



# Advanced Visualization



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# Chapter 1

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## Overview

### Topics:

- [About Advanced Visualization](#)
- [Access the Advanced Visualization Page](#)

# About Advanced Visualization

Advanced Visualization provides you a powerful way to visualize and collaborate on the data that is available within GE Digital APM Classic by connecting, aggregating, and analyzing data through business intelligence (BI) like capability.

The GE Digital APM Advanced Visualization module enables you to create customized dashboards and portals that display APM information in the form of charts or reports. This provides advanced business intelligence type capabilities to connect, aggregate, and analyze the vast amount of data that is available to you in the system. These visualizations provide you with access to powerful tools that can be used to monitor asset health, manage reliability, plan strategy, and maintain integrity by sharing and collaborating with various users and stakeholders within your organizations.

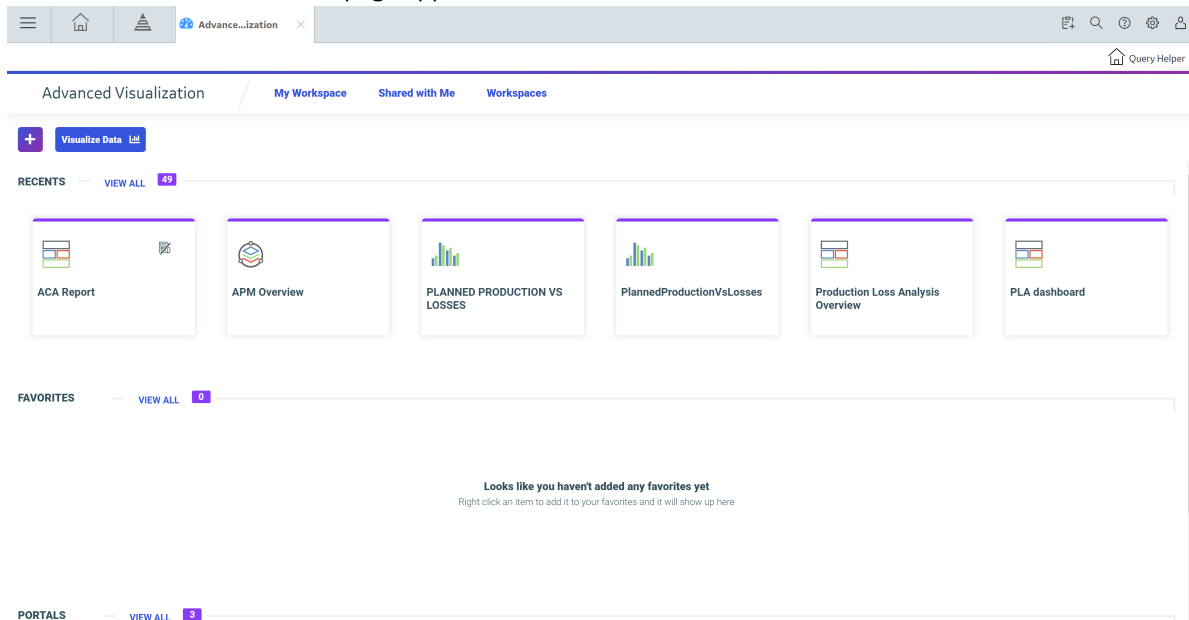
## Access the Advanced Visualization Page

### Before You Begin

Access the GE Digital APM log in page and then navigate to the **Applications** menu.

### Procedure

In the **Applications** menu, navigate to the **TOOLS** section, and then select **Advanced Visualization**. The **Advanced Visualization** page appears.



# Chapter 2

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## Deployment

### Topics:

- [Deploy Advanced Visualization for the First Time](#)
- [Required Server Ports](#)
- [System Requirements](#)
- [Advanced Visualization Installation Steps](#)
- [Uninstall Advanced Visualization](#)

## Deploy Advanced Visualization for the First Time

GE Digital APM delivers an installation package that includes files needed for a successful implementation of Advanced Visualization. The topics outline the steps that you must complete to deploy and configure this module for the first time. These instructions assume that you have completed the steps for deploying the basic GE Digital APM system architecture.

### About This Task

These tasks may be completed by multiple people in your organization. We recommend, however, that the tasks be completed in the order in which they are listed.

Task	Notes
<a href="#">Open the required server ports.</a>	This step is required.
<a href="#">Review the Advanced Visualization system requirements.</a>	This step is required.
<a href="#">Review the database requirements.</a>	This step is required.
<a href="#">Run the Advanced Visualization Installer.</a>	This step is required.

## Required Server Ports

To provide communication between Advanced Visualization and other systems, make sure the listed ports are open.

**Table 1: Port Details**

Port Numbers	Description
80, 8080, 8120, 9090	Used by Advanced Visualization User Interface.
9006	Used by Advanced Visualization User Interface. This port is required only if Advanced Visualization is installed on the same machine as GE Digital APM.

## System Requirements

### License Requirements

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

### Hardware Requirements

The following hardware requirements outline the minimum hardware required for any computer that will be set up for Advanced Visualization. These minimum requirements may not be sufficient, depending upon how your system is configured and the anticipated user load the system must service.



**Table 2: Hardware Requirements**

Component	Minimum Requirements
Core	4-core processor, 2.5 GHz minimum per core 8-core processors are recommended for optimal performance
RAM	16 GB RAM or higher for optimal performance
Hard Drive	40 GB of free disk space

**Software Requirements**

The following software is required on any machine that will be set up for Advanced Visualization.

**Table 3: Server Details**

Software Name and Version	Where you can obtain it
Windows Server 2012 (64-bit) or Windows Server 2016 (64-bit) or Windows Server 2019 (64-bit)	Microsoft

**Table 4: Browser Details**

Browser	Notes
Google Chrome or Mozilla Firefox or Microsoft Edge	For recommended browser versions, refer to the <a href="#">TIBCO browser information</a> .

**Database Requirements**

You must create a database before installing Advanced Visualization. Advanced Visualization supports the following relational databases.

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- PostgreSQL
- Microsoft SQL Server
- Oracle

**Table 5: Database Details**

Database Provider	Requirements
Microsoft SQL Server	<ul style="list-style-type: none"><li>• For the database, use SQL Server authentication instead of Windows authentication.</li><li>• The user ID must have db_owner rights to the repository database.</li><li>• Set the database collation to case sensitive. Case-insensitive collation is not supported.</li><li>• For install, upgrade, and configuration tasks, grant db_datawriter, db_datareader, and db_ddladmin roles on the repository database and schema, to the account that is used by the Advanced Visualization install process to connect to the repository database and schema.</li><li>• For run-time tasks, grant db_datawriter and db_datareader roles on the repository database and schema, to the account that is used by the Advanced Visualization to connect to the repository database and schema.</li></ul>
Oracle	<ul style="list-style-type: none"><li>• User CHAR semantics when creating a database for use with Advanced Visualization.</li><li>• Oracle database blocks (db_block_size) require 8K or higher.</li><li>• Set the maximum number of open cursors (open_cursors) to 500 or higher when all tables are created and inserted.</li><li>• Tablespace requirements depend on customer usage.</li><li>• Advanced Visualization requires case-sensitive collation. By default, for Oracle, the string comparisons are case sensitive.</li><li>• Use the NLS_COMP and NLS_SORT sort system parameters for comparison and sorting.</li><li>• The RDBMS user account privileges that are used by Advanced Visualization must have the ability to create tables, modify tables, execute queries, and insert and delete records.</li></ul>

## Advanced Visualization Installation Steps

### Before You Begin

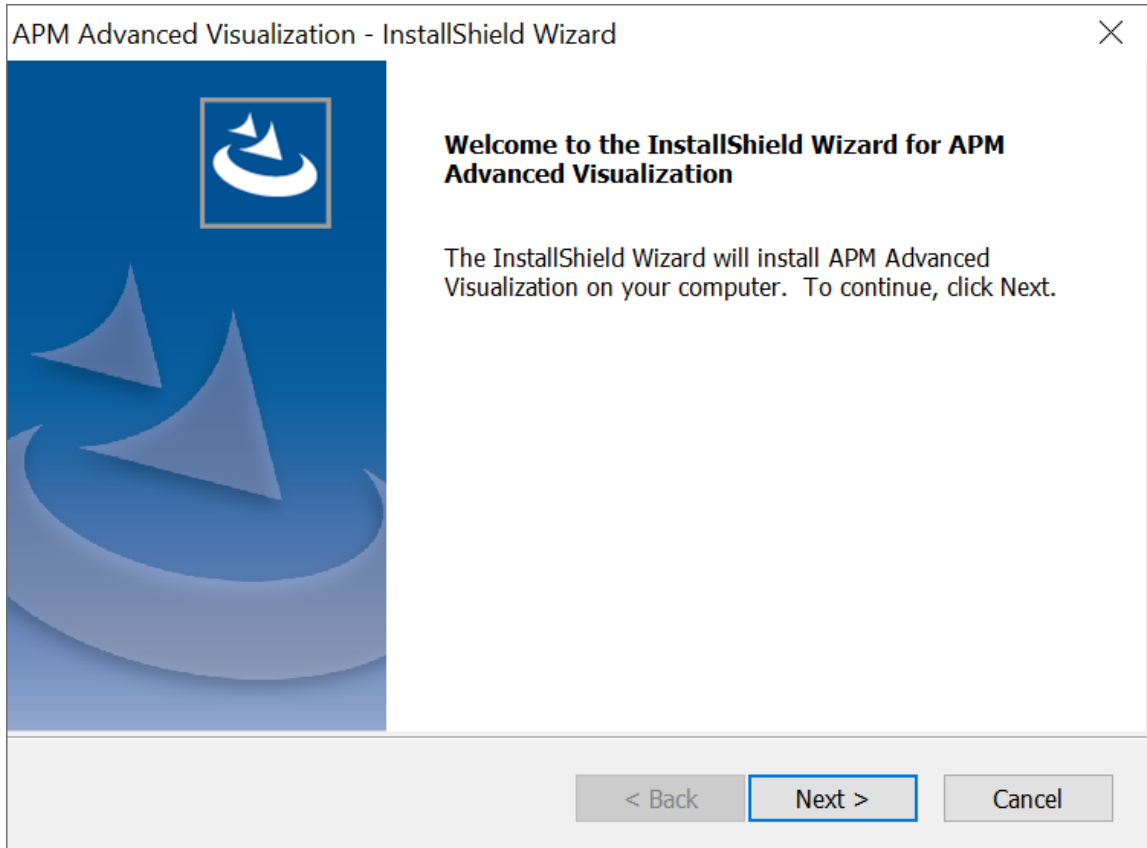
Before you can run the Advanced Visualization installer, you must:

- Ensure that your system meets the system requirements.
- Ensure that you have access to the Advanced Visualization installation package.
- Ensure that you can access the APM Server host URL from the server where you plan to install Advanced Visualization.

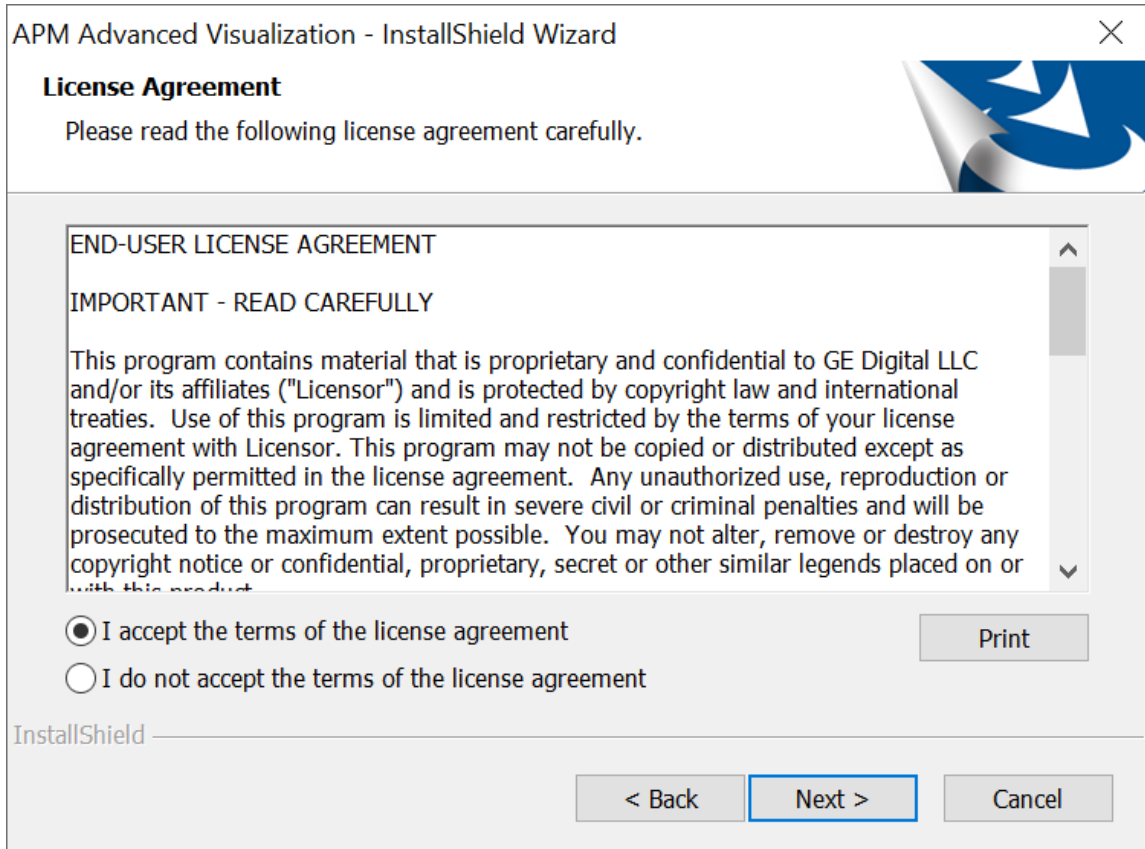
### About This Task

## Procedure

1. Log on as a user with administrative privileges to the server where you plan to install Advanced Visualization.
2. Access the GE Digital APM distribution package and then navigate to the folder `Setup\Advanced Visualization`.
3. Run the file `setup.exe`.  
The **APM Advanced Visualization** page appears.



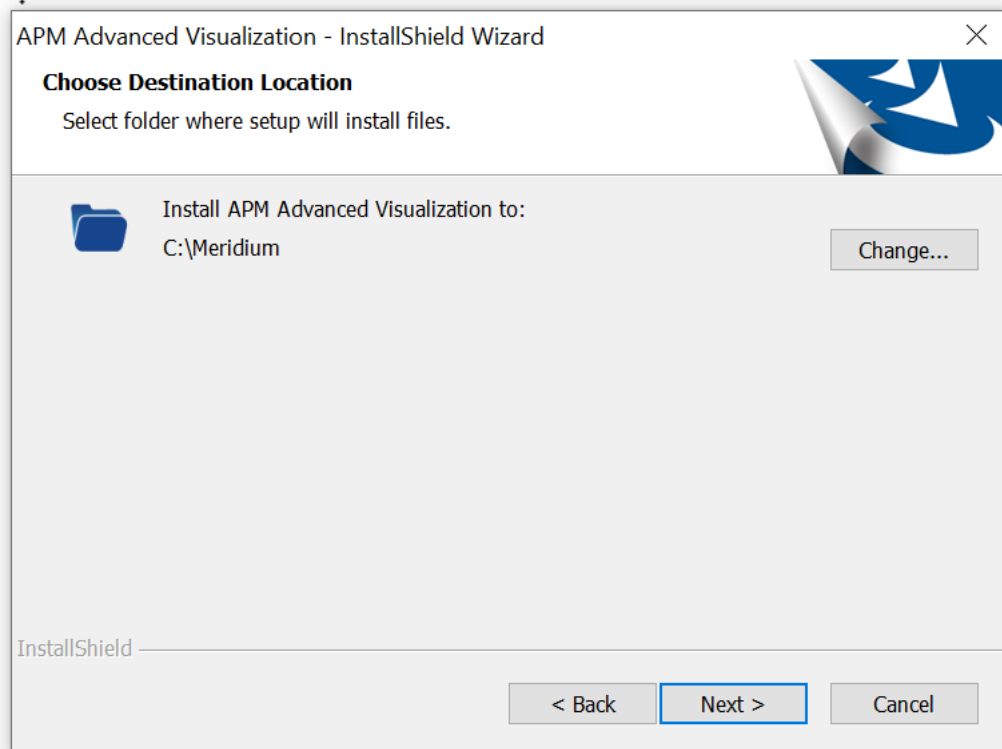
4. Select **Next**.  
The **License Agreement** page appears.



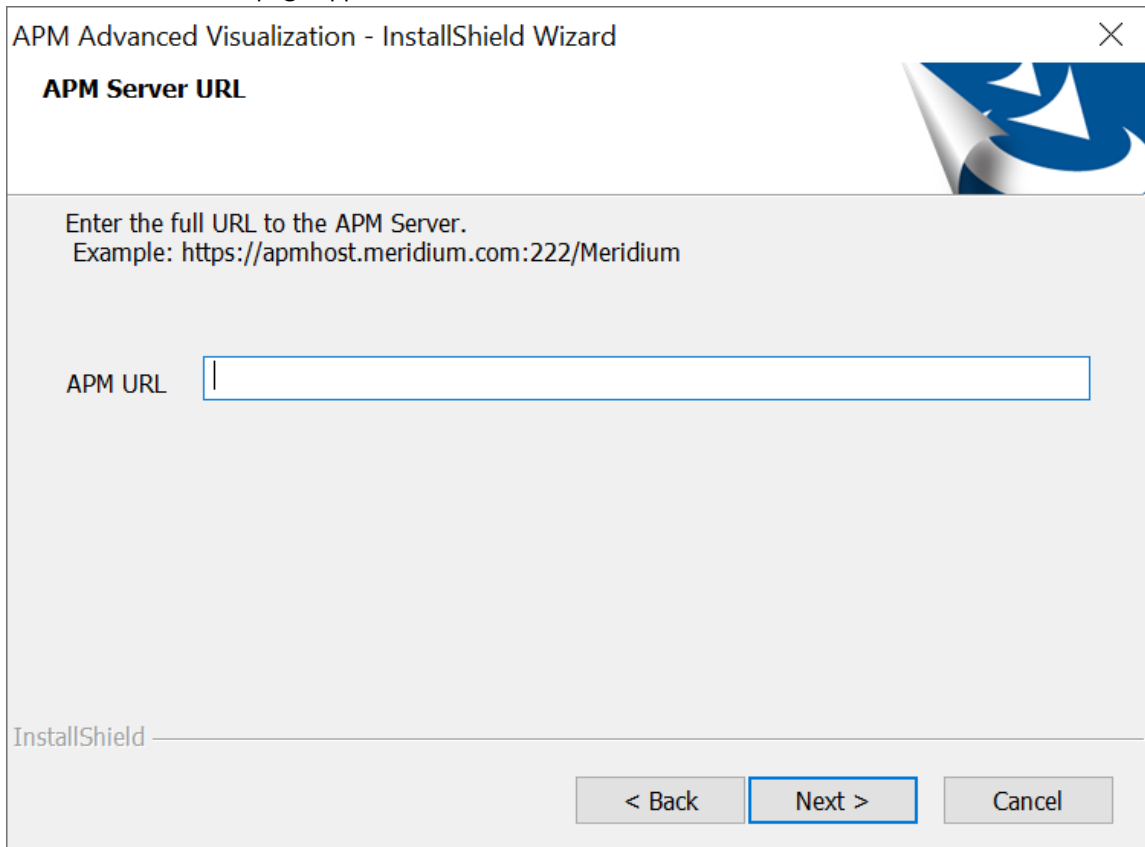
5. Read the license agreement, and if you agree to the terms, select **I accept the terms of the license agreement**, and then select **Next**.  
The **Choose Destination Location** page appears.

**Note:**

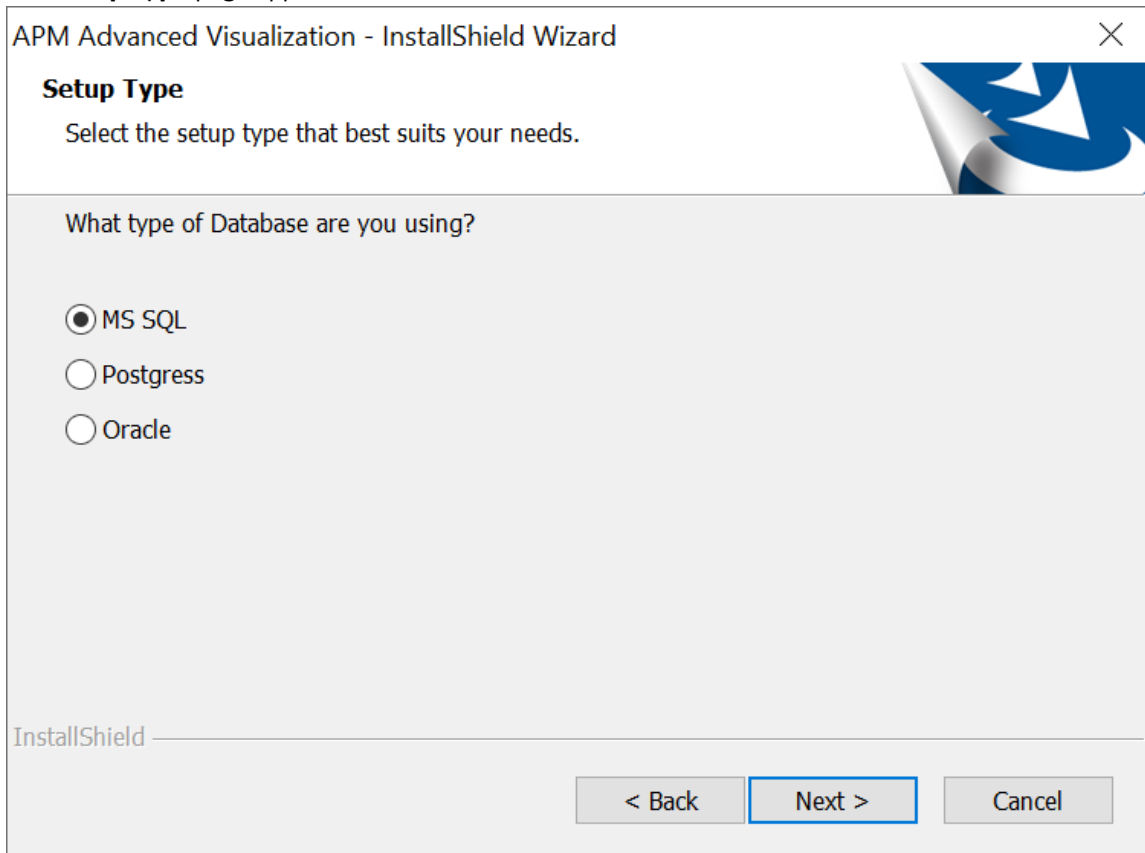
- By default, the Advanced Visualization software will be saved to C:\Meridium. If you want to change the location, select **Change...**, and then navigate to the location where you want to install the software.
- Ensure that the installation path does not contain any space characters.



6. Select **Next**.  
The **APM Server URL** page appears.



7. In the **APM URL** box, enter the APM Server URL.
8. Select **Next**.  
The **Setup Type** page appears.



APM Advanced Visualization - InstallShield Wizard

**Setup Type**  
Select the setup type that best suits your needs.

What type of Database are you using?

MS SQL  
 Postgress  
 Oracle

InstallShield

< Back   Next >   Cancel

9. Select your database provider and select **Next**.  
The **Database Server Login** page appears.

APM Advanced Visualization - InstallShield Wizard

**Database Server Login**

Database server requires login credentials to continue.

Specify the DB User Login and Password

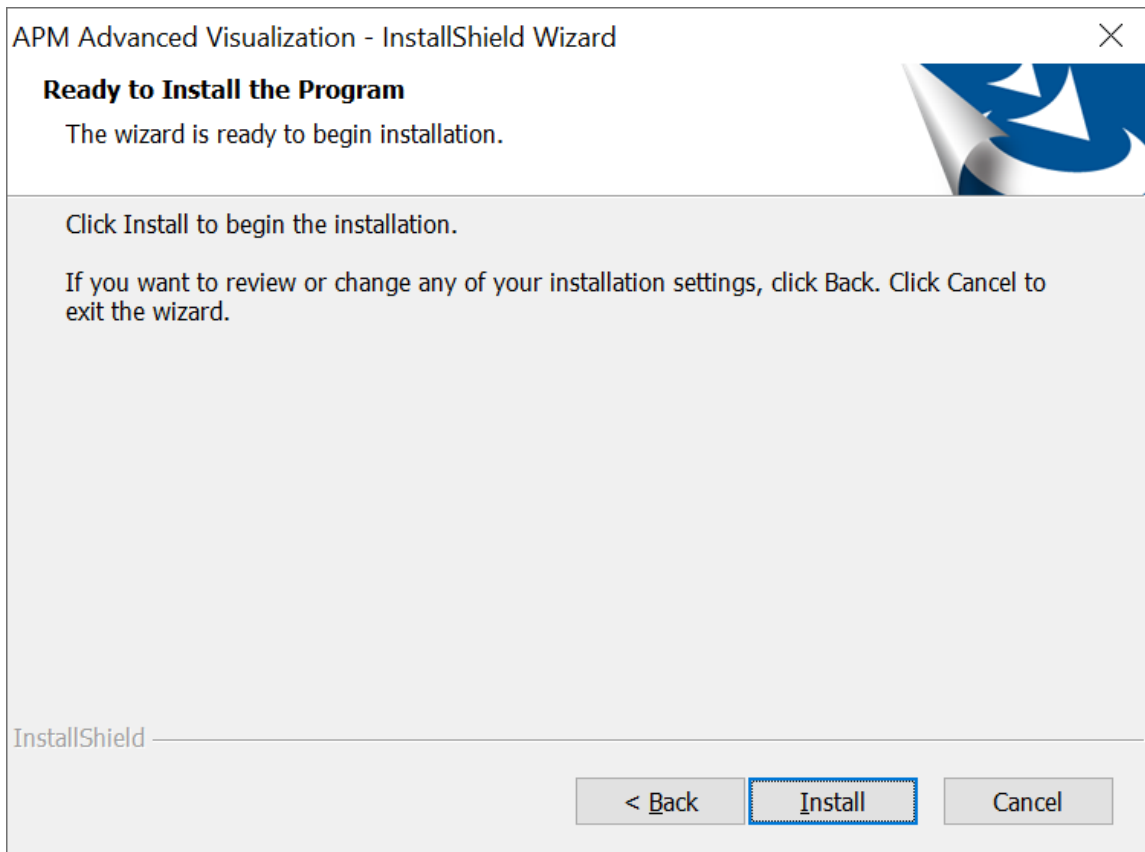
Login ID:

Password:

InstallShield

< Back    Next >    Cancel

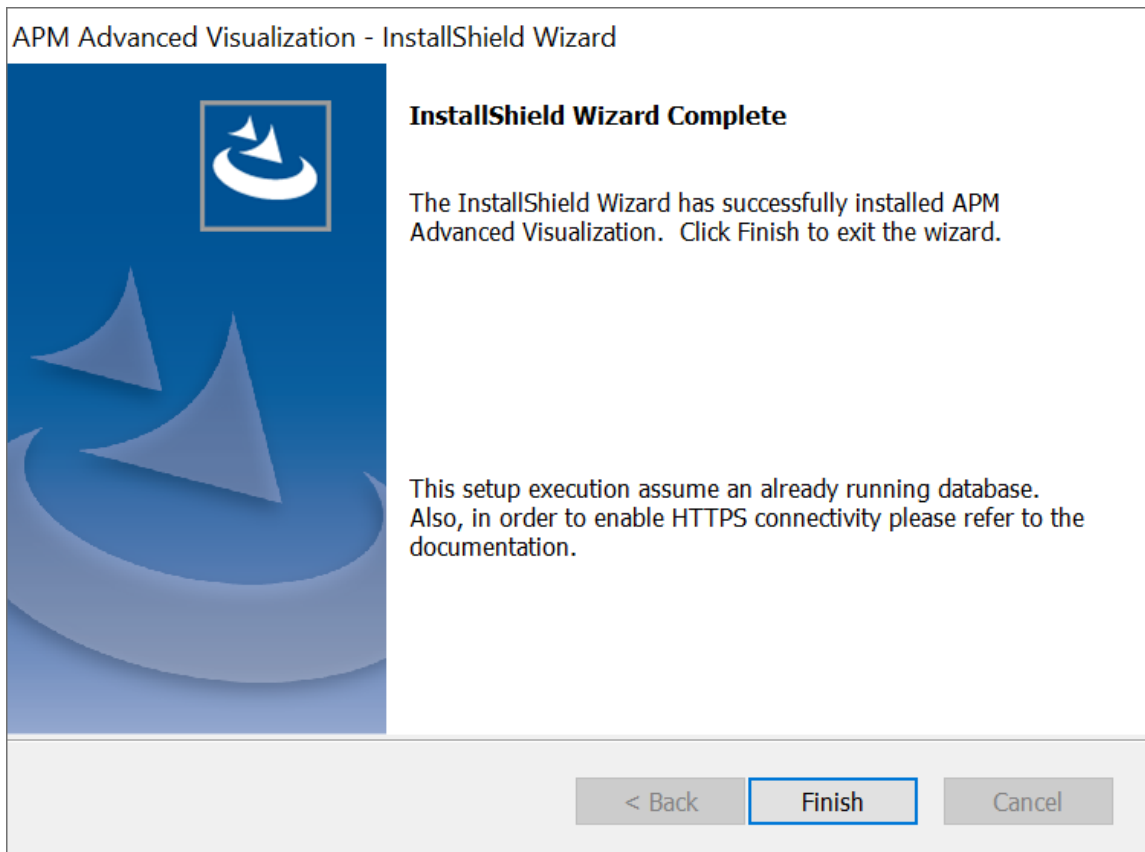
10. In the **Login ID** box, enter your database user ID.
11. In the **Password** box, enter your database password.  
The database information page appears.
12. Based on your database provider, enter the following credentials, and then select **Next**:
  - MS SQL
    - Host: Enter the MS SQL Server host name.
    - Port: Enter the MS SQL Server port number.
    - Name: Enter the name for your MS SQL Server database.
  - PostgreSQL
    - URL: Enter the Database Connection URL.
  - Oracle
    - Host: Enter the Oracle database host name.
    - Port: Enter the Oracle database port number.
    - SID: Enter the system identifier for your Oracle database instance.
13. Select **Next**.  
The **Ready to Install the Program** page appears.



14. Select **Install**.

The **Setup Status** page appears displaying a progress bar. When the installation is complete, the **Installation Wizard Complete** page appears.





15. Select **Finish**.

The **APM Advanced Visualization - InstallShield Wizard** closes.

### Results

The APM Advanced Visualization is successfully installed in your machine.

### Next Steps

[Access the Advanced Visualization Page](#) on page 2

## Uninstall Advanced Visualization

This procedure uninstalls APM Advanced Visualization after the initial installation.

### Procedure

1. On the server machine where Advanced Visualization is installed, via the Control Panel, access the **Programs and Features** window.
2. In the grid, select **APM Advanced Visualization**, and then select **Uninstall**. The Advanced Visualization installer appears, displaying the **Preparing Setup** screen, which contains a progress bar. After completion, a message appears, asking if you want to remove the selected application and all of its features.
3. Select **Yes**.  
The **Setup Status** screen appears, displaying a progress bar. After the application and all of its features are removed, the **Uninstall Complete** screen appears.

4. Select **Finish**.  
The APM Advanced Visualization installer closes.

### **Results**

The APM Advanced Visualization is uninstalled from your machine.

# Chapter 3

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## Upgrade

### Topics:

- [Upgrade or Update Advanced Visualization to V5.1.0.0](#)
- [Upgrade from any version V5.0.1.0.0 through V5.0.2.0.0](#)

## Upgrade or Update Advanced Visualization to V5.1.0.0.0

The following table provides you the reference to procedures to upgrade from an earlier GE Digital APM version to the latest version.

Upgrade from	Upgrade to	Procedure
V5.0.x	V5.1.0.0.0	<a href="#">Upgrade from any version V5.0.1.0.0 through V5.0.2.0.0 on page 16</a>

## Upgrade from any version V5.0.1.0.0 through V5.0.2.0.0

This module will be upgraded to V5.1.0.0.0 automatically when you upgrade the components in the basic GE Digital APM system architecture. No additional steps are required.

If an error occurs, delete the following folders:

- C:\Program Files (x86)\InstallShield Installation Information\*<UUID>*
- C:\Meridium\temp

# Chapter 4

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## Data Sources

### Topics:

- [About Advanced Visualization Data Sources](#)
- [Create a Data Source using a GE Digital APM Query](#)

## About Advanced Visualization Data Sources

Advanced Visualization provides out of the box capabilities that enable you to visualize data for the following GE Digital APM features and modules:

- Baseline entities and queries
- General recommendations

Each of these features is associated with a set of data sources in Advanced Visualization. The data sources contain a set of logically related fields that allow you to create and customize the visualizations based on the access privileges that you have for the specific feature.

**Note:** Although you have access to all the data sources, you must also have access to the required capabilities to create visualizations using these data sources. . You can visualize the data for the assets based on the security groups and roles assigned to your GE Digital APM user account.

The following table provides high-level information about the data sources available for the supported modules or features:

Module/Feature	Data Source Description
General Recommendations	You can visualize data based on the general recommendations data available within GE Digital APM.
GE Digital APM Baseline Queries	<p>You can visualize data using the baseline query views available in GE Digital APM.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"><li>• The baseline query view displays the result of a query.</li><li>• As needed, you can create a curated view for the query result within your tenant.</li></ul>

## Create a Data Source using a GE Digital APM Query


### Before You Begin

- Make sure that the baseline query or the custom query that you want to use to create a data source exists in the Catalog.

### About This Task

This topic describes how to create a data source using a baseline query or a custom query, and configure the data source to enable the Advanced Visualization users to create charts or dashboards using the data source.

### Procedure

1. Access the [Advanced Visualization](#) page.
2. Select , and then select **Prepare and Manage Data**.  
The **SERVER** page appears.
3. Select **Get Data**.  
The **Get Data** window appears.
4. In the **CONNECT TO DATA** section, select **REST**, and then select **Select**.  
The **Configure Connections** window appears.

5. Select **APM\_QUERY**, and then select **Select**.  
The **Create Synonym for REST** window appears.
6. In the **Create Synonym options** section, specify the following parameters:

**Note:** We recommend that you use the Query Helper to validate the query parameters and copy the field values to the corresponding fields in the **Create Synonym options** section. For more information on how to use the Query Helper to validate the query parameters, refer to the [Retrieve Query Details of a GE Digital APM Query using Query Helper](#) on page 20 topic.

- a) In the **Select REST Operation** box, select Post.
- b) In the **Service URL Extension** box, enter: `v2/catalog/query/path/execute`

**Note:** If you use a GE Digital APM version older than V4.5.0.0.0, enter: `v1/catalog/query/path/execute`

- c) In the **Provide document sample** box, enter the request body parameters for the Insert (POST) request.
  - The following example provides a template for the request body:

```
{
  "QueryPath": "query path",
  "Page": 0,
  "PageSize": 100,
  "InputSingleParams":
  {
    "parameter1": "value",
    "parameter2": "value2"
  }
,
  "InputMultiParams":
  {
    "parameter1": ["value1", "value2"],
    "parameter2": ["value1", "value2"]
  }
}
```

- The following example provides a sample request body for a query:

```
{
  "QueryPath": "Public\\Meridium\\Modules\\Generation Management
  \\Queries\\NERC Queries\\NERC Event Report 07",
  "InputSingleParams": {
    "unitKey": "-1",
    "endDate": "2021-03-04T04:15:20.795",
    "startDate": "2021-03-04T04:15:20.795"
  },
  "InputMultiParams": null
}
```

7. In the **Synonym Field Name Processing Options** section, select the following check boxes:
  - **Validate**
  - **Make Unique**
8. In the **Miscellaneous settings** section, specify the following details:
  - a) In the **Application** box, navigate to the application directory that will contain the data source that you want to create.
  - b) In the **Synonym Name** box, enter a name for the data source that you want to create.
9. Select **Add**.  
The data source is created in the Application Directory.

10. Select **Prepare and Manage Data** and access the Application Directory that contains the data source that you created, right-click the data source, and then select **Open**

Alternatively, select **Visualize Data** to view the [Chart Creation workflow](#)

A page appears, displaying the **Table/Column** panel that contains a hierarchy of the query parameters.

11. Configure the following query parameters:

**Important:** We recommend that you use the Query Helper to validate the query parameters, and copy the parameter values from the **XDEFAULT** section of the **APM Query Helper** window to the **XDEFAULT** box of the **Properties** window for the corresponding parameters. For more information on the Query Helper, refer to the [Retrieve Query Details of a GE Digital APM Query using Query Helper](#) on page 20 topic.

Query Parameter	Actions to be Performed
INPUTSINGLEPARAMS	<ol style="list-style-type: none"> <li>Expand the object to view the parameters.</li> <li>Right-click a parameter, and then select <b>Properties</b>. The <b>Properties</b> window appears.</li> <li>In the <b>Miscellaneous</b> section, in the <b>XDEFAULT</b> box, enter the parameter value, and then select <b>Apply</b>.</li> </ol>
INPUTMULTIPARAMS	

12. In the **SERVER** page, select the **Save** button to save the parameters. The data source is configured.

### Next Steps

- [Create Charts using a Baseline or Custom Query](#) on page 24

## Retrieve Query Details of a GE Digital APM Query using Query Helper

### About This Task

When creating a data source using a baseline or custom query, you must have the following query details:

- Sample request body for the Insert (POST) operation
- Service URL extension
- Valid query path
- Valid query parameters and parameter values

Using Query Helper, you can retrieve the parameters of a query and validate the parameter details to ensure that correct data is available for creating the data source.

This task describes how to retrieve and validate the parameter details of a query to create a data source.

### Procedure

1. [Access the Advanced Visualization page](#).
2. Select **Query Helper**. The **APM Query Helper** window appears.
3. In the **Enter Query Catalog Path** box, enter the query for which you want to fetch the parameter details, and then select **Get Details**. The following boxes are populated:
  - Service URL Extension
  - Sample Request Body
  - Query Path



- <Parameter Name>

**Note:** To copy the data contained in each box, select .

The following table describes the fields available in the **APM Query Helper** window:

Field	Description	Behaviour
Service URL Extension	<p>Displays the following service URL extension by default:</p> <pre>v2/catalog/query/path/execute</pre> <p><b>Note:</b> If you use a GE Digital APM version older than V4.5.0.0.0, the following service URL extension is displayed: v1/catalog/query/path/execute.</p>	You cannot modify data in this field.
Sample Request Body	<p>Displays the parameter details returned by the query.</p> <p>The following example provides a sample request body returned by a query:</p> <pre>{   "QueryPath":   "Public\\Meridium\\   \\Modules\\   \\Generation   Management\\Queries\\   \\NERC Queries\\\\NERC   Event Report 07",    "InputSingleParams":   {     "unitKey": "-1",     "endDate":     "2021-03-04T04:15:20     .795",     "startDate":     "2021-03-04T04:15:20     .795"   },    "InputMultiParams":   null }</pre> <p><b>Note:</b> For GE Digital APM versions older than V4.5.0.0.0, both the parameter and parameter value appear as parameter values for <code>Id</code> and <code>Value</code> parameters, respectively. The following example provides a sample request body returned by a query:</p> <pre>{   "QueryPath":</pre>	<ul style="list-style-type: none"> <li>• If the request body contains valid parameters and the parameter values, you cannot modify data in the field.</li> <li>• If the request body does not contain valid parameter or parameter values, a message appears, asking you to update the parameter values. You must update the parameter values in the <b>XDefault Values</b> section to make the request body valid.</li> </ul>

Field	Description	Behaviour
	<pre> "Baseline\\Meridium\ \Modules\\AHI\ \Queries\\Health Overview - Tiles", "InputSingleParams": [ { "Id": "unitKey", "Value": "-1" } ] } </pre>	
Query Path	Displays the catalog path for the query.	You cannot modify data in this field.
<Parameter Name> <b>Note:</b> The field is displayed only if the query contains at least one parameter.	Displays the parameter name and the parameter value contained in the sample request body. <b>Note:</b> If a parameter contains multiple values, only the first value is displayed in the <Parameter Name> box.	If there is no valid parameter value for a given parameter, you can add the parameter value to make the request body valid. <b>Note:</b> <a href="#">When configuring data source with a GE Digital APM version older than V4.5.0.0.0</a> , you must manually update the default values for the parameters <code>Id</code> and <code>Value</code> in the corresponding <b>XDEFAULT</b> box of the <b>Properties</b> window.

# Chapter 5

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## Creating Visualizations

### Topics:

- [Create Charts using Data Sources](#)
- [Create Charts using Queries](#)
- [Configure Filters in Visualizations](#)

# Create Charts using Data Sources

## Create Charts using Data Sources

### About This Task

This topic describes how to create charts or dashboards using data sources in Advanced Visualization.

### Procedure

1. Access the [Advanced Visualization](#) page.
2. Select **Visualize Data**.  
The **Advanced Visualization Designer** page appears, displaying a designer canvas to create the chart.
3. Select the **Add Data** button.  
The **Select Data Source** window appears, displaying the available data sources.
4. Select the data source using which you want to create the chart.

**Note:** You can access the baseline data sources and folders containing the baseline data sources by default. If you want to use a specific data source to create the chart, navigate to the data source in the corresponding folder. You can also change the view to access the data sources for a tenant.

The Dimensions and Variables associated with the data source appear in the **Advanced Visualization Designer** page.

5. As needed, design the chart, and then save the chart.

**Note:** For more information on how to create and publish charts, refer to the help documentation integrated with Advanced Visualization.

The chart is created.

### Note:

For more information on creating charts, refer to KBA 000039563.

For more information of training videos on how to create visualizations, refer to [Getting Started With WebFOCUS 8207](#).

For detailed documentation on how to create visualization, refer to [Visualizing Data in 8207](#).

# Create Charts using Queries

## Create Charts using a Baseline or Custom Query

### Before You Begin

- [Ensure that the query you want to use to create a chart has a data source.](#)

### Procedure

1. Access the [Advanced Visualization](#) page.
2. In the **Advanced Visualization** home page, select **Visualize Data**.

The **Advanced Visualization Designer** page appears, displaying a designer canvas to create the chart.

3. Select the **Add Data** button.

The **Select Data Source** window appears, displaying the available data sources.

4. Navigate to the folder containing the data source associated with the query, and then select the data source.

The Dimensions and Variables associated with the data source appear in the **Advanced Visualization Designer** page.

5. As needed, design the chart, and then save the chart.

**Note:**

- When designing a chart, we recommend that you use the fields in the **ROWS** section that appear when you expand the **RESPONSE** node and then expand the **ROWS** node.
- For more information on how to create and publish charts, refer to the help documentation integrated with Advanced Visualization.

The chart is created.

**Related Tasks**

[Configure Filters on a Dashboard using a GE Digital APM Query](#) on page 27

## Configure Filters in Visualizations

### Configure Date Filters using Reporting Objects

**Before You Begin**

- Ensure that you are part of the Security Groups available for users within this module, to manage Advanced Visualization.

For more information on the roles and groups available for the Advanced Visualization users, refer to the topic.

**About This Task**

When visualizing data in a dashboard, you can configure a custom date range as filter criteria to view data for the specified period. However, you can configure the date filters using a reporting object so that the date filters appear on the dashboard by default. For more information on the reporting objects, refer to the help integrated with Advanced Visualization.

This topic describes how to configure the date filters using a reporting object.

**Procedure**

1. Access the [Advanced Visualization](#) page.
2. Select **Workspaces**.  
A hierarchy of the Advanced Visualization workspaces associated with your tenant appears.
3. In the hierarchy, navigate to the workspace folder to which you want to add the reporting object, and then select the **Action Bar** drop-down list box.  
The **Data** section appears, displaying the option to create reporting objects.
4. Select **Reporting Object**.  
A new tab appears, displaying a window that contains the data sources available for Advanced Visualization.

- Navigate to the folder containing the data source using which you want to create the reporting object, select the data source, and then select **Open**.  
The **Reporting Object** folder appears.
- Right-click **Preprocessing Other**, and then select **Edit**.  
The **Preprocessing Other** window appears.
- In the **Preprocessing Other** window, enter the following code:

```

SET DTSTANDARD = STANDARD
-DEFAULTH &STARTTIME='2019-04-01T00:28:03.000Z';
-DEFAULTH &ENDTIME='2020-03-31T00:28:03.000Z';

-DEFAULT &STARTDATE='April 01 2019';
-DEFAULT &ENDDATE='March 31 2020';

-PROMPT &STARTDATE.(|FORMAT=MDYY,REQUIRED=TRUE).Start
Date.QUOTEDSTRING;

-SET &STARTTIME = DATETRAN(&STARTDATE, '(YYMD)', '(-)', 'EN', 15,
'A10') | 'T00:00:00.000Z';

-TYPE &STARTTIME

-PROMPT &ENDDATE.(|FORMAT=MDYY,REQUIRED=TRUE).End Date.QUOTEDSTRING;

-SET &ENDTIME = DATETRAN(&ENDDATE, '(YYMD)', '(-)', 'EN', 15, 'A10')
| 'T23:59:59.999Z';

-TYPE &ENDTIME

```

- Select the **Save** button.
- Right-click **Where Statements**, and then select **New**.  
The **Create a filtering condition** window appears.
- Based on the data source that you selected, create the WHERE clause as described in the following table:

Data Source	WHERE Clause
alerts_custom_business_view	EVENTSTARTDATE Greater than or equal to Simple Parameter (Name:STARTTIME) AND EVENTSTARTDATE Less than or equal to Simple Parameter (Name:ENDTIME)
cases_custom_business_view	CREATEDDATE Greater than or equal to Simple Parameter (Name:STARTTIME) AND CREATEDDATE Less than or equal to Simple Parameter (Name:ENDTIME)

- Select the **Save** button to save the reporting object.  
The reporting object is created and the date filters are configured.

**Note:** When you create a visualization using the reporting object and add the visualization to a dashboard, the default date range appears to filter data.

# Configure Filters on a Dashboard using a GE Digital APM Query

## Before You Begin

- Make sure that the catalog query that you want to use for populating filter parameters is valid and returns the correct set of values.

## About This Task

Advanced Visualization enables you to use a data source to populate filter parameters for filtering a dashboard created for another data source. The data sources are created using GE Digital APM queries. You must use a query that retrieves a set of values from the GE Digital APM database, which can be used as the filter parameters.

For example, you have created a dashboard to visualize work order details, such as work order ID, asset, work order status, and so on. Each of these parameters may have multiple values. If you want to filter the dashboard with work order types which are not a part of the fields list returned by visualization data source, you will need to create a filter using the work order type field available in a separate data source. You must populate the work order type filter with the values coming from this separate data source so that you can specify filter criteria. To populate the values, you will need this separate data source that can be associated with the first data source used for visualizing work order details.

This topic describes how to configure a filter and populate filter parameters using a data source created for a GE Digital APM query.

## Procedure

1. Access the [Advanced Visualization](#) page.
2. Perform the following steps to create and configure the data source for populating filter parameters in the filter:
  - a) [Create a data source using the query that you want to use for populating filter parameters.](#)
  - b) Access the Application Directory that contains the data source that you created, right-click the data source, and then select **Open**.  
A page appears, displaying the **Table/Column** panel that contains a hierarchy of the query parameters.
  - c) In the **Table/Column** panel, expand the **RESPONSE** node, and then expand the **ROWS** node.
  - d) In the **ROWS** section, on each field, right-click the field, and then select **Properties**.  
The **Properties** window appears.
  - e) In the **General** section, in the **Type** drop-down list box, select Character (Fixed).
  - f) Select **Apply**.
3. Perform the following steps to configure the filter on the dashboard:
  - a) Access the Application Directory that contains the data source associated with the dashboard, right-click the data source, and then select **Open**.  
A page appears, displaying the **Table/Column** panel that contains a hierarchy of the query parameters.
  - b) On each query parameter, right-click the parameter, and then select **Properties**.  
The **Properties** window appears.
  - c) In the **General** section, in the **Type** drop-down list box, select Character (Fixed).
  - d) In the **Miscellaneous** section, in the **ACCEPT** drop-down list box, select SYNONYM.
  - e) In the **Lookup Synonym** box, navigate to the data source that you created for populating filter parameters.

- f) In the **Lookup Field** box, enter the filter caption.
- g) Select **Apply**.
- h) Access the **Advanced Visualization** page.
- i) In the **Advanced Visualization** home page, select **Visualize Data**.  
The **Advanced Visualization Designer** page appears, displaying a designer canvas to create the chart.
- j) Select the **Add Data** button.  
The **Select Data Source** window appears, displaying the available data sources.
- k) Navigate to the folder containing the data source associated with the query, and then select the data source.  
The Dimensions and Variables associated with the data source appear in the **Advanced Visualization Designer** page.
- l) As needed, design the chart, and then save the chart.

**Note:** For more information on how to create and publish charts, refer to the help documentation integrated with Advanced Visualization.

The chart is created.

- m) Drag the query parameter that you want to use as a filter to the chart.  
The filter is created and populated with the filter parameters. You can add the chart to a dashboard to filter data.



# Chapter 6

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## Navigating from Charts

### Topics:

- [About Navigating from a Chart or Dashboard to the Corresponding GE Digital APM Module](#)
- [About Configuring Drill-Downs using URLs](#)
- [Configure a Drill-Down for a Chart to Access Data in the Corresponding Module](#)

## About Navigating from a Chart or Dashboard to the Corresponding GE Digital APM Module

Advanced Visualization enables you to navigate from a chart or dashboard to the corresponding feature or module within GE Digital APM. You can create a chart or dashboard using a data source and configure drill-downs for the fields using the filter parameters associated with the data source. When the drill-downs are configured with the filter parameters, you can drill down the chart or dashboard to navigate to the corresponding feature or module, and access the data filtered by the configured filter parameters. For more information on different types of drill-downs and how to configure drill-downs for the charts and reports, refer to the help integrated with Advanced Visualization.

## About Configuring Drill-Downs using URLs

You can use GE Digital APM URLs to configure drill-downs for a visual element (for example, bar) of a chart for accessing data associated with the visual element in the corresponding module. For more information on the GE Digital APM URLs and URL syntax, refer to the [URLs](#) help.

When configuring drill-downs, you can create the following types of URLs that are used to navigate to the specific pages or features of the corresponding module:

- URL with parameters: If the URL associated with the module contains a parameter, you must create a URL with the parameter to pass the parameter value from the chart to the corresponding module for accessing the associated data. If the URL uses dynamic parameters (for example, prompts), parameters with the same name are automatically created to pass the value when you select the visual element in the chart. Thus, you are navigated to the target page or feature of the module.
- URL without parameters: If a URL associated with the module does not contain a parameter, you must create a URL without any parameter value.

## Configure a Drill-Down for a Chart to Access Data in the Corresponding Module

**Note:** This feature is not available in Legacy Predix APM.

### Before You Begin

- [Create a chart](#).

### About This Task

This task describes how to configure a drill-down for a chart using a URL and navigate to the corresponding module within GE Digital APM to access the associated data. For more information on different types of drill-downs and how to configure drill-downs for the charts and reports, refer to the help integrated with Advanced Visualization.

### Procedure

1. Access the [Advanced Visualization](#) page.
2. Access the chart for which you want to configure the drill-down.
3. Right-click the chart, and then select **Edit**.

- The **Advanced Visualization Designer** page appears, displaying the chart in the designer canvas.
4. In the **Settings** section, in the **Vertical** box, right-click the field for which you want to configure a drill-down, and then select **Configure drill downs**.  
The **Configure Drill Downs for <Field Name>** window appears.
  5. In the **Configure Drill Downs for <Field Name>** window, perform the following steps to configure the drill-down:
    - a) In the **Type** section, select the **URL** option.
    - b) In the **URL** box, enter the URL for the page that you want to access when you select the visual element of the chart.

**Tip:** For more information on the URLs associated with a specific GE Digital APM module, access the help documentation for the module, and then refer to the **<Module Name> URLs** topic.

    - If the URL does not contain any parameter, select **Apply**.
    - If the URL contains parameters (for example, *{entitykey}* and *{sectionname}* in the URL `health/asset/{entitykey}/{sectionname}`), perform the following steps:
      - i. In the **Parameters** section, select the **Add all target filters** button.  
A table appears, displaying the following columns:
        - Parameter Name
        - Type
        - Field/Value
      - ii. In the table, enter the values as follows:
        - In the **Parameter Name** box, enter the name of the parameter.
        - In the **Type** box, select **Field**.
        - In the **Field/Value** box, select a field value based on the parameter that you specified in the **Parameter Name** box.
      - iii. Select **Apply**.
  6. Select the **Save** button to save the chart in your preferred workspace.  
The drill-down for the chart is configured.

**Example: Access the Number of Health Indicators for an Asset from the Health Indicator Status by Asset Chart**

This example provides the steps to configure drill-downs in the Health Indicator Status by Asset chart and [view the number of health indicators in the Health Summary page](#).

1. Access the **Advanced Visualization** page.
2. Select **Visualize Data**.  
The **Advanced Visualization Designer** page appears, displaying a designer canvas to create the chart.
3. Select the **Add Data** button.  
The **Select Data Source** window appears, displaying the available data sources.
4. Navigate to the `ahi` folder, and then select the **health\_overview\_status\_by\_asset** data source.  
The Dimensions and Variables associated with the data source appear in the **Advanced Visualization Designer** page.
5. In the **Advanced Visualization Designer** page, perform the following:
  - a. From the **Measures** section, drag the following measures to the **Vertical** box of the **Display** section:

- Alert
- No Status
- Normal
- Warning
- Asset Key

**Note:** To hide the asset key, right-click the asset key and select **Hide**.

- b. From the **Dimensions** section, drag the following Asset ID measure to the **Horizontal** box of the **Display** section.
6. In the **Settings** section, in the **Vertical** box, right-click an indicator status, and then select **Configure drill downs**.  
The **Configure Drill Downs for <Health Indicator Status>** window appears.
7. In the **Configure Drill Downs for <Health Indicator Status>** window, perform the following steps to configure the drill-down for the health indicator status:
  - a. In the **Type** section, select the **URL** option.
  - b. In the **URL** box, enter the URL in the following format:  
health/asset/{entitykey}/indicator, where {entitykey} denotes the asset in the asset hierarchy for which you want to view the health indicators.  
**Note:** For more information on how to construct the URLs associated with Asset Health Manager, refer to [AHM URLs](#).
  - c. In the **Parameters** section, select the **Add all target filters** button.  
A table appears, displaying the following columns:
    - Parameter Name
    - Type
    - Field/Value
  - d. In the table, enter the values as follows:
    - In the **Parameter Name** box, specify `entitykey`.
    - In the **Type** box, select **Field**.
    - In the **Field/Value** box, select **HEALTH\_OVERVIEW\_\_STATUS\_BY\_ASSET.ROWS.ASSET\_KEY**.  
**Note:** You must select the field value based on the parameter that you specified in the **Parameter Name** box.
  - e. Select **Apply**.
8. Select the **Save** button to save the chart in your preferred workspace.  
The Health Indicator Status by Asset chart is created and saved in the workspace.
9. Access the Health Indicator Status by Asset chart.
10. Right-click the chart, select **Run...**, and then select **Run in new window**.  
The new tab appears, displaying the chart.
11. Select the visual element (for example, bar) associated with the asset for which you want to view the number of health indicators.  
A new tab appears, displaying the number of health indicators for the selected asset in the **Health Summary** page.

# Chapter 7

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## Setting Dashboard as Home Dashboard

### Topics:

- [Set a Dashboard as the Home Dashboard](#)


# Set a Dashboard as the Home Dashboard

## About This Task

You can access the home dashboard when you sign in to GE Digital APM or select  in the main navigation bar. This topic describes how to set a dashboard created in Advanced Visualization as your home dashboard.

## Procedure

1. Access the [Advanced Visualization](#) page.
2. Access the dashboard that you want to set as the home dashboard.
3. Right-click the dashboard, and then select **Run in new window**.  
A new window appears, displaying the dashboard.
4. Select **Assign as Home Dashboard**.  
The **Caution** window appears.
5. Select **Apply**.  
The dashboard is set as the home dashboard for GE Digital APM.

**Tip:** To access the home dashboard, select  in the main navigation bar.

# Chapter 8

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## Exporting Dashboard

### Topics:

- [About Exporting Dashboard](#)

## About Exporting Dashboard

Advanced Visualization enables you to export a dashboard to a PDF or PNG file. You must configure the settings to enable the **Export to File** button in the dashboard and the file format to which you want to export the dashboard.

**Note:** The following configuration options in the dashboard settings enable the **Export to File** button in the dashboard and the file format to which you want to export the dashboard:

- Show Export: Enables the **Export to File** button in the dashboard.
- PDF: Enables you to export the dashboard to a PDF file.
- Image: Enables you to export the dashboard to a PNG file.

**Important:** The **Export to File** button is enabled in a new dashboard based on the page settings for the dashboard. However, if you want to enable the button for an existing dashboard, you must access and save the dashboard in Advanced Visualization.

The following examples provide steps on how to export a dashboard (namely Inspection Management Overview Dashboard) to PDF and PNG files:

### Example: Export the Inspection Management Overview Dashboard to a PDF File

1. Access the page settings for the Inspection Management Overview dashboard and ensure that the following check boxes are selected:
  - Show Export
  - PDF

**Note:** For more information on how to access the page settings for a dashboard, refer to the help documentation for the dashboard in Advanced Visualization.

2. Access the Inspection Management Overview dashboard.
3. Select the **Export to File** button, and then select **PDF**.

The dashboard is exported to a PDF file.

**Note:** You can access the downloaded file in your local drive.

### Example: Export the Inspection Management Overview Dashboard to a PNG File

1. Access the page settings for the Inspection Management Overview dashboard and ensure that the following check boxes are selected:
  - Show Export
  - Image

**Note:** For more information on how to access the page settings for a dashboard, refer to the help documentation for the dashboard in Advanced Visualization.

2. Access the Inspection Management Overview dashboard.
3. Select the **Export to File** button, and then select **Image**.

The dashboard is exported to a PNG file.

**Note:** You can access the downloaded file in your local drive.



# Chapter 9

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## Baseline Dashboards

### Topics:

- [Baseline Dashboards](#)

## Baseline Dashboards

The APM Overview portal is available with some baseline dashboards as reference that you can readily use without making any changes. You can also customize the baseline dashboards as needed. This allows you to create custom dashboards without having to start from the beginning. The following baseline dashboards are available in the Meridium workspace:

- Asset Health Manager Overview
- Inspection Management Overview
- Production Loss Overview
- Risk Based Inspection Overview

# Chapter 10

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## Reference

### Topics:

- [General Reference](#)

## General Reference

### Advanced Visualization Terms

The following terms and definitions apply to advanced visualization dashboard components.

#### Chart

An individual visualization of data using a data source.

#### Data Source

A repository that contains the data that can be visualized in advanced visualization in the form of charts or reports.

#### Page

A collection of charts that can be combined to create a view like a dashboard. These pages can be shared with other users or used as private dashboards for the users

#### Domain

The workspace to create visualizations, where the tenant can configure their own custom data sources. The data sources can be used to access the data and combine that data with the other data that the tenants have access to through the baseline domain that cannot be modified by the users.

#### Folders

A way to organize data in a user domain. This can be used to create various types of content and then saved in different folders that the users can access later.

### Advanced Visualization Security Groups

The following table lists the baseline Security Groups available for users within this module, as well as the baseline Roles to which those Security Groups are assigned.

**Table 6: Advanced Visualization Security Groups and Roles**

Role	Group	Role Privileges
View Advanced Visualization	Everyone	Allows you to view the visualizations that have been created and which other users have shared.
Create Advanced Visualization	Create ADV	Allows you to create new visualizations based on the data sources that are available.
Manage Advanced Visualization	Manage ADV	Allows you to add new connections or modify existing data connections other than the baseline content that cannot be updated.

### Log Files Collection

#### Procedure

1. Select the **Start** button on Windows, right-click **Command Prompt**, and then select **Run as administrator**.

The Command Prompt window appears.

2. Change the directory to the location where you want to save the zip archive with collected files; for example, to save the archive in the C:\Support folder, at the command prompt, enter `cd C:\Support`, and then press **Enter**.
3. At the command prompt, enter `<Install_DIR>\utils\collect_logs.bat[number of days to look back]`, and then press **Enter**.  
For example, the `<Install_DIR>\utils\collect_logs.bat 2` command creates `logs-<current_date>.zip` in the current directory.

## Start or Stop Advanced Visualization Services

### Procedure

1. Select the **Start** button on Windows, right-click **Command Prompt**, and then select **Run as administrator**.  
The Command Prompt window appears.
2. At the command prompt, enter `<Install_DIR>\utils\<command>`, and then press **Enter**.  
Use a `<command>` from the following table, according to the required task.

<code>&lt;command&gt;</code>	Task
<code>stop_all</code>	Stop all services.
<code>start_all</code>	Start all services.
<code>restart_all</code>	Stop and start all services.
<code>stop_as</code>	Stop Search, Report Caster, and Web Application.
<code>start_as</code>	Start Search, Report Caster, and Web Application.
<code>stop_rs</code>	Stop Reporting Server.
<code>start_rs</code>	Start Reporting Server.
<code>stop_av</code>	Stop Advanced Visualization UI and Advanced Visualization Microservice services.
<code>start_av</code>	Start Advanced Visualization UI and Advanced Visualization Microservice services.

## Import Content

### Procedure

1. Select the **Start** button on Windows, right-click **Command Prompt**, and then select **Run as administrator**.  
The Command Prompt window appears.
2. At the command prompt, enter `<Install_DIR>\utils\import_content.bat <IMPORT_FROM> <USER_NAME> <PASSWORD> <OVERWRITE>`, and then press **Enter**.

**Table 7: Parameters**

Parameter	Description
IMPORT_FROM	An import zip file or folder with multiple zip files; must be a fully-qualified file name.
USER_NAME	A valid WebFOCUS Administrator ID; default value: admin
PASSWORD	A valid WebFOCUS Administrator ID password; default value: secret
OVERWRITE	Overwrite content resources flag. This is optional; default value: false

## Set APM Host URL

### Procedure

1. Select the **Start** button on Windows, right-click **Command Prompt**, and then select **Run as administrator**. Parameters: APMHostURL URL of the target APM host, for example: http://apm-ibi.meridium.com  
The Command Prompt window appears.
2. At the command prompt, enter `<Install_DIR>\utils\setAPMHost.bat <APMHostURL>`, and then press **Enter**.

**Table 8: Parameters**

Parameter	Description
APMHostURL	URL of the target APM host, for example, http://apm-ibi.meridium.com

## Set Reverse Proxy on the GE Digital APM Host Machine

### Procedure

1. Copy script `<Install_DIR>\utils\setReverseProxyCmd.bat` from the Advanced Visualization machine to the GE Digital APM host machine.
2. Select the **Start** button on Windows, right-click **Command Prompt**, and then select **Run as administrator**.  
The Command Prompt window appears.
3. At the command prompt, enter `setReverseProxyCmd.bat <AVHostURL>`, and then press **Enter**.

**Table 9: Parameters**

Parameter	Description
AVHostURL	URL of the target Advanced Visualization host, for example, https://apm-ibi-av.meridium.com:8443.

## Install IIS Extension on the GE Digital APM Host Machine

### Procedure

1. Copy files `<Install_DIR>\utils\install_iis_extensions.bat` and `<Install_DIR>\utils\install_iis_extensions.ps1` from the Advanced Visualization machine to the GE Digital APM host machine.
2. Run the script using one of these methods:
  - a) **Option 1:** Run `install_iis_extensions.bat` as administrator to install those two extensions
  - b) **Option 2:** Select the **Start** button on Windows, right-click **Command Prompt**, and then select **Run as administrator**.  
The Command Prompt window appears.
  - c) At the command prompt, enter `<Install_DIR>\utils\install_iis_extensions.bat` and then press **Enter**.

**Note:** If you do not have internet access, download the following files separately, drop them in the `utils` folder (in the server), and rerun the script (as administrator):

- Application request routing extensions (<https://www.iis.net/downloads/microsoft/application-request-routing>) ([https://download.microsoft.com/download/E/9/8/E9849D6A-020E-47E4-9FD0-A023E99B54EB/requestRouter\\_amd64.msi](https://download.microsoft.com/download/E/9/8/E9849D6A-020E-47E4-9FD0-A023E99B54EB/requestRouter_amd64.msi))
- URL rewrite extension (<https://www.iis.net/downloads/microsoft/url-rewrite>) ([https://download.microsoft.com/download/1/2/8/128E2E22-C1B9-44A4-BE2A-5859ED1D4592/rewrite\\_amd64\\_en-US.msi](https://download.microsoft.com/download/1/2/8/128E2E22-C1B9-44A4-BE2A-5859ED1D4592/rewrite_amd64_en-US.msi))