



Reports



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Chapter 1

Overview

Topics:

- [Overview of the Reports Module](#)
- [Access the Report Page](#)

Overview of the Reports Module

A report is a formatted view of data that exists in the GE Digital APM database. Reports provide you with a way of formatting information for display, export, and printing purposes.

You can create a report from query results, dataset results, or by importing a report that was saved to an external location. After you create a report, you can save it and run it repeatedly. Like other items, reports are saved in the Catalog and can be accessed via hyperlinks on a dashboard.

To create a report in GE Digital APM, you will require to install APM Report Designer Plug-in for Visual Studio and Microsoft SQL Server Business Intelligence Development Studio on the client local environment. You will require to connect these to a standalone APM Database.

After designing the new report,

1. Deploy the report in Catalog under standalone APM Database.
2. Export the report and its related queries, policies or datasets from APM.
3. Import the report in APM environment.

Note: If you do not have access to any standalone APM Database, then please reach out to GE services team for development of SSRS report. You can view the report by using the **Report** page.

Note that you will need the following to view reports:

- You should have configured the SQL Server Report Server.
- View/Execute permissions on the Catalog folder in which the report is located.
- At least View privileges on all families included in the underlying query or dataset.

Access the Report Page

Before You Begin

- An administrative user must create and save reports using the Reports Designer.

Procedure

In the **Applications** menu, navigate to the **TOOLS** section, and then select **Reports**.

The **Report** page appears, displaying a list of all reports saved in the Catalog. The Catalog item caption is displayed as the title to identify the report.



The screenshot shows a web interface for viewing reports. At the top left is the word "Report" and at the top right is a "Browse" button. Below this is a table with two columns: "NAME" and "PATH". The table lists several reports with their corresponding paths.

NAME	PATH
ComprehensiveAnalysis	Public\Meridium\Modules\RCA\SSRS\ComprehensiveAnalysis
Functional Test Calibration Report	Public\Meridium\Modules\Calibration Management\Reports\Functional Test Calibration Report
Discrete Calibration Report	Public\Meridium\Modules\Calibration Management\SSRS\Discrete Calibration Report
WeightScale Calibration Report	Public\Meridium\Modules\Calibration Management\SSRS\WeightScale Calibration Report
Analog Calibration Report	Public\Meridium\Modules\Calibration Management\SSRS\Analog Calibration Report
Family Security Assignments by Group ID	Public\Meridium\Modules\Administrative Tools\Security Reports\Family Security Assignments by Gr

Overview of the Reports Page

This page displays the information about the Report:

- **Name:** The name of the report.
- **Path :** The Catalog file path where the report is saved.
- **Caption:** The caption of the report that you have provided in the Catalog.
- **Creator :** The name of the person who created the report.
- **Date :** The date when the report was accessed.

On this page you can, do the following:

- [View the reports that you have created.](#)
- [View the reports that you have accessed recently.](#)
- [View the reports from the Catalog folder.](#)

Chapter 2

Workflow

Topics:

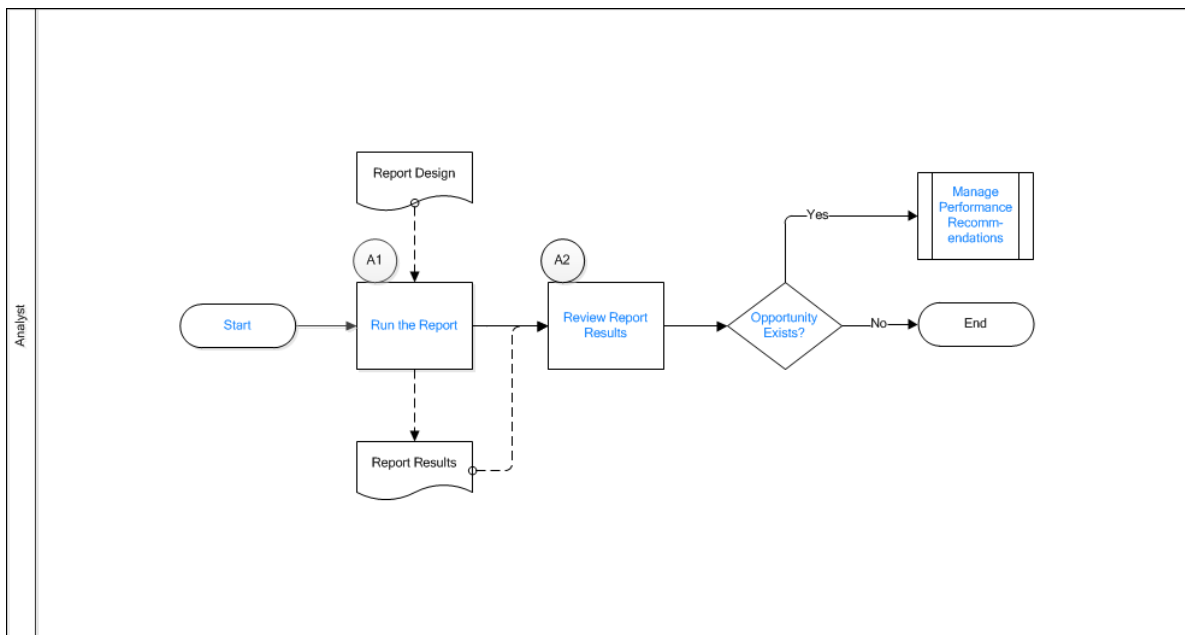
- [Core Analysis: Report Analysis Workflow](#)

Core Analysis: Report Analysis Workflow

Core Analysis processes leverage GE Digital APM data to identify opportunities for business improvement. When the process identifies such an opportunity, a Performance Recommendation is raised to communicate the need and track the required work. You can use the Report Analysis Workflow process to identify opportunities or needs for improvement based on generated reports that identify bad actors or high-impact failures.

In the following workflow diagram, the blue text in a shape indicates that the corresponding description has been provided in the sections that follow the diagram. For more information, refer to the [Interpreting the Workflow Diagrams](#) topic in the [APM Product Workflows](#) documentation.

Note: For information on the personas associated with a GE Digital APM module, refer to the [APM Product Workflows](#) documentation.



1. [Start](#) on page 5
2. [Run the Report](#) on page 5
3. [Review Report Results](#) on page 6
4. [Opportunity Exists?](#) on page 6
5. [Manage Performance Recommendations](#) on page 6

Start

Persona: Analyst

To satisfy a specific business problem, a GE Digital APM User initiates a core analysis to apply standard data analysis techniques.

Run the Report

Persona: Analyst

Execute a report to produce results, and modify the report design to achieve the desired result.

Review Report Results

Persona: Analyst

Analyze the report results. The report can identify bad actors or high impact failures for further analysis. In the analysis of report results, consult other forms of GE Digital APM data.

Opportunity Exists?

Persona: Analyst

If a GE Digital APM User identifies an opportunity or need for improvement, then a Performance Recommendation is raised to communicate the need and track the required work. Otherwise, the workflow ends.

Manage Performance Recommendations

Persona: Analyst

If a GE Digital APM User identifies an opportunity or need for improvement, then a Performance Recommendation is raised to communicate the need and track the required work.

Refer to the Manage Performance Recommendations workflow documentation.

Chapter 3

Report Configuration

Topics:

- [About the Report Configuration Page](#)
- [Access the Report Configuration Page](#)
- [Configure Logo for the SSRS Reports](#)
- [Configure Storage Settings for the Reports](#)

About the Report Configuration Page

The **Report Configuration** page enables you to:

- Configure your preferred logo for the SQL Server Reporting Services (SSRS) reports.
You can change the logo to the logo of your organization or another custom image that you prefer. By default, the GE Digital logo appears in the SSRS report.
- Configure settings to store and manage the reports after a job for printing reports in bulk is successful.

Access the Report Configuration Page

Procedure

- In the **Applications** menu, navigate to **ADMIN > Operations Manager > Report Configuration**. The **Report Configuration** page appears.


Operations Manager \
Report Configuration

Bulk Report Storage Path
\\localhost\C:\SSRSReports

Bulk Report Storage User Name
jsmith@domain.com

Bulk Report Storage User Password

Bulk Report Storage Threshold (Days)
100

Report Logo
 
 Custom Logo

Choose File | No file chosen
only .jpg, .jpeg, .png, .bmp format is supported with maximum 1MB size.

Configure Logo for the SSRS Reports

This topic describes how to configure the logo for the SQL Server Reporting Services (SSRS) reports.

Procedure

1. Access the **Report Configuration** page.
2. In the **Report Logo** section, select the logo for the SSRS reports.

Note: The GE Digital logo is selected by default.

- If you want to configure a logo other than the default GE Digital logo:
 - a. Select **Custom Logo**, then select **Choose File**, and then navigate to the folder that contains the image.
 - b. Select the image that you want to configure as a logo for the SSRS reports, and then select **Open**.
The image that you selected appears beside the **Custom Logo** button.

Note: For a logo, the size of the image must be less than or equal to 1 MB, and the image must be in one of the following formats:

- .jpeg
- .jpg
- .bmp
- .png

3. Select .

The configured logo replaces the existing logo, and it appears in all the newly generated SSRS reports.

Configure Storage Settings for the Reports

This topic describes how to configure the path where you want to store the printed reports, the credentials of the machine in which the reports are stored, and the number of days after which the reports will be deleted.

Procedure

1. Access the [Report Configuration](#) page.

2. As required, enter values in the following boxes:

a) **Bulk Report Storage Path:** Enter the path where you want to store the printed reports.

Note: You must create the path according to the Universal Naming Convention (UNC). The following example provides information about the path constructed using the UNC naming system:

- `\\HostName\Share`, where `HostName` is the host name of the computer and `Share` is the name of the shared folder

b) **Bulk Report Storage User Name:** Enter the user name that is required to access the machine in which the printed reports are stored.

c) **Bulk Report Storage User Password:** Enter a password for the user name that is required to access the machine in which the printed reports are stored.

d) **Bulk Report Storage Threshold (Days):** Enter the number of days after which the .zip file for the printed reports will be automatically deleted from the stored location.

3. Select .

The printed reports will be stored in the specified path, and you can access the machine in which the reports are stored using the credentials that you defined.

Chapter 4

Manage Report Designer

Topics:

- [About the APM Report Designer](#)
- [Access the APM Report Designer](#)
- [Create a Report](#)
- [Define the Report Layout](#)
- [Deploy the Report](#)
- [Modify an Existing Report](#)

About the APM Report Designer

You can create new report and save it in the Catalog folder or edit an already existing report in the Catalog folder by using the APM Report Designer in Microsoft Visual Studio.

The APM Report Designer is divided into three sections:

- **APM Report Browser pane:** This pane displays the Catalog folder structure. This pane contains buttons that allow you to perform basic operations such as, Login, Logout, Open, New and Deploy.
- **Solution Explorer pane:** This pane contains the details of the report that you have created.
- **Design workspace:** This workspace displays the report. This workspace contains two sections: **Design** and **Preview**. The **Design** section allows you to define the report layout. When the report layout is complete, you can view the report in the **Preview** section.

Access the APM Report Designer

The APM Report Designer allows you to create a new report and modify the report.

Before You Begin

- Install the APM Report Designer.

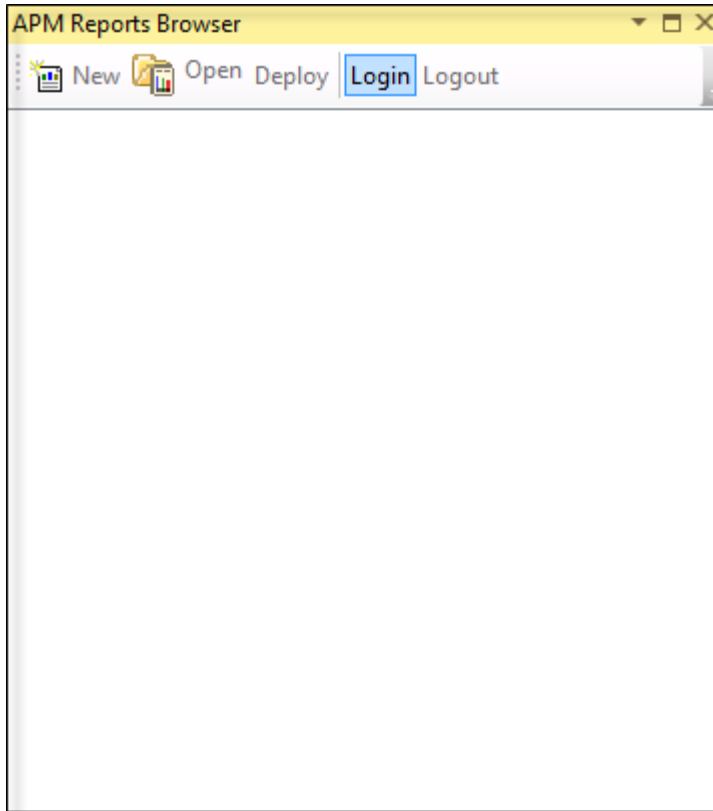
Procedure

1. On the GE Digital APM Server, open SQL Server Data Tools.
2. On the **Tools** menu, select **APM Report Designer**.

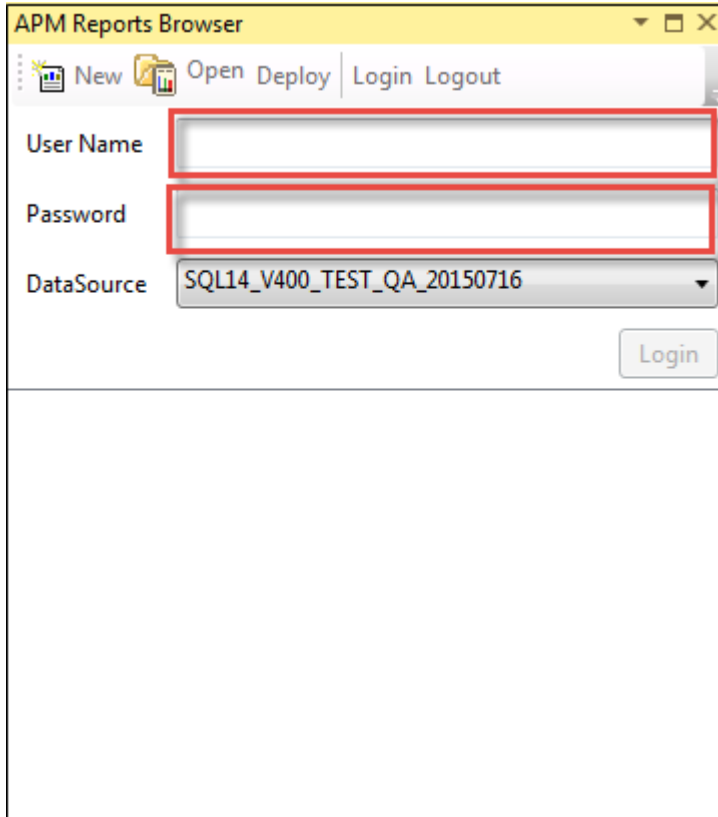
-or-

On the **View** menu, select **Other Window**, and then select **APM Reports Browser** in the list.

The **APM Reports Browser** pane appears.

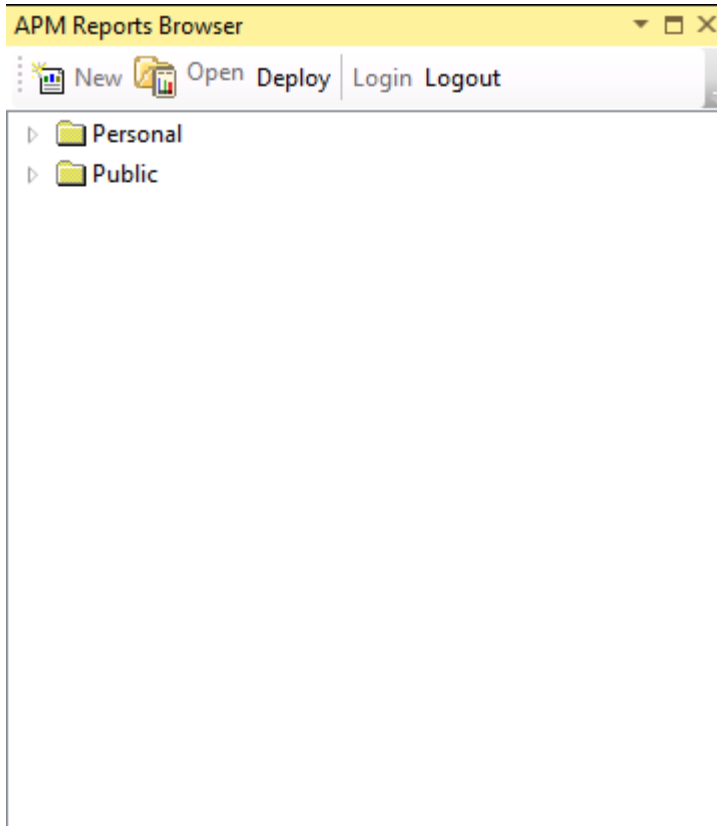


3. Select **Login**.
4. Enter the **Username** and **Password**, and then in the **DataSource** list, select the datasource.



Note: The **Login** button is enabled after you enter the **User Name** and **Password**.

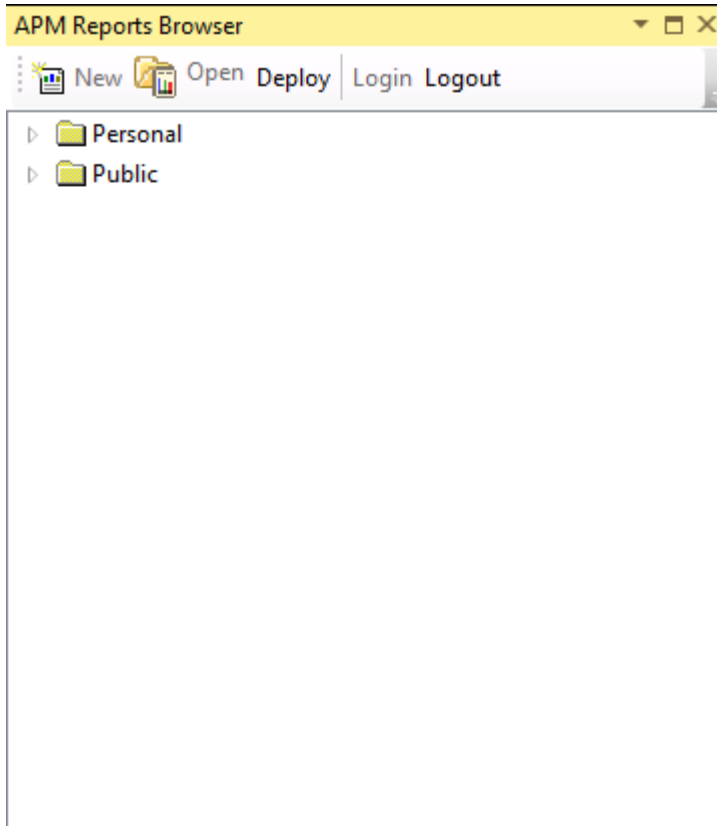
5. Select **Login**.
The Catalog folder structure appears in the **APM Reports Browser** pane.



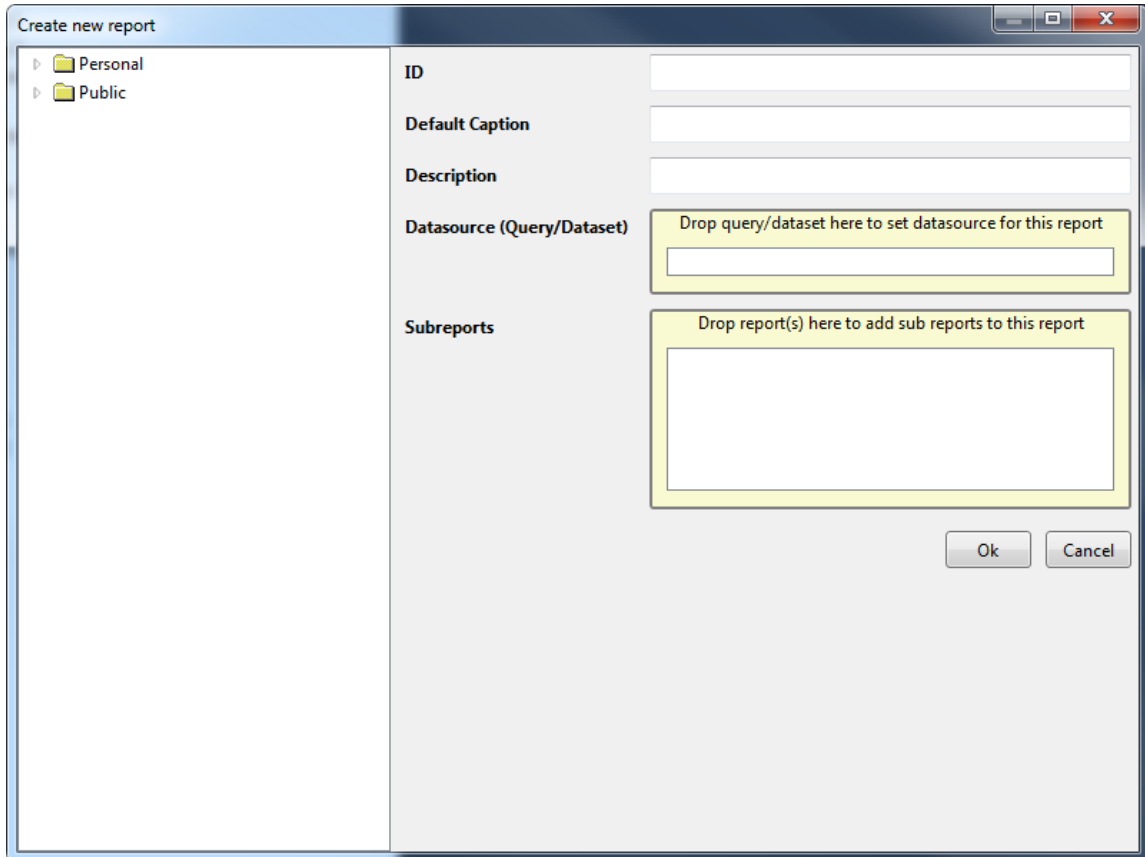
Create a Report

Procedure

1. [Access the APM Report Designer.](#)
2. In the **APM Reports Browser** pane, navigate to the Catalog folder where you want to save the report.



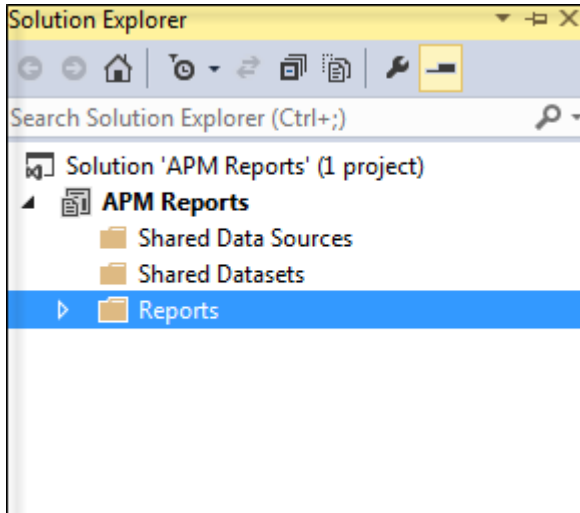
3. Select **New**.
The **Create new report** window appears. The window contains two sections - The left side displays the Catalog folder structure and the right side displays the fields.



4. In the **Create new report** window, provide the following values:
 - **ID:** Identification name of the report. The field must be unique.
 - **Default Caption:** The caption of the report.
 - **Description:** The description of the report.
 - **Datasource (Query/Dataset):** Datasource for this report. You can assign a datasource by adding a query or dataset from the Catalog folder. You can add a query or dataset through the drag-and-drop method.
 - **Subreports:** the sub reports that you want to assign to this report. To assign sub reports, navigate the location that contains the report and drag and drop the report.

Note: You cannot save a report in a folder, if the folder name or the parent folder name contains the special characters such as ; ? : @ & = + , \$ / * < > |. In addition, you cannot save a report in a personal folder if the user id contains the special characters. For more information, consult MSDN documentation regarding creating, deleting or modifying a folder.

5. Select **OK**.
The new report appears in the **Solution Explorer** pane.



Next Steps

- [Define the Report Layout.](#)

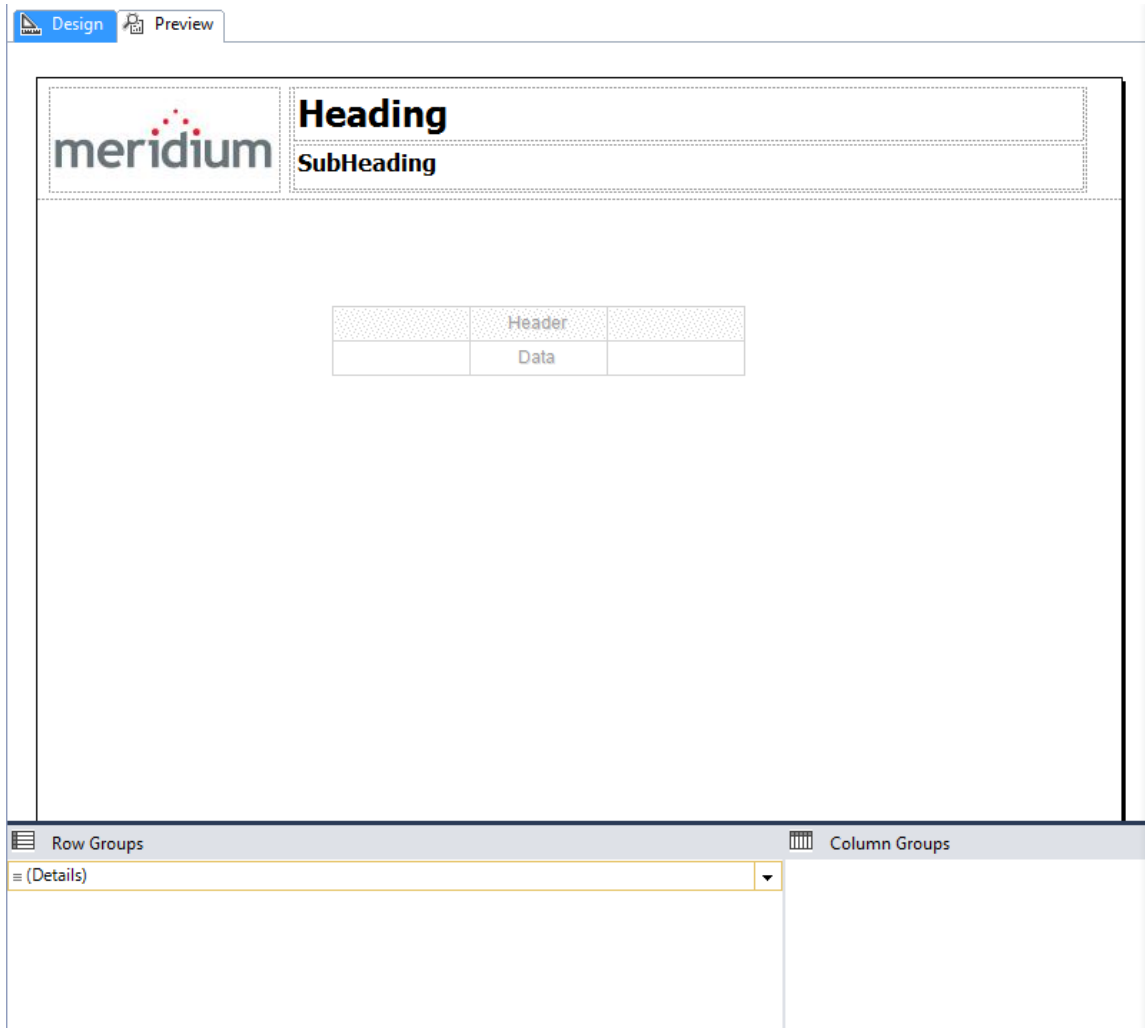
Define the Report Layout


Before You Begin

- [Create a new report.](#)

Procedure

1. In the **Solution Explorer** pane, select the report [that you created](#).
The report layout appears in the **Design** workspace.



2. As needed, in the **Design** workspace, modify the report layout.
3. If you want display the Units of Measure (UOM) or formatted values in the SSRS Report, enter the following expression in the APM Report Designer:
`Fields!<nameofthefield>.FormattedValue`, where <nameofthefield> is the name of the field contained in the query.
Note: If the query used to create the reports is in formatted mode, then only the UOM will appear in the Reports. For detailed information on formatted mode, refer to the Queries documentation.
4. If you do not want display the UOM or formatted values in the SSRS Report, enter the following expression in the APM Report Designer:
`Fields!<nameofthefield>.value`, where <nameofthefield> is the name of the field contained in the query.
5. Select the **Preview** section to view the report layout.
Note: Enter the **Login name** and **Password** that were used to [access the APM Report Designer](#).
6. Select .
 The report layout is defined.

Next Steps

- [Deploy the Report](#).

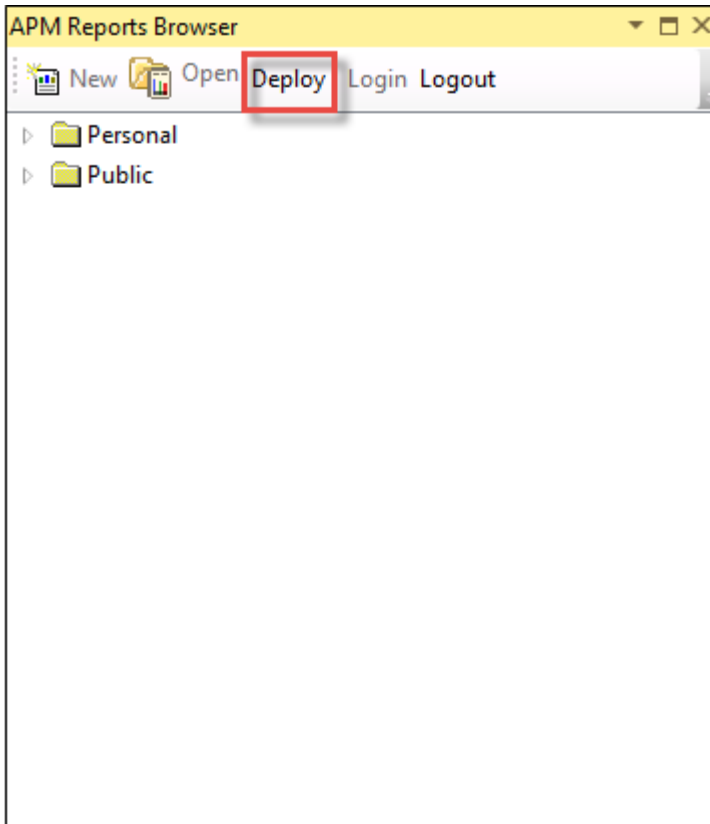
Deploy the Report

About This Task

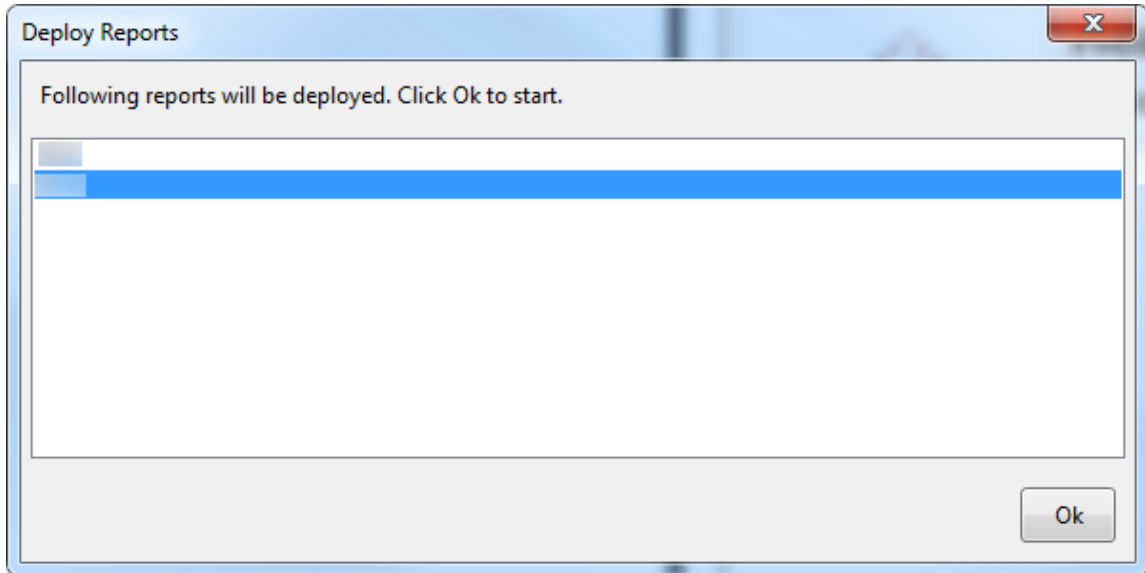
Note: You can deploy the report after previewing. The report is then added to the Catalog folder.

Procedure

1. In the **APM Reports Browser** pane, select **Deploy**.



The **Deploy Reports** dialog box appears, displaying the list of reports and the sub reports.



2. Select **OK**.
The **Deploy Reports** dialog box closes and the new report appears in the Catalog folder.

Modify an Existing Report

Before You Begin

- The report is already created and appears in the Catalog folder in the **APM Reports Browser** workspace.

Procedure

1. In the **APM Reports Browser** pane, in the Catalog folder, navigate and select the report that you want to modify.
 2. Select **Open**.
The **Create new report** dialog box appears.
 3. As needed, modify the following values to the fields:
 - **Datasource:** The datasource for this report. To assign a datasource, drag and drop the query from the Catalog folder.
 - **Subreports:** The subreports that you want to assign to this report. To assign subreports, navigate the location that contains the report and drag and drop the report.
- Note:** The ID and the Default Caption field are unique and should not be modified.
4. Select **OK**.
The updated report appears in the **Design** workspace.
 5. In the **APM Reports Browser** pane, select Deploy to publish the changes to the Catalog folder in the GE Digital APM.

Chapter 5

Manage Reports

Topics:

- [Open a Report from the Catalog](#)
- [View a Report](#)

Open a Report from the Catalog

Reports are saved in the Catalog folder and you can view the reports through Catalog.

Before You Begin

- You must have required permissions to access the Catalog folder.

Procedure

1. [Access the Reports page.](#)
2. Select **Browse**.
The **Select a report from the catalog** window appears, displaying the Catalog folder structure.
3. Select the report, and then select **Open**.

Note: If the query on which the report is generated contains parameters, the **Enter Parameter Values** window appears. Provide the parameter values, and then select **Done** to view the report.

The selected report appears in the **Report** page.

View a Report

Before You Begin

- You must have privileges to view the report.

Procedure

1. [Access the Report page.](#)
2. Select the report that you want to view by selecting the link in the **Path** column.
The report appears.

Note: To view a translated report, in addition to setting the Security User's culture via Security Manager, you need to set the browser language to that culture. For example, to view a report in German language, you need to set the browser's language to German.

Chapter 6

Manage SQL Server Reporting Services

Topics:

- [About SQL Server Reporting Services Workspace](#)
- [Access the SQL Server Reporting Services Workspace](#)
- [Configure GE Digital APM to Use Reporting Server](#)

About SQL Server Reporting Services Workspace

The SQL Server Reporting Services stores the reports that can be viewed and managed in GE Digital APM. To integrate SQL Server Reporting Services with GE Digital APM application, you must define the SQL Server Reporting Services instance that you want to use for a given GE Digital APM database.

The Operations Manager application provides a feature that lets you configure the SQL Server Report Server. After you have defined the SQL Server Reporting Services instance that you want to use for a given GE Digital APM Server and data source, GE Digital APM will use that Report Server for storing the reports that are created and accessed on that GE Digital APM Server and database.

Access the SQL Server Reporting Services Workspace

Procedure

1. In the **Applications** menu, navigate to **ADMIN > Operations Manager > Connections**.
2. In the **Connections** page, select **SQL Server Reporting Services**.
The **SQL Server Reporting Services** workspace appears.

The screenshot shows the configuration form for the SQL Server Reporting Services workspace. The form is titled "Operations Manager \ SQL Server Reporting Services" and includes a blue folder icon. Below the title, there are several input fields:

- Server Name:** domain.com
- Web Service:** ReportServer_sql11
- User Name:** user
- User Password:** (masked)
- User Domain:** MAYBERRY

Configure GE Digital APM to Use Reporting Server

Procedure

1. [Access the SQL Server Reporting Services Workspace](#).
2. Enter the required values in the following fields:
 - a) **Server Name:** Enter the name of the server on which SQL Server Reporting Services (SSRS) has been installed and configured.

Note: If you do not specify the protocol for the server, HTTP will be assumed. If the SQL Server Report Server is a secured server, you can type HTTPS://<Server Name> to indicate that an HTTPS connection should be used. If the SQL Server Report Server is not secured, you can type HTTP://<Server Name> or you can omit the protocol and simply type the server name.

Note: In the **Data Source** page, specify the **Data Source Host** value as “*” by default. But when you are configuring https, enter a valid Fully Qualified Domain Name (FQDN) in the **Data Source Host** field.

- b) **Web Service:** Enter the name of the Report Server Virtual Directory that has been created for the instance of SSRS that you want to use for the current GE Digital APM Server and data source.

If the SQL Server Report Server for this data source has not been defined, the Web Service will be set to Report Server by default, which is the name of the virtual directory created for the first SQL Server Reporting Service instance that is installed on the given server. You can modify the default value if needed.

If the server specified in the Report Server text box contains multiple instances of SSRS, you must specify the virtual directory of the instance that you want to use for the current GE Digital APM Server and data source.

- c) **User Name:** Enter the user name to access SSRS.
d) **User Password:** Enter the password to access SSRS.
e) **User Domain:** Enter the domain name to access SSRS.

3. Select .

Chapter 7

Deployment and Upgrade

Topics:

- [Deployment](#)
- [Upgrade](#)

Deployment

Deployment

Refer to the deployment information here [Deploy Reports for the First Time](#).

Upgrade

Upgrade

Refer to the upgrade information here [Upgrade or Update Reports to V5.0.0.0.0](#).

Chapter 8

Reference

Topics:

- [System Requirements](#)
- [Reports URLs](#)

System Requirements

Reports System Requirements

License Requirements

This feature is available with the core GE Digital APM application; no specific license is required.

Additional Components Required

In addition to the basic GE Digital APM system architecture, your system must also contain the following additional components:

- Microsoft Visual Studio 2017 or 2019 Professional.
- Microsoft SQL Server Data Tools - Business Intelligence for Microsoft Visual Studio 2017 (15.8.0) or 2019.
- APM SSRS Data Processing Extension plugin for Visual Studio from the Admin Installer.

Deploying Reports

After you have installed and configured the basic GE Digital APM system architecture, configure Reports.

SQL Server Analysis Services System Requirements

Hardware Requirements

The following hardware requirements outline the minimum hardware required for SQL Server Analysis Services support in APM Metrics and Scorecards module. These requirements account for the GE Digital APM software only. Additional hardware may be required on a SQL Server Analysis Services machine where other components are installed. These requirements may not be sufficient, depending upon how your system is configured.

- Two Processor Cores, 2+ GHz
- 8 GB RAM
- 25 GB of available hard drive space

Software Requirements

The following software components are required on any machine that will serve as the SQL Server Analysis Services server.

Software Name and Version	Where You Can Obtain It
SQL Server Analysis Services 2016 (Multi-Dimensional mode only)	Microsoft

SQL Server Report Server System Requirements

Hardware Requirements

The following hardware requirements outline the minimum hardware required for any machine that will serve as the SQL Server Report Server. These requirements account for the GE Digital APM software only.

Additional hardware may be required on a SQL Server Report Server machine where other components are installed. These requirements may not be sufficient, depending upon how your system is configured.

- Two Processor Cores, 2+ GHz
- 8 GB RAM
- 25 GB of available hard drive space

If you are using a virtual machine (VM) to host your SQL Server Report Server, we recommend that:

- You increase the physical server CPU and hard drive space requirements by 20% to ensure that the application will perform equivalently in a virtualized environment.
- You double the physical server memory requirements.
- Each VM have its own dedicated processor cores and memory allocation to ensure appropriate performance.

GE Digital APM supports Hyper-V and VMWare platforms.

These requirements may not be sufficient, depending on how your system is configured. Parameters that affect the hardware requirements include the number of users, modules purchased, database size, and other factors that can vary from one customer to another. For help refining your specific system requirements, consult a member of the GE Digital APM Professional Services department.

Software Requirements

The following software components are required on any machine that will serve as the SQL Server Report Server.

Software Name and Version	Where You Can Obtain It	Required?	Behavior of APM Server Installer
SQL Server Reporting Services 2016 -or- SQL Server Reporting Services 2017	Microsoft	Yes	If it is not found, the installer will close.

Reports URLs

Reports URLs

There is one URL route associated with reports: `ssrs/viewer`. The following table describes the various paths that build on the route, and the elements that you can specify for each.

Element	Description	Accepted Value(s)	Syntax
Catalog Item Path	Specifies the path and name of the report that you want to open.	Catalog item path	<code>#ssrs/viewer/ Catalog Path</code>

The following SSRS report hyperlink formats are supported:

- `#ssrs/viewer/<CATALOG-PATH-HERE>/P0={1}/P1={2}/P2={3}`
- `#ssrs/viewer/<CATALOG-PATH-HERE>?P0={1}&P1={2}&P2={3}`

Example: Reports URLs

Example URL	Destination
#ssrs/viewer/Public\Meridium \Modules\RCA\SSRS \ComprehensiveAnalysis	Opens the report named 'Comprehensive Analysis' in the Report Viewer.