unavailable Time	<p>The amount of time the work cell is unavailable according to its assigned schedule or time pattern.</p>
Faults	<p>The number of faults (occurrences of custom events that are configured as Faults) that occurred. On each report, each Fault instance will be counted only once.</p>
TEEP	<p>TEEP (Total Effective Equipment Productivity) measures work cell efficiency over all time (Total Time). It is similar to OEE, except the OEE calculation is limited to Available Time. Since it uses all time, TEEP also considers the utilization of the work cell.</p> <p>The calculation for this field is:</p> $\text{TEEP} = \text{OEE} \% \times (\text{Available Time} / \text{Total Time})$

The values of the report template and other report templates to which the values link using the drillthrough hierarchy:

Click a value in this column:	To display this report template:
Uptime %	Uptime
Throughput %	Throughput
Quality %	Quality
OEE %	Performance
Available Time	Production Overview
Downtime	Production Overview
Running Time	Production Overview
Good Parts	Production Overview
Scrap Parts	Production Overview
Total Parts	Production
Ideal Parts	Production
Scheduled Unavailable Time	Production Overview
Faults	Fault
TEEP	Performance

The report template bar charts: **Production Overview Chart**.

Item	Description
Value	Uptime %, Throughput %, Quality %, and OEE %
X axis grouping	First non-page grouping parameter
Series	Second non-page grouping

Calculations used by Report Expert to obtain values in the resulting report:

- $Uptime \% = RunningTime / AvailableTime$
- $Throughput = (TotalParts \times IdealCycleTime) / Running\ Time$
- $Quality \% = GoodParts / Total\ Parts$
- $OEE \% = Uptime \times Throughput \times Quality$
- $DownTime = AvailableTime - RunningTime$
- $IdealParts = AvailableTime / IdealCycleTime$
- $TEEP = OEE \% \times (Available\ Time / Total\ Time)$

Quality

The Quality report template allows you to assess the quality of the parts that have been produced.

Query: Performance

The fields of the report template grid:

Item	Description
Good Parts	The number of Good Parts produced by the work cell. The calculation of Good Parts is determined by the settings for the Good Parts performance parameter in the work cell's

Item	Description
	configuration. If Good Parts is not configured, but Total Parts and Scrap Parts are configured, then Good Parts will be calculated: $Good\ Parts = Total\ Parts - Scrap\ Parts$
Scrap Parts	The number of Scrap Parts produced by the work cell. The calculation of Scrap Parts is determined by the settings for the Scrap Parts performance parameter in the work cell's configuration. It is assumed that Scrap Parts are associated with the work cell that caused the quality issue that rendered the parts to be unacceptable. If Scrap Parts is not configured, but Total Parts and Good Parts are configured, then Scrap Parts will be calculated: $Scrap\ Parts = Total\ Parts - Good\ Parts$
Quality %	The percentage of Total Parts produced that were Good Parts. The calculation for this field is: $Quality\ \% = Good\ Parts / Total\ Parts$

The values of the report template and other report templates to which the values link using the drillthrough hierarchy:

Click a value in this column:	To display this report template:
Good Parts	Quality (grouped by the next value in the drillthrough hierarchy)
Scrap Parts	
Quality %	

The report template bar charts: **Quality %**.

Item	Description
Value	Quality %
X axis grouping	First non-page grouping parameter
Series	Second non-page grouping

Calculations used by Report Expert to obtain values in the resulting report:

- $Quality = GoodParts / TotalParts$

Root Cause Analysis

The Root Cause Analysis report template consists of a Gantt chart displaying work cell state occurrences over time. The chart will display the work cells in the order specified in the [Line Order on page 133](#) tab. Below the Gantt chart for each line is a table of data showing the same data used in the chart.

Query: State Detail.

The fields of the report template grid:

Item	Description
Work Cell	A level of the plant model (which is constructed by enterprise, site, area, line, and then work cell).
Shift	The shift during which the data was collected.
Shift Start	The start time of the shift during which the data was collected.
State Name	The machine state. This field is color coded.
Start Time	The date and time that the event or state started.
End Time	The date and time that the event or state ended.
Duration	The length of the event, calculated as the difference between start time and end time and displayed using the format HH:MM:SS.mmm. The calculation for this field is: <i>Duration = End Time - Start Time</i>

The maximum number of rows in the resulting report: 1000.

NOTE: If the data returned exceeds the maximum number of rows allowed in the resulting report, the Max row limit reached message appears in red above the grid. The maximum row number can be changed in the RptSettings table. For more information, refer to [Modifying the RptSetting table on page 114](#).

The report template has one hard-coded grouping with one page group (line) and four row groups (Work cell, Shift Start, State, and PartId).

The report template has six control buttons. Each adjusts the parameter set time window of the state data displayed:

Item	Description
<< Scroll left 1	Decreases the parameter set time start and end by the difference between end and start.
< Scroll left 1/4	Decreases the parameter set time start and end by 1/4 the difference between end and start.
>> Scroll right 1	Increases the parameter set time start and end by the difference between end and start.
> Scroll right 1/4	Increases the parameter set time start and end by 1/4 the difference between end and start.
Zoom In	Zooms in 50%. Increases the parameter set time start and decreases the parameter set time end by 1/4 the difference between end and start.
Zoom Out	Zooms out 2X. Decreases the parameter set time start and increases the parameter set time end by 1/2 the difference between end and start.

The drillthrough hierarchy: none.

Calculations used by Report Expert to obtain values in the resulting report:

- $Duration = End\ Time - Start\ Time$

State Detail

The State Detail report template displays detailed state information including work cell, shift start, state name, start time, end time, and duration.

Query: State Detail.

The fields of the report template grid:

Item	Description
Work Cell	A level of the plant model (which is constructed by enterprise, site, area, line, and then work cell).
Shift	The shift during which the data was collected.
Shift Start	The start time of the shift during which the data was collected.
State Name	The machine state. This field is color coded.
Start Time	The date and time that the event or state started.
End Time	The date and time that the event or state ended.
Duration	The length of the event, calculated as the difference between start time and end time and displayed using the format HH:MM:SS.mmm. The calculation for this field is: $Duration = End\ Time - Start\ Time$

The maximum number of rows in the resulting report: 1000.

NOTE: If the data returned exceeds the maximum number of rows allowed in the resulting report, the Max row limit reached message appears in red above the grid. The maximum row number can be changed in the RptSettings table. For more information, refer to [Modifying the RptSetting table on page 114](#).

The report template has one hard-coded grouping with one page group (line) and four row groups (Workcell, ShiftStart, State, and PartId).

The drillthrough hierarchy: none.

Calculations used by Report Expert to obtain values in the resulting report:

- $Duration = End\ Time - Start\ Time$

State Summary

The State Summary report template displays aggregated state data. This report template allows you to determine how often and for how long states occurred during the manufacturing process.

Query: State Summary

The fields of the report template grid:

Item	Description
State Count	The number of states that occurred during the reporting period.
Total Duration	The total time (HH:MM:SS.mmm) in the reporting period during which an event or state was occurring.
Min Duration	The shortest event or state occurrence.
Max Duration	The longest event or state occurrence.
Avg. Duration	The average length of event or state occurrences.
Detail	Link to a State Detail report for the selected state.

The values of the report template and other report templates to which the values link using the drillthrough hierarchy:

Click a value in this column:	To display this report template:
State Count	State Summary (grouped by the next value in the drillthrough hierarchy)
Total Duration	
Min Duration	
Max Duration	
Avg. Duration	
Detail	State Detail

The report template bar charts: **State Count** and **Total Duration**.

State Count chart fields:

Item	Description
Value	State Count
X axis grouping	First non-page grouping parameter
Series	Second non-page grouping

Total Duration chart fields:

Item	Description
Value	Total Duration
X axis grouping	First non-page grouping parameter
Series	Second non-page grouping

Throughput

The Throughput report template allows you to assess the performance of a machine as compared to its ideal cycle time. The ideal cycle time will depend upon the product being produced and is measured in units of seconds per part.

Query: Performance.

The fields of the report template grid:

Item	Description
Total Parts	<p>The number of Total Parts produced by the work cell.</p> <p>The calculation of Total Parts is determined by the settings for the Total Parts performance parameter in the work cell's configuration. If Total Parts is not configured, but Scrap Parts and Good Parts are configured, then Total Parts will be calculated:</p> $\text{Total Parts} = \text{Good Parts} + \text{Scrap Parts}$
Running Time	<p>Running Time is the amount of time the work cell was Running. The calculation of Running Time is determined by the settings for the Running performance parameter in the work cell's configuration. In the reports Running Time is usually represented as HH:MM:SS, although in the calculations it is represented in seconds.</p>
Realized Cycle Time	<p>The actual amount of time it took to produce a part. This value is a ratio of running time to the total number of parts produced.</p> <p>The calculation for this field is:</p> $\text{RealizedCycleTime} = \text{RunningTime} / \text{TotalParts}$
Cycle Time Diff.	<p>The difference, represented by a negative number, between the ideal amount of time it should take to produce a part and the actual amount of time it took to produce parts. Better cycle time differences are indicated by a lower negative number.</p> <p>The calculation for this field is:</p> $\text{CycleTimeDifference} = \text{IdealCycleTime} - \text{RealizedCycleTime}$
Cycle Time Diff. %	<p>The Cycle Time Difference as a percentage of the Ideal Cycle Time.</p> <p>The calculation for this field is:</p> $\text{CycleTimeDiff\%} = \text{CycleTimeDifference} / \text{IdealCycleTime}$
Throughput %	<p>The actual performance of a work cell as a percentage of its ideal performance. Ideal performance is determined by Ideal Cycle Time, which is the number of seconds required to produce one part at the machine's maximum speed. Ideal Cycle Time may change as different products are produced.</p> <p>Also may be referred to as Performance or Performance %.</p> <p>The calculation for this field is:</p> $\text{Throughput} = (\text{TotalParts} \times \text{IdealCycleTime}) / \text{Running Time}$

The values of the report template and other report templates to which the values link using the drillthrough hierarchy:

Click a value in this column:	To display this report template:
Total Parts	Production
Running Time	Uptime
Realized Cycle Time	Throughput (grouped by the next value in the drillthrough hierarchy)
Cycle Time Diff.	

Click a value in this column:	To display this report template:
Cycle Time Diff. %	
Throughput %	

The report template bar charts: a horizontal bar chart showing **Throughput %** and a line chart showing **Realized vs. Ideal Cycle Time**.

Throughput % chart fields:

Item	Description
Value	Throughput %
X axis grouping	First non-page grouping parameter
Series	Second non-page grouping

Realized vs. Ideal Cycle Time chart fields:

Item	Description
Value	Realized Cycle Time, Ideal Cycle Time
X axis grouping	First non-page grouping parameter
Series	Second non-page grouping

Calculations used by Report Expert to obtain values in the resulting report:

- $RealizedCycleTime = RunningTime / TotalParts$
- $CycleTimeDiff = IdealCycleTime - RealizedCycleTime$
- $CycleTimeDiff\% = CycleTimeDifference / IdealCycleTime$
- $Throughput\% = (TotalParts \times IdealCycleTime) / RunningTime$

Uptime

The Uptime report template allows you to assess the production availability of one or more activity areas. Uptime is a ratio of running time to available time. Available time may be defined by a schedule or modified by planned downtime events such as preventive maintenance. Available time may also be modified by events such as being starved for parts or being blocked by a downstream process.

Query: Performance

The fields of the report template grid:

Item	Description
Running Time	Running Time is the amount of time the work cell was Running. The calculation of Running Time is determined by the settings for the Running performance parameter in the work cell's configuration. In the reports Running Time is usually represented as HH:MM:SS, although in the calculations it is represented in seconds.

Item	Description
Available Time	Available Time is the amount of time the work cell was expected to be Running and producing parts. It can also be thought of as "Available to Run". The calculation of Available Time is determined by the settings for the Scheduled Availability and Monitored Availability performance parameters in the work cell's configuration. In the reports Available Time is usually represented as HH:MM:SS, although in the calculations it is represented in seconds.
Downtime	The amount of time the work cell was Available but not Running. The calculation for this field is: <i>Downtime = Available Time - Running Time</i>
Uptime %	The percentage of the time the work cell was running when it was expected to be running. Also may be referred to as Availability or Availability % . The calculation for this field is: <i>Uptime % = Running Time/Available Time</i>

The values of the report template and other report templates to which the values link using the drillthrough hierarchy:

Click a value in this column:	To display this report template:
Running Time	Uptime (grouped by the next value in the drillthrough hierarchy)
Available Time	
Downtime	
Uptime %	

The report template bar charts: **Uptime %**.

Item	Description
Value	Uptime %
X axis grouping	First non-page grouping parameter
Series	Second non-page grouping

Calculations used by Report Expert to obtain values in the resulting report:

- *DownTime = AvailableTime - RunningTime*
- *Uptime % = RunningTime/AvailableTime*

Query fields

The following table lists the report templates, the queries those report templates use, and the fields contained in each of the queries.

This report template:	Uses this query:	That contains these query fields:
Event All Detail	EventDetailExt	<ul style="list-style-type: none"> • Event Category • Event Comment

This report template:	Uses this query:	That contains these query fields:
		<ul style="list-style-type: none"> • Event Duration • Event During Num • Event During Scheduled Time • Event End Num • Event End Time • Event End Value • Event Is Fault • Event Name • Event Reason • Event Reason Code • Event Severity • Event Start Num • Event Start Time • Event Start Value • Flex 1 -5 • Line • IOccurrenceEventId • IOEEConfigEventId • Record Start • Shift • Shift Number • Shift Start • Work Cell Ordered • Work Cell
<p>Event Detail</p> <p>Event Detail Paged</p>	<p>EventDetail</p>	<ul style="list-style-type: none"> • Event Start Time • Event End Time • Event Duration • Event Start Value • Event End Value • Event Occurrence • Event During Num • Event Start Num • Event End Num • Event Comment • Sequence • Row Group 1-5 • Page Group 1-5 • Column Group 1-5
<p>Event Chart</p> <p>Event Summary</p>	<p>Event</p>	<ul style="list-style-type: none"> • Event Count • Duration • Minimum Duration • Maximum Duration • Average Duration • Work Cell Ordered

This report template:	Uses this query:	That contains these query fields:
		<ul style="list-style-type: none"> • Column Group 1-5 • Row Group 1-5 • Page Group 1-5
Event Configuration	EventConfiguration	<ul style="list-style-type: none"> • Enterprise • Site • Area • Line • Workcell • ConfigWorkcellId • ConfigEventId • EventName • EventCategory • SeverityLevel • UnschedDatapoint4EventTrigger • FTTEExpr4EventTriggerValue • FaultMetricUse • Datapoint4EventValue • FTTEExpr4EventValue • EventValueLookupListName • MachineStateId • MachineStateName
Fault Performance Production Production Overview Quality Throughput Uptime	Performance	<ul style="list-style-type: none"> • Available Time • Column Group 1-5 • Cycle Time Difference • Cycle Time Difference % • Down Time • Failure Frequency Rate • Failure Rate • Fault Time • Faults • Good Parts • Ideal Cycle Time • Ideal Parts • Monitored Unavailable Time • MTBF (Mean Time Between Failures) • MTTR (Mean Time To Repair) • OEE% • Page Group 1-5 • Percent Ideal Parts • Percent Scrap Parts • Quality % • Realized Cycle Time • Row Group 1-5 • Running Time

This report template:	Uses this query:	That contains these query fields:
		<ul style="list-style-type: none"> • Schedule Capacity • Schedule Unavailable Time • Scheduled Available Time • Scrap Parts • Throughput% • Total Capacity • Total Parts • Total Time • Uptime % • Work Cell Ordered
Root Cause Analysis State Detail	State Detail	<ul style="list-style-type: none"> • Date • Good Parts • Hour • Line • Month • Scrap Parts • Shift • Shift Number • Shift Start • State Name • State Id • Total Parts • Week • Work Cell • Work Cell Ordered
State Summary	State Summary	<ul style="list-style-type: none"> • Average Duration • Column Group 1-5 • Duration • Maximum Duration • Minimum Duration • Page Group 1-5 • Row Group 1-5 • State Count • Work Cell Ordered

Raw data

The following table displays the source of all raw data used by Report Expert. The data is contained in the RSBizWare database to which Report Expert connects.

Data	Table.Field
Available Time	OEEWorkcell.dAvailSec
Fault Occurrences	OEEFaultMetricData.IFaultCount
Fault Time	OEEFaultMetricData.dFaultSeconds

Data	Table.Field
Good Parts	OEEWorkcell.dPartCount
Ideal Cycle Time	OEEWorkcell.dIdealCycleTime
Running Time	OEEWorkcell.dRunSec
Scrap Parts	OEEWorkcell.dScrapParts
Total Parts	OEEWorkcell.dTotalParts

Understanding parameter sets

A parameter set consists of a collection of parameters that, when applied to a report template, can change the appearance and filter the content of the resulting report. With different parameter sets, a single report template can produce a wide range of reports. Report Expert includes a number of default parameter sets that you can modify or create others.

In this section, you will learn about the parameter sets that are available with Report Expert.

You will use this information to generate reports and create your own parameter sets. For more information, refer to [Viewing and generating reports on page 81](#).

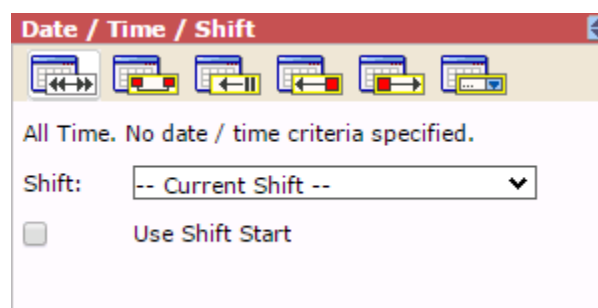
To define a parameter set properly, you must understand how each of the parameter set controls is used. The following subsections describe each of the controls.

The parameter sets are displayed on the **Parameters** and **Editor** pages of Report Expert. Parameter settings can be changed or set using either the Parameter screen or the Parameter tab on the Administrator screen. In using the Parameter screen, you can apply any changes to the selected Report Template immediately, so you can perform ad-hoc reporting using any Report Template. Changes that you have made to Parameters can be saved into a new or existing Parameter Set for future use. The Parameter tab on the Administrator screen allows you to create Parameter Sets or edit existing ones, but you cannot see their effect.

NOTE: Administrators can configure which parameters sets are displayed. For more information, refer to [Configuring parameter sets on page 122](#).

Date / Time / Shift

The Date/Time/Shift parameter allows you to specify or change the date/time and shift properties associated with a parameter set. When you apply these settings to a report, they are used to select only the data with the specified dates/times and shifts.



Start and End Times

All records in the FactoryTalk Metrics database contain a start time and an end time. The Date/Time selections you make in Report Expert use the start time from those database records.

Some data from the database (for example, the OEEWorkcell table data that is used in the Performance, Production, Quality, Throughput, and Uptime reports) is returned in 10 minute increments by default, but the time increment is

configurable for each workcell. In this case, the start and end times (without dates to simplify this example) of the resulting database records would be:

Database record:	Start time:	End time:
1	8:00 AM	8:10 AM
2	8:10 AM	8:20 AM
3	8:20 AM	8:30 AM
4	8:30 AM	8:40 AM
5	8:40 AM	8:50 AM
6	8:50 AM	9:00 AM
7	9:00 AM	9:10 AM



When you apply the Date/Time filter in Report Expert, only *complete* database records are returned. Therefore, the data returned may not match the parameter set's Date/Time.



For example, for the start and end times above, the following records would be returned:



Date/Time selection:	Returns records:	Containing data from this time:
8:00 AM to 9:00 AM	1 - 6 above	8:00 AM to 9:00 AM
8:05 AM. to 9:00 AM	2 - 6 above	8:10 AM. to 9:00 AM
8:00 AM to 9:05 AM	1 - 6 above	8:00 AM to 9:00 AM
8:01 AM to 8:09 AM	none	none

Select Date / Time

There are six different ways to specify the values of the date/time properties; to select one, click the appropriate button and then type any additional information.

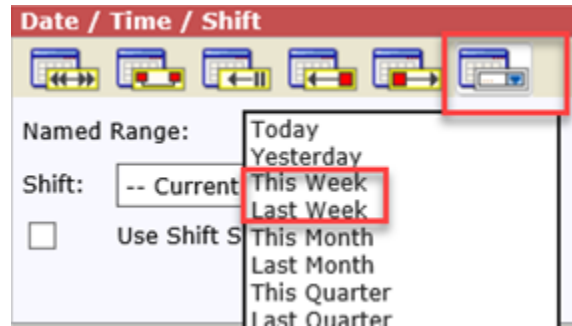
Click this button:	To:
 All Time	Include all data in the database. We generally recommend that you do not select All Time unless you also select Current Shift. For performance reasons, Report Expert limits the number of database rows returned by a query in the Event Detail, Root Cause Analysis, and State Detail reports. Due to this limit, in most cases, All Time will not return all data in these reports.
 Specify Time Range with Start and End Dates	Specify that you want to view all information that was recorded between a specified start and end date and time. To specify the required time interval, you must complete the Start and End date fields and the optional (for example 4/1/2007). The following shortcut keys are available to type a date quickly: [t] to type today's date, [up arrow] for the next date, [down arrow] for the previous date, The Start and End time fields must specify a time with the following format: hh:mm:ss [AM or PM], where leading 0's in the hour are optional (for example 1:23:00 AM). The following shortcut keys are

Click this button:	To:
	<p>available to type a date quickly: Ctrl + [n] to type the current time, [up arrow] for the next minute, [down arrow] for the previous minute, [page up] for the next hour, [page down] for the previous hour.</p> <p>If you do not specify a start time, 0:00:00 a.m. (midnight) is used. If you do not specify an end time, 0:00:00 a.m. (midnight) of the next day is used. For example, if you select 1/12/2008, Report Expert uses 2/12/2008 0:00:00 a.m.</p> <p>You can type an end date/time that is in the future.</p>
 Specify Time Span Ending Now	<p>Specify that you want to view all information that was recorded during a specified time interval (in the past) through the current date and time.</p> <p>You must specify a time interval:</p> <p>In the first Past field, you must specify a number and in the second Past field you must type a time value (in seconds, minutes, and so on). Together, these two fields specify the length of the time interval.</p> <p>Specifying the time span can be useful for saved parameter sets because the time span always applies. For example, the past 24 hours is always a valid time filter.</p>
 Specify Time Span Ending on End Date	<p>Specify that you want to view all information that was recorded during a specified time interval (in the past) through a specified end date and time.</p> <p>To specify the required time interval, in the first Past field, type a number; then click the dropdown arrow to select a time value (seconds, minutes, and so on). Together, these two fields specify the length of the time interval. You must also complete the End date field and the End time field.</p> <p>The Past field must specify a number and the Past list must contain a time value (seconds, minutes, and so on). Together, these two fields specify the length of the time interval.</p> <p>The End date field must specify a date with the following format: MM/DD/YYYY, where leading 0s in the month and day are optional (for example 4/1/2007). The following shortcut keys are available to type a date quickly: [t] to type today's date, [up arrow] for the next date, [down arrow] for the previous date, [page up] for the next month, [page down] for the previous month, and [c] to access the calendar date picker. You can also access the calendar date picker by clicking the calendar icon.</p> <p>The End time field must specify a time with the following format: hh:mm:ss [AM or PM], where leading 0s in the hour are optional (for example 1:23:00 AM). The following shortcut keys are available to type time quickly: Ctrl + [n] to type the current time, [up arrow] for the next minute, [down arrow] for</p>

Click this button:	To:
	<p>the previous minute, [page up] for the next hour, [page down] for the previous hour.</p> <p>Specifying the time span can be useful for saved parameter sets because the time span always applies. For example, the past 24 hours is always a valid time filter.</p>
 Specify Time Span Starting on Start Date	<p>Specify that you want to view all information that was recorded during a specified time interval (in the past) from a specified start date and time.</p> <p>To specify the required time interval, in the Next field, type a number; then click the dropdown arrow to select a time value (seconds, minutes, and so on). Together, these two fields specify the length of the time interval. You must also complete the Start date field and the Start time field.</p> <p>The Next field must specify a number and the Next list must contain a time value (seconds, minutes, and so on). Together, these two fields specify the length of the time interval.</p> <p>The Start date field must specify a date with the following format: MM/DD/YYYY, where leading 0s in the month and day are optional (for example 4/1/2007). The following shortcut keys are available to type a date quickly: [t] to type today's date, [up arrow] for the next date, [down arrow] for the previous date, [page up] for the next month, [page down] for the previous month, and [c] to access the calendar date picker. You can also access the calendar date picker by clicking the calendar icon.</p> <p>The Start time field must specify a time with the following format: hh:mm:ss [AM or PM], where leading 0s in the hour are optional (for example 1:23:00 AM). The following shortcut keys are available to type time quickly: Ctrl + [n] to type the current time, [up arrow] for the next minute, [down arrow] for the previous minute, [page up] for the next hour, [page down] for the previous hour.</p>
 Specify Named Date Range	<p>Specify that you want to view all information that was recorded during a specified named date range.</p> <p>Named date ranges are useful for saved parameter sets because they are always current. For example, a date filter of "Yesterday" always returns yesterday's data, no matter when you run the report.</p> <p>When you select This Week or Last week for Named Range, the first day of the week is Sunday by default. To define Monday as the first day of the week on page 70, edit the dbo.RptSetting table in SQL Server Management Studio.</p>

Define the first day of the week

When you select **This Week** or **Last week** for **Named Range**, the first day of the week is Sunday by default. To define Monday as the first day of the week, edit the `dbo.RptSetting` table in SQL Server Management Studio. This configuration is only applicable for This Week and Last Week.



To define the first day of the week

1. On the Start screen, click **SQL Server Management Studio**.
The **Microsoft SQL Server Management Studio** window and the **Connect to Server** dialog box appear.
2. Select the computer that hosts SQL Server.
3. Type the login and password, and then click **Connect**.
4. In the **Object Explorer**, expand **Databases > <your metrics database> > Tables**.
5. Right-click **dbo.RptSetting**, and then click **Edit Top 200 Rows**.
6. Select an empty row.
7. In the **Name** column, enter **WeekStartDay**.
8. In the **Value** column, enter **Sunday** or **Monday**.

NOTE: If you enter other values instead of Sunday or Monday, Report Expert will use Sunday as the start of the time range.

Select Shift

For each of the Date/Time options (for more information, refer to [Selecting Date/Time on page 67](#)), you can filter the resulting data on Shift.

Item	Description
A specific shift	<p>The Shift dropdown list in each of the Date/Time/Shift options contains a list of shift names from the FactoryTalk Metrics database. Select one or more specific shifts to filter the report data.</p> <p>Note: The Shift list contains all shifts from the database, and it is possible to select a shift that will not return any data. For example, you could select one or more work cells in the Plant Model parameter that do not use the selected shift, or you could select a time period that does not contain data from the selected shift.</p>

Item	Description
Current Shift	<p>Current Shift returns data from the currently running shift. It will not return data from any time period in the past when a shift has already completed.</p> <p>For example, let's assume that Shift 1 runs from 7:00 a.m. until 3:00 p.m., Shift 2 runs from 3:00 p.m. until 11:00 p.m., and Current Shift is selected in a parameter set. A report you run at 9:00 a.m. will return data collected that day between 7:00 a.m. and 9:00 a.m. If you run a report at 2:00 p.m., the report will return data collected that day between 7:00 a.m. and 2:00 p.m. If you run a report at 4:00 p.m., it will return data collected that day between 3:00 p.m. and 4:00 p.m. Each work cell may have a different shift schedule, so the current shift time frame may differ as well.</p> <p>Note: If you select Current Shift along with Last Shift selected as the date range, you will get data records from both the last completed shift, and the current one.</p>
All	Data is returned for all shifts.



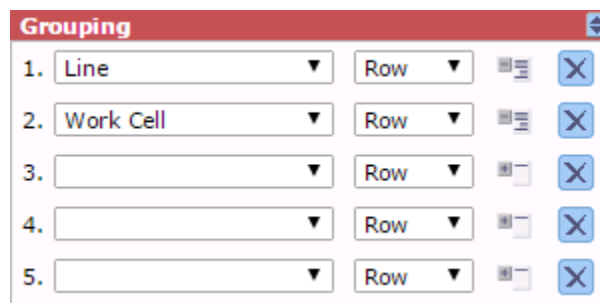
Tip: You can filter your data based on multiple shifts. For example, if you select Shift 1 and 2 as field values for filtering, your report will return data on Shift 1 and 2.

Select the **Use Shift Start** checkbox if you wish to filter data by shift start, instead of the start and end time of each record. If you specify a time for a report (for more information, refer to [Selecting Date/Time on page 67](#)), Report Expert will return data records of shifts started in the given period, instead of records containing start and end time that belong to this period).

For example, let's assume that Shift 1 runs from 6:00 a.m. until 2:00 p.m., Shift 2 runs from 2:00 p.m. until 10:00 p.m., and Shift3 runs from 10:00 p.m. until 6:00 a.m. the next day. If you set Data Range to Yesterday and select the **Use Shift Start** checkbox, Report Expert will return data collected between 6 a.m. the day before and 6 a.m. that day. Data records collected during Shift3 have the date of the current day, but their start of shift has the date of the day before, and therefore they also appear in the results.

Grouping

The Grouping parameter allows you to create one or more grouping filters that specify how the information in a report will be combined and physically arranged.



Each row in the Grouping parameter consists of:

- [A grouping field list on page 72](#)
- [A grouping type list on page 73](#)
- [A grouping expansion type icon on page 74](#)
- [A removal icon on page 75](#)

When you create a grouping filter, you must specify the field that will be used to group the information and the grouping type.

The maximum number of fields/groups available depends upon the Report Template that is used, but the maximum supported is:

- Five group fields
- Five row groups
- Two column groups
- One page group

NOTE: The Event Detail, Event Detail Paged, Root Cause Analysis, and State Detail reports do not respond to user groupings. However, the Root Cause Analysis and State Detail reports have one hard-coded grouping with one page group (line) and four row groups (Work Cell, Shift Start, State, and PartId).

Data aggregation for each grouping is done sequentially (1 through 5). When groupings are in the parameter set, aggregations are done for:

1. 0 groupings (grand totals)
2. Grouping 1
3. Grouping 1, 2
4. Grouping 1, 2, 3...
5. And so on

An aggregation is not done for grouping 1, 3, or just grouping 3. This is not a concern until you mix row and column groupings. when there is a mix, you can expand group 3 before you expand group 2.

For example, you might group the Performance report by Work Cell, Shift, and Part. This allows you to see OEE for everything, OEE for each work cell, OEE for each shift for each work cell, and OEE for each part within each shift for each work cell. This would not allow you to see OEE for each part for each work cell. To do that, you would have to order the grouping by Work Cell, Part, and then Shift.

Select the grouping field

Use the grouping field to organize and label the information in a report. For example, if you select **Work Cell** as a grouping field and you have Bend, Cut, Finish, Machine, and Weld work cells, your report will contain rows, columns, or pages (subsections) labeled with those work cell names and containing data associated with those work cells. There is a maximum of five grouping fields.

NOTE: Do not select the same grouping field twice. If you select two identical grouping fields and then attempt to view the report, the message **Duplicate grouping field found. Please set correct grouping parameters.** will appear.

Select the grouping type

Use the grouping type to specify the general layout of the information in a report.

You can group the fields by row, column, and page.

- **Grouping by rows**

When you specify the row grouping type, the grouping field is added to the report as a column and the grouped information is organized in rows. For example, if you group a Performance report by work cell and select a group type of row, the information in your report will look something like this:

<input type="checkbox"/> Work Cell	Uptime %	Throughput %	Quality %	OEE %
Cut	118.22 %	157.13 %	89.38 %	166.78 %
Bend	949.31 %	104.83 %	92.42 %	905.69 %
Finish	135.00 %	96.03 %	90.00 %	116.68 %
Machine	118.78 %	98.03 %	89.38 %	104.39 %
Weld	136.15 %	90.66 %	100.00 %	123.43 %

There is a maximum of three row groups.

- **Grouping by columns**

When you specify the column grouping type, the grouped information is organized in columns. For example, if you group a Performance report by work cell and select a group type of column, the information in your report will look something like this:

<input type="checkbox"/> Uptime %	Throughput %				
Cut	Bend	Finish	Machine	Weld	Cut
118.22 %	949.31 %	135.00 %	118.78 %	136.15 %	136.15 %

There is a maximum of two column groups.

- **Grouping by pages**

When you specify the page grouping type, the grouped information is organized in subsections. For example, if you group a Performance report by work cell and select a group type of column, the information in your report will look something like this:

Cut			
Uptime %	Throughput %	Quality %	OEE %
118.22 %	157.13 %	89.38 %	166.78 %

Bend			
Uptime %	Throughput %	Quality %	OEE %
949.31 %	104.83 %	92.42 %	905.69 %

Finish			
Uptime %	Throughput %	Quality %	OEE %
135.00 %	96.03 %	90.00 %	116.68 %




Machine			
Uptime %	Throughput %	Quality %	OEE %
118.78 %	98.03 %	89.38 %	104.39 %

Weld			
Uptime %	Throughput %	Quality %	OEE %
136.15 %	90.66 %	100.00 %	123.43 %

There is a maximum of one page group.

Select the grouping expansion type

Use the grouping expansion type to specify whether the grouped data will be initially displayed fully expanded or collapsed.

- To specify expanded, click  next to the grouping type list so that it changes to .
- To specify collapsed, leave .

When the report is initially rendered, data is shown for each of the values of the grouping field. In the following example, data for each of the work cells is displayed on a separate line:

Work Cell	Uptime %	Throughput %	Quality %	OEE %
Cut	118.22 %	157.13 %	89.38 %	166.78 %
Bend	949.31 %	104.83 %	92.42 %	905.69 %
Finish	135.00 %	96.03 %	90.00 %	116.68 %
Machine	118.78 %	98.03 %	89.38 %	104.39 %
Weld	136.15 %	90.66 %	100.00 %	123.43 %

To specify collapsed, accept the default plus icon button. For example, if you group a Performance report by work cell, select a group type of row, and the information in your report will initially look something like the following. When the report is initially rendered, the data will be shown as a total for all the grouping field values. To see expanded data, click the plus sign next to the grouped field name:

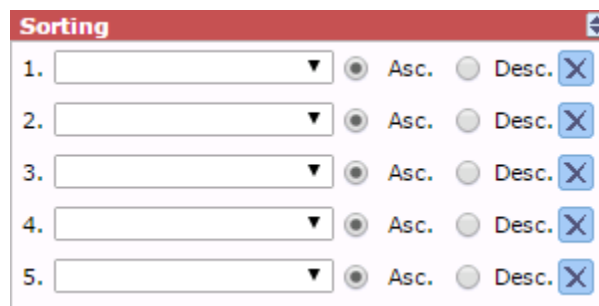
Work Cell	Uptime %	Throughput %	Quality %	OEE %
	172.76 %	111.31 %	91.74 %	177.88 %

Delete a grouping

To remove a grouping field and type from the parameter set, click .

Sorting

The Sorting parameter allows you to create one or more sort orders that specify how the information in a report will be sorted.



Each row in the Sorting parameter consists of:

- [A sorting field list on page 76](#)
- [Sorting method options on page 76](#)
- [A removal icon on page 76](#)

When you create a sorting order, you must specify the field that will be used to sort the information, and a sorting method.

Select the sorting field

With the exception of the [Event Detail on page 42](#), [Event Detail Paged on page 42](#), [Root Cause Analysis on page 55](#), and [State Detail on page 57](#) reports, Report Expert report templates are sorted alphabetically by Work Cell as a default.

Use the sorting field to sort the information differently in the remaining reports.



Tip: If you sort by a field that is not displayed in the report, you will not notice changes selected in the sorting fields unless you group by the sorting field.

For example, in the Performance report, the following fields are displayed in the report: Uptime %, Throughput %, Quality %, and OEE %. If you sort the report by Line, you will not notice any sorting-related changes in the displayed data.

The solution in this case would be to group the report by Line. The report would then be sorted by the line automatically. Therefore, you would not have to sort the report unless you did not want it sorted by line.

To sort a report by the line order set, in the sorting field, select **Work Cell Ordered**. The Root Cause Analysis and State Detail reports are always sorted by Work Cell Ordered, which is why they do not respond to sorting changes in the parameter set. The default line order set for all reports lists the line's work cells in the order in which they were entered in the plant model. To change the line order for any report, refer to [Configuring the Line Order on page 133](#).

Select the sorting method

Use the sorting method to specify the order of the information within each grouping in a report.

There are two sorting methods:

Item	Description
Ascending sorting	The information is sorted within each grouping alphabetically, from A to Z or numerically, from lowest to highest.
Descending sorting	The information is sorted within each grouping alphabetically, from Z to A or numerically, from highest to lowest.

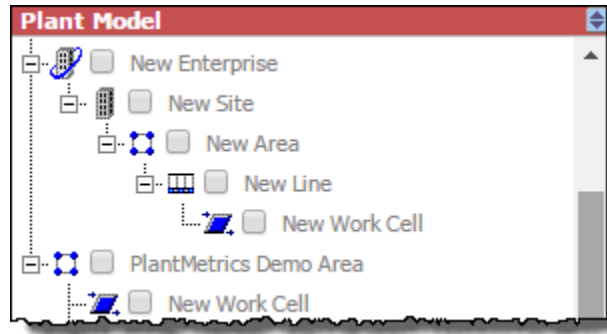
Delete a sorting

To remove a sorting field and method from the parameter set, click .

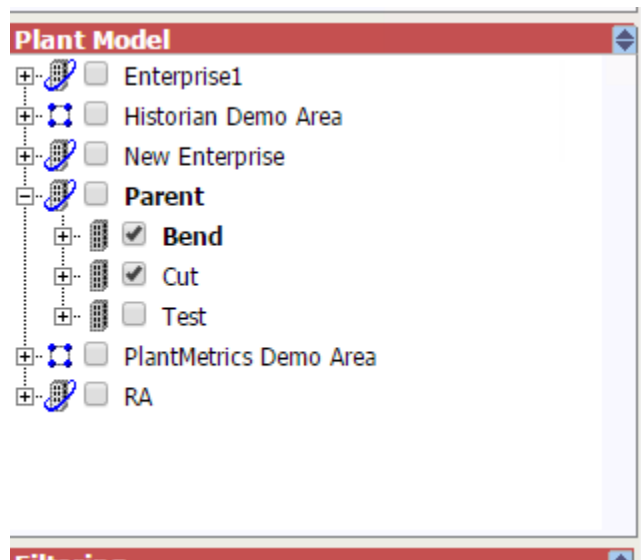
Plant Model

The Plant Model parameter allows you to specify the activity areas of a plant for which a report will display data. The parameter displays a plant model defined in the Plant Model dialog box, which you can access from the Configuration Console in RSBizWare.

NOTE: After creating plant models, reset Internet Information Services to make the filters for the new plant models available.



By default, none of the checkboxes in the plant model is selected. To associate one or more activity areas with a parameter set, select the checkboxes for those activity areas. For example, if you wanted to associate the Bend and Cut work cells with a parameter set, you would select their checkboxes:



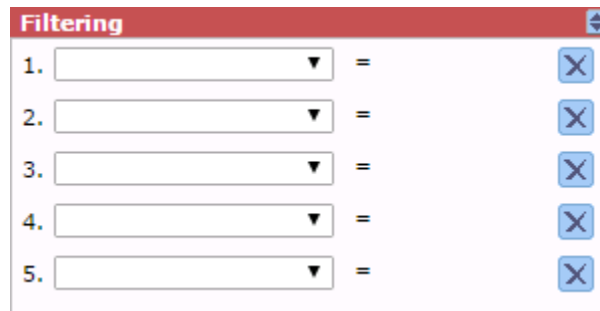
NOTE: The configured items in FactoryTalk Metrics are shown in bold type in the **Plant Model** pane, like **Parent** and **Bend** in the previous example.

FactoryTalk Report Expert supports the linkage function of the Plant Model Unit tree.

- If a node is selected in the Plant Model Unit tree, all its subnodes are selected by default unless some subnodes are cleared on purpose.
- If a node is configured in the Plant Model Unit tree, the data shown is the configured node instead of the sum of its subnodes.
- If a node is not configured in the Plant Model Unit tree, the data shown is the sum of its selected and configured subnodes.

Filtering

The Filtering parameter allows you to create one or more filters that will limit the information displayed in the report. When applied to a report, the field and value pairs that you create are used to filter out data.



Each row in the Filtering parameter consists of:

- [A filtering definition area on page 78](#)
- [A removal icon on page 79](#)

When you configure a filtering parameter, you must specify the field that will be used to filter the information, and a value for that field.

For example, if you select **Parts** as the filtering field and you specify *P3463ZX* as the field value, your report will contain information for that part only.

You can also filter your data using multiple fields' values. For example, if you select **EventName** as the filtering field and you specify **Fault and Pass** as the field values, your report will contain information on those two events.

Filtering on multiple values within a single field is equivalent to an OR operation. Filtering on multiple fields is equivalent to an AND operation – data must match all defined filters to be included in the report.



Tip: The fields in the filtering parameter allow you to select multiple field values for filtering.

Select filtering fields and values

Use the filtering field and value to limit the information returned to a report. The field you select will dictate how the value is to be entered—some fields allow you to type any value in the parameter, while other fields require selection from a list of possible values. The condition for all field and value pairs is "equals." If more than one filter is specified, the filter items are joined by a logical AND.

You can filter report data using the following filters:

This filter:	Filters by:
Part Id	The ID of the part that was being produced when the event occurred.
Part Description	The description of the part that was being produced when the event occurred.
Ideal Cycle Time	The time required for one part to pass through a work cell under ideal conditions.

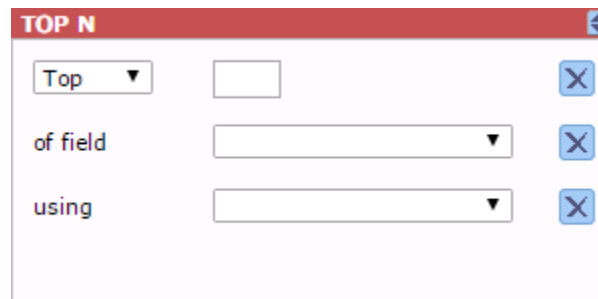
This filter:	Filters by:
Event Name	The name of the event.
Event Category	The category of the event.
Event Severity	The numeric severity level assigned to the event.
Event Reason Code	The numeric code representing the event reason.
Event Reason	The string value representing the event reason.
Event During Scheduled Time	Information whether the event occurred during the scheduled time.
Record State	The numeric state of the database record.
Event Start Num	The numeric value collected at the start of the event.
Event End Num	The numeric value collected at the end of the event.
Event Is Fault	Information on whether the event is used for Faults metrics.
Event Has Comment	The event that includes or does not include comments.
State Name	The machine state. This field is color coded.
[User Defined Summarization Fields 1-5]	Names of the flex fields. The names can be changed by the administrator in the Configuration Console.

Delete a filter

To remove a filtering field and value from the parameter set, click .

TOP N

Use the Top N parameter to enable a parameter set to limit the data of a report to the top (or bottom) N (number) of occurrences of a field you specify.



When enabled, you must specify the field that you want to limit and its desired maximum number of occurrences. The sorting will determine what the top or bottom N occurrences are of the limiting field.

When Top N is enabled, the top N rows of a dataset grouped only by the top N field and sorted by the top N field called *using*, will determine the top N occurrences of the top N field. **Top** will give the largest values of the top N field while **bottom** will give the smallest values. N can be a number between 1 and 20.

The following example illustrates that the Top N are determined for the entire dataset (without regard to the grouping fields):

Let's say you wanted an Event Summary report. The parameter set selected was by **Work Cell**, and the grouping was set to **Event Reason Code**. The top N parameter was set to **Top, 3**, of field **Event Reason Code**, using **Event Count**.

When querying for the dataset, each work cell could have a large number of reason codes. They could also have some reason codes in their own top 3, but not part of the overall top 3 for all work cells in the query.

The Top N feature will first determine the top 3 reason codes for all work cells in this example. Once those top 3 reason codes are determined, the query or queries used to generate the report will include a filter to limit the data to these 3 reason codes across the entire report.

Terminology

The Terminology parameter on the **Parameters** page allows you to apply a domain terminology set to your report's parameter set.



To view a report with an applied terminology set

1. In the Report Expert toolbar, click **Parameters** to display the **Parameters** page, if it is not already displayed.
2. In the **Select Report** field, select a report template for the report.
3. In the **Parameter Set** field, select a parameter set.
4. Expand the **Terminology** parameter and then select a terminology set.

For information on administering the Terminology feature, refer to [Configure terminologies on page 125](#).

Viewing and generating reports

In this section, you will learn how to generate and view reports using the **Report Viewer**.

- [View saved reports on the Explorer page on page 81.](#)
- [Generate reports using the Parameters page on page 81.](#)
- [Navigate, export, and print reports on page 83.](#)

View saved reports

A report consists of one report template and two either a parameter set (saved) or parameter settings (ad-hoc). The reports available on the **Explorer** page are combinations of report templates and parameter sets. They are arranged first by the time period (current shift, yesterday, and so on) on which they report, and then by the report template they use. The reports installed by default are examples only.

Use the **Explorer** page to browse and view saved reports:

- Expand a folder in the tree to view its contents.
- Collapse a folder in the tree to hide its contents.
- Click a report in the tree to view it in the display area.
- Click a web address in the tree to view its content in the display area.

NOTE: Administrators can modify the content available on the **Explorer** page. For more information, refer to [Configuring the report tree of the Explorer page on page 116.](#)

Generate reports

Use the **Parameters** page to:

- [Generate reports with existing parameter sets on page 81.](#)
- [Generate reports with existing parameter sets that you customize temporarily on page 82.](#)
- [Create new parameter set for your reports on page 82.](#)

NOTE: Administrators can modify the content available on the **Parameters** page. For more information, refer to [Configuring parameter sets on page 122.](#)

Use existing parameter sets

Perform the following steps to generate a report with an existing parameter set.

To generate a report with an existing parameter set

1. Under **Select Report**, select the report template for the type of report you want to view.



Tip: For more information, refer to [Understanding report templates on page 32.](#)

2. Under **Select Parameter Set**, select the parameter set for the report.



Tip: For more information, refer to [Understanding parameter sets on page 66](#).

3. Click the **View Report** link. The resulting report appears in the display area.
If there is no data for the given parameters in the parameter set, a message **No data found for selected parameter set** appears.

Use customized parameter sets

Perform the following steps to generate a report with temporarily customized parameter set.

To generate a report with a temporarily customized parameter set

1. Under Select Report, select the report template for the type of report you want to view.



Tip: For more information, refer to [Understanding report templates on page 32](#).

2. Under Select Parameter Set, select a parameter set that is the closest to the temporary parameter set you want to use.



Tip: For more information, refer to [Understanding parameter sets on page 66](#).

3. Modify the parameters as desired.

NOTE: If you modify an existing parameter set, your changes may affect existing saved reports.

4. Click the **View Report** link. The resulting report appears in the display area.
When you generate a report using customized parameter set settings, the parameter set used in the report is defined as **Cached from URL**.

State Summary Report

Generation time: 11/30/2021 11:16:58 AM

Parameter Set: Cached from URL

5. If you are an administrator, you can make the parameter set permanent. To do this, click **Save**.

Create new parameter sets

Perform the following steps to create parameter sets.

To create a parameter set

1. Click **New**.
2. Under **Edit Parameter Set Name**, type a name for the new parameter set.
3. Select the desired parameters.



Tip: For more information, refer to [Understanding parameter sets on page 66](#).

4. Click **Save**.

NOTE: Administrators can create parameter sets on the **Administration** page. For more information, refer to [Configure parameter sets on page 122](#).

Navigate, export, and print reports

The display area, in which reports are presented, contains a set of tools that you can use to:

- [Navigate a report on page 83](#).
- [Export a report on page 83](#).
- [Print a report on page 84](#).

The appearance of the tool buttons available on the toolbar may differ depending on the version of Microsoft SQL Server that you use.

Navigate reports

The following table presents the tools for viewing and navigating reports.

Click:	To:
	Use the arrows to navigate to the first page, previous page, next page, and the last page of the report. Type the page number to go to that page.
	Specify the zoom percentage at which you want to view the report.
	Search for a specific text. Use the Find and Next buttons to locate one or more instances of the text.
	View or hide detailed information associated with summary report lines. Click the plus and minus signs to expand and collapse a section of the report.
	Refresh the content of the report.


Export reports

You may export reports to the following formats. The set of the formats may differ depending on the version of Microsoft SQL Server that you use.


- CSV (comma delimited)
- MHTML (web archive)
- PDF
- TIFF
- XLS (MS Excel)
- XML

You may also export reports to data service documents. The reports will be saved as data feeds in ATOMSVCS files.

To export a report to a file using Microsoft SQL Server


1. Click  and select the file format to which you want to export the report.
2. In the **File Download** dialog box, click **Save**.
3. In the **Save As** dialog box, specify a name and folder location for the file.
4. Click **Save**.

To export a report to data feed (ATOMSVCS)

1. Click .
2. In the **File Download** dialog box, click **Save**.
3. In the **Save As** dialog box, specify a name and folder location for the file.
4. Click **Save**.

Print reports

To print a report

1. Click .
2. In the **Print** dialog box, select a printer and set printing options.
3. Click **Print**.

Editing event and production data

With the **Editor**, you can display and modify production data.

In this section, you will learn how to navigate the **Editor** and use it to generate, view, and modify the selected data.

NOTE: Your username must be a member of the Windows group called **FTMetricsEditors** to edit FactoryTalk Metrics data, or the **Editor** button will not appear.

Display data

Perform the following steps to display FactoryTalk Metrics data.

To display FactoryTalk Metrics data

1. From the **Select Operation** list, select one of the following options:
 - Edit Events
 - Edit Production Data
 - Edit Shift Information
 - Enter Data Manually
2. From the **Select Parameter Set** list, select the desired parameter set.
3. (Optional) Edit the parameter set using the [parameter set controls on page 66](#).



Tip: The following parameters are supported by the Editor and can be edited:

- Date/Time/Shift
- Sorting
- Plant Model
- Grouping
- Filtering

-
4. Click **View Data**.
The selected data is displayed.



Tip: All FactoryTalk Metrics data available in the database is refreshed and displayed for viewing, when you perform either of the following actions:

- Click **View Data**.
 - Click **Save**, after you have created or edited data.
-

Edit Events page

The **Edit Events** page consists of three panels:

- [Parameter set information on page 86](#)
- [Event details on page 86](#)
- [Event list on page 87](#)

Parameter Set Information panel

The Parameter set information panel displays a summary of the selection criteria that you have used to display the data.

The Parameter set information panel contains the following items:

Item	Description
Generation time	The information on when the currently viewed data was loaded from the FactoryTalk Metrics database.
Parameter Set	The name of the selected parameter set. If you modified the parameter set using the parameter set controls on page 66 , the "Cache from URL" information is displayed.
Grouping	The type of Grouping criteria on page 71 applied to the data.
Plant Model Filter	The type of Plant Model Filter criteria on page 76 applied to the data.
Time	The type of Date/Time/Shift on page 66 criteria applied to the data.
Sort	The type of Sorting criteria on page 75 applied to the data.
Filter	The type of Filtering criteria on page 78 applied to the data.

Event Details panel

In the Event details panel, you can view detailed information about the selected event.

The Event details panel contains the following items:

Item	Description
Activity Area	The name of the activity area.
Category - Name	The category and name of the selected event.
Start Time	The time the event started/ended.
End Time	
Start Value	The numeric or string value collected when the event started/ended. If a Value Lookup List has been defined for the selected event, the values in these fields show the values chosen from the list.
End Value	
Duration	The length of the event, calculated as the difference between the start time and end time and displayed using the format HH:MM:SS.mmm.
Reporting Value	The event value that will be used in reports.
Records	The number of records written in the FactoryTalk Metrics database for the selected event. The value in this field is automatically assigned when saving the event.

Item	Description
ID	The ID of the event in the FactoryTalk Metrics database. The value of this field is automatically assigned when saving the event.
Comments	Additional comments on the event.

To display the details of the desired event, click the row of the event in the Event list panel.

Event List panel

In the Event list panel, you can perform the following actions:

- View the list of events loaded from the FactoryTalk Metrics database.
- Display the details of selected events.
- Create and delete events.
- Edit, split, and copy events.

The Event list panel contains the following items:

Item	Description
Activity Area	The name of the activity area to which the event belongs.
Category Name	The category and name of the selected event.
Reason	The text description of the value that represents the reason why the event occurred.
Start Time End Time	The time the event started/ended.
Duration	The length of the event, calculated as the difference between the start time and end time and displayed using the format HH:MM:SS.mmm.
Start Value End Value	The numeric or string value collected when the event started/ended. If a Value Lookup List has been defined for the selected event, the values in these fields show the values chosen from the list.
Comments	Additional comments on the event. Completing this field is optional. To view the comment that has been entered for an event, in the Comments column, click View in the row with the event. The Comments box is displayed.
Actions	A column with options that allow you to perform specific actions on the selected event.
New	A button for creating a new event from scratch on page 95 .
Edit	A button for editing the selected event on page 96 .

Item	Description
More	<p>A list containing the following actions:</p> <ul style="list-style-type: none"> • Copy into New Select this option to create a new event using data of an existing event on page 95. • Details Select this option to display the details of the selected event in the Event details panel. You can also display the details of the desired event by clicking the row with this event. • Split Select this option to split the selected event into two events on page 100. • Delete Select this option to delete the selected event. The option is visible only for events that fulfill specific criteria. For more information, refer to Deleting Events on page 101.

Edit Production Data page

The **Edit Production Data** page consists of three panels:

- [Parameter set information on page 86](#)
- [Activity area details on page 89](#)
- [Production data list on page 90](#)

Parameter Set Information panel

The Parameter set information panel displays a summary of the selection criteria that you have used to display the data.

The Parameter set information panel contains the following items:

Item	Description
Generation time	The information on when the currently viewed data was loaded from the FactoryTalk Metrics database.
Parameter Set	The name of the selected parameter set. If you modified the parameter set using the parameter set controls on page 66 , the "Cache from URL" information is displayed.
Grouping	The type of Grouping criteria on page 71 applied to the data.
Plant Model Filter	The type of Plant Model Filter criteria on page 76 applied to the data.
Time	The type of Date/Time/Shift on page 66 criteria applied to the data.
Sort	The type of Sorting criteria on page 75 applied to the data.

Item	Description
Filter	The type of Filtering criteria on page 78 applied to the data.

Activity Area Details panel

In the Activity area details panel, you can view the current information on the performance of the selected work cell, for which the parts were counted.

The Activity area details panel contains the following items:

Item	Description
Start Time	The time at which the production of the parts started/ended.
End Time	
Part Id	The ID of the part produced in the specified time.
Good Parts	The number of good parts produced.
Scrap Parts	The number of parts rejected due to poor quality.
Total Parts	The total number of parts produced in the specified time (that is, the sum of good parts and scrap parts). When editing the number of parts, Total Parts should not exceed Max Parts.
Max Parts	The maximum number of parts that could have been produced in the specified time. The number is calculated as the multiplication of Ideal Cycle Time and Running Time.
Records	The number of records written in the FactoryTalk Metrics database for the selected production data.
Shift	The name of the shift.
Running Time	The time between the start and end time during which the work cell was in the Running state.
Available Time	The time between the start and end time in which the work cell was in the Available state, as defined in the work cell's configuration in FactoryTalk Metrics.
Actual Cycle Time	The amount of time in which a single part was produced.
Ideal Cycle Time	The amount of time required to produce a single part, under optimum conditions.
User Defined Summarization Field 1	The default name of the Flex Field 1. The name can be changed by the administrator in the Configuration Console.
User Defined Summarization Field 2	The default name of the Flex Field 2. The name can be changed by the administrator in the Configuration Console.
User Defined Summarization Field 3	The default name of the Flex Field 3. The name can be changed by the administrator in the Configuration Console.
User Defined Summarization Field 4	The default name of the Flex Field 4. The name can be changed by the administrator in the Configuration Console.

Item	Description
User Defined Summarization Field 5	The default name of the Flex Field 5. The name can be changed by the administrator in the Configuration Console.

To display the performance details of the desired work cell, click the row of the work cell in the Production data list panel.

Production Data List panel

In the Production data list, you can perform the following actions:

- View the performance data of the selected activity area.
- Edit the following production data:
 - The ID of the part produced in the specified time
 - The number of good and scrap parts produced in the specified time
 - The ideal cycle time
 - The values of user-defined summarization fields
- Split the production data.

The Production data list contains the following items, depending on the selection criteria you have used:

Item	Description
Activity Area	The name of the activity area for which production data was collected.
Shift	The name of the shift. The field is visible in the Production data list only if you select it in the Grouping parameter. For more information, refer to Using the Grouping parameter on page 71 .
Shift Number	The number of the shift. The field is visible in the Production data list only if you select it in the Grouping parameter. For more information, refer to Using the Grouping parameter on page 71 .
Shift Start	The time at which the shift started. The field is visible in the Production data list only if you select it in the Grouping parameter. For more information, refer to Using the Grouping parameter on page 71 .
Start Time	The time at which the production of the parts started/ended.
End Time	
Part Id	The ID of the part produced in the specified time.
Ideal Cycle Time	The amount of time required to produce a single part, under optimum conditions. The field is visible in the Production data list only if you select it in the Grouping parameter. For more information, refer to Using the Grouping parameter on page 71 .
Good Parts	The number of good parts produced.

Item	Description
Scrap Parts	The number of parts rejected due to poor quality.
Total Parts	The total number of parts produced in the specified time.
Max Parts	The maximum number of parts that could have been produced in the specified time.
User Defined Summarization Field 1-5	The default name of the Flex Fields 1-5. The names can be changed by the administrator in the Configuration Console. The Flex Fields are visible in the Production data list only if you select them in the Grouping parameter. For more information, refer to Using the Grouping parameter on page 71 .
Actions	A column with options that allow you to perform specific actions on the selected activity area.
Edit	A button for editing production data on page 88 of the selected row.
Split	A button for splitting the selected row of production data.

Edit Shift Information page

The **Edit Shift Information** page consists of two panels:

- [Parameter set information on page 86](#)
- [Shift information list on page 92](#)

Parameter Set Information panel

The Parameter set information panel displays a summary of the selection criteria that you have used to display the data.

The Parameter set information panel contains the following items:

Item	Description
Generation time	The information on when the currently viewed data was loaded from the FactoryTalk Metrics database.
Parameter Set	The name of the selected parameter set. If you modified the parameter set using the parameter set controls on page 66 , the "Cache from URL" information is displayed.
Grouping	The type of Grouping criteria on page 71 applied to the data.
Plant Model Filter	The type of Plant Model Filter criteria on page 76 applied to the data.
Time	The type of Date/Time/Shift on page 66 criteria applied to the data.
Sort	The type of Sorting criteria on page 75 applied to the data.
Filter	The type of Filtering criteria on page 78 applied to the data.

Shift Information List panel

In the Shift information list panel, you can perform the following actions:

- View the list of shift instances loaded from the FactoryTalk Metrics database.
- Edit shift instances.
- Split shift instances.

NOTE: Depending on the selection criteria you have used to display the data, some of the shift instances in the list can actually be *off-shift instances*, which are distinguished by the negative value in the **Number** field.

The Shift information list contains the following items:

Item	Description
Activity Area	The name of the activity area.
Start/End Time	The time the shift instance started/ended.
Name	The name of the shift instance.
Number	The number of the shift instance. For off-shift instances, the value in this field is negative.
Actions	A column containing the Split and Edit buttons for each shift instance in the list.
Edit	A button for editing the details of the selected shift instance.
Split	A button for splitting the selected shift instance.

Enter Data Manually page

On the **Enter Data Manually** page, you can:

- View shift summary information based on the activity area and shift details of your choosing.
- Manually enter production data.
- Manually enter event data.

Depending on the data you want to enter, you need to select the **Production** or **Events** option in the Select area and shift details panel. By default, the **Production** option is selected. For more information on using the options, refer to [Select Area and Shift Details panel on page 93](#).

The following panels are always displayed on the **Enter Data Manually** page, irrespective of the selected option:

- [Parameter set information on page 86](#)
- [Select area and shift details on page 93](#)
- [Shift summary on page 94](#)

If you have selected **Production**, the Activity Area Details panel and the Production Data List panel are displayed.

If you have selected **Events**, the Event Details panel and the [Event List panel on page 87](#) are displayed.

Parameter Set Information panel

The Parameter set information panel displays a summary of the selection criteria that you have used to display the data.

The Parameter set information panel contains the following items:

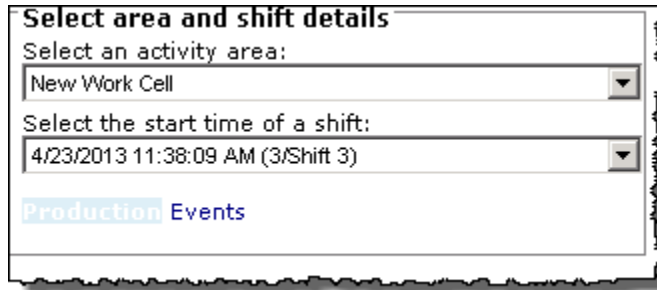
Item	Description
Generation time	The information on when the currently viewed data was loaded from the FactoryTalk Metrics database.
Parameter Set	The name of the selected parameter set. If you modified the parameter set using the parameter set controls on page 66 , the "Cache from URL" information is displayed.
Grouping	The type of Grouping criteria on page 71 applied to the data.
Plant Model Filter	The type of Plant Model Filter criteria on page 76 applied to the data.
Time	The type of Date/Time/Shift on page 66 criteria applied to the data.
Sort	The type of Sorting criteria on page 75 applied to the data.
Filter	The type of Filtering criteria on page 78 applied to the data.

Select Area and Shift Details panel

The Select area and shift details panel contains the following items:

- The **Select an activity area** list, from which you can select the desired activity area.
If you do not make any selection, the first activity area from the list is loaded by default.
- The **Select the start time of a shift** list, from which you can select the desired shift instance by its start time.
If you do not make any selection, the first shift instance from the list is loaded by default.
- The **Production** and **Events** options with which you can change the view of the **Enter Data Manually** page.
- The **Production** option allows you to enter production data for one activity area of one shift instance.
To enter the data, select the desired activity area and shift instance, and click **Production**.
- The **Events** option allows you to enter custom events.

NOTE: By default, the **Enter Data Manually** page is displayed with the **Production** option selected.



Shift Summary panel

In the Shift summary panel, you can view detailed information about the selected shift.

The Shift summary panel contains the following items:

Item	Description
Shift	The name of the shift.
Start	The start time of the shift.
End	The end time of the shift (that is, the end time of the last collected summarization record).
Shift Time	The total time of the shift (that is, the time between the start time and the end time of the shift).
Sched Avail	The total time scheduled for the availability of the activity area.
Avail	The total time when the activity area was in the Available state during the shift.
Running	The total time when the activity area was in the Running state during the shift.
Sched Unavail	The time between Shift Time and Sched Avail (that is, Shift Time - Sched Avail).
Unavailable	The total time when the activity area was in the Unavailable state during the shift (that is, Sched Avail - Avail).
Downtime	The total time when the activity area was in the Downtime state during the shift (that is, Avail - Running).
Good Parts	The number of good parts produced.
Scrap Parts	The number of parts rejected due to poor quality.
Total Parts	The total number of parts produced in the specified time (that is, the sum of good parts and scrap parts). When editing the number of parts, Total Parts should not exceed Max Parts.
Max Parts	The maximum number of parts that could have been produced in the specified time. The number is calculated as the multiplication of Ideal Cycle Time and Running Time.

The shift summary information is updated when you save your modifications, or when you change the view of the page by clicking **Production** or **Events**.

Create events

You can create events [from scratch on page 95](#), or [from already existing events on page 95](#).

Create events from scratch

Perform the following steps to create events from scratch.

To create an event from scratch

1. Select the **Edit Events** operation and the desired parameter set, and then click **View Data**.



Tip: Alternatively, select the **Enter Data Manually** operation and the desired parameter set, and then click **View Data**. In the Select Area and Shift Details panel, click **Events**.

The data is displayed in the Event list panel.

2. Under **Actions**, click **New** in the empty row at the top of the panel.
The row becomes editable.
 3. From the **Activity Area** list, select an activity area.
 4. From the **Category - Name** list, select a category.
-

NOTE: Completing the **Activity Area** and **Category - Name** fields is required when creating an event definition.

The list of available categories depends on the selected activity area. To load and view the list of categories, you must select the activity area first.

5. Edit the **Start Time** and **End Time** fields as needed. By default, they both point to the current date and time.
 6. Optionally, enter a comment in the **Comments** field.
-

NOTE: For the definitions of the fields, refer to [Event List panel on page 87](#).

7. Click **Save** to save the data and create the event.
-

NOTE: If any required data is missing, the event is not created and an error message appears describing the cause of the error. You must correct your data and save it once again.

To view the event, apply the [filtering settings on page 78](#) that match its configuration, and click **View Data**. The event will be listed in the Event list panel.

Create events from existing events

Perform the following steps to create an event from an existing event.

To create an event from an existing event

1. Select the **Edit Events** operation and the desired parameter set, and then click **View Data**.



Tip: Alternatively, select the **Enter Data Manually** operation and the desired parameter set, and then click **View Data**. In the Select Area and Shift Details panel, click **Events**.

The data is displayed in the Event list panel.

2. Under **Actions**, in the row with the event from which you want to create a new one, click **More > Copy into New**.

An editable row for a new event appears under the row of the original event, and the event data is displayed in the Event details panel.

Review the following for additional information.

Item	Description
Activity Area	The fields are prepopulated with the selected event's data. You can modify them to create a new event.
Category - Name	
Start Time	
End Time	
Reason	The fields are prepopulated with the selected event's data, and cannot be edited.
Duration	
Comments	The field is optional.

3. Complete or modify the editable fields in the row as needed.

NOTE: Depending on the event configuration in FactoryTalk Metrics, the fields and buttons in the panel may be enabled or disabled.

For the definitions of the fields, refer to [Event List panel on page 87](#).

4. Click **Save** to save the data and create the event.

NOTE: If any required data is missing, the event is not created and an error message appears describing the cause of the error. You must correct your data and save it once again.

To view the event, apply the [filtering settings on page 78](#) that match its configuration, and click **View Data**.

The event will be listed in the Event list panel.

Edit events

You can edit the following event data:

- [The category-name on page 97](#)
- [The start and end time on page 98](#)
- [The start and end value on page 99](#)

You can also edit existing comments that were made to events.

Edit the Category - Name

There are several restrictions related to editing the category and name of events. You can change the category and name provided that the event configuration fulfills the following conditions:

- It is user-defined.
- It is not active (that is, it is not currently processed by the FactoryTalk Metrics server).
- Its trigger type is one of the following:
 - Monitored Bit Low to High
 - Monitored Bit High to Low
 - Monitored Formula Low to High
 - Monitored Formula High to Low
 - Monitored Expression Low to High
 - Monitored Expression High to Low
 - Manual active/inactive event

To edit the category and name of an event

1. Select the **Edit Events** operation and the desired parameter set, and then click **View Data**.



Tip: Alternatively, select the **Enter Data Manually** operation and the desired parameter set, and then click **View Data**. In the Select Area and Shift Details panel, click **Events**.

The data is displayed in the Event list panel.

2. Under **Actions**, click **Edit** in the row with the event that you want to edit.
The **Category - Name** field becomes editable.
3. In the **Category - Name** field, select the desired category and name of the event.

NOTE: The **Category - Name** field is disabled if the event configuration restrictions are not fulfilled.

The event category can be changed only based on the existing list of categories. The list of available event categories is associated with the current activity area.

4. Click **Save** to save the modified event.

The change of the event category affects:

- The reason code
- The reporting value
- The event values

The change of the event category results also in the change of a Value Lookup List if the list has been configured in the Configuration Console for the selected event. If the changed Value Lookup List is different than the original one, new start and end values need to be selected from it. The Value Lookup List is represented with the **Start Value** and **End Value** lists.

IMPORTANT: Changing the event category results in reevaluating the information on machine states, as well as updating the event sequence, severity level, and fault metric according to the new event configuration.

Edit the Start/End Time

There are several restrictions related to editing the start/end time of events. You can change the start/end time provided that the event configuration fulfills the following conditions:

- It is user-defined.
- It is not active (that is, it is not currently processed by the FactoryTalk Metrics server).
- Its trigger type is one of the following:
 - Monitored Bit Low to High
 - Monitored Bit High to Low
 - Monitored Formula Low to High
 - Monitored Formula High to Low
 - Monitored Expression Low to High
 - Monitored Expression High to Low
 - Monitored value
 - Manual active/inactive event
 - Manual monitored continuous event

To edit the start/end time

1. Select the **Edit Events** operation and the desired parameter set, and then click **View Data**.



Tip: Alternatively, select the **Enter Data Manually** operation and the desired parameter set, and then click **View Data**. In the Select Area and Shift Details panel, click **Events**.

The data is displayed in the Event list panel.

2. Under **Actions**, click **Edit** in the row with the event that you want to edit. The **Start Time** and **End Time** fields become editable.
3. In the **Start Time** and **End Time** fields, modify the start/end time of the event.

NOTE: If you try to edit the **Start Time** and **End Time** of an event for which the configuration restrictions are not fulfilled, a warning message appears.

4. Click **Save** to save the modified start/end time.
-

NOTE: You cannot change the event time in such a way that it overlaps with the time of the next or previous event collected with the same configuration.

If the event occurrence has any records whose end time is earlier than the modified start time of the event, these records are deleted.

Similarly, if the event occurrence has any records whose start time is later than the modified end time of the event, these records are deleted as well.

If the event is continuous, the end time of the previous event occurrence and the start time of the next event occurrence are synchronized with the modified start and end time of the event.

Edit the Start/End Value

There are several restrictions related to modifying the start/end values of events. You can change the start/end value provided that the event configuration fulfills the following conditions:

- It is user-defined.
- It is not active (that is, it is not currently processed by the FactoryTalk Metrics server).
- Its value type set in FactoryTalk Metrics is one of the following:
 - Collect Value at the Start of the Event
 - Collect Value at the Start and the End of the Event
 - Collect Value at the End of the Event
 - Accumulate Value for the Duration of the Event

Review the following for additional information.

For this value type of a FactoryTalk Metrics Event:	You may edit this field:
Collect Value at the Start of the Event	Start Value
Collect Value at the End of the Event	End Value
Collect Value at the Start and the End of the Event	Start Value End Value
Accumulate Value of the Duration of the Event	End Value

NOTE: Depending on the event configuration in FactoryTalk Metrics, you can edit the start/end values either [with on page 99](#) a Value Lookup List or [without on page 100](#) it. The Value Lookup List can be configured in the Configuration Console.

Edit with a Value Lookup list

Perform the following steps to edit the start/end value of an event for which a value lookup list has been defined.

To edit the start/end value of an event for which a Value Lookup List has been defined

1. Select the **Edit Events** operation and the desired parameter set, and then click **View Data**.



Tip: Alternatively, select the **Enter Data Manually** operation and the desired parameter set, and then click **View Data**. In the Select Area and Shift Details panel, click **Events**.

The data is displayed in the Event list panel.

2. Under **Actions**, click **Edit** in the row with the event that you want to edit.

The **Start Value** and **End Value** fields become editable.

3. Select the new values from the list in the **Start Value** and **End Value** fields.
4. Click **Save** to save the modified values.

Edit without a Value Lookup list

Perform the following steps to edit the start/end value of an event for which a value lookup list has not been defined.

To edit the start/end value of an event for which a Value Lookup List has not been defined

1. Select the **Edit Events** operation and the desired parameter set, and then click **View Data**.



Tip: Alternatively, select the **Enter Data Manually** operation and the desired parameter set, and then click **View Data**. In the Select Area and Shift Details panel, click **Events**.

The data is displayed in the Event list panel.

2. Under **Actions**, click **Edit** in the row with the event that you want to edit.
The **Start Value** and **End Value** fields become editable.
3. Fill in the **Start Value** and **End Value** fields with new values.
4. Click **Save** to save the modified values.

Split events

There are several restrictions related to splitting events. You can split an event provided that the event configuration fulfills the following conditions:

- It is user-defined.
- Its trigger type is one of the following:
 - Monitored Bit Low to High
 - Monitored Bit High to Low
 - Monitored Formula Low to High
 - Monitored Formula High to Low
 - Monitored value
 - Manual active/inactive event
 - Manual monitored continuous event


To split an event

1. Select the **Edit Events** operation and the desired parameter set, and then click **View Data**.



Tip: Alternatively, select the **Enter Data Manually** operation and the desired parameter set, and then click **View Data**. In the Select Area and Shift Details panel, click **Events**.

The data is displayed in the Event list panel.

2. Under **Actions**, click **More > Split** in the row with the event that you want to split.
The selected row is split into two instances.
3. Modify the end time of Event 1, and click  to set the split time.

The end time of Event 1 becomes the start time of Event 2.

NOTE: Based on the specified split time, the duration is calculated for both events.

- Review the data of Event 1 and Event 2.

NOTE: For the definitions of the fields, refer to [Event Details panel on page 86](#).

- Complete or modify other editable fields of the events as needed.

NOTE: Most fields of Event 1 and Event 2 are populated with data of the original event. The **Category - Name**, **Start Value**, **End Value**, and **Comments** fields of both events can be edited depending on the configuration of the original event.

- Click **Save** to save the data of the split events.
The split events will be displayed in the Event list panel.

Delete events

There are several restrictions related to deleting events. You can delete an event provided that:

- It is user-defined.
- It is not active (that is, it is not currently processed by the FactoryTalk Metrics server).
- Its trigger type is one of the following:
 - Monitored Bit Low to High
 - Monitored Bit High to Low
 - Monitored Formula Low to High
 - Monitored Formula High to Low
 - Monitored Expression Low to High
 - Monitored Expression High to Low
 - Manual active/inactive event

To delete an event

- Select the **Edit Events** operation and the desired parameter set, and then click **View Data**.



Tip: Alternatively, select the **Enter Data Manually** operation and the desired parameter set, and then click **View Data**. In the Select Area and Shift Details panel, click **Events**.

The data is displayed in the Event list panel.

- Under **Actions**, click **More > Delete** in the row with the event that you want to delete.

NOTE: The **Delete** option is not displayed if the event configuration restrictions are not fulfilled.

- Click **OK** to confirm that you want to delete the selected event.

Edit production data

You can edit the following production data:

- [The number of good and scrap parts on page 102](#)
- [The ID of the part produced on page 102](#)
- [The ideal cycle time on page 103](#)
- [The values of user-defined summarization fields on page 103](#)

Edit Good and Scrap Parts

Perform the following steps to edit the Number of Good and Scrap Parts.

To edit the number of good and scrap parts

1. Select the **Edit Production Data** operation and the desired parameter set, and then click **View Data**.



Tip: Alternatively, select the **Enter Data Manually** operation and the desired parameter set, and then click **View Data**. Make sure that the **Production** option is selected.

The data is displayed in the Production data list panel.

2. Make sure the **Lock part counts at their current times...** checkbox under **Options** is cleared. Otherwise, you will not be able to edit the number of good and scrap parts.
3. Click **Edit** in the row in which you want to modify the number of good and scrap parts.
The **Good Parts** and **Scrap Parts** fields become editable.
4. Complete or modify the **Good Parts** and **Scrap Parts** fields.
5. Click **Save** to save the modified data.

Edit the Part Id

There are restrictions related to editing the ID of the produced parts. You can change the part ID provided that the activity area configuration fulfills the following conditions:

- Part Id Type is set to the following:
 - Use a single Part Id.
 - Monitor an Unscheduled data point for Part Id.

To edit the ID of the produced part

1. Select the **Edit Production Data** operation and the desired parameter set, and then click **View Data**.



Tip: Alternatively, select the **Enter Data Manually** operation and the desired parameter set, and then click **View Data**. Make sure that the **Production** option is selected.

The data is displayed in the Production data list panel.

2. Click **Edit** in the row in which you want to modify the ID of the part.
The **Part Id** field becomes editable.
3. Complete or modify the **Part Id** field.
4. Click **Save** to save the modified data.

Edit the Ideal Cycle Time

There are restrictions related to editing the ideal cycle time. You can change the ideal cycle time provided that the activity area configuration fulfills the following conditions:

- Cycle Time Type is set to the following in the Configuration Console:
 - Use a single ideal cycle time.
 - Use a Part Id/Cycle Time List.
 - Monitor an unscheduled data point for ideal cycle time.

To edit the ideal cycle time

1. Select the **Edit Production Data** operation and the desired parameter set.
2. In the **Grouping** parameter, select **Ideal Cycle Time**.
3. Click **View Data**.



Tip: Alternatively, select the **Enter Data Manually** operation and the desired parameter set, and then click **View Data**. Make sure that the **Production** option is selected.

The data is displayed in the Production data list panel.

4. Click **Edit** in the row in which you want to modify the ideal cycle time.
The **Ideal Cycle Time** field becomes editable.
5. Complete or modify the **Ideal Cycle Time** field.
6. Click **Save** to save the modified data.

Edit summarization fields

There are restrictions related to editing the user-defined summarization fields. You can change the value in the summarization field provided that the activity area configuration fulfills the following conditions:

- The Summarization Criteria of the selected User-defined summarization field is set to one of the following in the Configuration Console:
 - Specify a default Summarization Criteria Value for this Plant Model Activity Area.
 - Specify an Unscheduled Data Point to provide Summarization Criteria information for this Plant Model Activity Area.
 - Use a FactoryTalk Transaction Manager Expression to provide Summarization Criteria information. This option is available for flex fields configured as numeric and boolean.

To edit the user-defined summarization field

1. Select the **Edit Production Data** operation and the desired parameter set.
2. In the **Grouping** parameter, select the user-defined summarization field you want to display in the Production data list panel.
3. Click **View Data**.



Tip: Alternatively, select the **Enter Data Manually** operation and the desired parameter set. In the **Grouping** parameter, select the user-defined summarization field you want to display in



the Production data list panel. Click **View Data** and make sure that the **Production** option is selected.

The selected data is displayed in the Production data list.

4. Click **Edit** in the row in which you want to modify the ideal cycle time.
The user-defined summarization field selected in the **Grouping** parameter becomes editable.
5. Complete or modify the user-defined field.
6. Click **Save** to save the modified data.

Split production data

Perform the following steps to split production data.

To split production data

1. Select the **Edit Production Data** operation and the desired parameter set, and then click **View Data**.



Tip: Alternatively, select the **Enter Data Manually** operation and the desired parameter set, and then click **View Data**. Make sure that the **Production** option is selected.

The data is displayed in the Production data list panel.

2. Under **Options**, select or clear the **Lock part counts at their current times...** checkbox:
 - Select the checkbox if you want to view the number of good and scrap parts only. For splitting events, the number of good parts and scrap parts will be automatically allocated according to the value of the ideal cycle time.
 - Clear the checkbox if you want to edit the number of good and scrap parts. For splitting events, you will be able to allocate the number of good and scrap parts manually.
3. Click **Split** in the row of production data that you want to split.
The selected row is split into two instances.
4. Review the following for additional information.

Item	Description
Activity Area	The field cannot be edited.
Start Time	The field cannot be edited. The start time value in the lower row will be automatically set to the end time value entered for the upper row once you save the modified data.
End Time	The field can be edited in the upper row. The value entered in the upper row will automatically become the start value of the lower row once you save the modified data.
Part Id	The field can be edited if the activity area configuration fulfills special conditions. For more information, refer to Editing the Part Id on page 102 .

Item	Description
Ideal Cycle Time	The field can be edited if the activity area configuration fulfills special conditions. For more information, refer to Editing the Ideal Cycle Time on page 103 .
Good Parts	The field can be edited in both rows if you cleared the Lock part counts at their current times... checkbox under Options .
Scrap Parts	The field can be edited in both rows if you cleared the Lock part counts at their current times... checkbox under Options .
Total Parts	The field cannot be edited. The number of total parts is calculated automatically when the changes are saved to the database. If the calculated number of total parts exceeds the number of max parts, a message appears.
Max Parts	The field cannot be edited.
User-defined Summarization Field 1-5	The fields can be edited in both rows. The fields are visible only if you selected them in the Grouping parameter.

5. Complete or modify the editable fields as needed.
6. Click **Save** to save the modified data.
The original row is split and a new row of data appears in the FactoryTalk Metrics database.

Edit shift instances

Perform the following steps to edit the details of a shift instance.

To edit the details of a shift instance

1. Select the **Edit Shift Information** operation and the desired parameter set, and then click **View Data**.
The data is displayed.

NOTE: Depending on the selection criteria you have used to display the data, some of the shift instances in the list can actually be *off-shift instances*, which are distinguished by the negative value in the **Number** field.

2. Click **Edit** in the row with the shift instance that you want to modify.
The **Start Time**, **End Time**, **Name**, and **Number** fields become editable.

NOTE: If a lookup list has been specified during work cell configuration, the **Number** field is read-only and cannot be edited.

3. Modify the desired fields.
4. Click **Save** to save the modified data.

Split shift instances

Perform the following steps to split a shift instance.

To split a shift instance

1. Select the **Edit Shift Information** operation and the desired parameter set, and then click **View Data**.
The data is displayed.

NOTE: Depending on the selection criteria you have used to display the data, some of the shift instances in the list can actually be *off-shift instances*, which are distinguished by the negative value in the **Number** field.

2. Click **Split** in the row with the shift instance that you want to split.
The selected shift instance is split into two instances.
3. Review the following for additional information.

Item	Description
Activity Area	The field cannot be edited.
Start Time	The field cannot be edited. The start time value in the lower row will be automatically set to the end time value entered for the upper row once you save the modified data.
End Time	The field can be edited in the upper row. The value entered in the upper row will automatically become the start value of the lower row once you save the modified data.
Name	The field can be edited in both rows.
Number	The field can be edited in both rows.

4. Complete or modify the editable fields as needed.
5. Click **Save** to save the modified data.
Both shift instances are displayed in the Shift information list.

Administering Report Expert

This section describes how to administer and maintain Report Expert so it will best serve your specific needs. All users can see all entries in the Reporting Tree, access all Report Templates and Parameter Sets, and modify Parameters. Administrators can edit the Reporting Tree, edit Parameter Sets, configure Terminology, configure Localization. Editors can access the Editing functions.

The **Administration** page of Report Expert allows administrators to configure:

- [The report tree of the Explorer page on page 116](#)
- [Report subscriptions on page 119](#)
- [Parameter sets on page 122](#)
- [Terminologies on page 125](#)
- [The order of work cells in a line on page 133](#)

The administrators should open Report Expert in Internet Explorer or Edge using the **Run as administrator** option so that the **Administration** page is visible.

To start Report Expert with the Administration page enabled

1. In the **Start** menu, or on your desktop, right-click the Internet Explorer or Edge shortcut, and select **Run as administrator**.

The browser window is displayed.

2. Type the following in the address bar:

https://hostcomputer:8443/rockwellsoftware/reportexpert

where `hostcomputer` is the name of the computer on which Report Expert is installed.

Report Expert is displayed with the **Administration** page.

Configure security

There are three types of user roles in Report Expert:

User role	Description
Users	Users have access only to the Report Viewer module of Report Expert.
Editors on page 108	Editors have access to the Report Viewer module and the Editor page of Report Expert.
Administrators on page 108	Administrators have access to all the modules and pages of Report Expert, including the Administration page.

Report Expert uses Windows integrated security so you can identify a user as a user, an editor, or an administrator. If you do not require this functionality, you can [disable security on page 109](#) in Report Expert.

NOTE: The instructions in this section assume that the Report Expert website and all of the Report Expert clients are contained within a single domain. In addition, this section assumes that the security administrator is familiar with Windows security.

Set up security editors

In the initial configuration, Report Expert grants data editing only to those users that are identified as Report Expert Editors and are members of the default local group named **FTMetricsEditors**. Since the group is not created automatically during the installation of Report Expert, you must create it manually, or point to a local group that exists in your system and configure it appropriately. If you create a local group, you can either use the default name of the group—**FTMetricsEditors**—or choose another.

In the steps below, we assume that you create a new local group that will contain all Report Expert editors.

To create and configure a local group for Report Expert Editors

1. On the Start screen, type any part of the name **Computer Management**, and then click its shortcut.
2. The **Computer Management** window appears.
3. Create a new local group that will contain all of your Report Expert editors.
The default name for the group in the Report Expert configuration is **host\FTMetricsEditors**. You can use this name or choose another.
4. Add the Windows domain user name of each editor to the newly created group.

If you intend to use a local group that exists in the system, or you have created a group and chosen a different name than the default one for it, you must update the Report Expert configuration file.

To update the Report Expert configuration file

1. Open the **<Report ExpertInstallationDirectory>\Website** folder, and edit the **Web.config** file.
2. Replace the name of the default **FTMetricsEditors** group with the name of the group that you have created or chosen to contain Report Expert editors.

For example, if the group that you use is named `RptExpEditors`, do the following:

Replace **FTMetricsEditors**:

```
<add key="FTMetricsEditorsGroup" value="FTMetricsEditors" />
...
<allow roles="FTMetricsEditors" />
```

With **RptExpEditors**:

```
<add key="FTMetricsEditorsGroup" value="RptExpEditors" />
...
<allow roles="RptExpEditors" />
```

3. Save the file.
4. Go to **<Report ExpertInstallationDirectory>\Website\Services**, and open the **Web.config** file.
5. Replace `FTMetricsEditors` with `RptExpEditors`.
6. Save the file.

Set up security for administrators

In the initial configuration, Report Expert grants administrative privileges only to those users that are identified as Report Expert Administrators and are members of the default local group named **Administrators**. Since the group is not created automatically during the installation of Report Expert, you must create it manually, or point to a local group that exists in your system and configure it appropriately. If you create a local group, you can either use the default name of the group—**Administrators**—or choose another.

In the following steps, we assume that you create a new local group that will contain all Report Expert administrators.

To create and configure a local group for Report Expert Administrators

1. Go to **Start > All Programs > Administrative Tools > Computer Management**.
2. Create a new local group that will contain all of your Report Expert administrators.
The default name for the group in the Report Expert configuration is **host\Administrators**. You can use this name or choose another.
3. Add the Windows domain user name of each administrator to the newly created group.

If you intend to use a local group that exists in the system, or you have created a group and chosen a different name than the default one for it, you must update the Report Expert configuration file.

To update the Report Expert configuration file

1. Go to **<Report ExpertInstallationDirectory>\Website**, and edit the **Web.config** file.
2. Replace the name of the default **Administrators** group with the name of the group that you have created or chosen to contain Report Expert administrators.

For example, if the group that you use is named **RptExpAdmins**, do the following:

Replace **Administrators**:

```
<add key="ReportExpertAdminGroup" value="Administrators" />
...
<allow roles="Administrators" />
```

With **RptExpAdmins**:

```
<add key="ReportExpertAdminGroup" value="RptExpAdmins" />
...
<allow roles="RptExpAdmins" />
```

3. Save the file.

Disable security

Perform the following steps to disable security for Report Expert and allow any user full administrator access.

To disable security for Report Expert and allow any user full administrator access

1. Go to **<Report ExpertInstallationDirectory>\Website**, and edit the **Web.config** file.
2. Remove or comment out the ReportExpertAdminGroup add key.

```
<add key="ReportExpertAdminGroup" value="Administrators" />
...
<allow roles="Administrators" />
```

To comment it out, type **<!--** before and **-->** after the add key line:

```
<!--
<add key="ReportExpertAdminGroup" value="RptExpAdmins" />
-->
```

3. Save the file.

Configure Report Expert settings

The Report Expert settings are stored in the FactoryTalk Metrics database in the RptSetting table. To [modify the settings on page 114](#), use [Microsoft SQL Server Management Studio on page 115](#). Some settings can be modified on the Report Expert **Administration** page.

NOTE: Modify the settings with care because their modifications may have a significant impact on Report Expert performance and will affect all Report Expert users.

The following table lists Report Expert settings that you can modify:

Use this setting:	To modify:
CacheExpirationTime	<p>The cache that populates all of the unique values in the Report Expert Filtering and Plant Model parameters (refer to Using the Filtering parameter on page 78 and Using the Plant Model parameter on page 76). It is the wait time in seconds from the moment Report Expert is launched and the cache is automatically populated until the cache is updated again from the database. As a default, this is set to 300 seconds.</p> <p>Performance note: Refreshing the cache is a global process that takes place at the server level. This is a time-intensive process responsible for the initial delay when Report Expert is launched. Increase this value if Report Expert launches too slowly, though the launch process time will shorten with a subsequent client launch. If the cache is refreshed infrequently, the latest data values may not appear in the Filtering or Plant Model parameters lists. This is the trade-off with less frequent refreshes.</p>
ColorBest	The color used in the OEE% chart. This color will signify a high value of OEE%, above the number set in the ThresholdNormalBest field, but below ThresholdBestBeyond.
ColorBeyond	The color used in the OEE% chart. This color will signify a high value of OEE%, above the number set in the ThresholdBestBeyond field. Default setting is the same as the ColorBest setting.
ColorLow	The color used in the OEE% chart. This color will signify a low value of OEE%, below the number set in the ThresholdLowNormal field.
ColorNormal	The color used in the OEE% chart. This color will signify a moderate value of OEE%, above the number set in the ThresholdLowNormal field, but below ThresholdNormalBest.
DataReaderTimeout	The wait time in seconds before an attempt to run a standard DPE query is ended and an error is logged. If this setting is blank, the default of 120 seconds is used.

Use this setting:	To modify:
	<p>Performance note: Increasing this setting's default value will cause Report Expert to wait for a longer period before a database query times out and the report fails. This may be necessary if certain reports time out with the default settings.</p>
DataSetTimeout	<p>The wait time in seconds before an attempt to access the database is ended and an error is logged. If this setting is blank, the default of 120 seconds is used.</p> <p>Performance note: Increasing the default value of this setting will cause Report Expert to wait for a longer period before a database query times out and the report fails. This may be necessary if certain reports time out with the default setting.</p>
EventDetailRowLimit	<p>The maximum number of rows to be taken from the database when the EventDetail query is executed for the Event Detail report.</p> <p>The default value for this setting is 5000.</p> <p>If the value you type for this setting is exceeded in a generated report, the <i>Max row limit reached</i> message appears in the resulting report.</p> <p>If this setting is blank or set to 0, the parameter has no effect. For more information, refer to Event Detail on page 42.</p> <p>Performance note: This setting limits the size of the dataset included in the report. Lower numbers result in faster reports. However, lower numbers may also result in incomplete reports if the limit is exceeded. Therefore, the setting is a trade-off and depends upon how much data is needed for the Event Detail that uses the EventDetail query. The setting does not have any impact on reports that use queries other than EventDetail.</p>
EventDetailExtRowLimit	<p>The maximum number of rows to be taken from the database when the EventDetailExt query is executed for the Event All Detail report.</p> <p>No default value is defined for this setting.</p> <p>If the value you type for this setting is exceeded in a generated report, the <i>Max row limit reached</i> message appears in the resulting report.</p> <p>If this setting is blank or set to 0, the parameter has no effect. For more information, refer to Event All Detail on page 38.</p> <p>Performance note: This setting limits the size of the dataset included in the report. Lower numbers result in faster reports. However, lower numbers may also result in incomplete reports if the limit is exceeded. Therefore, the setting is a trade-off and depends upon how much data is needed for the Event All Detail that uses the EventDetailExt query. The setting does</p>

Use this setting:	To modify:
	not have any impact on reports that use queries other than EventDetailExt.
InitTerminologyEvery Report	<p>The frequency of refreshing the Report Expert terminology. This setting is used if a call for a term is more than 30 seconds later than the previous call.</p> <p>If it is set to 0 (default value), the terminology is not refreshed every time the user selects a report template and generates a report.</p> <p>If it is set to 1, the terminology is refreshed every time the user selects a report template and generates a report.</p> <p>Performance note: Choosing 1 for this setting can cause reports to render more slowly because all of the terminology values are read from the database every time you generate a report. It is recommended to leave this setting at 0 (default value) or blank, unless you make frequent terminology changes.</p> <p>Tip: You can also configure this setting through the Administration page. For more information, refer to Synchronizing terminology changes with Report Server on page 133.</p>
StateDetailRowLimit	<p>The maximum number of rows to be taken from the database when the StateDetail query is executed.</p> <p>If this setting is blank or set to 0, the parameter has no effect.</p> <p>If you type a value for this setting and the generated report exceeds the number of rows indicated, the <i>Max row limit reached</i> message appears in the resulting report. For more information, refer to State Detail report template on page 57.</p> <p>Performance note: This setting limits the size of the dataset included in the report. A lower number results in faster reports. However, a lower number may also result in incomplete reports if the limit is exceeded. Therefore, this setting is a trade-off and depends upon how much data is needed for the Root Cause Analysis and State Detail reports that use the StateDetail query. This setting does not have any impact on reports that use other queries.</p>
TopN	<p>The maximum number that users can type in the TopN section of the Parameter Set pane in Report Expert. If this setting has no entry in the RptSetting table, the value is set to 20.</p> <p>For more information, refer to Using the TOP N parameter on page 79.</p>
ThresholdBestBeyond	<p>The limit of the OEE% value, after which the color from the ColorBest setting changes into the color from the ColorBeyond setting on the OEE% chart.</p>

Use this setting:	To modify:
ThresholdLowNormal	The limit of the OEE% value, after which the color from the ColorLow setting changes into the color from the ColorNormal setting on the OEE% chart.
ThresholdNormalBest	The limit of the OEE% value, after which the color from the ColorNormal setting changes into the color from the ColorBest setting on the OEE% chart.
TransactionIsolationLevel	<p>The transaction isolation level to be used by DPE when executing a set of SQL commands. Following are the definitions of possible transaction isolation level values supported by Report Expert:</p> <p>Read Committed (0). Read-only transactions that have not been modified by other transactions and are committed. Data can be changed by other transactions between individual statements within the current transaction, but the resulting data cannot be read again until such changes are committed. If you type 0 or leave this setting blank, this default isolation level is used.</p> <p>The behavior of Read Committed depends on the Read Committed Snapshot database option set in the Microsoft SQL Server.</p> <p>Read Uncommitted (1). Transactions running at the Read Uncommitted isolation level do not use shared locks to help prevent other transactions from modifying data read by the current transaction. This isolation level allows uncommitted rows that have been modified to be read, therefore data can be modified and rows can appear or disappear. To use the Read Uncommitted isolation level, set the TransactionIsolationLevel setting to 1. You may want to use this option if a report times out due to uncommitted data and therefore cannot display a subreport.</p> <p>Snapshot (2). This isolation level specifies that data read by any statement in the transaction will be consistent with the data at the start of the transaction. Data modifications made by other transactions after the start of the current transaction are not visible in the current transaction. The Snapshot isolation level does not help prevent other transactions from reading or writing data. Writing data by other transactions does not block a "snapshot" transaction from reading data. Before you can use the Snapshot isolation level, in Microsoft SQL Server Management Studio, set the ALLOW_SNAPSHOT_ISOLATION to ON.</p> <p>Performance note: You may want to change isolation levels if you are experiencing issues with timeouts while running data collection.</p>

Use this setting:	To modify:
UseShortName	<p>From where report work cell names are taken. They can be taken either from the work cell short name (defined in the Configuration Console) or from the activity area (defined in the plant model and displayed in Report Expert <i>Plant Model</i> parameter).</p> <p>If this setting is set to 1, the work cell names are taken from the OEEConfigWorkcell.sShortName field.</p> <p>If this setting is set to 0 (default value) or another number other than 1, the work cell names displayed in the reports are taken from the FDMActivityArea.sActivityAreaName field.</p> <p>Tip: You can modify both short (reporting alias) names and activity area names through the Configuration Console. For information, refer to the <i>FactoryTalk Metrics User Guide</i>.</p>



Tip: To define color values in the color-related settings (ColorBest, ColorBeyond, ColorNormal, and ColorLow) use either hexadecimal color values (for example, #FF0000) or standard HTML color names (for example, "Red").

Modify the RptSetting table

Perform the following steps to modify default settings.

To modify default settings

1. Launch Microsoft SQL Server Management Studio for Microsoft SQL Server.
2. Using the user name and password that you used to sign in to your DSN connection, sign in to the Microsoft SQL Server instance that contains the FactoryTalk Metrics database.
3. In the **Object Explorer**, go to **Databases** > <FactoryTalk Metrics database name> > **Tables**.
4. Select the **RptSetting** table and open it for editing.
5. Under **Value**, modify the values of the settings as specified in [Configuring Report Expert settings on page 110](#).
6. Restart the Internet Information Services (IIS):
 - a. In the Command Prompt window, type `iisreset`.
 - b. Wait until the services are restarted.
7. Restart SQL Server Reporting Services (SSRS):
 - a. Go to **Start > Run**. The **Run** dialog box appears.
 - b. Type `services.msc`. The **Services** dialog box appears.
 - c. Find the following service:
 - SQL Server Reporting Services (<SQL Server instance name>)
 - d. Right-click it, and then select **Restart**.
Wait until the service is restarted.

Communicate with SSRS

During the installation of Report Expert, communication between Report Expert and SQL Server Reporting Services (SSRS) is configured in the following way:

- Report Expert communicates with SSRS that are installed and configured on the same computer, on which you have installed Report Expert.
- The URLs of the Report Server Web Service are created. They consist of the following elements:
 - If Report Expert uses HTTP, the URL is:
http://<MSRSHost>:<MSRSPortNumber>/ReportServer
 - If Report Expert uses HTTPS, the URL is:
https://<MSRSHost>:<MSRSPortNumber>/ReportServer



To change this configuration, use the settings described in the following table. The settings are stored in the [RptSetting](#) on page 114 table of the FactoryTalk Metrics database.

Use this setting:	To modify:
MSRSHost	<p>The DNS name or IP address of the server with SSRS installed.</p> <p>This setting is used when Report Expert creates a URL for communicating with SSRS.</p> <p>The default value of the setting is the name of the local computer on which Report Expert is installed. You can change the value to an IP address if you do not use a DNS server.</p> <p>Note: There is no entry for this setting in the RptSetting table after the Report Expert installation. If you want to use the setting, you must create the entry in the table first.</p>
MSRSPortNumber	<p>The HTTP and HTTPS ports of the web service of SSRS.</p> <p>This setting is used when Report Expert creates a URL for communicating with SSRS.</p> <p>If Report Expert uses HTTP, use 80 for the port number. The default value of the setting depends on the operating system on which Report Expert is installed:</p> <ul style="list-style-type: none"> • 80—Use this port number for: <ul style="list-style-type: none"> ◦ Microsoft Windows Server 2012 ◦ Microsoft Windows Server 2016 <p>If Report Expert uses HTTPS, use 443 for the port number.</p> <p>Note: There is no entry for this setting in the RptSetting table after the Report Expert installation. If you want to use the setting, you must create the entry in the table first.</p>
MSRSWebServiceUrl	<p>The URL of the Report Server Web Service. Use this setting if you want Report Expert to connect to SSRS that are installed on another computer in the domain.</p>

Use this setting:	To modify:
	<p>To configure the setting</p> <ol style="list-style-type: none"> 1. Open the Reporting Services Configuration Manager. 2. Connect to the Report Server instance. 3. In the left pane, click Web Service URL. 4. Under Report Server Web Service URLs, copy one of the available URLs. 5. Paste the URL as the value for the MSRSWebServiceUrl setting in the RptSetting table. <p>Note: There is no entry for this setting in the RptSetting table after the Report Expert installation. If you want to use the setting, you must create the entry in the table first.</p>
RealPartCountEnabled	<p>Determines whether the part counts are shown as real numbers in all report templates. Set this value to 1 to show part counts as real numbers. Set this value to 0 to turn off the function. If this entry is missing or set to zero, all part counts are shown as Integers in Report Expert reports. This is suitable for Good Parts, Scrap Parts, Total Parts, and Max Parts under Manual Data Editor, and Good Parts, Scrap Parts, Total Parts, and Ideal Parts under Report Viewer.</p>
RealPartCountDigits	<p>The decimal place of real numbers for part counts. The valid range of the decimal place is from 0 through 4.</p> <p>Note:</p> <ul style="list-style-type: none"> • The value must be an integer. • This setting has no effect unless RealPartCountEnabled = 1.

NOTE: The MSRSReportFolder setting provides the name of the SSRS folder (*ReportExpert*) that contains standard reports of Report Expert. Do not change the setting, as it could affect upgrades or the reinstallation of Report Expert in the future.



Tip: For more information on configuring SSRS, refer to the documentation available for your version of the SQL Server.

Configure the report tree

The Report Explorer tree contains report entries - a saved combination of report template and parameter set. You can click a Report Explorer entry and a report is generated. The default entries are designed to work in any FactoryTalk Metrics system, and therefore are generic. It is expected that the tree will be modified with entries that are useful to the customer and take advantage of their specific FactoryTalk Metrics configuration. The Report Explorer tree contents can be edited by a user with Administrator privileges on the **Administration** page **Reporting Tree** tab. Use

the **Report Explorer** tab to add, modify, and delete Report Expert items that are the components of the tree on the **Explorer** page.

To open the tab, click  on the **Administration** page.

Add tree items

Perform the following steps to add an item to the report tree.

To add an item to the report tree

- In the report tree on the **Report Explorer** tab, click the tree item under which you want the new item to appear, and click **New**.
 - To add a tree item at the level below the desired tree item, right-click the tree item and select **New Child Tree Item**.
 - To add a tree item at the same level as the desired tree item, right-click the tree item and select **New Sibling Tree Item**.
- Review the following for additional information.

Item	Description
Tree Item Title	Type the desired item title.
Description (Tooltip)	Type the text to describe the item. This is the text that appears as a tool tip in the status bar, when the mouse pointer hovers over the tree item title in the Explorer view.
Tree Item Type	<p>Select the type of item you want to add:</p> <ul style="list-style-type: none"> Folder. Choose this option to add a folder that you can use to hold reports, URLs, or other folders. Report Expert Report. Choose this option to select the type of report template and parameter set that you want to apply to the new tree item. If you select this option, two additional fields appear - the Report Expert Report field, and the Parameter Set field. URL. Choose this option to add a URL to a selected web page to the tree, which allows you to include a link to this web page in Report Expert reports. If you select this option, the additional URL field appears. Reporting Services Folder. Choose this option to set a folder in SQL Server Reporting Services (SSRS) that contains custom report templates. If you select this option, the additional Reporting Services Folder field appears.
URL	Type the path to a selected web page which can be included in Report Expert reports. You can type the URL in this field only if you have selected URL in the Tree Item Type field.

Item	Description
Reporting Services Folder	Type the name of the folder in SSRS that contains custom report templates.
Report Expert Report	Select a report template you want to apply to the new tree item. You can select a report template only if you have selected Report Expert Report in the Tree item Type field.
Parameter Set	Select one of the parameter sets that you want to apply to the selected report template. You can select the parameter set only if you have selected Report Expert Report in the Tree Item Type field.
Tree Image	Select the image to display to the left of the new tree item.
Tree Image URL	Type the URL to a custom image that you want to display to the left of the new tree item. You can type the URL in this field only if you have selected URL in the Tree Image field.
Terminology	Select the desired terminology option. For more information, refer to Configure terminologies on page 125 . Note: If you added a new tree item, click the Terminologies tab and then click Sync IIS with New Terminology . You can apply terminology sets to your reports from the Parameter Set tab as well. However, the terminology sets you apply here in the Report Tree tab take precedence over sets you apply via the Parameter Sets tab.

3. Click **Preview**, to view the new report or URL in a separate Internet Explorer or Edge session.
4. Click **Save**.

Copy tree items

Perform the following steps to copy an item on the report tree.

To copy an item on the report tree

1. In the report tree on the **Report Explorer** tab, select the tree item that you want to copy, and click **Copy**.
 - To copy a tree item at the level below the desired tree item, right-click the tree item and select **Copy to Child Tree Item**.
 - To copy a tree item at the same level as the desired tree item, right-click the tree item and select **Copy to Sibling Tree Item**.
2. Edit the copied tree item settings as desired and save the tree item. For more information, refer to steps 2-4 in [Add tree items on page 117](#).

Edit tree items

Perform the following steps to edit tree items.

To edit an item on the report tree

1. In the report tree on the **Report Explorer** tab, click the tree item that you want to edit.
2. Edit the tree item settings as desired and save the tree item. For more information, refer to steps 2–4 in [Adding tree items on page 117](#).

Organize tree items

Perform the following steps to organize tree items.

To rearrange the items in the tree

1. In the report tree on the **Report Explorer** tab, click the tree item that you want to rearrange.
2. Drag the item and drop it to its new location in the report tree.
3. Confirm the rearrangement in the message box that appears.

Delete tree items

Perform the following steps to delete an item from the report tree.

To delete an item from the report tree

1. In the report tree on the **Report Explorer** tab, click the tree item that you want to remove, and click **Delete**.



Tip: Alternatively, you can right-click the tree item and select **Delete**.

2. Confirm the deletion in the message box that appears. This action cannot be undone.
3. To delete the item including all of its children, click **Delete** again.

Configure report subscriptions

Use the **Subscriptions** tab to schedule reports to be created and delivered in an unattended manner. For example, you can create a subscription that emails the previous day's production report every weekday in the PDF format to your shop floor supervisors.

To open the tab, click  on the **Administration** page.

Create shared schedules in SSRS

To use the report subscriptions functionality, you must create schedules in SQL Server Reporting Services (SSRS):

To create schedules

1. Open Internet Explorer or Microsoft Edge.
2. Type the following in the address bar:

host:port/reports

where `host` is the name of the computer on which Report Expert is installed.

For example: **http://rsi-rockwell/reports**.

The **SQL Server Reporting Services** page appears.

3. Click **Site Settings** in the top-right corner of the page.

The **Site Settings** page appears.

4. For Microsoft SQL Server, click **Schedules** in the left pane of the page.
5. Follow the available help to create schedules that you will use for creating subscriptions in Report Expert.

Add report subscriptions

Perform the following steps to add a report subscription.

To add a report subscription

1. In the **Report** list, select the report template for the report you want to run on a scheduled interval.
2. In the **Parameter Set** list, select the parameter set to apply to the report for this subscription.
3. In the **Delivery** list, select a delivery method from the two options: **FileShare** or **Report Server Email**.



Tip: To make **Report Server Email** available, perform the following steps in SQL Server Reporting Services (SSRS)

- a. Go to **Start > Microsoft SQL Server Reporting Services**.
- b. In **Object Explorer**, click the plus sign to expand the server where you want to manage the SQL Server Agent Service.
- c. Right-click **SQL Server Agent**, and then select **Start**.
- d. When prompted if you want to perform the action, click **Yes**.
- e. Go to **Start > Microsoft SQL Server Reporting Services**.
- f. On the **Report Server Configuration Manager** page, select **E-mail Settings** in the left panel.
- g. Enter the email address in the **Sender Address** box, and then enter the SMTP server name in the **SMTP Server** box.
- h. Select **Apply**.
- i. Go to the **Web Portal URL** page, and then click the URL.
The **SQL Server Reporting Services** page appears.
- j. On the **SQL Server Reporting Services** page, click **Settings > Site settings > Schedules > New schedule**.
- k. Enter the information for **Schedule**, **Schedule details**, and **Start and end dates**.
- l. Click **Apply**.
- m. Go to the **Administration** page of Report Expert, refresh the **Subscriptions** tab.

NOTE: If the Microsoft SQL Server Reporting Services version is 2019, restart SSRS before refreshing the **Subscriptions** tab.

- n. Select **Report Server Email** from the dropdown list of **Delivery**.
 4. In the **Schedule** list, select a shared schedule that will define how often the subscription runs. You have [configured the schedule on page 119](#) in SSRS.
 5. Select **New**.
- The new record is added to the list at the bottom of the **Subscriptions** tab. However, until you modify the record, the subscription record will not be saved.

Modify report subscriptions

Perform the following steps to modify a report subscription.

To modify a report subscription

1. In the **Edit Command** column for the subscription you want to change, click the **Edit** link.
2. Type the following information for subscriptions using the **Email** delivery method:

Item name	Description
Description	A meaningful description of the report.
Email To	(Required.) The email address to which the report will be sent.
CC	The email address to which a Carbon Copy of the report will be sent.
BCC	The email address to which a Blind Carbon Copy of the report will be sent.
Subject	(Required.) The text that will appear in the subject line of the email message.
Render Format	(Required.) The name of the rendering extension to use to generate the rendered report. This value is required if Include Report is set to true. Valid values are XML, CSV, Image, PDF, Excel, MHTML.
Reply To	The email address that will appear in the Reply To header of the email message. The value must be a single email address.
Comment	The text that will be included in the body of the email message.
Priority	The priority with which the email is sent. Valid values are Normal, Low, and High. The default value is Normal.
Include Report	(Required.) This value indicates whether to include the report in the email delivery. A value of true indicates that the report is included in the body of the email message.
Include Link	(Required.) This value indicates whether to include a link to the report in the body of the email. A value of true indicates that a link to the report is included in the body of the email message.

3. Type the following information for subscriptions using the **FileShare** delivery method:

Item name	Description
Description	A meaningful description of the report.
File	(Required.) The name of the file that is saved to disk.

Item name	Description
Path	(Required.) The UNC (Uniform Naming Convention) file share path to which to save the report. For example: <code>\\computer_name\share_name\path\file_name.</code>
Extension	(Required.) Indicates whether to include a file extension for the rendered report. The value is either true or false.
UserName	(Required.) The username required to access the network resource or disk.
Password	(Required.) The password required to access the network resource or disk.
Write Mode	(Required.) The write mode to use when accessing the disk. Valid values are None, Overwrite and AutoIncrement.
Render Format	(Required.) The name of the rendering extension to use to generate the rendered report. This value is required if Include Report is set to true. Valid values are XML, CSV, Image, PDF, Excel, MHTML.

- In the **Edit Command** column, click the **Update** link to save your changes temporarily. The subscription will run at the next occurrence of the specified schedule.
- To write the changes to the database, click **Save**. The subscription will run at the next occurrence of the specified schedule.

NOTE: If you close your browser before clicking **Save**, your changes will be lost.

Delete report subscriptions

Perform the following steps to delete an existing report subscription on the **Subscriptions** tab.

To delete an existing report subscription on the Subscriptions tab

- In the **Edit Command** column for the subscription you want to delete, click the **Delete** link.
- Confirm the deletion in the message box that appears. This action cannot be undone.
- Click **Save**.

NOTE: If you close your browser before clicking **Save**, your changes will be lost.

Configure parameter sets

Use the **Parameter Sets** tab to add, modify, and delete the parameter sets that serve as the filtering criteria required to execute Report Expert reports.

To open the tab, click  on the **Administration** page.

Add parameter sets

The default Parameter Sets are for example only. They were created to use with the entries in the default Report Explorer tree. It is expected that the customer will create Parameter Sets that will support their specific reporting requirements.

NOTE: The name of each parameter set must be unique. When you add, modify or copy a parameter set, the name you specify must not be identical to the name of any parameter set that exists. If it is identical, you will be prompted with an error message **Parameter set name not unique**.

To add a parameter set

1. Click **New**.
2. In the **Parameter Set Name** text box, type a name for the parameter set.
3. Review the following for additional information.

Item	Description
Date/Time/Shift	Define how you want to filter the data based on time. For more information, refer to Using the Date / Time / Shift parameter on page 66 .
Grouping	Define how you want to group and organize the information in the report. For more information, refer to Using the Grouping parameter on page 71 .
Sorting	Define how you want the grouped information sorted. For more information, refer to Using the Sorting parameter on page 75 .
Plant Model	Specify the activity areas for which you want information to be displayed in the report. For more information, refer to Using the Plant Model parameter on page 76 .
Filtering	Define how you want to further filter the information in the report. For more information, refer to Using the Filtering parameter on page 78 .
TOP N	Define the data limit of a report for the top (or bottom) number (N) of occurrences of a field that you specify. For more information, refer to Using the TOP N parameter on page 79 .
Terminology	Select different domain terminology sets for your report parameter set. For more information, refer to Using the Terminology parameter on page 80 . Note: The terminology sets you apply in the Report Explorer tab take precedence over the terminology sets you apply via the Parameter Sets tab.

4. Click **Save**.
The new parameter set appears in the **Select Parameter Set** list.

Copy parameter sets

Copying a parameter set saves time when you create a parameter set that has many of the same settings as an existing parameter set.

NOTE: The name of each parameter set must be unique. When you add, modify or copy a parameter set, the name you specify must not be identical to the name of any parameter set that exists. If it is identical, you will be prompted with an error message **Parameter set name not unique**.

To copy a parameter set

1. In the **Select Parameter Set** list, select the parameter set that you want to copy.
2. Click **Copy**.
The name of the copied parameter set is appended with a "- copy" suffix.
3. In the **Parameter Set Name** text box, type a name for the parameter set.
4. Modify the parameter set. For more information, refer to [Using the parameter set controls on page 66](#).
5. Click **Save**.
The new parameter set appears in the **Select Parameter Set** list.

Modify parameter sets

The name of each parameter set must be unique. When you add, modify or copy a parameter set, the name you specify must not be identical to the name of any parameter set that exists. If it is identical, you will be prompted with an error message Parameter set name not unique.

If you modify a parameter set, your changes may affect the reports that use the parameter set, including reports already saved in the Report Explorer.

To modify a parameter set

1. In the **Select Parameter Set** list, select the parameter set you want to modify.
2. Modify the parameter set. For more information, refer to [Using the parameter set controls on page 66](#).
3. Click **Save**.
To save the modified parameter set under a new name, click **Save As**.
The **Save As** button appears in place of the **Copy** button as soon as you modify any of the parameters.

Delete parameter sets

Deleting a parameter set cannot be undone.

To delete a parameter set

1. In the **Select Parameter Set** list, select the parameter set that you want to delete.
2. Click **Delete**.
3. Confirm the deletion in the message box that appears. This action cannot be undone.

Configure terminologies

Use the **Terminologies** tab to localize you reports. With the **Terminologies** you can create terminology for your specific domain, copy it to other cultures (languages), and edit the terminology appropriate to the context of your domain.

For example, if you have an electronics plant, you can create a domain terminology specific to your plant, add terms to your domain terminology from Report Expert default terminology database, copy your domain terminology into other languages, and edit or translate terms as appropriate to your domain and culture (language).


The default culture (language) in Report Expert is English (United States).

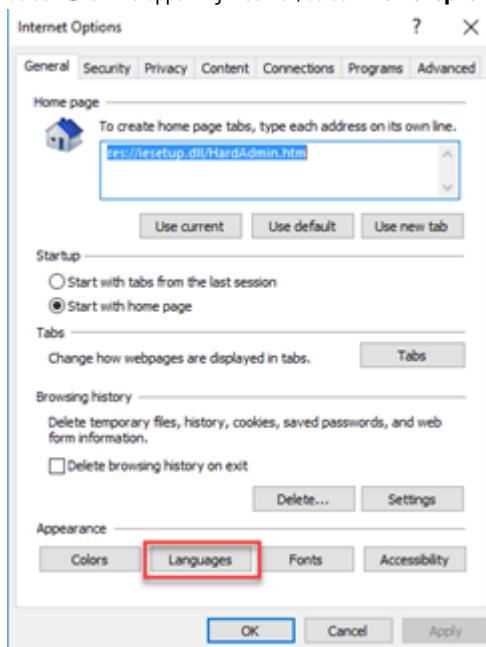
To open the tab, click  on the **Administration** page.

Set the browser language

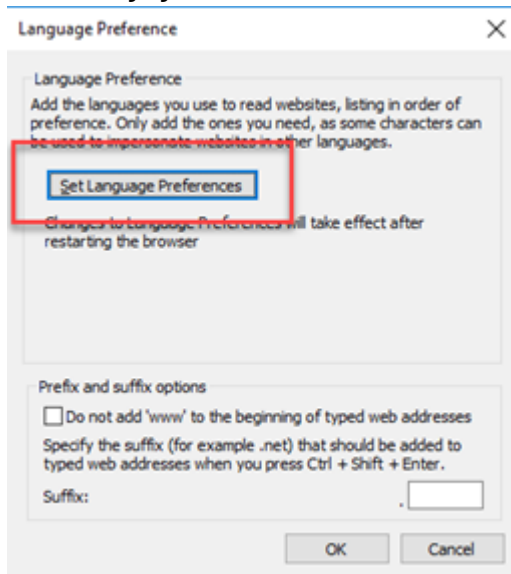
Which list of terms are used in a report is determined by a combination of the Terminology and Culture (Language). The Terminology is selected using a Parameter in Report Expert, but the Culture is chosen based upon the Language preference configured in your web browser. The operation of language setting is different on Internet Explorer 11 and Microsoft Edge.

To set the Internet Explorer language

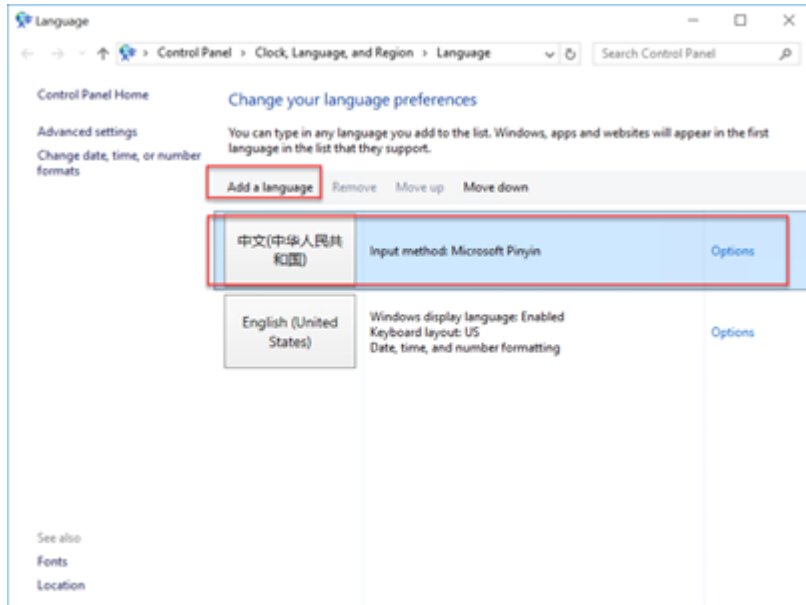
1. Open Report Expert using Internet Explorer.
2. Select  on the upper-right corner, select **Internet options**, and then select **Languages**.



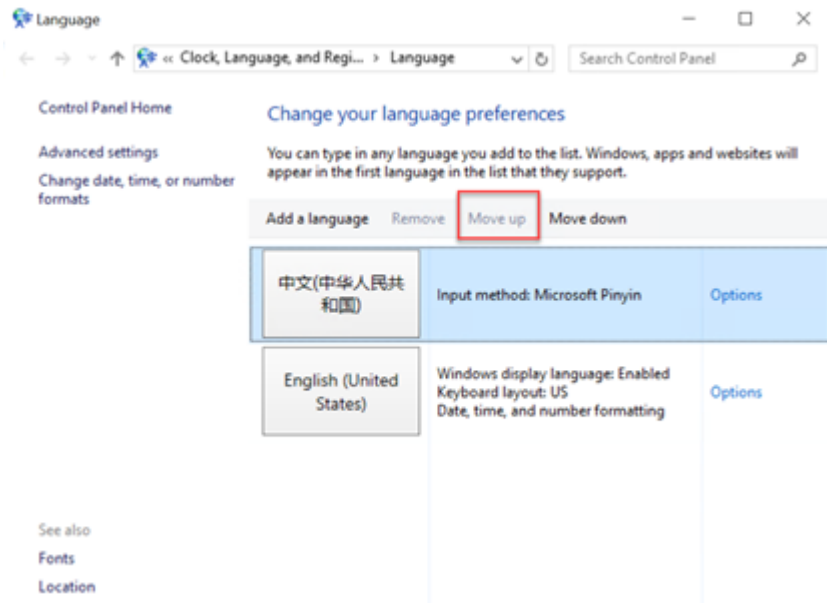
- 3. Select **Set Language Preferences**.



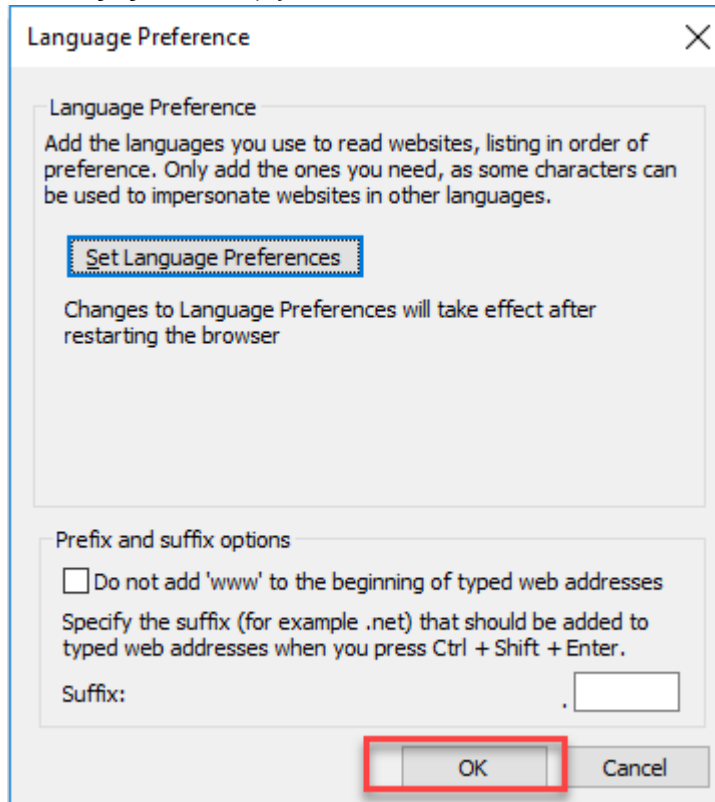
- 4. On the **Language** page, select **Add a language**, and then select the language that you want to set in the **Culture** list.



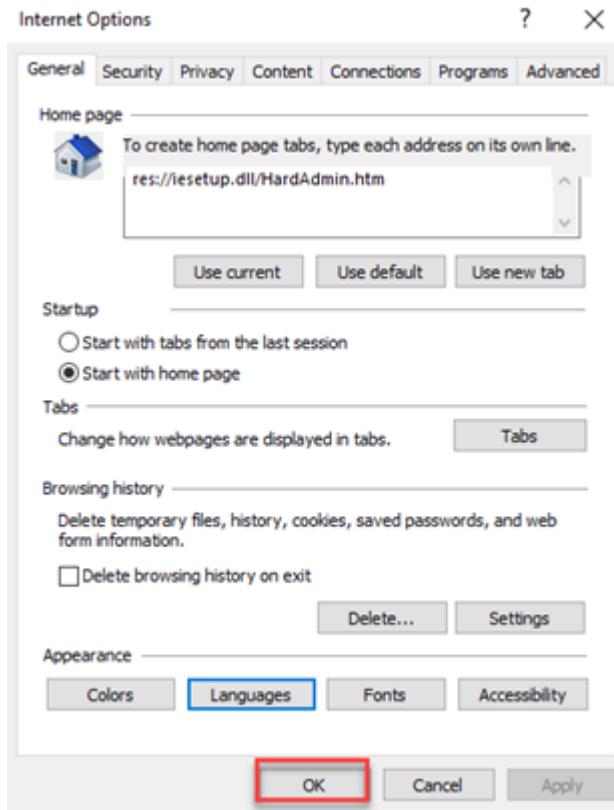
5. Select **Move up** to make sure that the language you added is on the top.



6. On the **Language Preference** page, select **OK**.



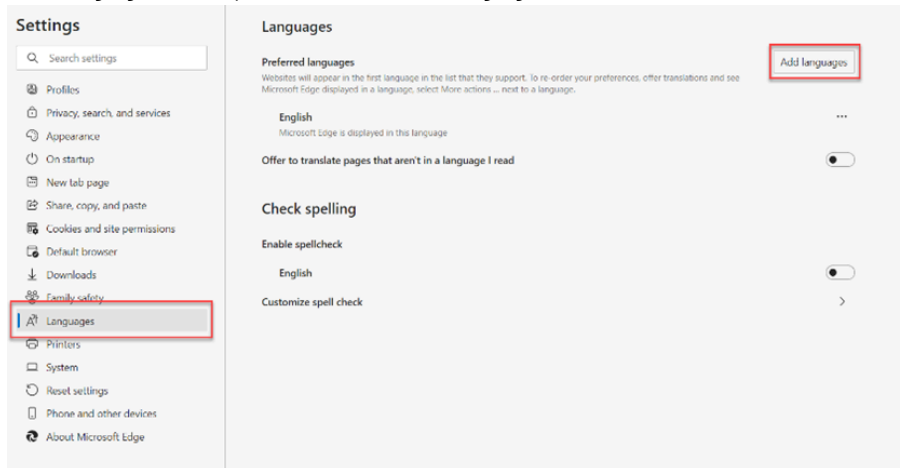
- In the **Internet Options** dialog box, select **OK**.



- Restart Internet Explorer and relaunch Report Expert.

To set Microsoft Edge language

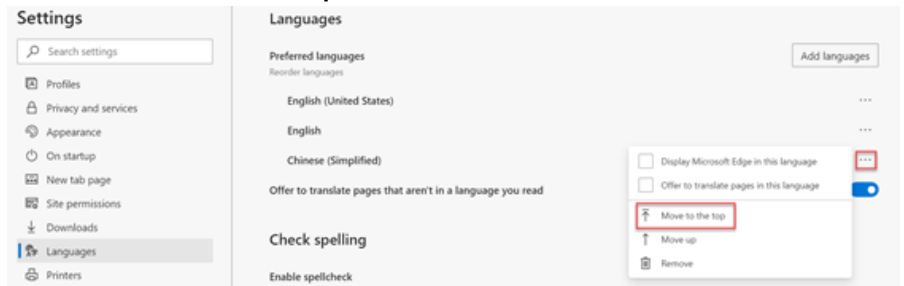
- Open Report Expert using Microsoft Edge.
- Select **Settings** on the upper-right corner, and then select **Settings**.
- Select **Language** in the left panel, and then select **Add languages**.



- Select the language that you want to set in the **Culture** list, and then select **Add**.



- Click..., and then select **Move to the top**.



Close this page.

- Restart Microsoft Edge and relaunch Report Expert.

Domain terminology

A domain terminology consists of a copy of a subset of all the Report Expert static strings. You can change the value of any string in each terminology. You can assign a terminology to a parameter set or to a Report Explorer entry. When you use a domain terminology in a report, Report Expert uses the terminology's strings instead of the default strings. Strings that appear in the report but are not in the terminology use the default values.

Each terminology has a culture property (or language). While each terminology has a default culture property, it can have multiple culture properties. Each culture is specific to a language and consists of a copy of each of the strings in the terminology. You must translate the strings into the language of the culture using the Terminology Editor. When a user displays a report in Report Expert, the user's Browser Language setting determines if a terminology culture is used to display the fixed strings in the report. For example, let's say you create a *Bottling* terminology. The *Bottling* terminology has a default culture property (English). In the *Bottling* terminology, you then create an additional culture property (French). Your Report Expert users would have the following terminologies:

Item	Description
Default terminology	In English. For any report using the Default terminology, users will see the default terminology (in English culture terms).
Bottling terminology	In French and English (the default). For any report using the Bottling terminology, what users will see depends on their browser language setting. For example, all users who have a French browser language setting will see the terms defined in

Item	Description
	the Bottling terminology French culture. The rest of the users will see the terms defined in the Bottling terminology.

Create domain terminologies

Perform the following steps to create a domain terminology.

To create a domain terminology

- Under **Terminology Editor**, in the **Terminology** list, select a domain terminology.
The terms from the domain terminology appear in the terminology editor table.



Tip: By default, the new terminology will include all of the terms displayed in the Terminology Editor. To copy only certain terms to the new terminology, select those terms in the Terminology Editor.

- In the **Culture** list, select a culture.
The terms from the culture appear in the terminology editor table.
- (Optional). If you want to create a terminology in a specific language, under **Copy Terminology to a different Culture**, in the **Culture** list, select the desired language.
- Under **Create a new Domain Terminology**, in the **Domain Name** text box, type a name for the new domain terminology.
- Click **Create Terminology**.
The new domain terminology appears in the **Terminology** list.

Add terms to terminologies

When you add terms to a terminology, the terms you add from the selected culture are added to all cultures of the selected domain terminology.

To add terms to a terminology

- Under **Terminology Editor**, in the **Terminology** list, select a domain terminology from which you want to add terms.
The terms from the domain terminology appear in the terminology editor table.
- In the **Culture** list, select a culture from which you want to add terms.
The terms from the culture appear in the terminology editor table.
- Under **Add Terms to selected Terminology**, in the **Terminology** list, select the domain terminology to which you want to add the terms.
- In the terminology editor table, select checkboxes next to the terms that you want to add.
To go to the next page of the terms, click the numbered links below the table.
To select all the terms, click **Select ALL**.
- Under **Add Terms to selected Terminology**, click **Add Terms**.

The terms appear in the terminology editor.

NOTE: If you want to make the new terminology and terminology changes available to Report Expert users, you must synchronize them. For more information, refer to [Synchronizing terminology changes with Report Server on page 133](#).

Edit terms

Perform the following steps to edit terms in a terminology.

To edit terms in a terminology

1. Under **Terminology Editor**, in the **Terminology** list, select a domain terminology for which you want to edit terms.
The terms from the domain terminology appear in the terminology editor table.
2. In the **Culture** list, select a culture for which you want to edit terms.
The terms from the culture appear in the terminology editor table.
3. Click **Edit** next to the term that you want to modify. The term details appear.
4. Change the term, and then click **Update**.

NOTE: If you want to make the new terminology and terminology changes available to Report Expert users, you must synchronize them. For more information, refer to [Synchronizing terminology changes with Report Server on page 133](#).

Delete terms

You cannot delete terms from the default terminology database. You can only delete terms from your domain terminology database.

To delete terms in a terminology

1. Under **Terminology Editor**, in the **Terminology** list, select a domain terminology containing the culture from which you want to delete terms.
The terms from the domain terminology appear in the terminology editor table.
2. In the **Culture** list, select a culture from which you want to delete terms.
The terms from the culture appear in the terminology editor table.
3. Click **Delete** next to the term that you want to remove from the terminology.
4. Confirm the deletion in the message box that appears. This action cannot be undone.



Tip:

- Deleting a term removes that term from all cultures.
 - If you want to make the new terminology and terminology changes available to Report Expert users, you must synchronize them. For more information, refer to [Synchronizing terminology changes with Report Server on page 133](#).
-

Copy terms to other cultures

You may want copy terms to another culture if, for example, you have a terminology with a Spanish culture and want to create a culture property in Italian based on the Spanish culture terms.

To copy terms to another culture

1. Under **Terminology Editor**, in the **Terminology** list, select a domain terminology containing the culture whose terms you want to copy.
2. In the **Culture** list, select a culture whose terms you want to copy.
3. Under **Copy Terminology to a different Culture**, in the **Culture** list, select the language to which you want to copy the terms.
4. Click **Copy Terminology**.

The terms from the selected terminology culture are copied to the new culture within the same terminology.

NOTE: If you want to make the new terminology and terminology changes available to Report Expert users, you must synchronize them. For more information, refer to [Synchronizing terminology changes with Report Server on page 133](#).

Delete terminologies

Deleting a domain terminology also deletes the culture properties that you have created within that terminology. For example, if you had a copy of your domain terminology in Chinese, deleting the domain terminology would remove the Chinese culture as well.

To delete a domain terminology

1. Under **Terminology Editor**, in the **Terminology** list, select a domain terminology that you want to delete.
2. Click **Delete Terminology**.
3. Confirm the deletion in the message box that appears. This action cannot be undone.

NOTE: If you want to make the new terminology and terminology changes available to Report Expert users, you must synchronize them. For more information, refer to [Synchronizing terminology changes with Report Server on page 133](#).

Delete a culture

To delete a culture from a domain terminology

NOTE: If you delete a terminology's default culture, you will delete the entire terminology.

1. Under **Terminology Editor**, in the **Terminology** list, select a domain terminology containing the culture that you want to delete.
2. In the **Culture** list, select the culture that you want to delete.
3. Click **Delete Culture**.

4. Confirm the deletion in the message box that appears. This action cannot be undone.

NOTE: If you want to make the new terminology and terminology changes available to Report Expert users, you must synchronize them. For more information, refer to [Synchronizing terminology changes with Report Server on page 133](#).

Synchronize terminology changes

After you create new or modify existing terminologies, you must synchronize the terminology changes with the report server. Once synchronized, the changes will be available to users in Report Expert.

To synchronize terminology changes, click **Sync IIS With New Terminology** at the bottom of the terminology editor.

If you want to refresh terminology every time you select a report template and generate a report, check **Init terminology every report**.


NOTE: Selecting the **Init terminology every report** option consumes additional resources every time you generate a report, so we recommend that you select this option only if you are making frequent terminology changes.

If you do not select the option, terminologies are refreshed when you launch Report Expert.

Verify whether terms are translated

Perform the following steps to verify whether the Terminologies have been translated.

To verify whether the Terminologies are translated

1. In Report Expert, choose a report you want to view using the new Terminology/Culture you created. Go to the **Parameters** tab, select the report from the dropdown list under **Select Report** (if necessary), and then select the parameter set from the dropdown list under **Select Parameter Set** (if necessary).
2. Select  under **Terminology**, and then select the terminology name that you created from the dropdown list. If that Terminology contains a Culture that matches the Language that is first in the Language Preference list in Internet Explorer, the Terminology/Culture terms will be used in the resulting report.
3. Select **View Report**. Verify that the terms used within the resulting report match the terms in your chosen Terminology/Culture.

Configure the line order

Use the **Line Order** tab to specify the sort order of work cell names in a report. The default sort order of work cells is alphabetical. You can specify a line order if the actual order of the work cells on a line is not alphabetical.

NOTE: You cannot modify the work cell order for the Root Cause Analysis report as it uses line order by default.

If you do not group work cells by line, the work cells will be sorted alphabetically. For example, if you have two lines (Line 1 with work cells A and C and Line 2 with work cell B), grouping the report by work cell will display the work cells

in the order A, B, and then C. If you group the work cells by line order, the work cells will be sorted first by line and then line order.

To open the tab, click  on the **Administration** page.

To change the line order

1. In the **Line list**, select a line.
Under **Line Order**, all the work cells that are in the line are displayed. The "first" work cell appears at the top.
2. Select a work cell and click **Shift Up** or **Shift Down** to move the work cell to the desired position.
3. Click **Save**.



Tip: To use line order in a report that is grouped by work cell, in the Sorting parameter, select Work Cell Ordered. For information on the Sorting parameter, refer to [Using the Sorting parameter on page 75](#).

Configure localizations

Use the **Localization** tab to customize the language of the Report Expert user interface. With the localization functionality, you can apply your preferred language to all the user interface components but reports, which can be localized using the terminology feature.

The default localization language in Report Expert is English (United States).

To open the tab, click  on the Administration page.

Add a localization

Add a language that you will use in the Report Expert's user interface.

To add a localization

1. Under **Localization Editor**, click **New language**.
The **Add a localization language** dialog box appears.
2. From the list, choose the language to which you want to translate the user interface, and then click **OK**.
The language appears in the **Translation to language** list, and the texts of the UI elements appear in the table below the **Select section** list.

Edit a localization

To create a complete set of the localized user interface texts, you must provide their translations in a selected language.

You can do it in either of the following ways:

- Using Microsoft Excel or another spreadsheet editor. For more information, refer to [Edit a localization in Microsoft Excel on page 135](#).
- Using the Localization page. For more information, refer to [Edit a localization on the Localization page on page 139](#).

Edit with Microsoft Excel

Choose this method if you have many user interface texts to translate.

In this method, the user interface texts are exported from the Report Expert database to an XML file that you can edit in Microsoft Excel or another spreadsheet editor.

The following steps show you how you can do it in Microsoft Excel.

To edit a localization in Microsoft Excel

1. Under **Translation to language**, select the language to which you want to translate the user interface texts, and then click **Export**.

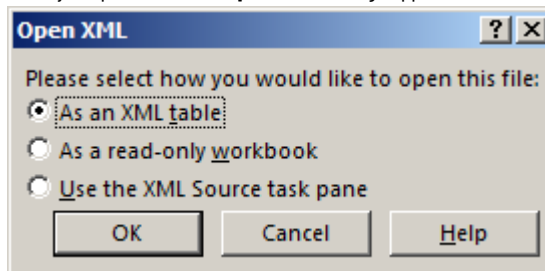
The **Save As** dialog box appears.

2. Choose the location in which you want to save the file, and then click **Save**.

The localization file is saved as an XML document.

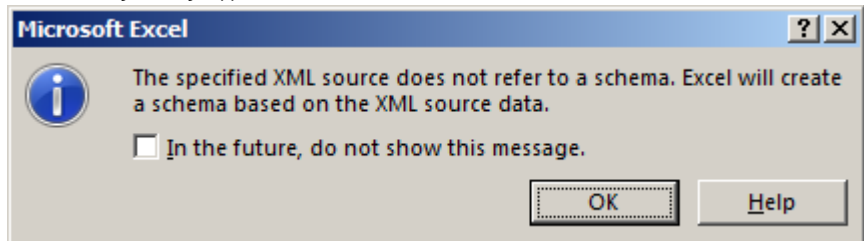
3. Open Microsoft Excel, and then open the file from there.

When you open the file, an **Open XML** message appears.



Leave the default option selected (**As an XML table**).

If the following message appears:



Click **OK**.

4. In Excel, in the **TranslatedValue** column, replace the default language (English (United States)) texts with their translations in the selected localization language.

For example, for Azerbaijani you will replace the English (United States) texts with their Azerbaijani equivalents.

For details on the content of the columns in the localization XML file, refer to the content of the columns in the localization XML file.

For details on the mapping between the localization XML file items and the user interface elements, refer to [User interface \(UI\) sections and their location on the screen on page 136](#).

5. When you are done, on the **File** menu, click **Save As**.

The **Save As** dialog box appears.

6. Browse to the location in which you saved the localization XML file exported from Report Expert.

7. In the **Save as type** list, select **XML Data (*.xml)**.

Now you should see the localization XML file listed in the files pane on the right.

8. Select the localization XML file, and then click **Save**.

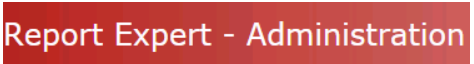






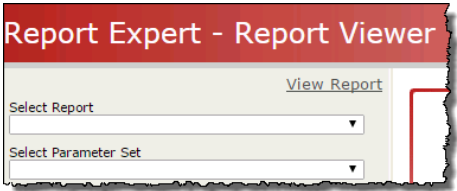

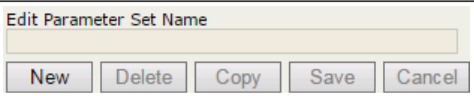
The file is updated with the translations that you have added.

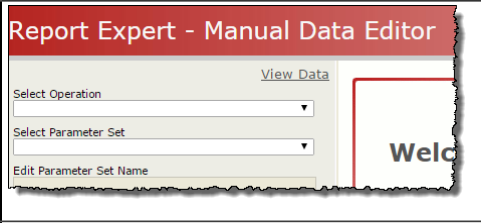
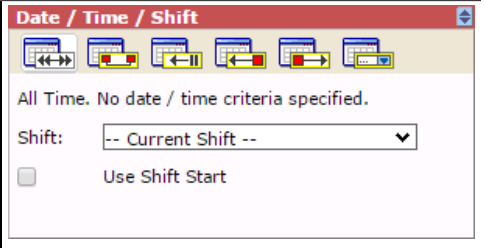
Now you can upload the localization to Report Expert. For more information, refer to [Import a localization on page 140](#).

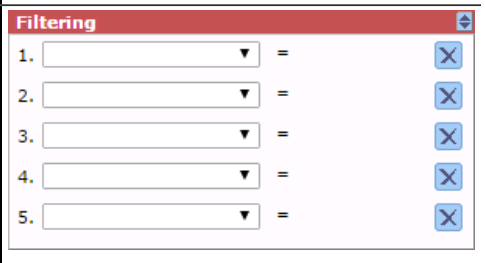
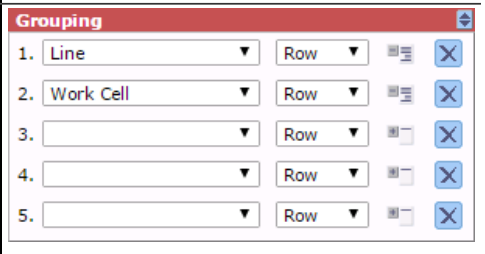
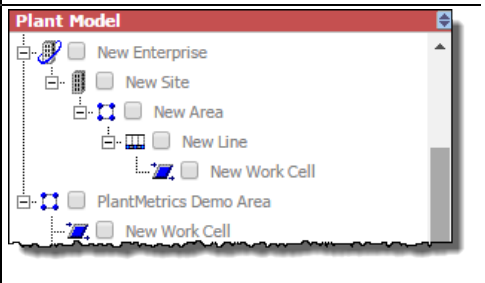
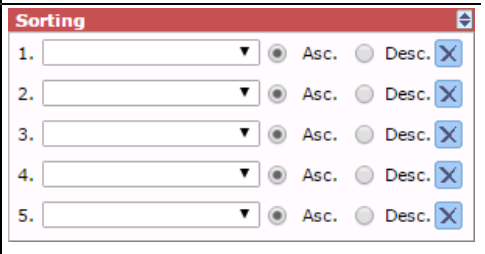

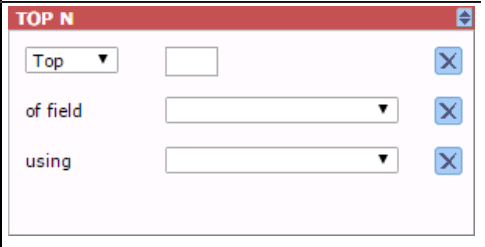
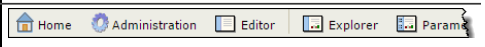
User interface sections

The following table lists user interface (UI) sections that contain individual UI texts and their location on the screen.

The sections are available on the **Localization** page in the **Select section** list, and in the localization XML file in the **ResourceSet** column.

This item...	Refers to this item on the page...
AdminMain.aspx	
AdminMain.aspx/LineOrder	Items on 
AdminMain.aspx/ParameterSets	Items on 
AdminMain.aspx/ReportExplorer	Items on 
AdminMain.aspx/Subscriptions	Items on 
AdminMain.aspx/Terminologies	Items on 
AdminMain.aspx/UILocalization	Items on 
ClientView.aspx	
ClientView.aspx/WelcomePage	
Common	 <p>Report Expert Online Help</p> <p>Report Expert User Guide</p> <p>This section contains items that are reused in multiple places in Report Expert.</p> <p>If you can't find an item in a section in which it should be listed, try looking for it in the Common section.</p>

This item...	Refers to this item on the page...
Common/DateTimePicker	
ErrorPage.aspx	<p>Error on Report Expert.</p> <p>An error occurred while the system was running Report Expert. Please contact the administrator.</p>
InfoPage.aspx	<p>The window or tab title of the Product Information page that appears when you click  Info.</p>
MdeView.aspx	
MdeView.aspx/WelcomePage	<p>Welcome to the Editor</p> <p>This is the Home page of the Editor where you can edit collected FactoryTalk Metrics data.</p> <p>To begin:</p> <ul style="list-style-type: none"> Choose an Operation from the list. Choose a saved Parameter Set, or configure Parameters to choose the data to edit. Click View Data. <p>To learn more about using Report Expert, click the following links:</p>
Messages	<p>The texts of the messages that appear in Report Expert.</p>
ParameterSetView.inc	
ParameterSetView.inc/DateTimeShift	

This item...	Refers to this item on the page...
ParameterSetView.inc/Filtering	
ParameterSetView.inc/Grouping	
ParameterSetView.inc/PlantModel	
ParameterSetView.inc/Sorting	
ParameterSetView.inc/Terminology	
ParameterSetView.inc/TopN	
ProductInfo	<p>Copyright © 2020 Rockwell Automation Technologies, Inc. All Rights Reserved.</p> <p>Application:</p> <ul style="list-style-type: none"> RockwellSoftware ReportExpert - v4.0.0.0 RockwellSoftware Metrics MDE Common - v4.0.0.0 RockwellSoftware ReportExpert Components Util - v4.0.0.0 ComponentArt Web UI - v3.0.1623.1 RockwellSoftware CommonWebComponents Controls - v13.0.0.0 RockwellSoftware Metrics MDE Client - v4.0.0.0 log4net - v1.2.11.0 RockwellSoftware ReportExpert Components RSReference - v4.0.0.0 RockwellSoftware Metrics MDE - v4.0.0.0 RockwellSoftware ReportExpert Components Subscriptions - v4.0.0.0 EF TracingProvider - v1.0.0.0 EFProviderWrapperToolkit - v1.0.0.0 <p>Database: BizWare</p> <p>Module Versions:</p> <ul style="list-style-type: none"> ReportExpert Version: 13.00.00.11 Initialized
Toolbar	

The content of the columns in the localization XML file:

- [Edit a localization in Microsoft Excel on page 135.](#)
- [Edit a localization on the Localization page on page 139.](#)

Edit a localization

Choose this method if you want to edit translations of user interface texts directly in Report Expert, without exporting them.

To edit a localization on the Localization page

1. Under **Translation to language**, select the localization language in which you want to edit translations. The table below the **Select section** lists the default language and the localized language texts in the following columns:
 - **Default language**
It contains texts in the default language (English (United States)).
 - **Translated language - <Language's name>**
It contains texts in the default language (English (United States)) that you will replace with their equivalents in the localization language.
The column name also contains the name of the localization language. For example, for Azerbaijani the column name will read "Translated language - Azerbaijani".
2. In the **Select section** list, select the UI section that you want to translate.
For more information, refer to [User interface \(UI\) sections and their location on the screen on page 136.](#)
3. In the row of the text that you want to edit, click **Edit**.
4. Under **Translated language - <Language's name>**, edit the translation in the selected row, and then click **Update**.

NOTE: The following special characters are not allowed in the translations:

< > &

If you use any of them in a translation, and then click **Update**, an error message will appear, and you must correct the entry.

The updated translation is saved in Report Expert.



Tip:

- Click the page links at the bottom of the table to display another portion of the localization file.
 - Check the **Show only untranslated resources** option to display only the entries that have not been translated yet.
-

Export a localization

You export a localization when you want to edit it in the localization XML file in Microsoft Excel or another spreadsheet editor.

For more information, refer to [Edit a localization in Microsoft Excel on page 135.](#)

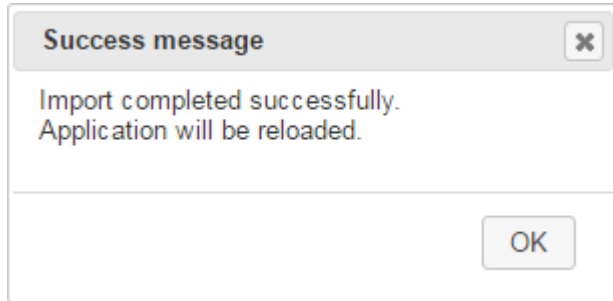
Import a localization

Once you updated the translation in the localization XML file, you can import the localization to the Report Expert database.

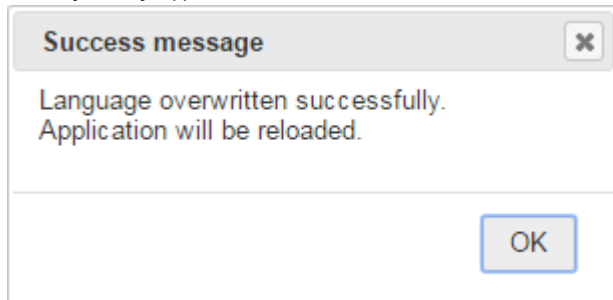
To import a localization

1. Under **Localization Editor**, click **Import language**.
2. The **Open** dialog box appears.
3. Find the localization XML file that you have updated, and then click **Open**.

When the localization is imported to Report Expert, the following message appears:



If you import the localization XML file for a language for which a localization exists in Report Expert, the following message appears:

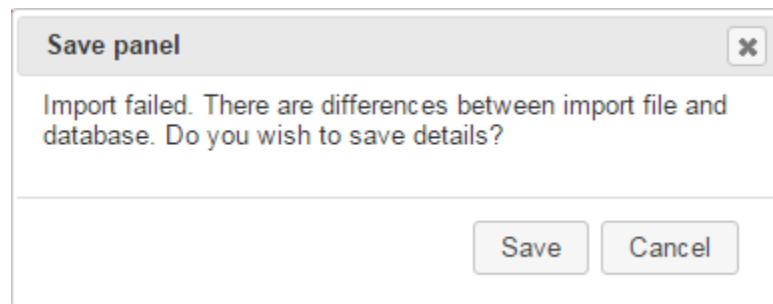


4. Click **OK**.

When the application is reloaded, the localization that has been imported is listed under **Translation to language**.

Troubleshoot the import

While importing the localization XML file to Report Expert, the following message may appear:



It appears when there are differences between the entries in the **ResourceSet**, **ResourceKey**, or **DefaultValue** column in the file and the entries in the Report Expert database.

Such discrepancies may occur in the following situations:

- When you have modified an entry in any of these columns in some way in the localization XML file.
- When the Report Expert database was updated after you had exported from the localization XML file that you are now trying to import.

Read the import error file for the import failure details.

To save the import error file

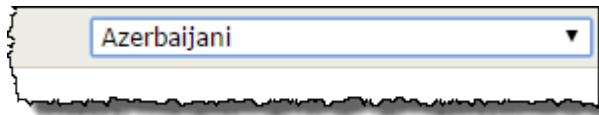
1. In the message, click **Save**.
The **Save as** dialog box appears.
2. In the dialog box, choose the location in which you want to save the import error text file.

Set a localization

Perform the following steps to set a localization.

To set a localization

- In the localization language list in the top-right corner of the page, select the localization language that you want to use:



You can view the page in the selected language after Report Expert is reloaded.

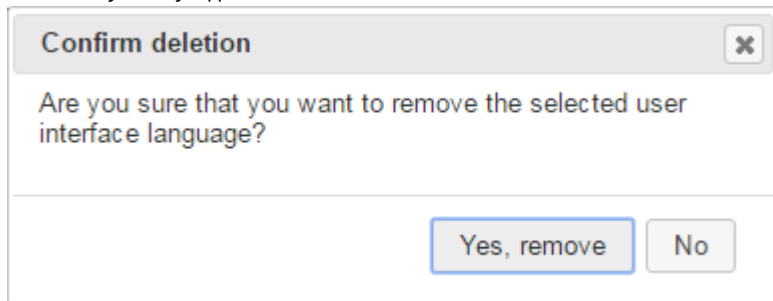
Delete a localization

Perform the following steps to delete a localization.

To delete a localization

1. Under **Translation to language**, select the localization that you want to delete, and then click **Delete**.

The following message appears:



2. Click **Yes, remove**.

NOTE: If you remove the localization that is currently used by the system, Report Expert will switch automatically to the default one.

It is not possible to remove the default localization.

Glossary

This chapter contains a glossary that defines each of the fields contained in the standard Report Expert report templates.

[A - D on page 142](#)

[E on page 143](#)

[F - I on page 145](#)

[L - O on page 146](#)

[P - R on page 148](#)

[S on page 149](#)

[T - W on page 150](#)

A - D

- A -

Area

A level of the plant model (which is constructed by enterprise, site, area, line, and then work cell).

Availability

The percentage of available time that the machine was actually running.

Available Time

Available Time is the amount of time the work cell was expected to be Running and producing parts. It can also be thought of as "Available to Run".

The calculation of Available Time is determined by the settings for the Scheduled Availability and Monitored Availability performance parameters in the work cell's configuration. In the reports Available Time is usually represented as HH:MM:SS, although in the calculations it is represented in seconds.

Average Duration

The average length of event or state occurrences.

Avg. Duration/Event End Num

The average length of event or state occurrences (for grouping rows) / The numeric value collected at the end of the event (for detail rows).

- C -

Cycle Time Diff.

The difference, represented by a negative number, between the ideal amount of time it should take to produce a part and the actual amount of time it took to produce parts. Better cycle time differences are indicated by a lower negative number.

The calculation for this field is:

$$\text{CycleTimeDifference} = \text{IdealCycleTime} - \text{RealizedCycleTime}$$

Cycle Time Diff. %

The Cycle Time Difference as a percentage of the Ideal Cycle Time.

The calculation for this field is:

$$\text{CycleTimeDiff\%} = -\text{CycleTimeDifference} / \text{IdealCycleTime}$$

- D -

Downtime

The amount of time the work cell was Available but not Running.

The calculation for this field is:

$$\text{Downtime} = \text{Available Time} - \text{Running Time}$$

Duration

The length of the event, calculated as the difference between start time and end time and displayed using the format HH:MM:SS.mmm.

The calculation for this field is:

$$\text{Duration} = \text{End Time} - \text{Start Time}$$

E

- E -

End Time

The date and time that the event or state ended.

End Value

The value collected at the end of the event.

Enterprise

A level of the plant model (which is constructed by enterprise, site, area, line, and then work cell).

Event Category

The category of the event.

Event Comment

The wording of a comment that you have typed for an event in the Editor.

Event Count

The number of events that occurred during the reporting period.

Event During Num

A numeric information on the event calculated as the difference between Event End Num and Event Start Num.

The calculation for this field is:

$$\text{Event During Num} = \text{Event End Num} - \text{Event Start Num}$$

Event During Scheduled Time

Information whether the event occurred during the scheduled time.

Event End Num

The numeric value collected at the end of the event.

Event Is Fault

Information on whether the event is used for Faults metrics.

Event Name

The name of the event.

Event Occurrence

The identifier of a single event occurrence.

Event Occurrence Count/Id

The number of the event occurrences (for grouping rows). / The identifier of the single event occurrence (for detail rows).

Event Reason

The string value representing the event reason.

Event Reason Code

The numeric code representing the event reason.

Event Severity

The numeric severity level assigned to the event.

Event Start Num

The numeric value collected at the start of the event.

Event Trigger

A textual description of the data point used as a trigger for the event.

Event Trigger Expression

A FactoryTalk Transaction Manager expression used to determine the event trigger value.

Event Value

A text description of the data point used for the event value.

Event Value Expression

A FactoryTalk Transaction Manager expression used to determine the event value.

Event Value Lookup List Name

A name of the value lookup list that provides descriptive names for each event value, if there is any list associated with the event.

F - I

- F -

Fault %

The percentage of time the machine spent in a fault state.

The calculation for this field is:

$$\text{Fault \%} = \text{FaultTime} / \text{Uptime}$$

Fault Count

The number of faults that occurred in the reporting period.

Fault Metric Use

Defines how the event affects the calculation of Fault Metrics.

Fault Time

The time when the fault occurred.

Faults

The number of faults (occurrences of custom events that are configured as Faults) that occurred. On each report, each Fault instance will be counted only once.

Faults per Hour

The average number of faults per hour during the reporting period.

The calculation for this field is:

$$\text{Faults per Hour} = \text{Faults Count} / \text{Uptime}$$

- G -

Good Parts

The number of Good Parts produced by the work cell.

The calculation of Good Parts is determined by the settings for the Good Parts performance parameter in the work cell's configuration. If Good Parts is not configured, but Total Parts and Scrap Parts are configured, then Good Parts will be calculated:

$$\text{Good Parts} = \text{Total Parts} - \text{Scrap Parts}$$

- I -

Ideal Cycle Time

The time required for one part to pass through the work cell under ideal conditions. Ideal Cycle Time is a real value, represented in seconds. Usually, the Ideal Cycle Time value changes only if the Part Id also changes.

Ideal %

A measurement of how close the activity area was to ideal performance.

The calculation for this field is:

$$\text{Ideal \%} = \text{GoodParts} / \text{IdealParts}.$$

It calculates the percentage of the ideal part count that was produced.

Ideal Parts

The total number of parts that could have been produced in the Available Time if OEE was 100%.

The calculation for this field is:

$$\text{Ideal Parts} = \text{Available Time} / \text{Ideal Cycle Time}$$

Where multiple Ideal Cycle Times exist, the calculation is, more precisely:

$$\text{Ideal Cycle Time} = (\text{Available Time}(1) / \text{Ideal Cycle Time}(1)) + \dots + (\text{Available Time}(n) / \text{Ideal Cycle Time}(n))$$

L - 0

- L -

Line

A level of the plant model (which is constructed by enterprise, site, area, line, and then work cell).

- M -**Machine State Name**

The name of the machine state associated with the event.

Max Duration

The longest event or state occurrence.

Max. Duration/Event Start Num

The longest event or state occurrence (for grouping rows). / The numeric value collected at the start of the event (for detail rows).

Min Duration

The shortest event or state occurrence.

Min. Duration/Event Severity

The shortest event or state occurrence (for grouping rows). / The numeric severity level assigned to the event (for detail rows).

MTBF

Mean Time Between Failures (MTBF) is the ratio of running time to the total number of failures. It measures the average amount of time when a piece of equipment was in a running state between failures. MTBF is a derived field that contains aggregate functions and, as such, can only be used in summary report objects and cannot have aggregate functions applied.

The calculation for this field is:

$$MTBF = Uptime / FaultCount$$

MTTR

Mean Time to Repair (MTTR) is the ratio of the time spent in a failure state to the total number of failures. It measures the average amount of time when a piece of equipment was in a failure state. MTTR is a derived field that contains aggregate functions and, as such, can only be used in summary report objects and cannot have aggregate functions applied.

The calculation for this field is:

$$MTTR = FaultTime / FaultCount$$

- O -**OEE %**

Overall Equipment Effectiveness (OEE %) is a measure of work cell efficiency, and the product of Uptime %, Throughput %, and Quality %.

The calculation for this field is:

$$OEE \% = Uptime \% \times Throughput \% \times Quality \%$$

P - R

- P -

Part Description

The description of the part that was being produced when the event occurred.

PartId

The ID of the part that was being produced when the event occurred.

- Q -

Quality %

The percentage of Total Parts produced that were Good Parts.

The calculation for this field is:

$$Quality \% = Good Parts / Total Parts$$

- R -

Realized Cycle Time

The actual amount of time it took to produce a part. This value is a ratio of running time to the total number of parts produced.

The calculation for this field is:

$$RealizedCycleTime = RunningTime / TotalParts$$

Record State

The numeric state of the database record.

Reporting Value

The string value representing the event reason.

Running Time

Running Time is the amount of time the work cell was Running. The calculation of Running Time is determined by the settings for the Running performance parameter in the work cell's configuration. In the reports Running Time is usually represented as HH:MM:SS, although in the calculations it is represented in seconds.

S

- S -

Scheduled Unavailable Time

The amount of time the work cell is unavailable according to its assigned schedule or time pattern.

Scrap %

The percentage of total parts produced that were rejected due to poor quality.

The calculation for this field is:

$$\text{Scrap \%} = \text{ScrapParts} / \text{TotalParts}$$

Scrap Parts

The number of Scrap Parts produced by the work cell.

The calculation of Scrap Parts is determined by the settings for the Scrap Parts performance parameter in the work cell's configuration. It is assumed that Scrap Parts are associated with the work cell that caused the quality issue that rendered the parts to be unacceptable. If Scrap Parts is not configured, but Total Parts and Good Parts are configured, then Scrap Parts will be calculated:

$$\text{Scrap Parts} = \text{Total Parts} - \text{Good Parts}$$

Shift

The shift during which the data was collected.

Shift Name

The name of the shift.

Shift Number

The number of the shift.

Shift Start

The start time of the shift during which the data was collected.

Site

A level of the plant model (which is constructed by enterprise, site, area, line, and then work cell).

Start Time

The date and time that the event or state started.

Start Value

The value collected at the start of the event.

State Count

The number of states that occurred during the reporting period.

State Name

The machine state. This field is color coded.

T - W

- T -

TEEP

TEEP (Total Effective Equipment Productivity) measures work cell efficiency over all time (Total Time). It is similar to OEE, except the OEE calculation is limited to Available Time. Since it uses all time, TEEP also considers the utilization of the work cell.

The calculation for this field is:

$$TEEP = OEE \% \times (Available\ Time / Total\ Time)$$

Throughput %

The actual performance of a work cell as a percentage of its ideal performance. Ideal performance is determined by Ideal Cycle Time, which is the number of seconds required to produce one part at the machine's maximum speed. Ideal Cycle Time may change as different products are produced.

Also may be referred to as Performance or Performance %.

The calculation for this field is:

$$Throughput = (TotalParts \times IdealCycleTime) / Running\ Time$$

Time in Event

The total time (HH:MM:SS.mmm) in the reporting period during which an event or state was occurring.

Total Duration

The total time (HH:MM:SS.mmm) in the reporting period during which an event or state was occurring.

Total Parts

The number of Total Parts produced by the work cell.

The calculation of Total Parts is determined by the settings for the Total Parts performance parameter in the work cell's configuration. If Total Parts is not configured, but Scrap Parts and Good Parts are configured, then Total Parts will be calculated:

$$Total\ Parts = Good\ Parts + Scrap\ Parts$$

Uptime

A ratio of running time to available time. Uptime is the time that a work cell is expected to be running and producing product.

Uptime %

The percentage of the time the work cell was running when it was expected to be running.

Also may be referred to as Availability or Availability %.

The calculation for this field is:

Uptime % = Running Time/Available Time

Work Cell

A level of the plant model (which is constructed by enterprise, site, area, line, and then work cell).

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Waste Electrical and Electronic Equipment (WEEE)



At the end of life, this equipment should be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental information on its website at rok.auto/pec.

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