

# Microsoft SQL Server

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## Introduction

This guide will take you through the steps of deploying and configuring Enterprise Dashboards for SQL Server. Dashboard will contain state and performance information about SQL AlwaysOn as well a SQL DB Engines monitored in System Center Operations Manager.

## Getting Started

There are actions must be done before create and deploy System Center Enterprise Dashboard and steps you must take to properly deploy it.

## Prerequisites

Before you start you must make sure you have the following prerequisites:

1. Power BI Reporting Service
2. Operations Manager 2012 R2, 2016 or 2019
3. Operations Manager Environment is healthy and does not suffer from performance issues.
4. Service Account to access databases
5. Download and import latest SQL Server for Windows Management Pack
6. Import Windows Servers Core OS Dashboard as some components depends on it.

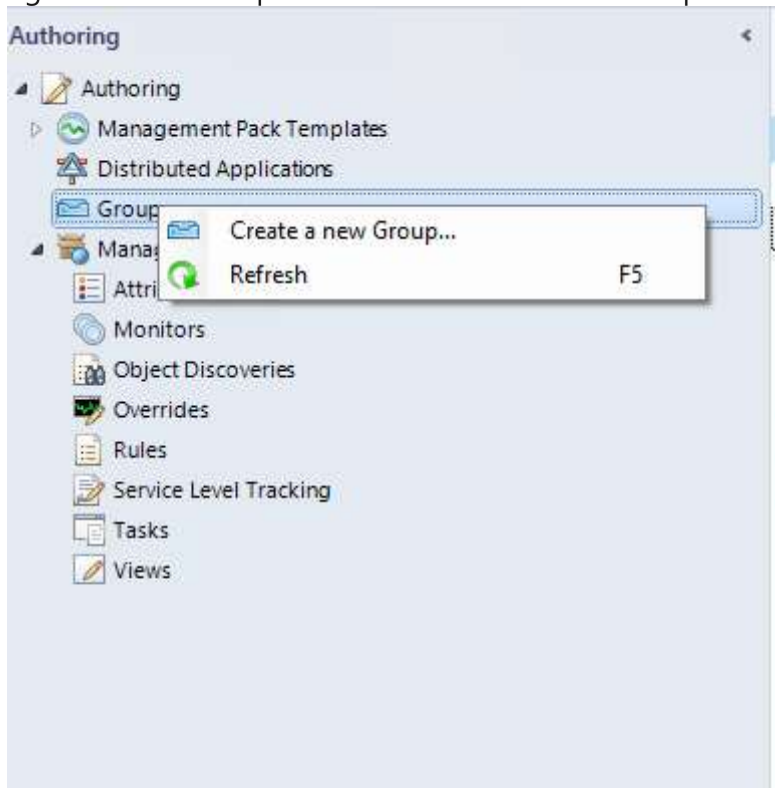
## SQL Server Enterprise Dashboard Deployment

Use the following steps to deploy Dashboard.

### Step 1: Create Dashboard Group

Enterprise Dashboards scope is defined based on Operations Manager Group for each workload, for SQL Server Dashboard the scope group name is **SQL Dashboard Group**.

1. Open SCOM Console, browse to Authoring --> Groups
2. right Click on Groups and select Create a new Group



3. In Create Group Wizard, Type Group name "**SQL Dashboard Group**" and in Management Pack destination, click on **New**. Create New management pack to save this group. click **Next** and in Knowledge Page click

## Create

Create Group Wizard

Enter a name and description for the new group.

General Properties

Explicit Members

Dynamic Members

Subgroups

Excluded Members

Enter a friendly name and description

Name:

SQL Dashboard Group

Description:

Management pack

Select destination management pack:

SC Enterprise Dashboards - SQL Dashboard Group

New...

< Previous

Next >

Create

Cancel

4. Verify Dashboard name and click **Next**

## 5. On Explicit Members page, Click **Next**

The screenshot shows the 'Create Group Wizard' window with the 'Explicit Members' tab selected. The window title is 'Create Group Wizard'. The main heading is 'Choose Members from a List'. The left sidebar contains the following options: 'General Properties', 'Explicit Members' (selected), 'Dynamic Members', 'Subgroups', and 'Excluded Members'. The main area is titled 'Explicit Group Members (optional)' and contains the instruction 'Choose specific objects that will be members of this group.' Below this is a button labeled 'Add/Remove Objects...'. A table titled 'Group members:' is present, with columns 'Name', 'Path', and 'Full Name'. The table is currently empty. At the bottom right, there are four buttons: '< Previous', 'Next >', 'Create', and 'Cancel'. A 'Help' icon is located in the top right corner of the main area.

Create Group Wizard

Choose Members from a List

General Properties  
Explicit Members  
Dynamic Members  
Subgroups  
Excluded Members

Explicit Group Members (optional)

Choose specific objects that will be members of this group.

Add/Remove Objects...

Group members:

Name	Path	Full Name
------	------	-----------

< Previous   Next >   Create   Cancel

Help

6. On Dynamic Members page, Click on **Create/Edit rules**

Create Group Wizard

Create a Membership Formula

General Properties

Explicit Members

**Dynamic Members**

Subgroups

Excluded Members

**Dynamic Inclusion Rules (optional)**

Use a formula to populate group membership.

Create/Edit rules...

Query formula:

< Previous   Next >   Create   Cancel

Help

7. Add Following Classes by selecting **class name** and then **Insert**

- a. MSSQL on Windows: DB Engine
- b. MSSQL on Windows: Database
- c. MSSQL on Windows: Agent
- d. MSSQL on Windows: Agent Job
- e. MSSQL on Windows: Local Discovery Seed
- f. SQL Server Availability Group
- g. Generic SQL Server Availability Replica
- h. Generic SQL Server Database Replica

Then Click **Ok**

Create Group Wizard - Query Builder

×

Select the desired Class and click the Add button to begin building the formula:

Windows Computer

▼

Add

+

Insert ▼

×

Delete

+

Formula

OK

Cancel

8. Check Query formula written and click **Ok**

The screenshot shows the 'SQL Dashboard Group Properties' dialog box with the 'Dynamic Members' tab selected. The 'Dynamic Inclusion Rules (optional)' section is active, displaying a query formula in a text area. The formula is a complex logical expression using parentheses, 'AND', and 'OR' to filter SQL objects. Below the text area are 'OK', 'Cancel', and 'Apply' buttons.

SQL Dashboard Group Properties

General | Explicit Members | **Dynamic Members** | Subgroups | Excluded Members | Product Knowledge | Overrides

**Dynamic Inclusion Rules (optional)**

Use a formula to populate group membership.

Create/Edit rules...

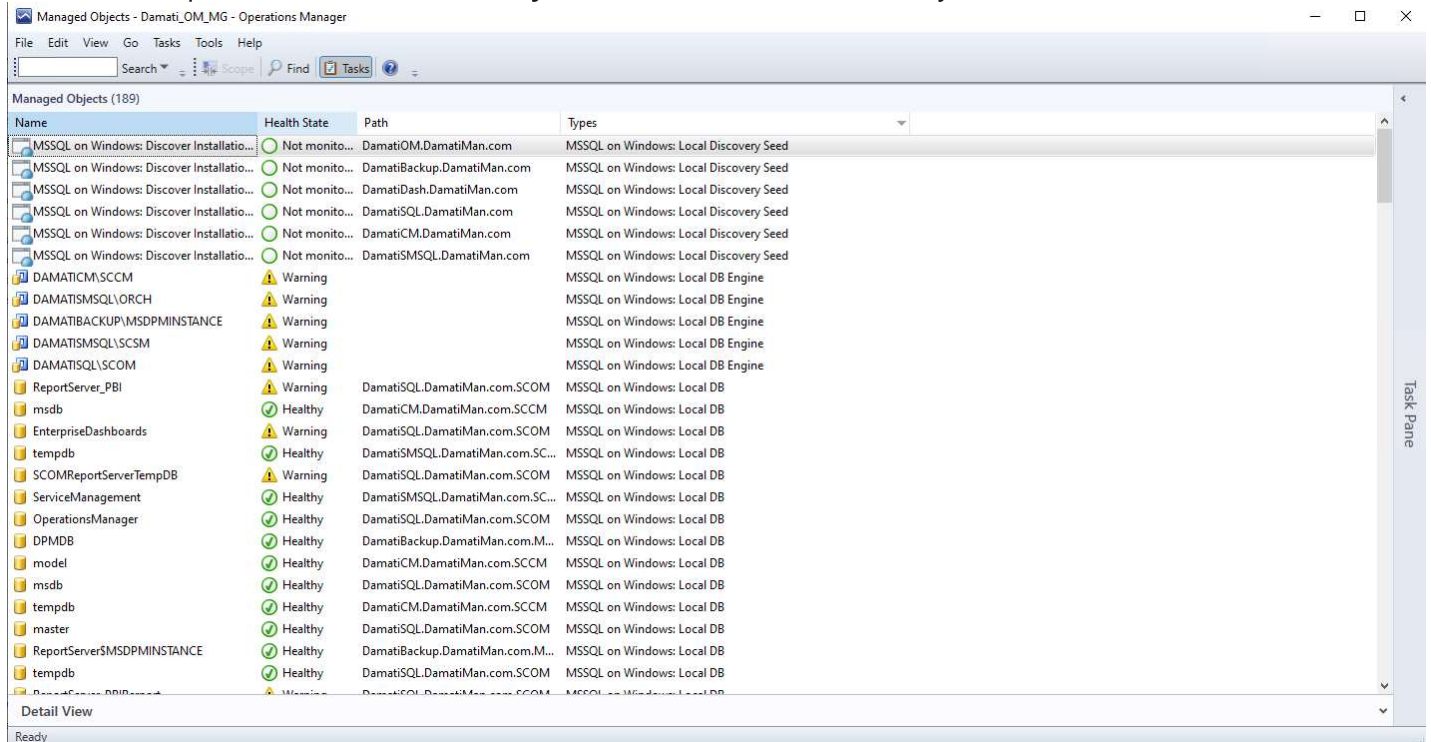
Query formula:

```
(( ( Object is MSSQL on Windows: DB Engine AND True ) OR ( Object is MSSQL on Windows: Database AND True ) OR ( Object is MSSQL on Windows: Agent AND True ) OR ( Object is MSSQL on Windows: Agent Job AND True ) OR ( Object is MSSQL on Windows: DB Filegroup AND True ) OR ( Object is SQL Server Availability Group AND True ) OR ( Object is Generic SQL Server Availability Replica AND True ) OR ( Object is Generic SQL Server Database Replica AND True ) OR ( Object is MSSQL on Windows: Local Discovery Seed AND True ) )
```

OK Cancel Apply

9. Find the Group created, right click on it and select **View Group Members**

## 10. Confirm Group members includes all objects that were mentioned in dynamic rules.



Name	Health State	Path	Types
MSSQL on Windows: Discover Installation...	Not monitored	DamatiOM.DamatiMan.com	MSSQL on Windows: Local Discovery Seed
MSSQL on Windows: Discover Installation...	Not monitored	DamatiBackup.DamatiMan.com	MSSQL on Windows: Local Discovery Seed
MSSQL on Windows: Discover Installation...	Not monitored	DamatiDash.DamatiMan.com	MSSQL on Windows: Local Discovery Seed
MSSQL on Windows: Discover Installation...	Not monitored	DamatiSQL.DamatiMan.com	MSSQL on Windows: Local Discovery Seed
MSSQL on Windows: Discover Installation...	Not monitored	DamatiCM.DamatiMan.com	MSSQL on Windows: Local Discovery Seed
MSSQL on Windows: Discover Installation...	Not monitored	DamatiSMSQL.DamatiMan.com	MSSQL on Windows: Local Discovery Seed
DAMATISMSQL\SCCM	Warning		MSSQL on Windows: Local DB Engine
DAMATISMSQL\ORCH	Warning		MSSQL on Windows: Local DB Engine
DAMATIBACKUP\MSDPMINSTANCE	Warning		MSSQL on Windows: Local DB Engine
DAMATISMSQL\SCSM	Warning		MSSQL on Windows: Local DB Engine
DAMATISQL\SCOM	Warning		MSSQL on Windows: Local DB Engine
ReportServer_PBI	Warning	DamatiSQL.DamatiMan.com.SCOM	MSSQL on Windows: Local DB
msdb	Healthy	DamatiCM.DamatiMan.com.SCCM	MSSQL on Windows: Local DB
EnterpriseDashboards	Warning	DamatiSQL.DamatiMan.com.SCOM	MSSQL on Windows: Local DB
tempdb	Healthy	DamatiSMSQL.DamatiMan.com.SCOM	MSSQL on Windows: Local DB
SCOMReportServerTempDB	Warning	DamatiSQL.DamatiMan.com.SCOM	MSSQL on Windows: Local DB
ServiceManagement	Healthy	DamatiSMSQL.DamatiMan.com.SCOM	MSSQL on Windows: Local DB
OperationsManager	Healthy	DamatiSQL.DamatiMan.com.SCOM	MSSQL on Windows: Local DB
DPMDB	Healthy	DamatiBackup.DamatiMan.com.M...	MSSQL on Windows: Local DB
model	Healthy	DamatiCM.DamatiMan.com.SCCM	MSSQL on Windows: Local DB
msdb	Healthy	DamatiSQL.DamatiMan.com.SCOM	MSSQL on Windows: Local DB
tempdb	Healthy	DamatiCM.DamatiMan.com.SCCM	MSSQL on Windows: Local DB
master	Healthy	DamatiSQL.DamatiMan.com.SCOM	MSSQL on Windows: Local DB
ReportServerMSDPMINSTANCE	Healthy	DamatiBackup.DamatiMan.com.M...	MSSQL on Windows: Local DB
tempdb	Healthy	DamatiSQL.DamatiMan.com.SCOM	MSSQL on Windows: Local DB

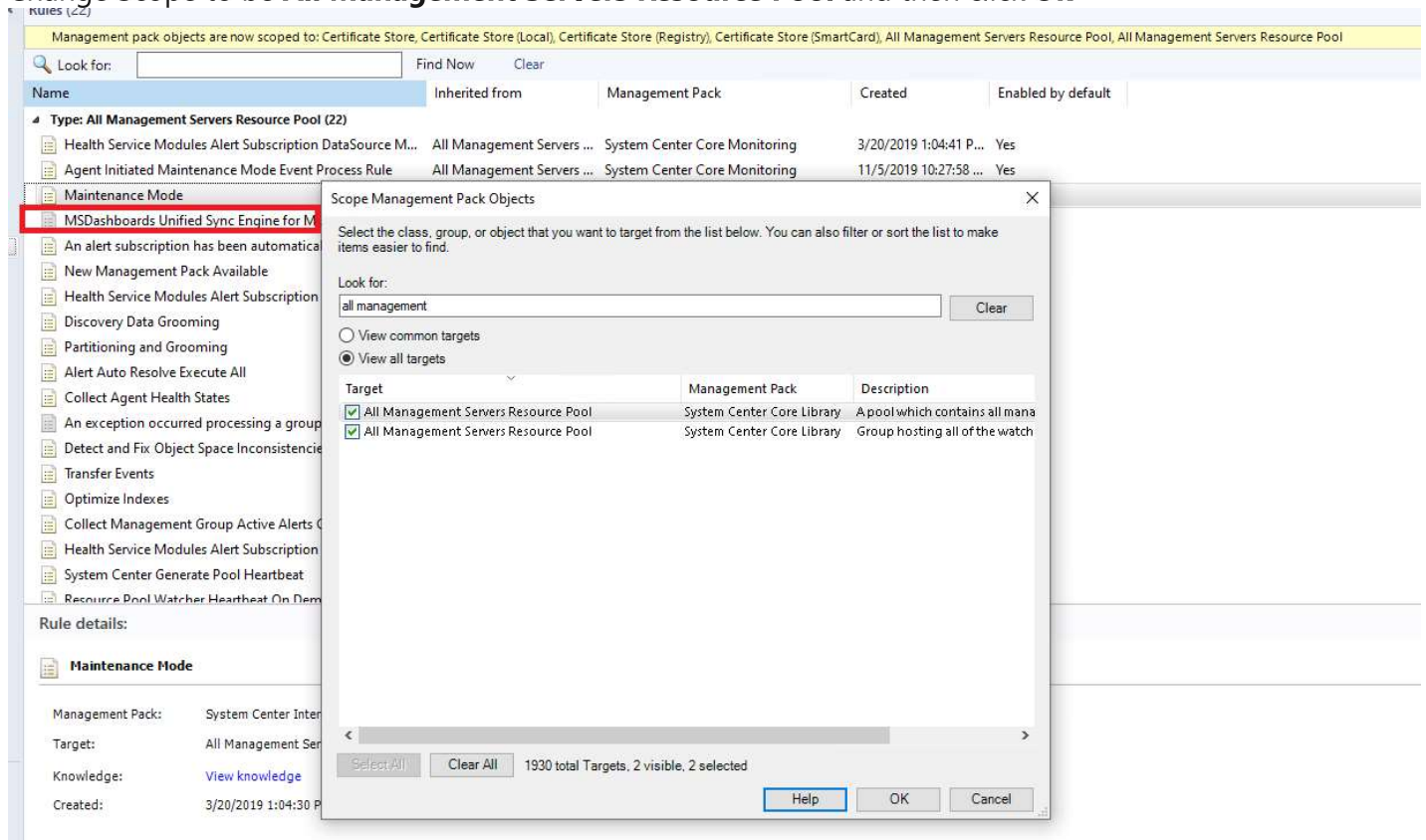
### Step 2: Modify Sync Rule

Enterprise Dashboards sync rule need to be modified to include new group created. the sync rule later, will start populating group members state information to EnterpriseDashbaord Database. follow below steps to add group to Sync Rule

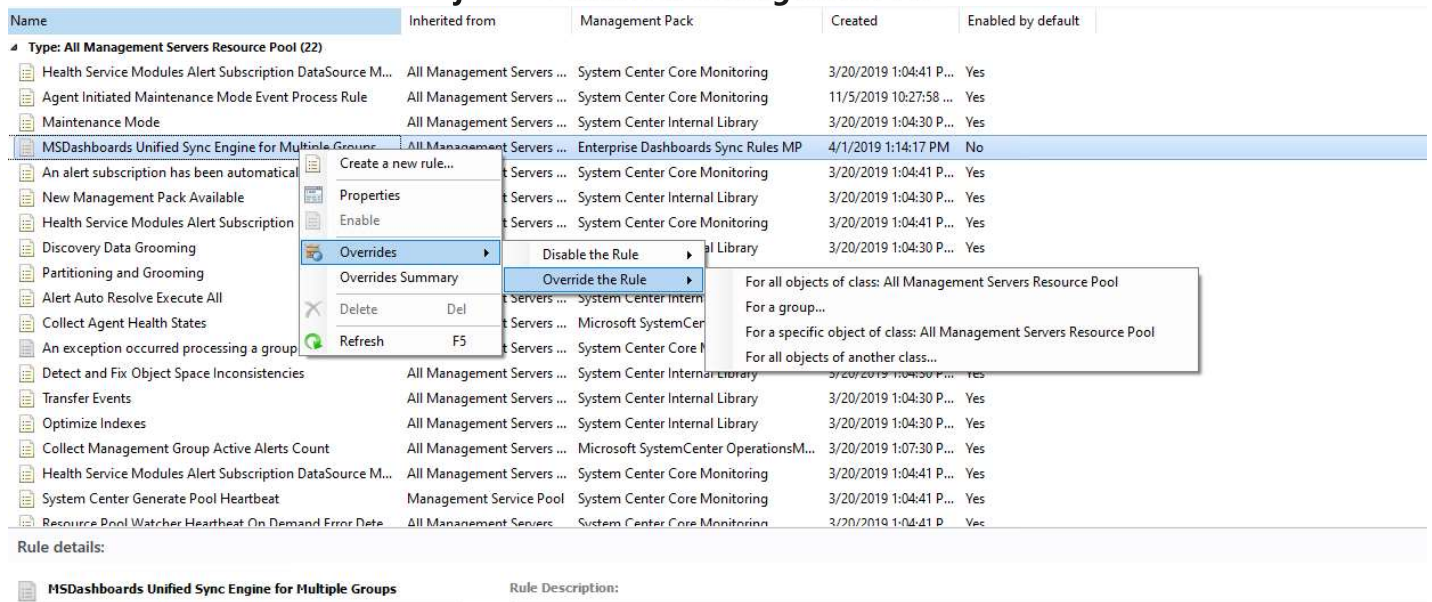
1. Open SCOM Console, browse to **Authoring** Tab and **select Management Pack Objects --> Rules**



## 2. Change Scope to be **All Management Servers Resource Pool** and then click **Ok**



## 3. Right click on **MSDashboards Unified Sync Engine for Multiple Groups** and select **Overrides** --> **Override the Rule** --> **For All objects of class: All Management Servers Resource Pool**



## 4. In Override Rule properties, Ensure the following overrides enabled:

- Enabled** = True
- GroupList** includes "SQL Dashboard Group"

## c. **SQLServer** = <SQL Instance hosting EnterpriseDashboards Database>

Override Properties

Rule name:MSDDashboards Unified Sync Engine for Multiple Groups

Category:Custom

Overrides target:Class: All Management Servers Resource Pool

Show Rule Properties...

Override-controlled parameters:

	Override	Parameter Name	Parameter Type	Default Value	Override Value	Effective Value	Change Status	Enforced
	<input checked="" type="checkbox"/>	Enabled	Boolean	False	True	True	[No change]	<input type="checkbox"/>
	<input type="checkbox"/>	GetAlerts	Boolean	True	True	True	[No change]	<input type="checkbox"/>
	<input type="checkbox"/>	GetMonitorTree	Boolean	False	False	False	[No change]	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	GroupList	String	Group 1;Gro...	Windows Dashboard Group;AD Dashboard Group;OpsMgr Dashboard Group;EX Dashboard Group;SQL Dashboard Group;PKI Dashboard ...	Windows Das...	[No change]	<input type="checkbox"/>
	<input type="checkbox"/>	Interval Seconds	Integer	300	300	300	[No change]	<input type="checkbox"/>
	<input type="checkbox"/>	Logging	Boolean	False	False	False	[No change]	<input type="checkbox"/>
	<input type="checkbox"/>	Mode	String	Rule	Rule	Rule	[No change]	<input type="checkbox"/>
	<input type="checkbox"/>	SQLDBName	String	EnterpriseD...	EnterpriseDashboards	EnterpriseDas...	[No change]	<input type="checkbox"/>

Details:

Enabled

The custom override for this parameter is defined in 'Enterprise Dashboards - Overrides'.  
  
The effective value is set:  
- as a preferred value  
- on the current target  
- by the custom override in 'Enterprise Dashboards - Overrides'  
Last modified: 11/5/2019 4:15:22 AM

Description

Management pack

Select destination management pack:  
<Select Management Pack>

Help

OKApplyCancel

5. Click on **Ok**

## Step 3: Confirm Group populates information to EnterpriseDashboard Database

- Using SQL Management Studio, Open EnterpriseDashboard Database and exand Tables.
- Check if SQLDashboardGroup\_Statedata table is created.
- Right click on the table and click on Select Top 1000 Rows, confirm results.

connect - SQL Server 13.0.5292.0 - DAMATIMAN\omAdmin

Databases

System Databases

Database Snapshots

EnterpriseDashboards

Database Diagrams

Tables

System Tables

FileTables

External Tables

dbo.ADDashboardGroup\_Alerts

dbo.ADDashboardGroup\_Monitordata

dbo.ADDashboardGroup\_Statedata

dbo.OpsMgrDashboardGroup\_Alerts

dbo.OpsMgrDashboardGroup\_Monitordata

dbo.OpsMgrDashboardGroup\_Statedata

dbo.PKIDashboardGroup\_Alerts

dbo.PKIDashboardGroup\_Monitordata

dbo.PKIDashboardGroup\_Statedata

dbo.SQLDashboardGroup\_Alerts

dbo.SQLDashboardGroup\_Monitordata

dbo.SQLDashboardGroup\_Statedata

dbo.WindowsDashboardGroup\_Alerts

dbo.WindowsDashboardGroup\_Statedata

Views

External Resources

Synonyms

Programmability

Service Broker

Storage

Security

OperationsManager

OperationsManagerAC

OperationsManagerDW

ReportServer\_PBI

ReportServer\_PBIReport

ReportServer\_PBIReportTempDB

ReportServer\_PBITempDB

ReportServer\_SCD

Script for SelectTopNRows command from SSMS

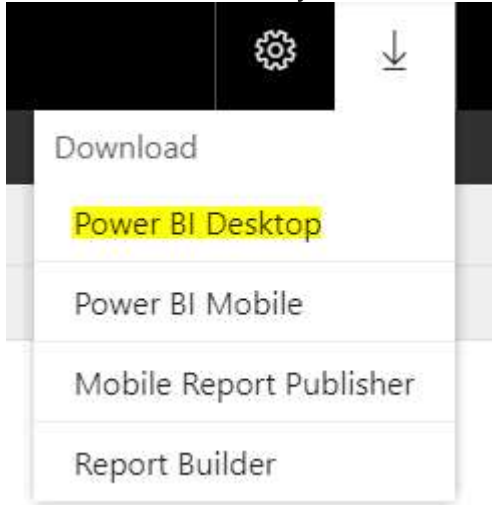
SELECT TOP (1000) [ID]  
    ,[Name]  
    ,[Path]  
    ,[Fullname]  
    ,[Classname]  
    ,[FinalClassname]  
    ,[HealthState]  
    ,[AvailabilityLastModified]  
    ,[synctime]  
FROM [EnterpriseDashboards].[dbo].[SQLDashboardGroup\_Statedata]

Results

	ID	Name	Path	Fullname
1	b3960836-992a-b952-54f8-006fc3f1387	ReportServer_PBI	DamatiSQL.DamatiMan.com.SCOM	Microsoft.SC
2	a9b94db4-c789-47c0-1db1-0573232be0aa	msdb	DamatiCM.DamatiMan.com.SCCM	Microsoft.SC
3	9d3b9be9-4c0f-f0a2-c5be-05c81562885f	EnterpriseDashboards	DamatiSQL.DamatiMan.com.SCOM	Microsoft.SC
4	f38c16e6b5f1-2884-9156-063cc5e495eb	726C9882-FEAC-495D-AAAA-BCF55D129E3A	DamatiSQL.DamatiMan.com.SCOM	Microsoft.SC
5	a1e6d956-8a18-2006-176c-06c11fadf8f6	E7BE00A9-6D8C-4A9A-AAC1-B9EB34FF2FF3	DamatiSQL.DamatiMan.com.SCOM	Microsoft.SC
6	0172f59a-4d1e-1d76-60a8-06cc0bc8e872	tempdb	DamatiSMSQL.DamatiMan.com.SCSM	Microsoft.SC
7	f892d09-dfb8-b7d9-18c8-07232942f0dd	Creson Delete Aged Work Items	DamatiSMSQL.DamatiMan.com.SCSM	Microsoft.SC
8	936f2297-7b1b-7a4b-022c-0771a0edf90e	PRIMARY	DamatiSMSQL.DamatiMan.com.SCSMtempdb	Microsoft.SC
9	3579bc02-9e15-1cc2-1140-0b0b3a5998e0	SCOMReportServerTempDB	DamatiSQL.DamatiMan.com.SCOM	Microsoft.SC
10	2e230a9d-01fb-a553-85c9-0b19fd32747b	5C811811-6332-4AFE-B39E-EEAF4F583FB2	DamatiSQL.DamatiMan.com.SCOM	Microsoft.SC
11	6b93f3ec-20fe-87cf-c965-0b63f847aac0	E8643ADB-87AB-411D-B775-AF7135342FOC	DamatiSQL.DamatiMan.com.SCOM	Microsoft.SC
12	43dfbc2c-438b-abfe-9b7b-0b66b43d32a0	SQL Server Agent (ORCH)	DamatiSMSQL.DamatiMan.com.ORCH	Microsoft.SC

## Step 4: Import Dashboard Template File

Following steps need to be applied on your desktop or Report server. make sure you have Power BI desktop installed (RS Version). you can download it from Power BI Report Server if you have required permissions.



1. Download SQL Server Dashboard Power BI Template  
[SQL Server Dashboard.zip](#)
2. Open Template file
3. Insert required parameters then click Loadnotes

×

## Windows Servers Dashboard

System Center Enterprise Dashbaords - Windows Server Core OS

SCED\_Server ⓘ

SCED\_DB ⓘ

OMDW\_Server ⓘ

OMDW\_DB ⓘ

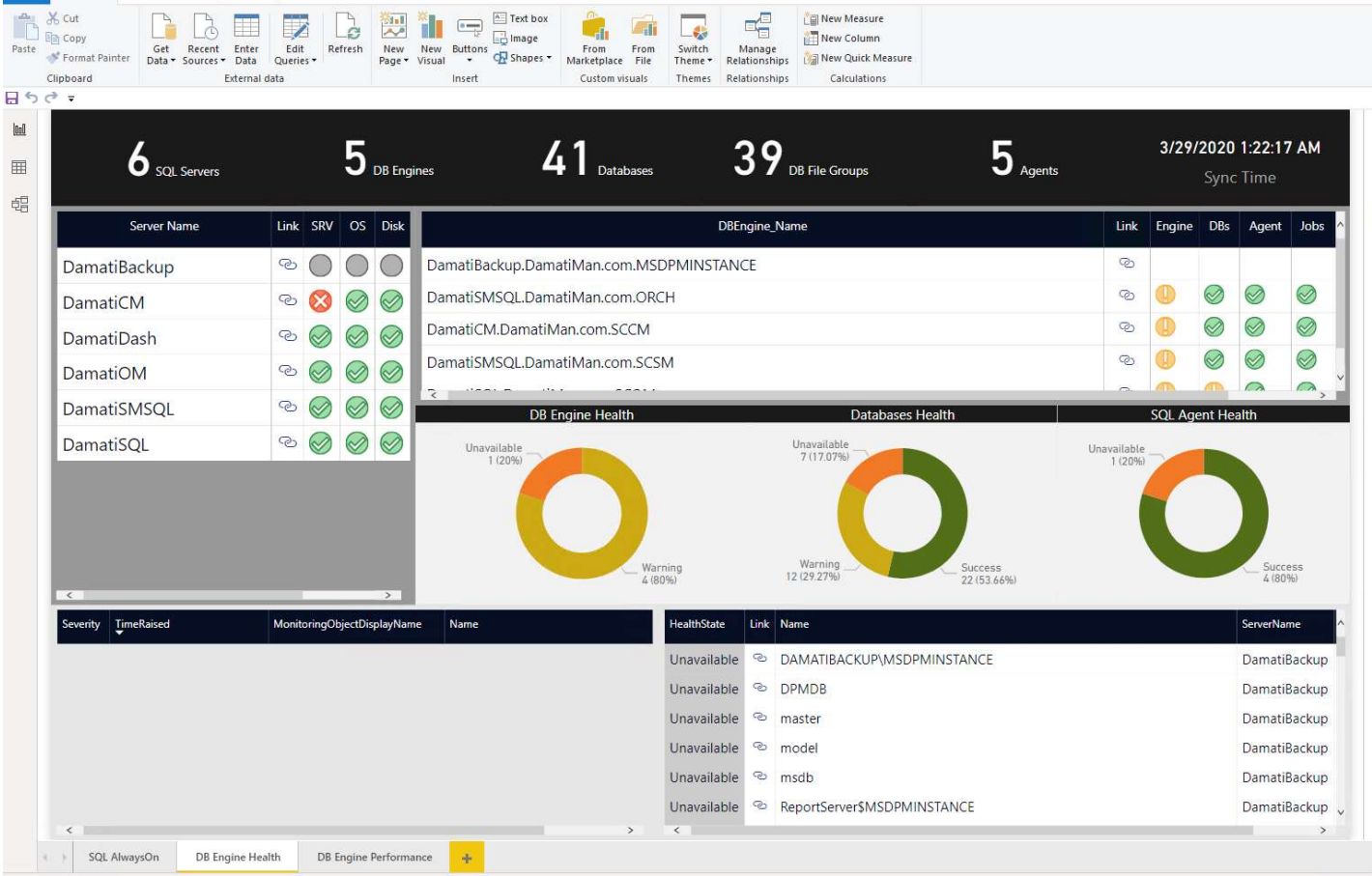
Language

SCOM\_WebConsole ⓘ

Load

Cancel

- Dashboard will start connecting to Operations Manager Databases and load required information to build visualizations
- Finally, you will have the dashboard running

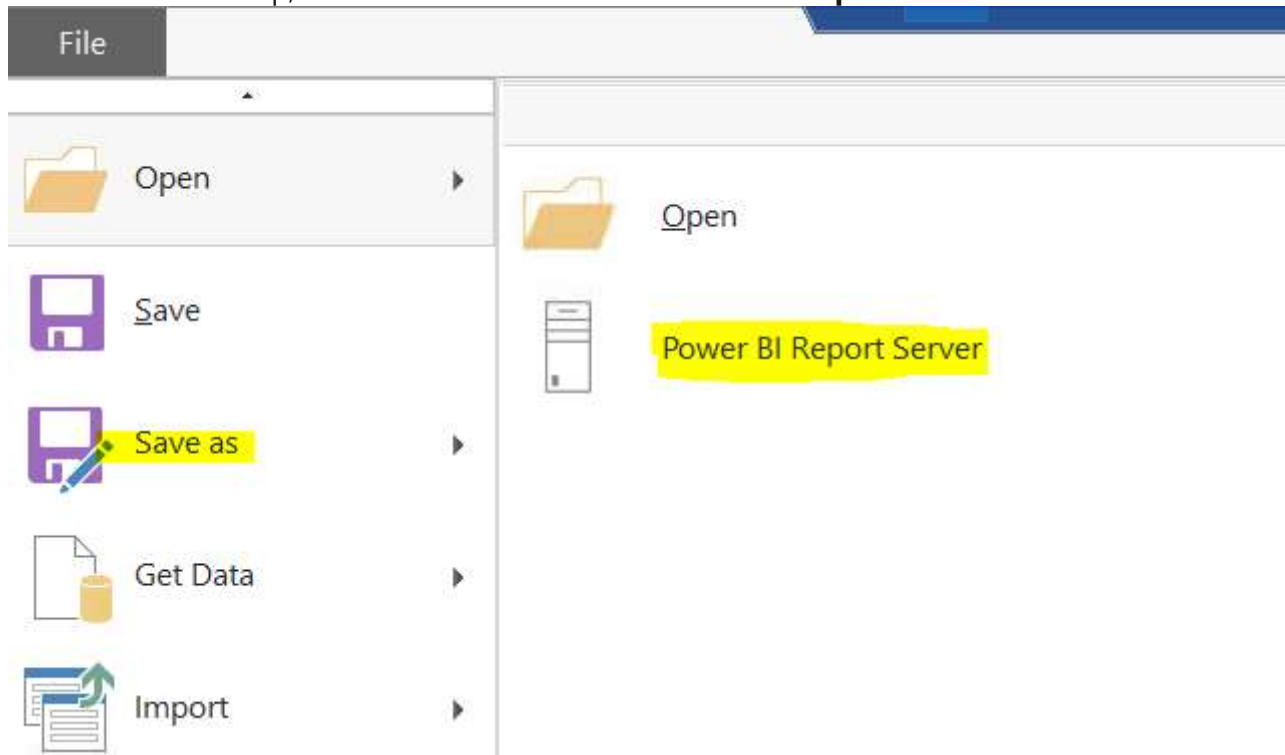


### Step 5: Save Dashboard to Power BI Report Server

Once the dashboard is ready to be published, follow below steps.



1. On Power BI Desktop, select **File** --> **Save As** --> **Power BI Report Server**



2. Select or Type in Power BI Report Server Name and click **Ok**

×

## Power BI Report Server Selection

Choose the report server you would like to open your report from. You can select from the recent report server list or enter a new report server address.

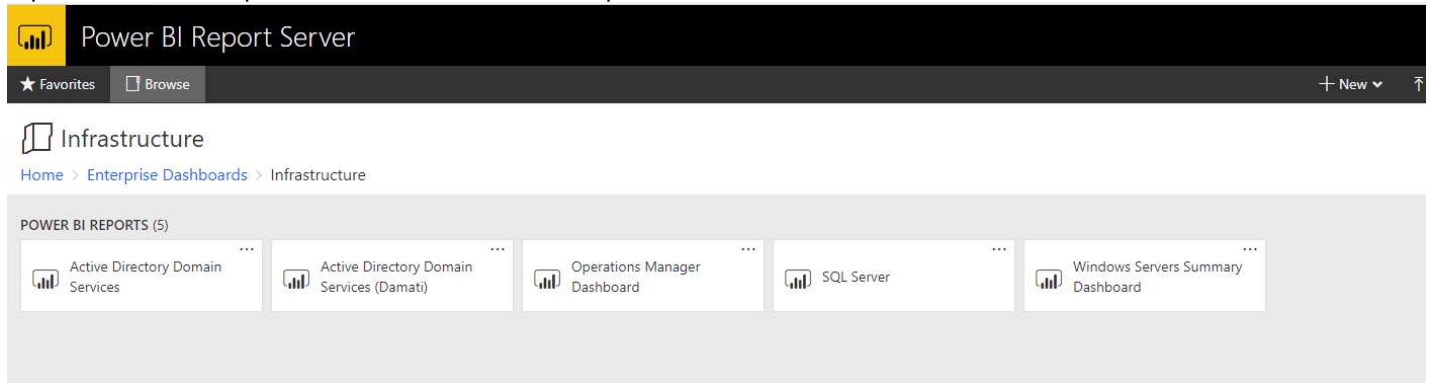
Recent report servers

New report server address (Example: <http://reportserver/reports> or <https://reportserver/reports>)

OK

Cancel

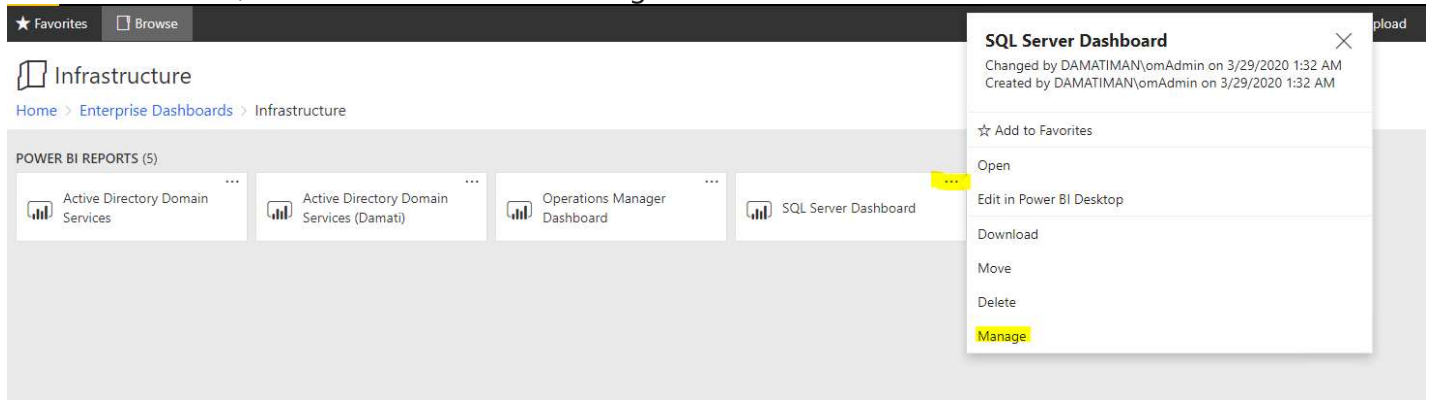
### 3. Open Power BI Report Server URL and Select published Dashboard



### Step 6: Configure Data Source Settings

Data Sources does not have the real time information as it need to be configured after we published the dashboards. to do that, follow below steps:

- 1. On Power BI Report Server Web URL, Browse to Dashboard file location [DON'T OPEN IT].
- 2. On the file corner, click on "... " and select Manage



- 3. In Manage Tab, Select Data Sources

4. Type required credentials to connect to EnterpriseDashboards DB and click Test to verify connectivity

Properties

**Data sources**

Scheduled refresh

Row-level security

**Security**

**Data Source 1:**

**Connection**

Type

SQL

Connection string [Learn more](#)

damatisql\scom;EnterpriseDashboards

**Credentials**

Log into the data source

Authentication Type

Windows Authentication


User name

daMATImAN\OMaDMIN

Password

.....

**Test connection**

 Connected successfully

5. scroll down and do the same for OperationsManagerDW Database.

**Data Source 2:**

**Connection**

Type: SQL

Connection string: [Learn more](#)  
damatisql\scom;OperationsManagerDW

**Credentials**

Log into the data source

Authentication Type: Windows Authentication

User name: daMATImAN\OMaDMIN

Password: .....

**Test connection** Connected successfully

**Save** **Cancel**

6. Confirm Test Connection is successful and click **Save**