

SSRS Installation and Configuration Basics

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Agenda

SSRS 2016 Installation

SSRS 2016 Configuration

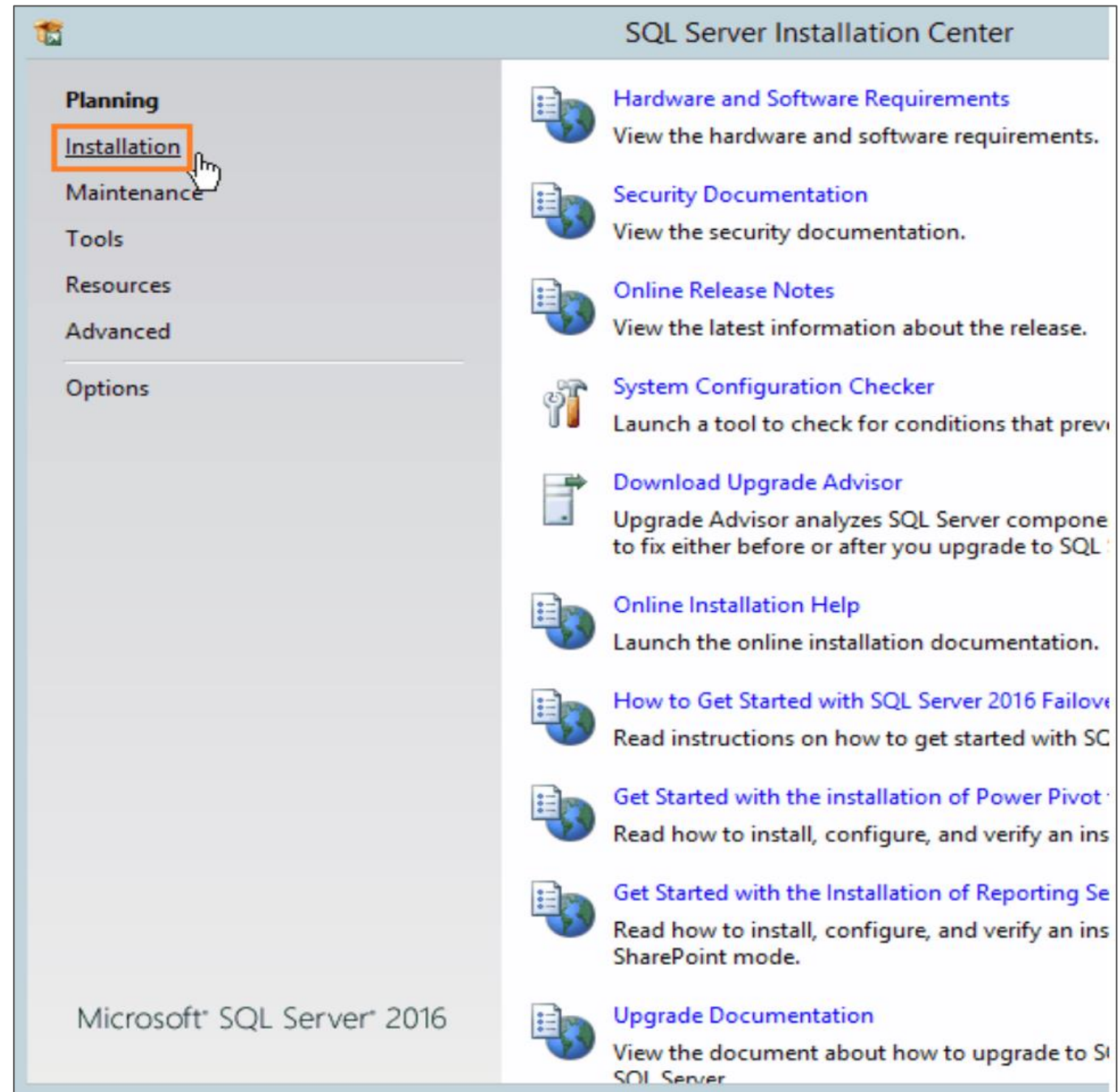
Configuration with External Catalogs

SSRS 2016 Scale-Out Deployment

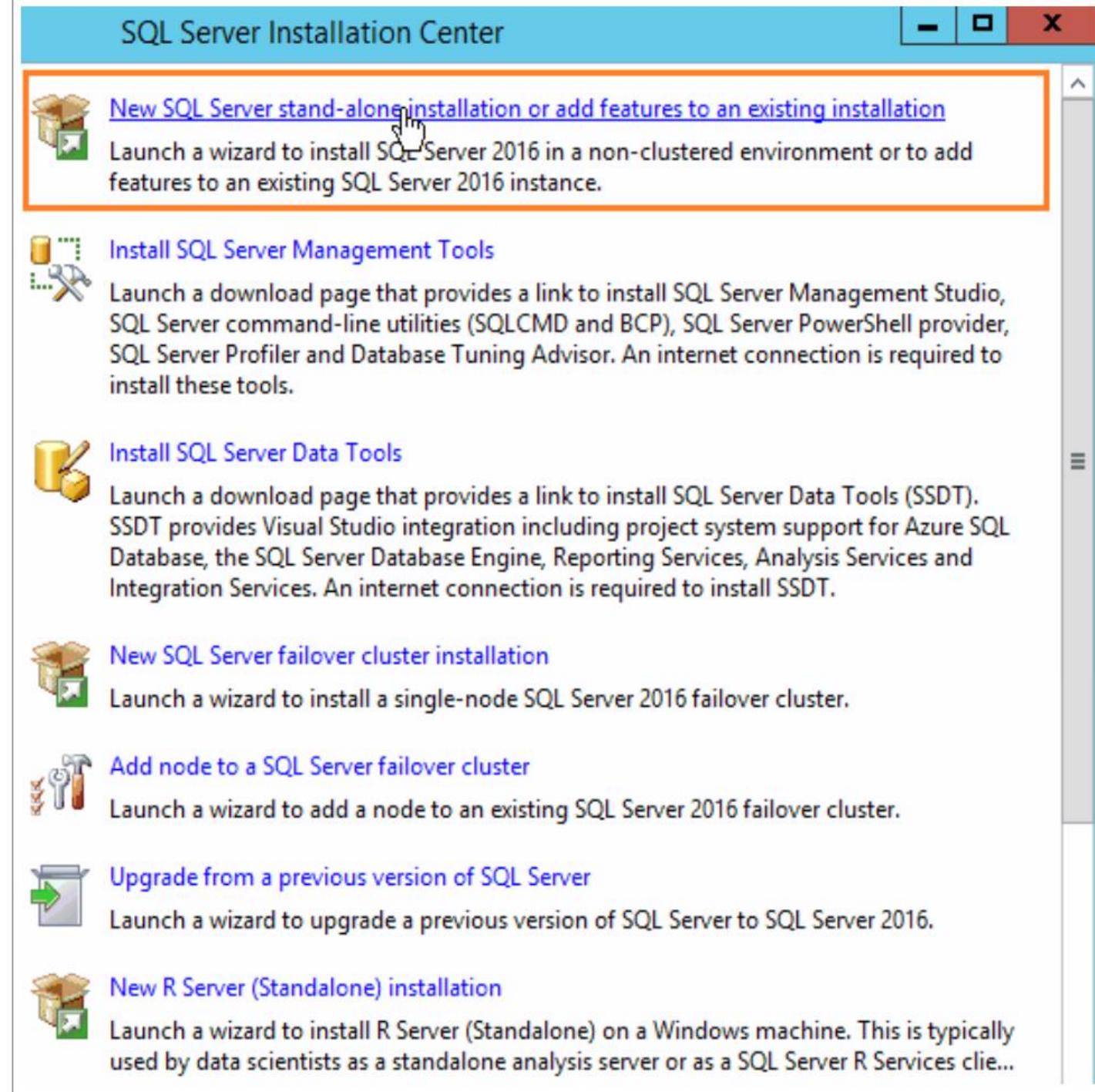


SSRS 2016 Installation

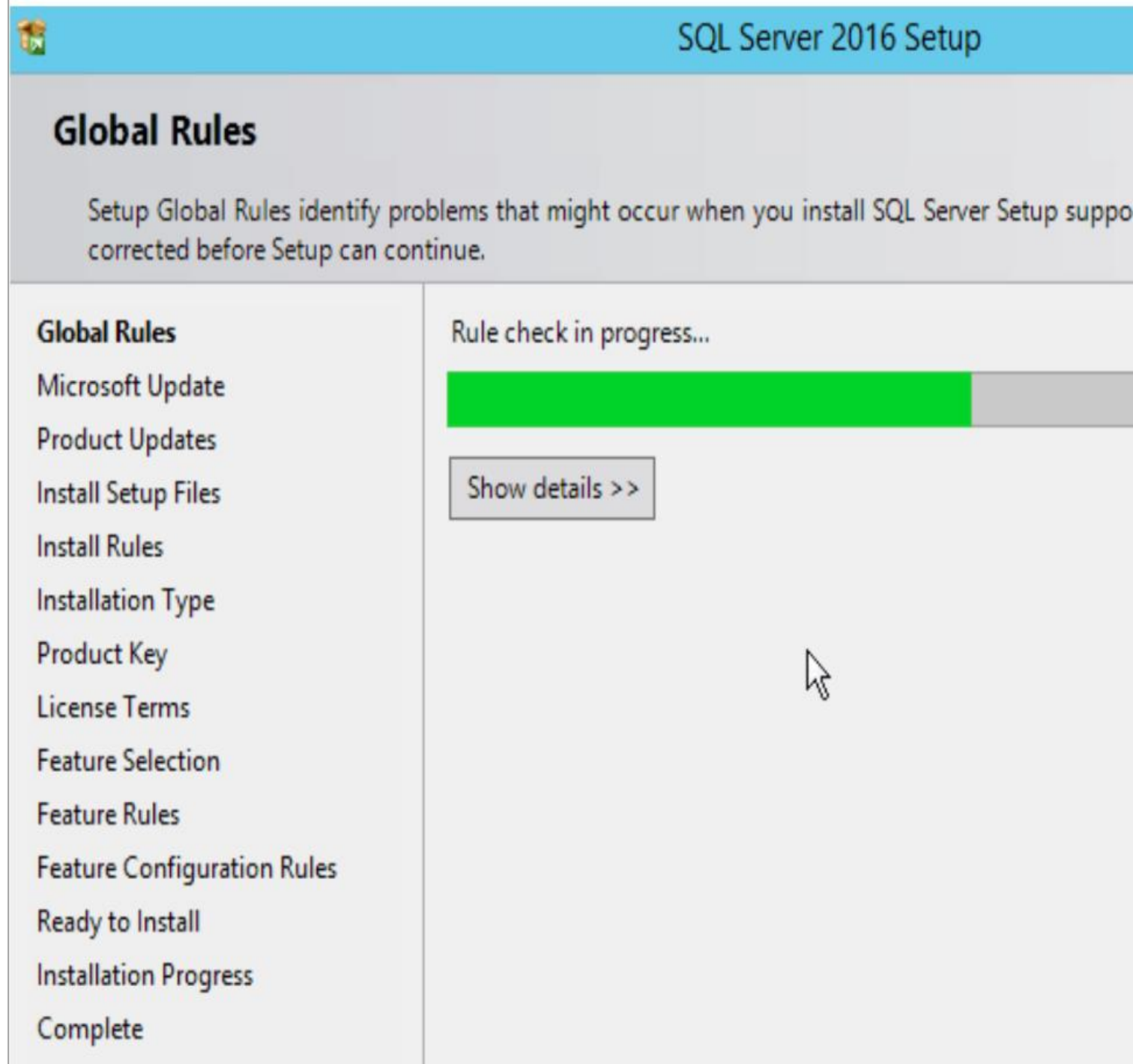
Start Installation from SQL Server Setup Media



Add features to existing Installation or New SQL Server Installation



Global Rules



Include Microsoft security and other important updates if internet connection



Setup potential problem identification

SQL Server 2016 Setup

Install Rules

Setup rules identify potential problems that might occur while running Setup. Failures must be resolved before Setup can continue.

Global Rules

Microsoft Update

Product Updates

Install Setup Files

Install Rules

Installation Type

Product Key

License Terms

Feature Selection

Feature Rules

Feature Configuration Rules

Ready to Install

Installation Progress

Complete

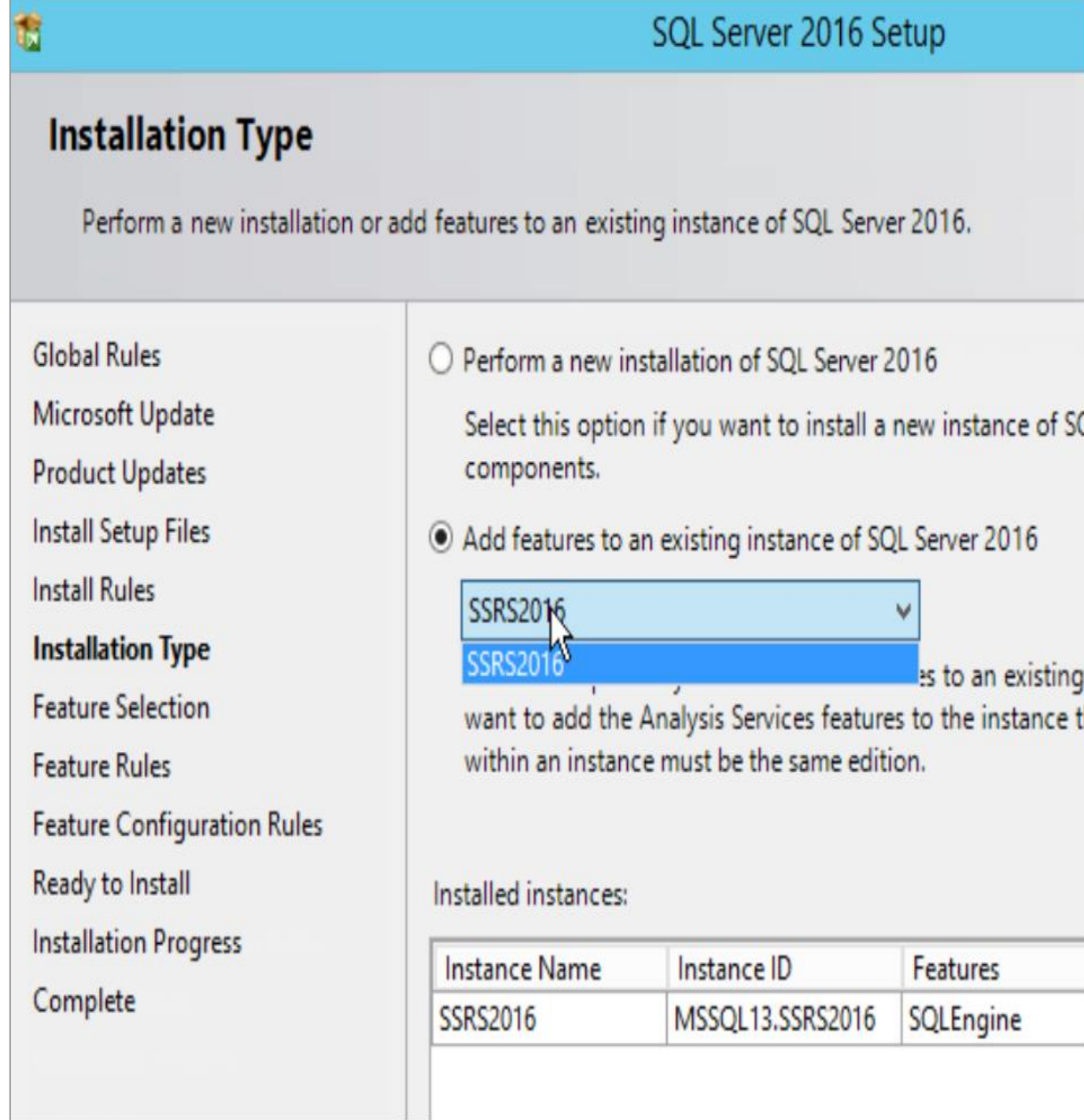
Operation completed. Passed: 3. Failed 0. Warning 2. Skipped 0.

Hide details <<

[View detailed report](#)

	Rule	Status
✓	Fusion Active Template Library (ATL)	Passed
✓	Consistency validation for SQL Server registry keys	Passed
✓	Computer domain controller	Passed
⚠	Microsoft .NET Application Security	Warning
⚠	Windows Firewall	Warning

Installation type



SQL Server 2016 Setup

Installation Type

Perform a new installation or add features to an existing instance of SQL Server 2016.

- ☐ Perform a new installation of SQL Server 2016
Select this option if you want to install a new instance of SQL Server 2016 components.
- ☒ Add features to an existing instance of SQL Server 2016
Select this option if you want to add the Analysis Services features to the instance that already exists. The edition of the instance to which you want to add the Analysis Services features to the instance that already exists within an instance must be the same edition.

Installed instances:

Instance Name	Instance ID	Features
SSRS2016	MSSQL13.SSRS2016	SQLEngine

Reporting Service Configuration

SQL Server 2016 Setup

Reporting Services Configuration

Specify the Reporting Services configuration mode.

Global Rules

Microsoft Update

Product Updates

Install Setup Files

Install Rules

Installation Type

Feature Selection

Feature Rules

Server Configuration

Reporting Services Configura...

Feature Configuration Rules

Ready to Install

Installation Progress

Complete

Reporting Services Native Mode

☐ Install and configure.

Installs and configures the report server in native mode. After setup completes.

☒ Install only.

Installs the report server files. After installation, use Reporting Services Configuration Manager to configure the report server for native mode.

Reporting Services SharePoint Integrated Mode

☐ Install only.

Installs the report server files. After installation use SharePoint to complete the configuration. Verify the SQL Server Reporting Services create at least one SQL Server Reporting Services service. If you need help, click Help.

Configuration.ini file

Ready to install SQL Server 2016:

[-] Summary

- ... Edition: Enterprise Edition: Core-based Licensing
- ... Action: Install (Product Update)

[-] Prerequisites

- [-] Already installed:
 - ... Microsoft Visual Studio 2010 Redistributables
 - ... Microsoft .NET Framework 4.0

[-] General Configuration

- [-] Features
 - ... Reporting Services - Native
- [-] Instance configuration
 - ... Instance Name: SSRS2016
 - ... Instance ID: SSRS2016
- [-] Instance IDs
 - ... Reporting Services: MSRS13.SSRS2016
- ... Instance Directory: C:\Program Files\Microsoft SQL Server

[-] Shared component root directory

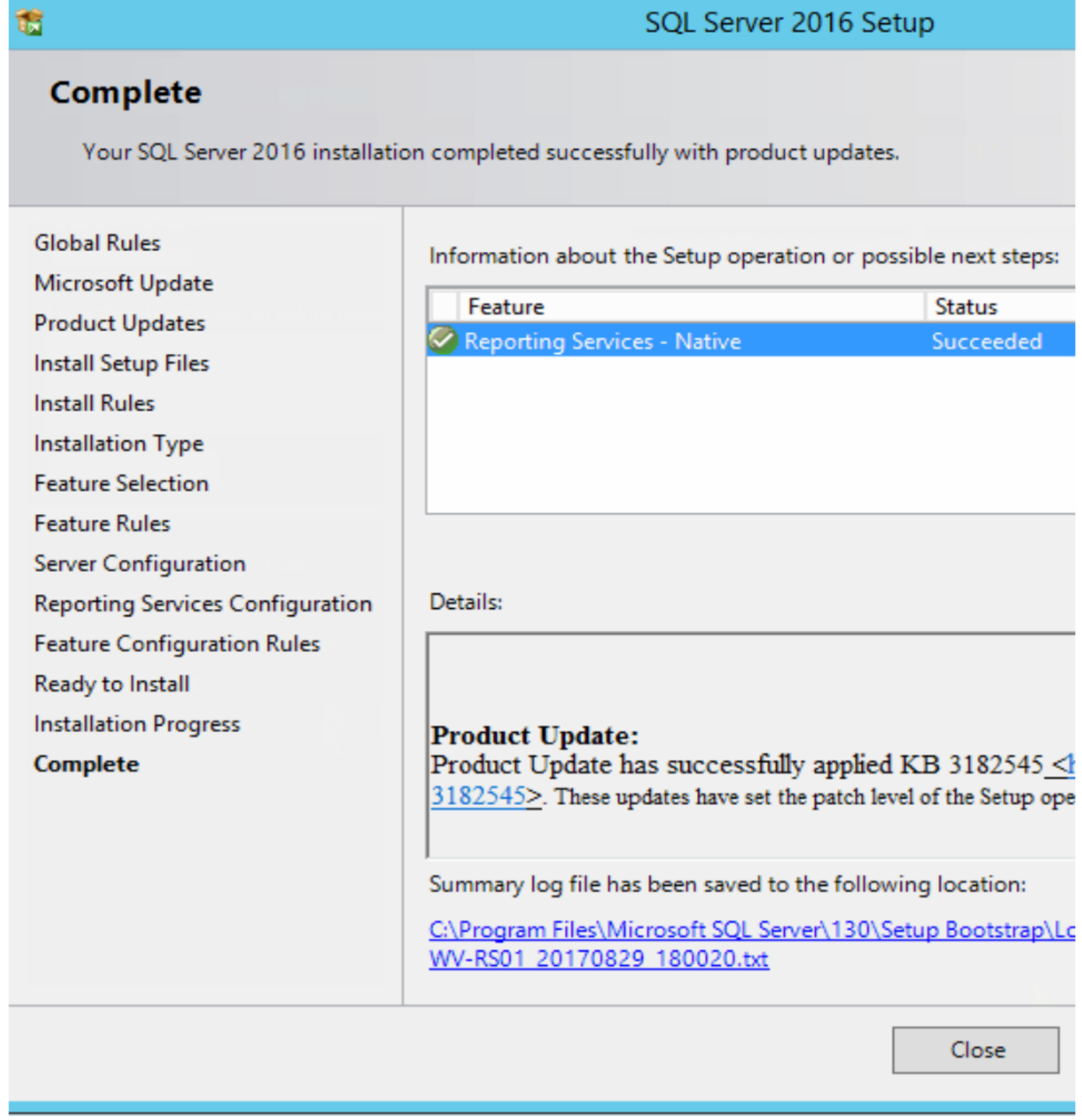
- ... Shared feature directory: C:\Program Files\Microsoft SQL Server\
- ... Shared feature (AMOM64) directory: C:\Program Files (x86)\Microsoft SQL Server\

Configuration file path:

C:\Program Files\Microsoft SQL Server\130\Setup Bootstrap\Log\20170829_180020\Configura

< Back Install Cancel

Installation completed

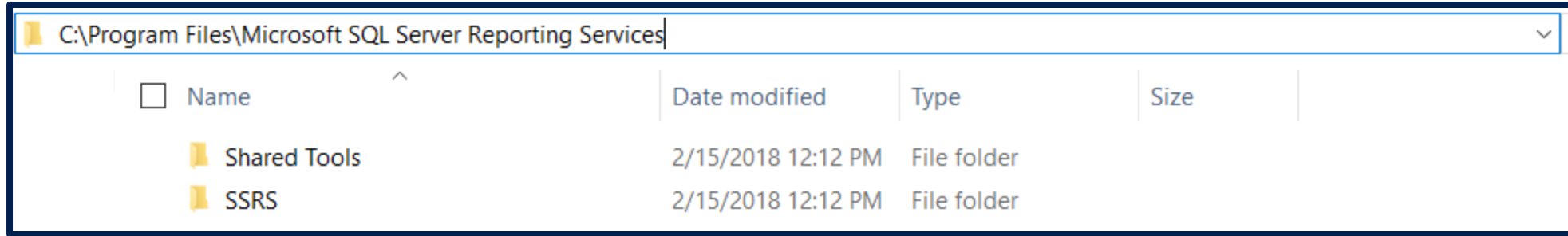


Setup Logs

- Setup log files for SSRS are under %temp%\..\SSRS.
- Timestamps are appended to the log file names.
- All install actions (including uninstall) will create their corresponding log files

Installation path and Registry keys

Default path and folders



Main registry keys is under **HKLM\SOFTWARE**

- Microsoft\Microsoft SQL Server\SSRS\MSSQLServer\CurrentVersion
- Microsoft\Microsoft SQL Server\SSRS\MSSQLServer\CurrentVersion
- Microsoft\Microsoft SQL Server\SSRS\MSSQLServer
- Microsoft\Microsoft SQL Server\SSRS\Setup
- Microsoft\Microsoft SQL Server\SSRS
- Microsoft\Microsoft SQL Server\Instance Names\RS\SSRS

SSRS 2016 Configuration

Once Installation of SSRS is completed open SSR, configuration manager to configure reporting service

Search

Everywhere ▾

Services Configuration Manager



Reporting Services Configuration
Manager

Connect To SQL server Reporting Service

Reporting Services Configuration Connection

X

SQL Server 2016
Reporting Services

Please specify a server name, click the Find button, and select a report server instance to configure.

Server Name:

S01

Find

Report Server Instance:

SSRS2016

▼

?

Connect

Cancel

*Review Reporting Service
and check installed edition*

SQL Server 2016
Reporting Services Configuration Manager

Connect

S01\SSRS2016

Service Account

Web Service URL

Database

Web Portal URL

E-mail Settings

Execution Account

Encryption Keys

Report Server Status

Use the Reporting Services Configuration Manager. If you installed Reporting Services in database, and the Report Manager URL.

Current Report Server

SQL Server Instance:SSRS2016

Instance ID:MSRS13.SSRS2016

Edition:Enterprise Edition: Co

Product Version:13.0.4601.0

Report Server Database Name:

Report Server Mode:

Report Service Status:Started

Start

Stop

*Under service account set the account that will run your reporting service.
Choose a domain account as best practice*

SQL Server 2016
Reporting Services Configuration Manager

Connect

1\SSRS2016

Service Account

Web Service URL

Database

Web Portal URL

E-mail Settings

Execution Account

Service Account

Specify a built-in account or Windows domain

Report Server Service Account

Choose an option to set the service account and then click

☐ Use built-in account:

Network Service

☒ Use another account:

Account (Domain\user):

1\SSRS2016

Password:

*Go first to the "**Database**" section to configure the database that holds the all report server content and application data*

Note: in case you have deleted a report in reporting service, you can't restore it! the available options are :

- you have a copy of the deleted report on your local machine so you can upload it again.
- you have a backup from the report database so you can restore it

SQL Server 2016 Reporting Services Configuration Manager

Connect

01\SSRS2016

Service Account


Web Service URL

Database

Web Portal URL

E-mail Settings

Report Server Database



Reporting Services stores all report server content and application data. You can change the report server database or update the database schema.

Current Report Server Database

Click Change database to select a different database or update the database schema.

SQL Server Name:
Database Name:
Report Server Mode:

Change Database

Create New Database

Enter correct database server .

Set the authentication type as (Integrated User or SQL Server account).

Note: this account must have permission to connect to the database server.


Provide the correct account credentials.

Report Server Database Configuration Wizard

Change Database

Choose whether to create or configure a report server database.

Action	Select one of the following options to create an empty report server database or an existing report server database that has content you want to use.
Database Server	
Database	
Credentials	Select a task from the following list:
Summary	<input checked="" type="radio"/> Create a new report server database.
Progress and Finish	<input type="radio"/> Choose an existing report server database.

PreviousNextCancel

Create New Database

Enter correct database server .

Set the authentication type as (Integrated User or SQL Server account).

Note: *this account must have permission to connect to the database server.*

Provide the correct account credentials.

Report Server Database Configuration Wizard

Change Database

Choose whether to create or configure a report server database.

Action

Database Server

Database

Credentials

Summary

Progress and Finish

Choose a local or remote instance of a SQL Server Database Engine and credentials that have permission to connect to that server.


Connect to the Database Server:

Server Name:

Authentication Type:

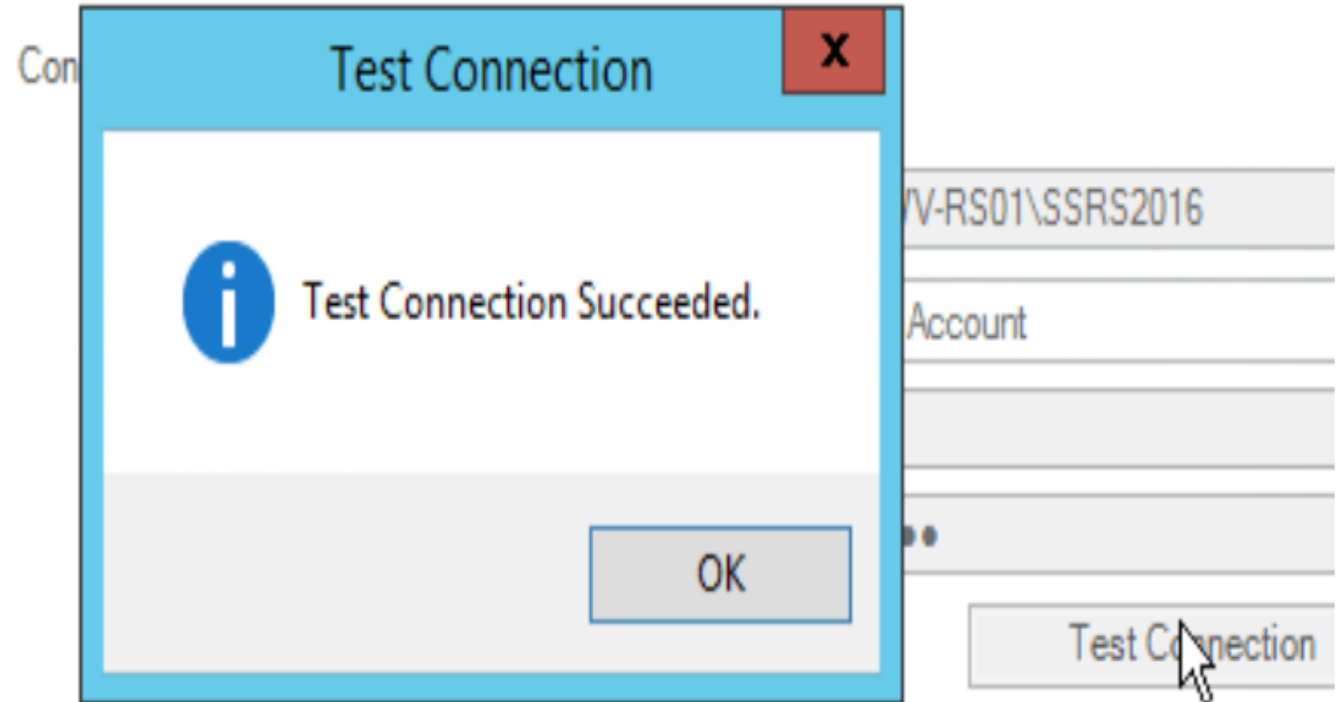
Username:

Password:



Test Connections

Choose a local or remote instance of a SQL Server Database Engine and specify credentials that have permission to connect to that server.



Specify preferred database name

Report Server Database Configuration Wizard

Change Database

Choose whether to create or configure a report server database.

Action

Database Server

Database

Credentials

Summary

Progress and Finish

Enter a database name, select the language to use for running SQL, and choose whether to create the database in native or SharePoint mode.

Database Name:

ReportServer

Temp Database Name:


ReportServerTemp

Language:

English (United States)

Report Server Mode:

Native



Previous

Next

Cancel

Specify credentials of existing accounts

Report Server Database Configuration Wizard

Change Database

Choose whether to create or configure a report server database.

Action

Database Server

Database

Credentials

Summary

Progress and Finish

Specify the credentials of an existing account that the report server will use to access the report server database. Permission to access the report server database will be automatically granted to the account you specify.

Credentials:

Authentication Type:

User name:


Password:

Service Credentials

Windows Credentials

SQL Server Credentials

Service Credentials



Previous

Next

Cancel

Verify your configurations

Report Server Database Configuration Wizard

Change Database

Choose whether to create or configure a report server database.

Action	The following information will be used to create a new report server data information is correct before you continue.
Database Server	
Database	
Credentials	
Summary	<p>SQL Server Instance: I:\SSRS2016</p> <p>Report Server Database: ReportServer</p> <p>Temp Database: ReportServerTempDB</p> <p>Report Server Language: English (United States)</p> <p>Report Server Mode: Native</p> <p>Authentication Type: Service Account</p> <p>Username: E:\SSRS2016\SSRS-DB</p> <p>Password: *****</p>
Progress and Finish	

Previous Next Cancel

Click finish

Report Server Database Configuration Wizard

Change Database

Choose whether to create or configure a report server database.

Action

Database Server

Database

Credentials

Summary

Progress and Finish

Please wait while the Report Server Database Configuration wizard database. This might take several minutes to complete.

Verifying database sku	Success
Generating database script	Success
Running database script	Success
Generating rights scripts	Success
Applying connection rights	Success
Setting DSN	Success


PreviousFinishCancel

Go back to configure the "**Report Server Web Service URL**".


Set the Report Server Web Service URL virtual directory.

Set the Report Server web service site identifications based on your requirements then click Apply.

Web Service URL



Configure a URL used to access the Report Server. Click Advanced instance, or to specify additional parameters on the URL.



Report Server Web Service is not configured. Default values have been set. Please press the Apply button, else change them and then press Apply.

Report Server Web Service Virtual Directory

Virtual Directory:

ReportServer_SSRS2016

Report Server Web Service Site identification

IP Address:

All Assigned (Recommended)

TCP Port:

80

HTTPS Certificate:

(Not Selected)

HTTPS Port:

Report Server Web Service URLs

URLs:

http://f... .. 1:80/ReportServer_S...

Results

Apply

Exit

Test your reports Server

Test the Report Server Web Service URL that should be now browsed properly.

/ReportServer_SSRS



Microsoft SQL Server Reporting Services Version 13.0.4001.0

Go now to the "**Report Manager URL**",
specify the virtual directory as you prefer
then click Apply to configure it.

SQL Server 2016 Reporting Services Configuration Manager

Connect

I:\SSRS2016

Service Account

Web Service URL

Database

Web Portal URL

E-mail Settings

Execution Account

Encryption Keys

Subscription Settings

Scale-out Deployment

Power BI Integration

Web Portal URL

Configure a URL to access Web Portal. Click the URL.

! The Web Portal virtual directory name is not provided, and then click Apply.

Web Portal Site Identification

Virtual Directory: Reports_SSRS2016

URLs: http:// /-RS01:80/Report

<

Results

Apply

E

*Click on report URL for
Test*

SQL Server Reporting Services

★ Favorites

Browse

+

↑

□

▽

Search...

Home

Home

This folder is empty.

Web Portal URL



Configure a URL to access Web Portal. Click Advanced to define multiple URLs, the URL.

Web Portal Site Identification

Virtual Directory:

Reports

URLs:

http://

localhost:80/Reports





Go now to the "**Encryption keys**"


SQL Server 2016 Reporting Services Configuration Manager


Connect

 ..\01\SSRS2016

 Service Account

 Web Service URL


 Database


 Web Portal URL

 E-mail Settings

 Execution Account

 Encryption Keys

 Subscription Settings

 Scale-out Deployment

Encryption Keys



Reporting Services uses a symmetric key to e in the report server database. You can mana installation to another computer, you can res

Backup



Backup the key to a password protected file for emergency.

Restore

To restore the encryption key, click the Restore butt was used to protect the encryption key file.

Change

This operation replaces the encryption key with a ne

Delete Encrypted Content

All stored connection strings, credentials, and encry deleted. After you delete this content, you must rec subscriptions used on the report server.

Take a backup of the symmetric key that used to encrypt sensitive data in the report server database like connection strings, credentials ...etc.

it will be helpful in case you migrate or move the report server installation to another server,

you can restore this key to regain access to the encrypted content

Now the SSRS 2016 is installed and configured properly

The screenshot shows the 'Encryption Keys' window in SSRS. The 'Backup' tab is selected, displaying instructions on how to manage the symmetric key used for encryption. A 'Backup Encryption Key' dialog box is open, prompting the user to specify a file location and a password for the backup.

Encryption Keys

Reporting Services uses a symmetric key to encrypt credentials, connection strings, and other sensitive data in the report server database. You can manage this key by creating a backup. If you migrate or install the report server on another computer, you can restore the key to regain access to encrypted content.

Backup

Backup Encryption Key

Specify the name and location of a file that will contain the copy of the key. You must specify a password that is used to lock and unlock the file.

File Location: C:\Users\mqassas\Documents\BackupKey.snk ...

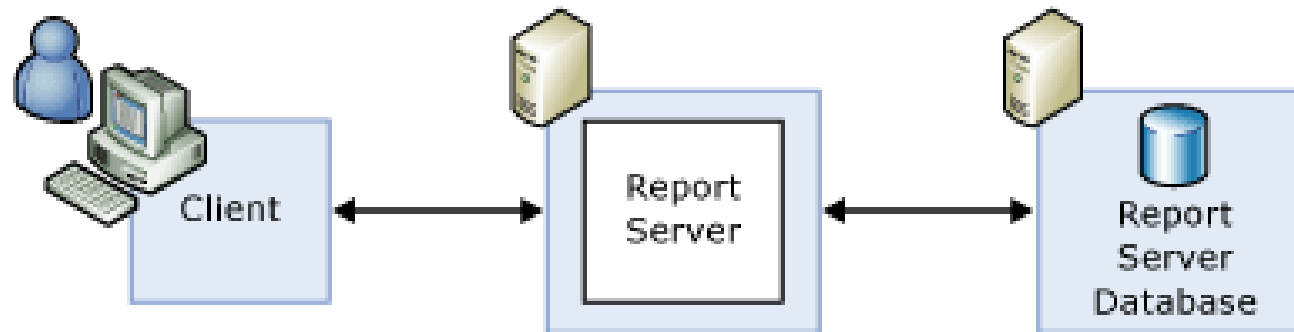
Password:

Confirm Password:

Buttons: Backup, Restore, Change, Delete, OK, Cancel

Simple deployment with External catalog

- The report server instance runs on a different computer than the SQL Server Database Engine instance that hosts the report server catalog databases
- Recommended in the following circumstances:
 - For moderate report volumes and the number of concurrent sessions
 - The need for high availability
- Offers improved performance over the single server deployment



SSRS with External Catalog: Check SQL Server

- Run this query on server with Report Database
- As you can see SSRS use:
 - Kerberos as authentication protocol
 - .Net.SqlClient as connection protocol

SQLQuery1.sql - (lo...\administrator (58))*

```
select c.client_net_address, c.client_tcp_port, c.local_net_address,  
       c.local_tcp_port, c.auth_scheme, s.client_interface_name,  
       s.login_name, s.nt_user_name, s.original_login_name,  
       DB_NAME(s.database_id) as dbname  
from sys.dm_exec_connections c  
join sys.dm_exec_sessions s  
on c.session_id=s.session_id  
where c.client_net_address = '192.168.1.21'
```

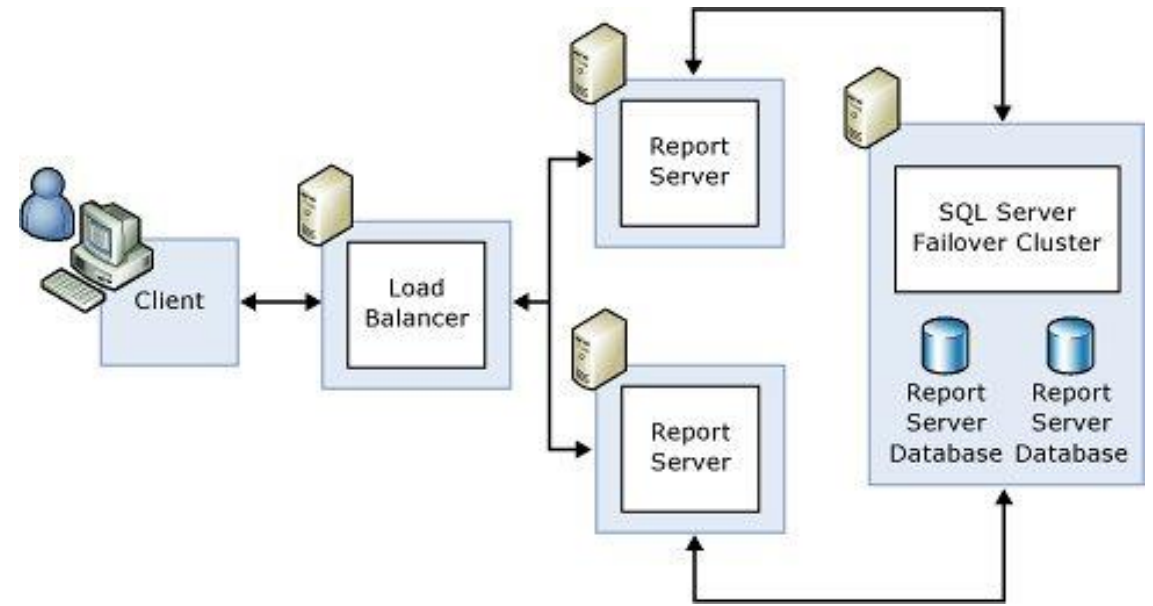
100 %

Results Messages

	client_net_address	client_tcp_port	local_net_address	local_tcp_port	auth_scheme	client_interface_name	login_name	nt_user_name	original_login_name	dbname
1	192.168.1.21	52342	192.168.1.22	1433	KERBEROS	.Net SqlClient Data Provider	DEMO\SSAS2017-SRV\$	SSAS2017-SRV\$	DEMO\SSAS2017-SRV\$	ReportServer
2	192.168.1.21	52182	192.168.1.22	1433	KERBEROS	.Net SqlClient Data Provider	DEMO\SSAS2017-SRV\$	SSAS2017-SRV\$	DEMO\SSAS2017-SRV\$	ReportServer
3	192.168.1.21	52414	192.168.1.22	1433	KERBEROS	.Net SqlClient Data Provider	DEMO\SSAS2017-SRV\$	SSAS2017-SRV\$	DEMO\SSAS2017-SRV\$	ReportServer

Scale-out deployment with High availability

- The report Server instance runs on the different computer with the database engine that hosts the Report Server catalog (ReportServer and ReportServerTempDB).
- In this configuration you may use Network Load Balancer for SSRS
- Recommended in the following circumstances:
 - You need high availability and/or load balancing for HTTP traffic
 - You need high availability and/or fault tolerance for data sources



Scale-out deployment: Overview

- Scale-out deployments consist of:
 - Two or more report server instances sharing a single report server database.
 - Optionally, a network load-balanced (NLB) cluster to spread interactive user load across the report server instances.
 - When deploying Reporting Services on an NLB cluster, you need to ensure the NLB virtual server name is used in the configuration of report server URLs and that servers are configured to share the same view state.
 - For High Availability Reporting Database, you can create the report server database on a Database Engine instance that is part of a failover cluster.

Scale-out Deployment: Join the next SSRS (1)

- Open the Reporting Services Configuration tool, and reconnect to the first report server instance
- Click Scale-out Deployment
- You should see two entries, one for each report server instance that is connected to the report server database

Scale-out Deployment: Join the next SSRS (2)

- The first report server should be joined (in state "Joined")
- The second report server is in state "Waiting to join"
- On the Scale-out Deployment page, select the report server instance that is waiting to join, and select Add Server
- Verify that both report server instances are operational

Demo: SSRS – Scale-out configuration



