

Document Information

Reference	PRO-180002
Title	Migrating DAS-SQL to a new SQL Server Instance
Synopsis	Beyond just installing SQL Server 2016 Express, this document guides a user through installing SQL Server 2016 Express, backing up the DAS SQL databases, detaching the databases, copying the databases to a new server / instance, re-attaching the DAS SQL databases, updating the database format then connecting a new DAS SQL instance to the databases.
Author	David Montgomery
Creation Date	2019-Jan-08

Revisions

Rev	Date	Who	Notes
001	2019-Jan-08	David Montgomery	Initial document
002	2020-Sep-28	David Montgomery	Update document title to make it more meaningful

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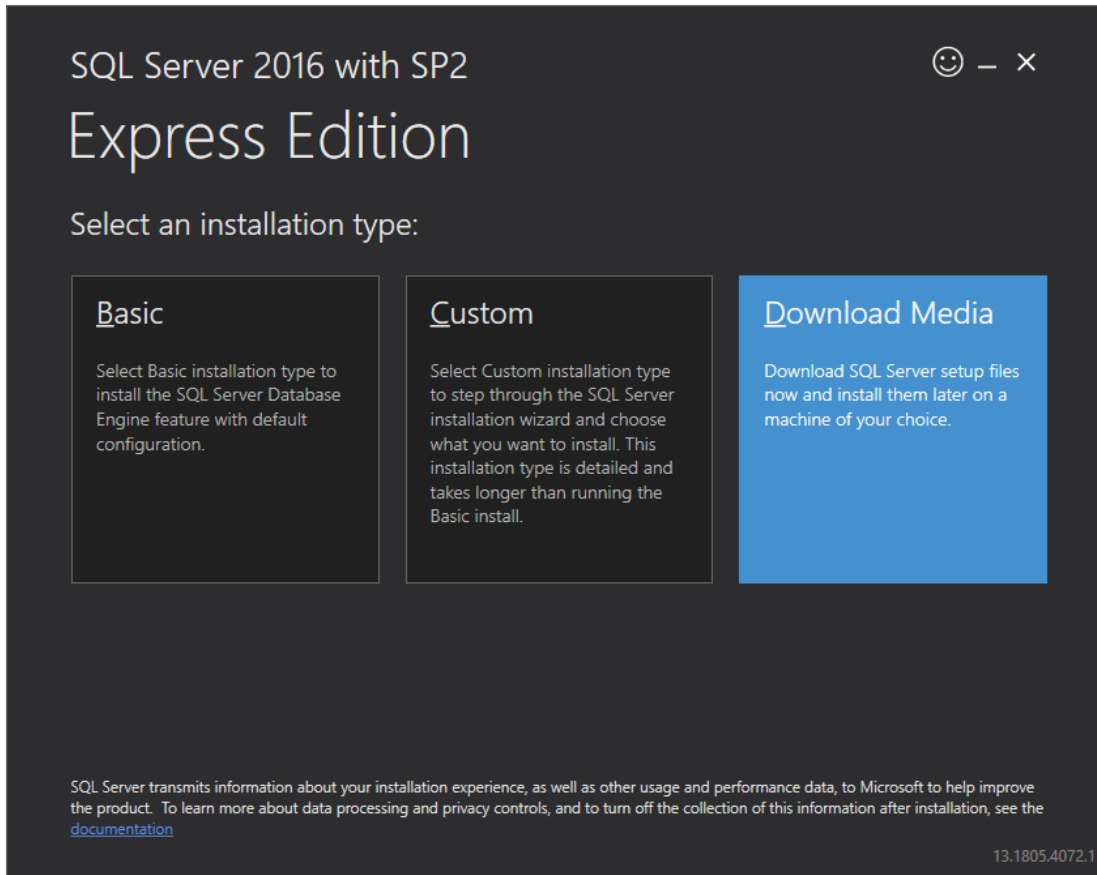
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Microsoft SQL Server 2016 SP2 Express download

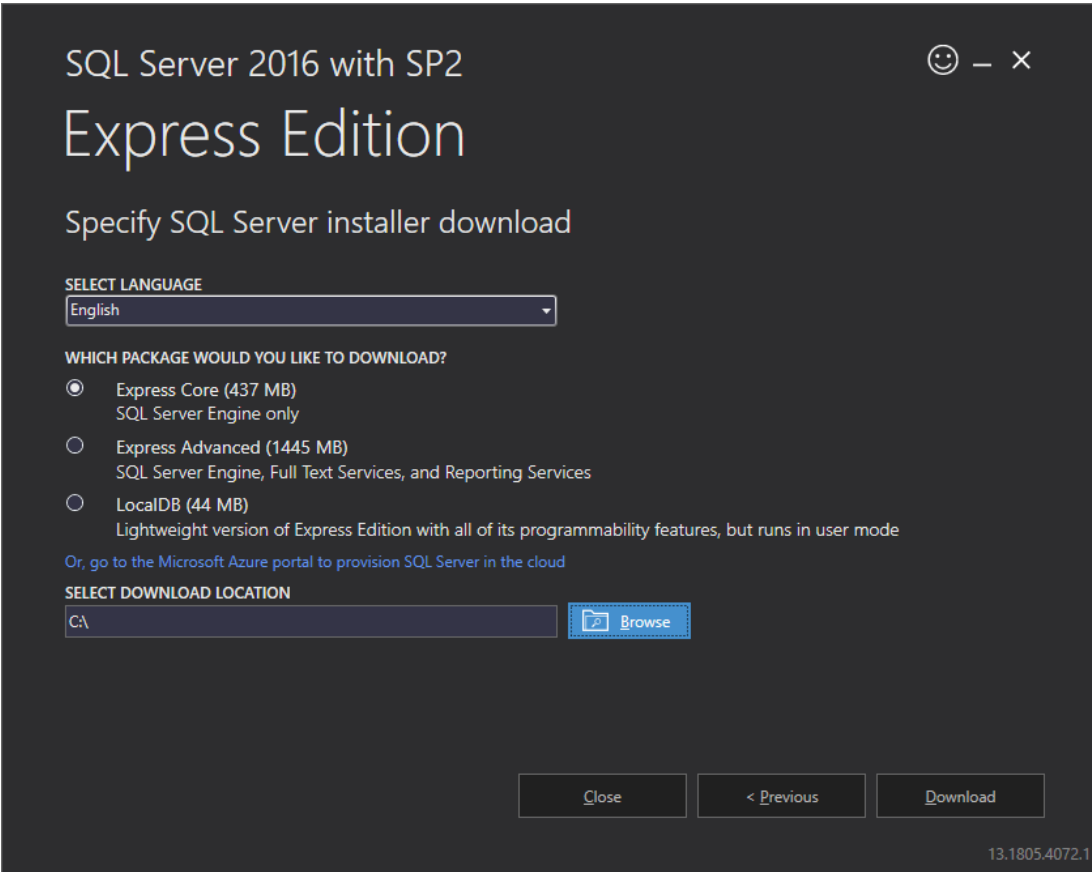
<https://www.microsoft.com/en-us/download/details.aspx?id=56840>

It downloads as an update launcher which will download the required binaries as you step through the installation wizard.

Download Media for use later



Select your download language, package (Express Core) and download location



SQL Server 2016 with SP2
Express Edition

Specify SQL Server installer download

SELECT LANGUAGE
English

WHICH PACKAGE WOULD YOU LIKE TO DOWNLOAD?

- ☒ Express Core (437 MB)
SQL Server Engine only
- ☐ Express Advanced (1445 MB)
SQL Server Engine, Full Text Services, and Reporting Services
- ☐ LocalDB (44 MB)
Lightweight version of Express Edition with all of its programmability features, but runs in user mode

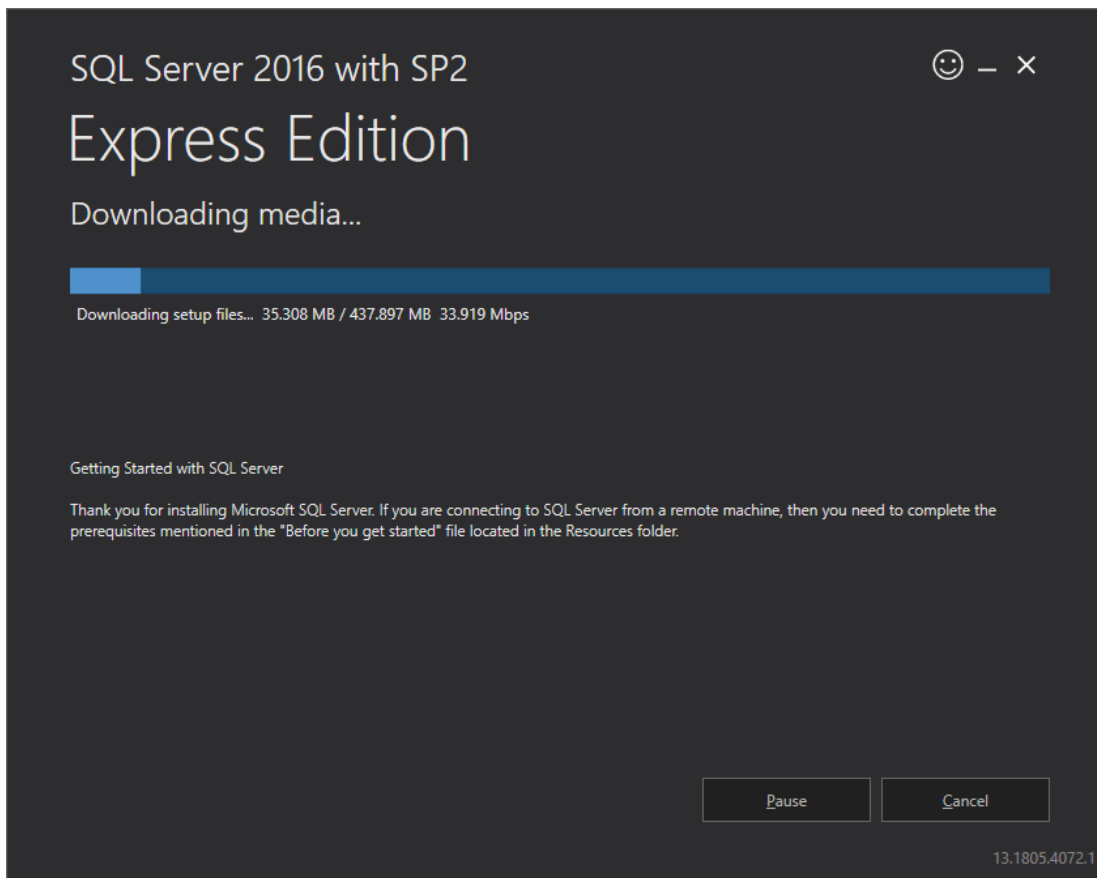
[Or, go to the Microsoft Azure portal to provision SQL Server in the cloud](#)

SELECT DOWNLOAD LOCATION
C:\ [Browse](#)

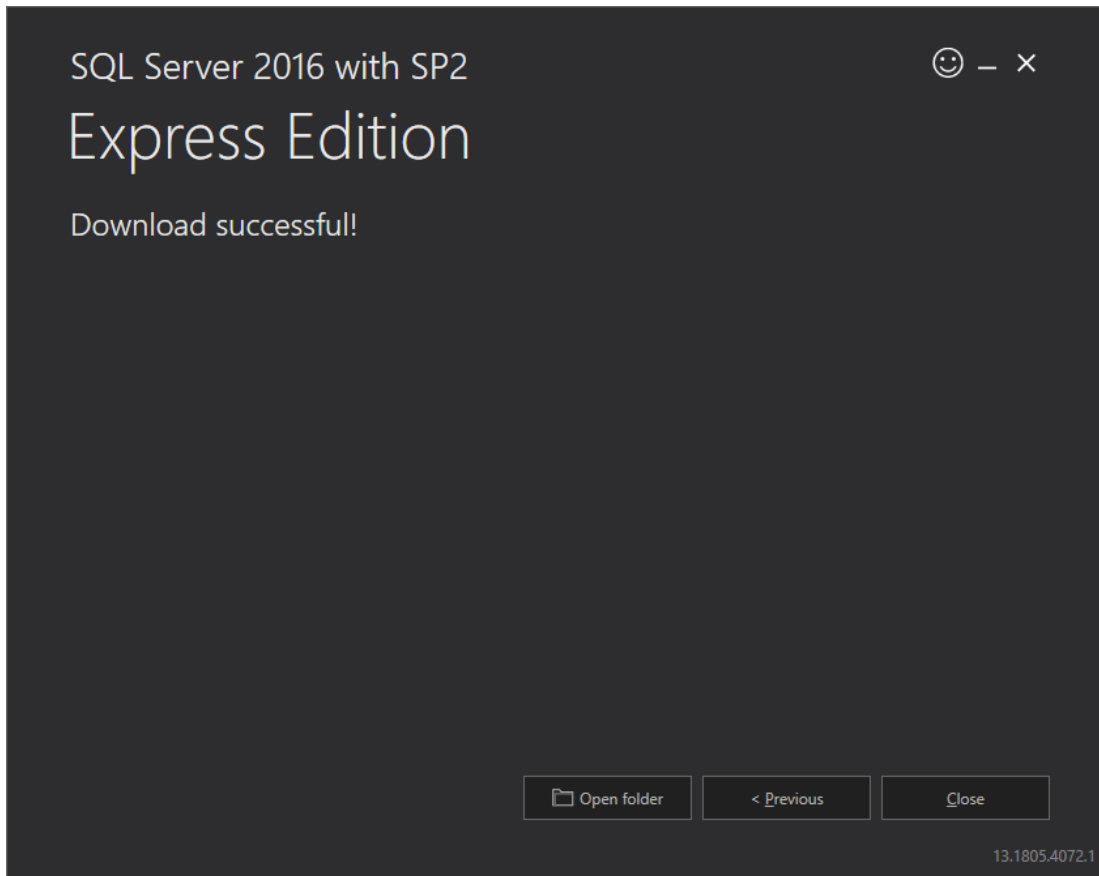
[Close](#) [< Previous](#) [Download](#)

13.1805.4072.1

Then click Download

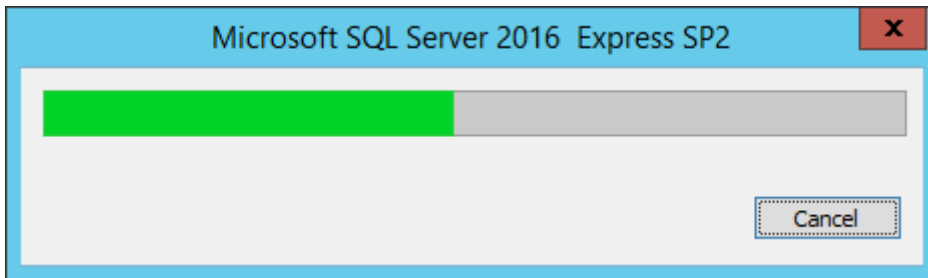


Confirmation that download is successful

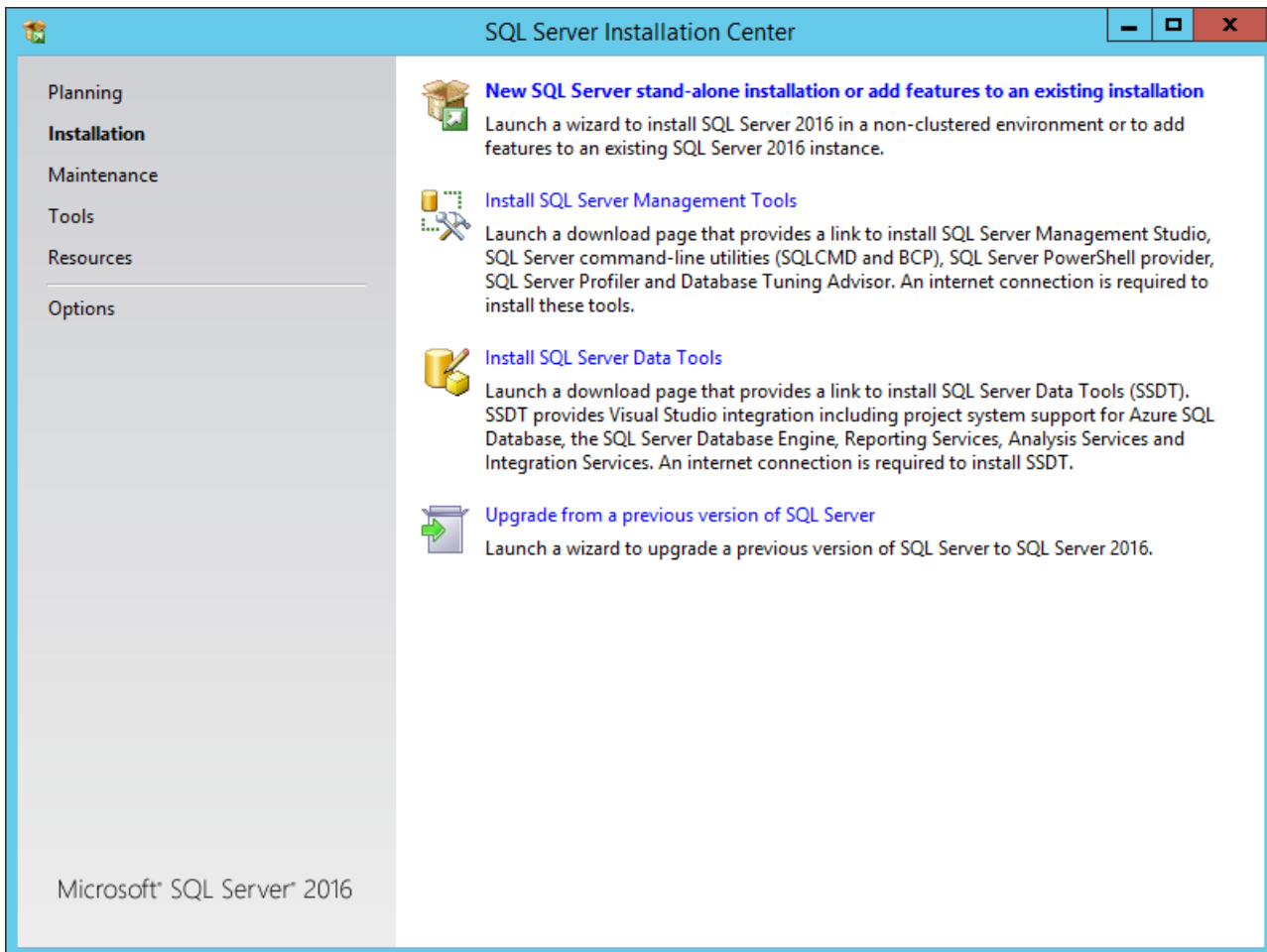


SQL Server 2016 Express Installation

When you're ready to begin the installation, click Open Folder then run the SQL Express installer as Admin. You will be asked where you would like to unpack your installation files to:



Once completed, the SQL Server Installation Center will load.

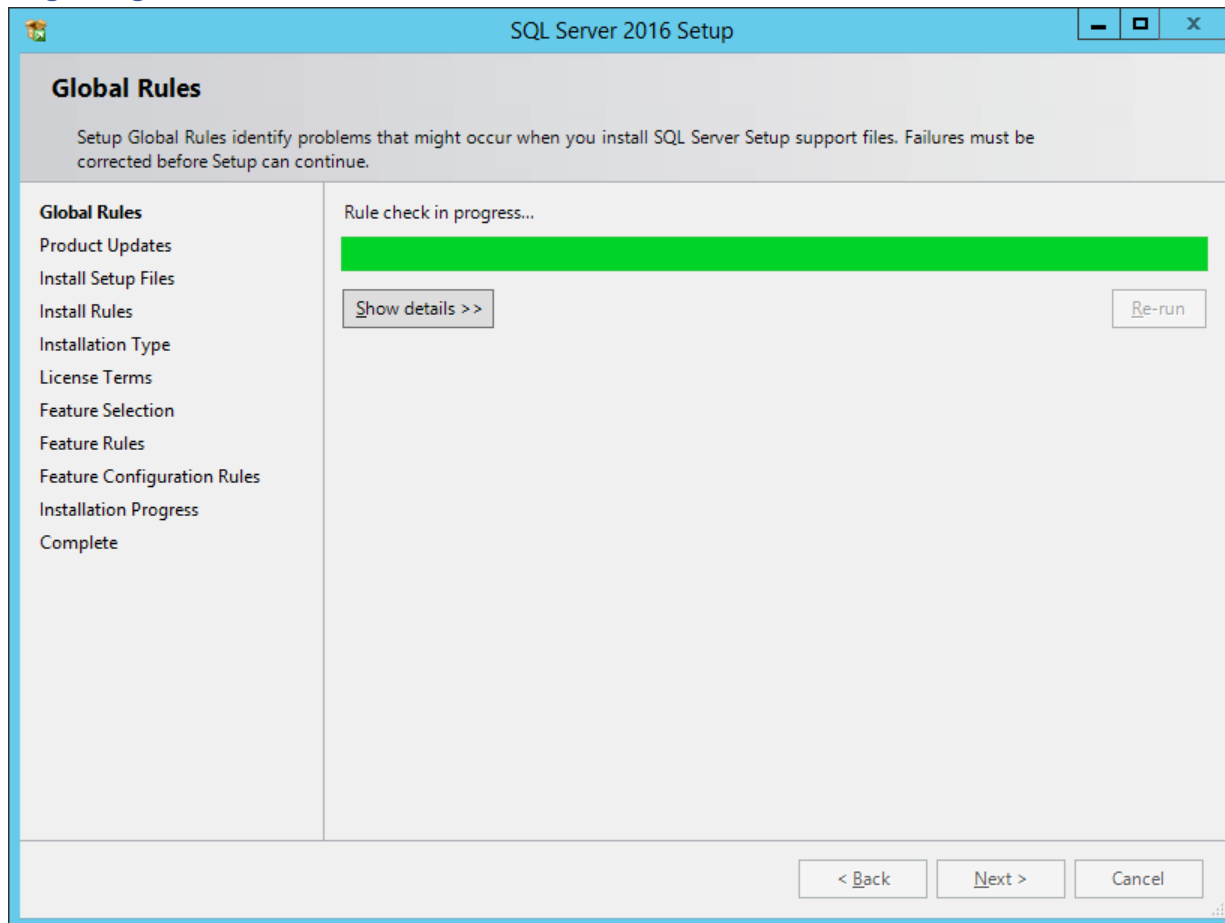


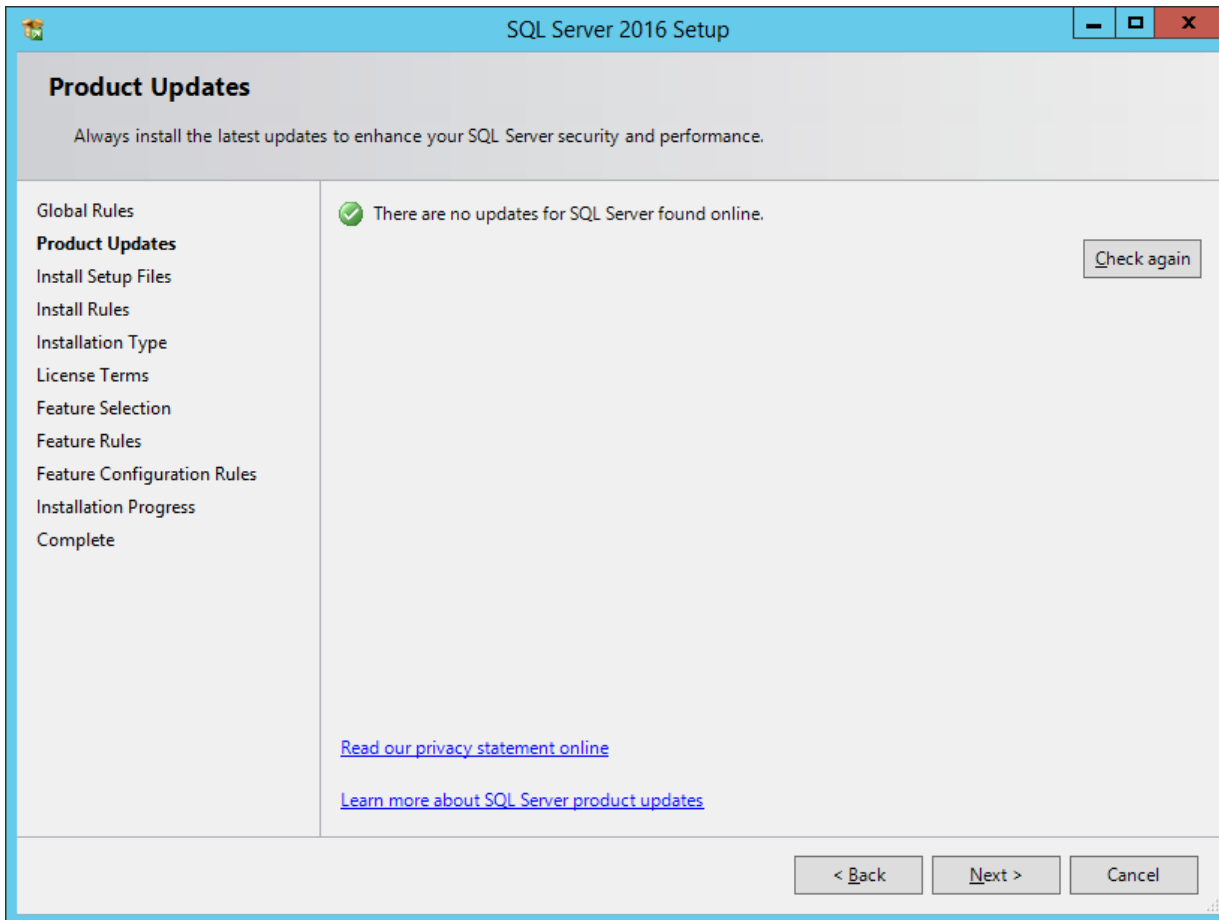
You now have the option to either:

- Create a new stand-alone 2016 instance OR
- Upgrade an existing instance

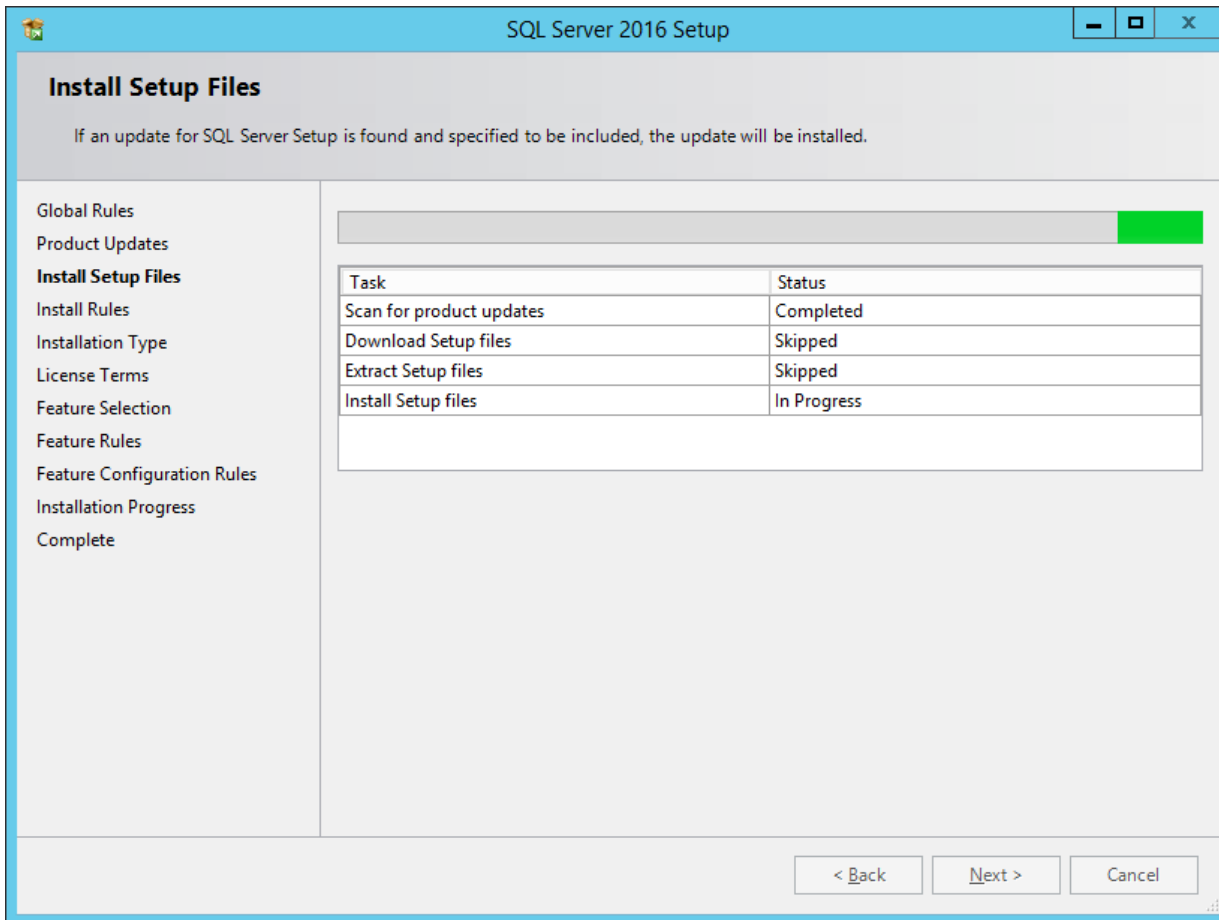
Ultimately this choice is down to your own organizational preferences but from a DAS SQL point of view, we recommend leaving your existing instance alone and creating a new stand-alone 2016 instance. At the end of the process, we can help transfer your files from your existing older SQL Server Express instance and then convert the database for the new SQL version by running a SQL script.

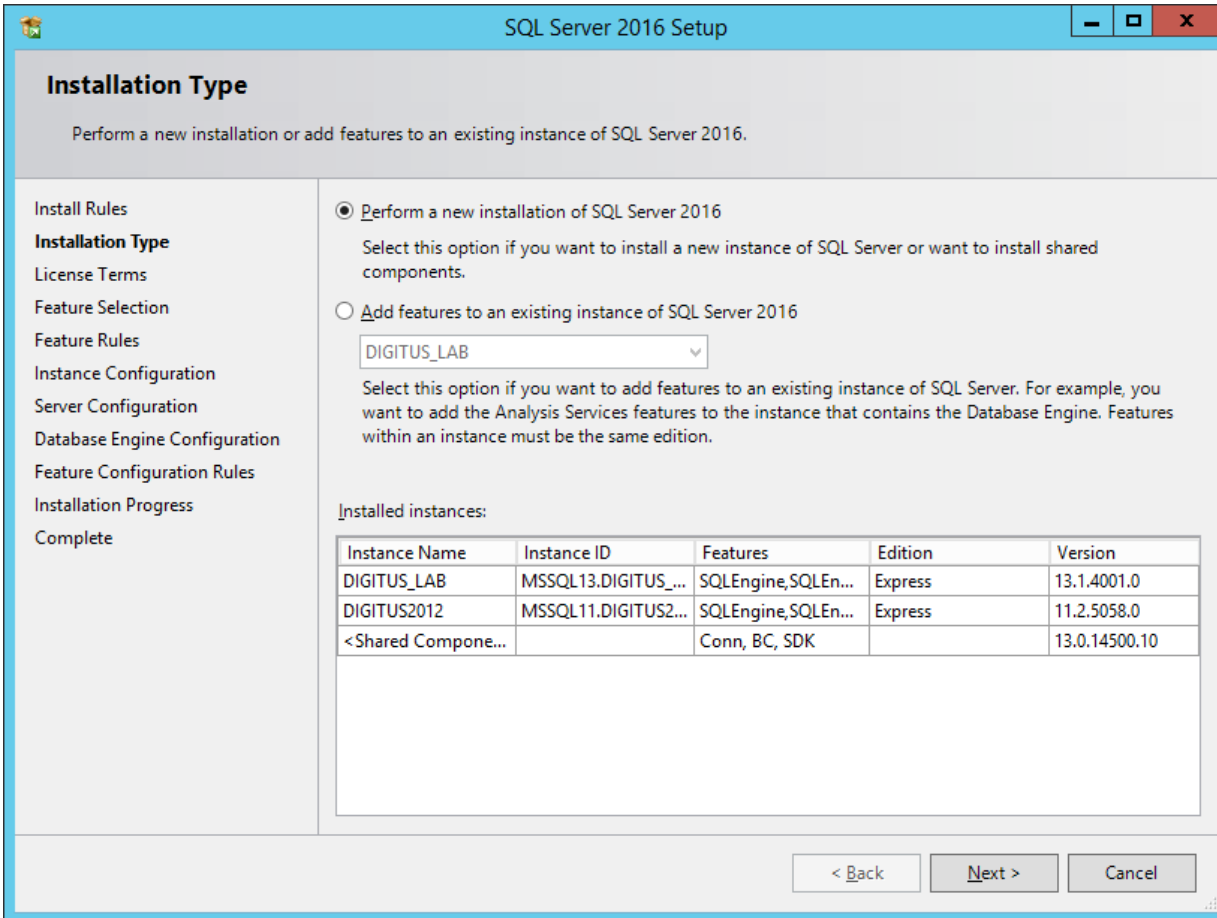
Beginning the Installation





Click Next to begin the installation





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 or want to install shared components.

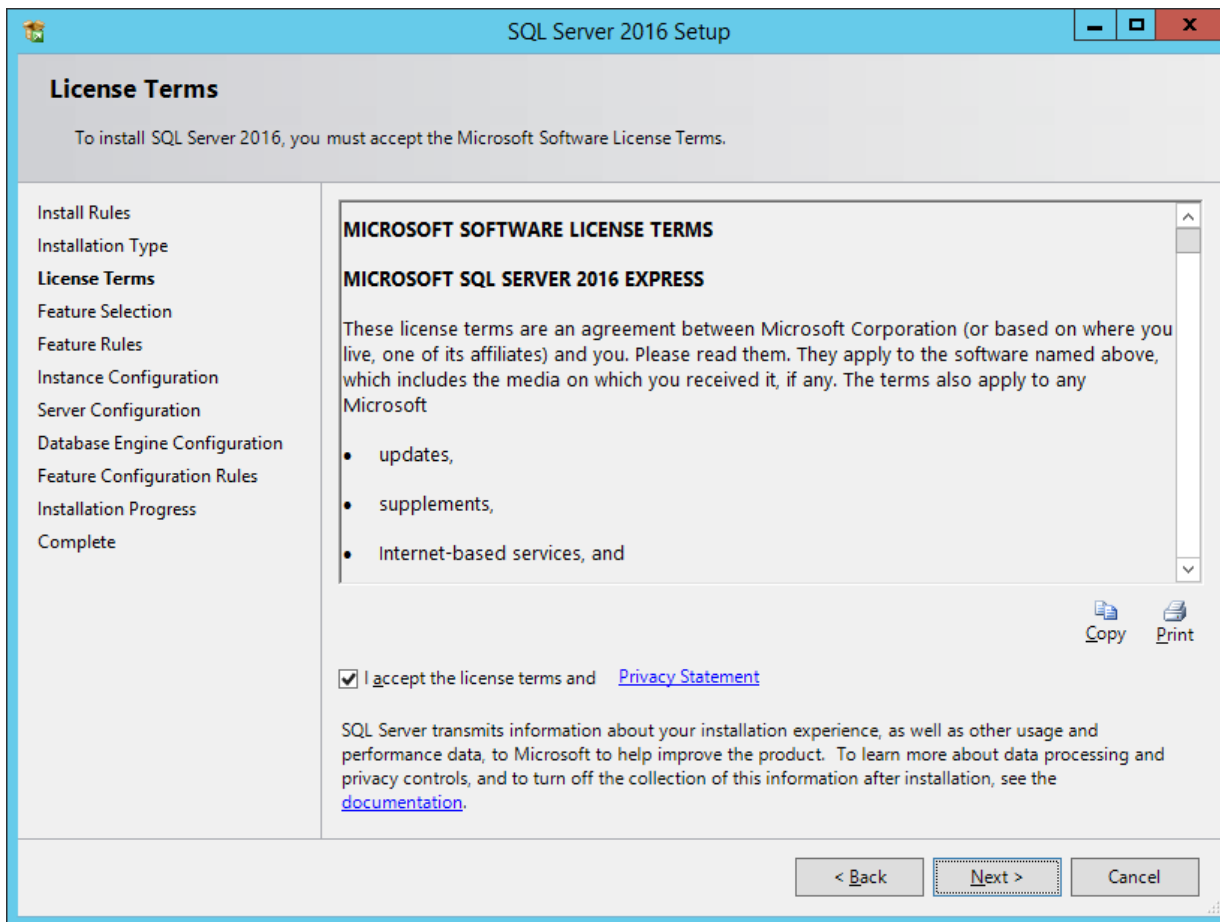
☐ **Add features to an existing instance of SQL Server 2016**
 DIGITUS_LAB
 Select this option if you want to add features to an existing instance of SQL Server. For example, you want to add the Analysis Services features to the instance that contains the Database Engine. Features within an instance must be the same edition.

Installed instances:

Instance Name	Instance ID	Features	Edition	Version
DIGITUS_LAB	MSSQL13.DIGITUS_...	SQLEngine, SQLEn...	Express	13.1.4001.0
DIGITUS2012	MSSQL11.DIGITUS2...	SQLEngine, SQLEn...	Express	11.2.5058.0
<Shared Compone...		Conn, BC, SDK		13.0.14500.10

< Back Next > Cancel

We are going to install a new SQL Server 2016 Express instance – notice the 2 x existing SQL instances (1 x SQL Server 2016 Express called DIGITUS_LAB and 1 x SQL Server 2012 Express called DIGITUS2012). Click Next



Accept the license terms and click Next

SQL Server 2016 Setup

Feature Selection

Select the Express features to install.

Features:	Feature description:
Instance Features <input checked="" type="checkbox"/> Database Engine Services <input checked="" type="checkbox"/> SQL Server Replication Shared Features <input checked="" type="checkbox"/> SQL Client Connectivity SDK Redistributable Features	<p>The configuration and operation of each instance feature of a SQL Server instance is isolated from other SQL Server instances. SQL Server instances can operate side-by-side on</p> <p>Prerequisites for selected features:</p> <p>Already installed:</p> <ul style="list-style-type: none"> Windows PowerShell 3.0 or higher Microsoft Visual Studio 2010 Redistributable <p>Disk Space Requirements</p> <p>Drive C: 1058 MB required, 69259 MB available</p>

Instance root directory: C:\Program Files\Microsoft SQL Server\

Shared feature directory: C:\Program Files\Microsoft SQL Server\

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

Check the installation options and path, then click Next

SQL Server 2016 Setup

Instance Configuration

Specify the name and instance ID for the instance of SQL Server. Instance ID becomes part of the installation path.

Install Rules
Installation Type
License Terms
Feature Selection
Feature Rules
Instance Configuration
Server Configuration
Database Engine Configuration
Feature Configuration Rules
Installation Progress
Complete

☐ Default instance
☒ **Named instance:**

Instance ID:

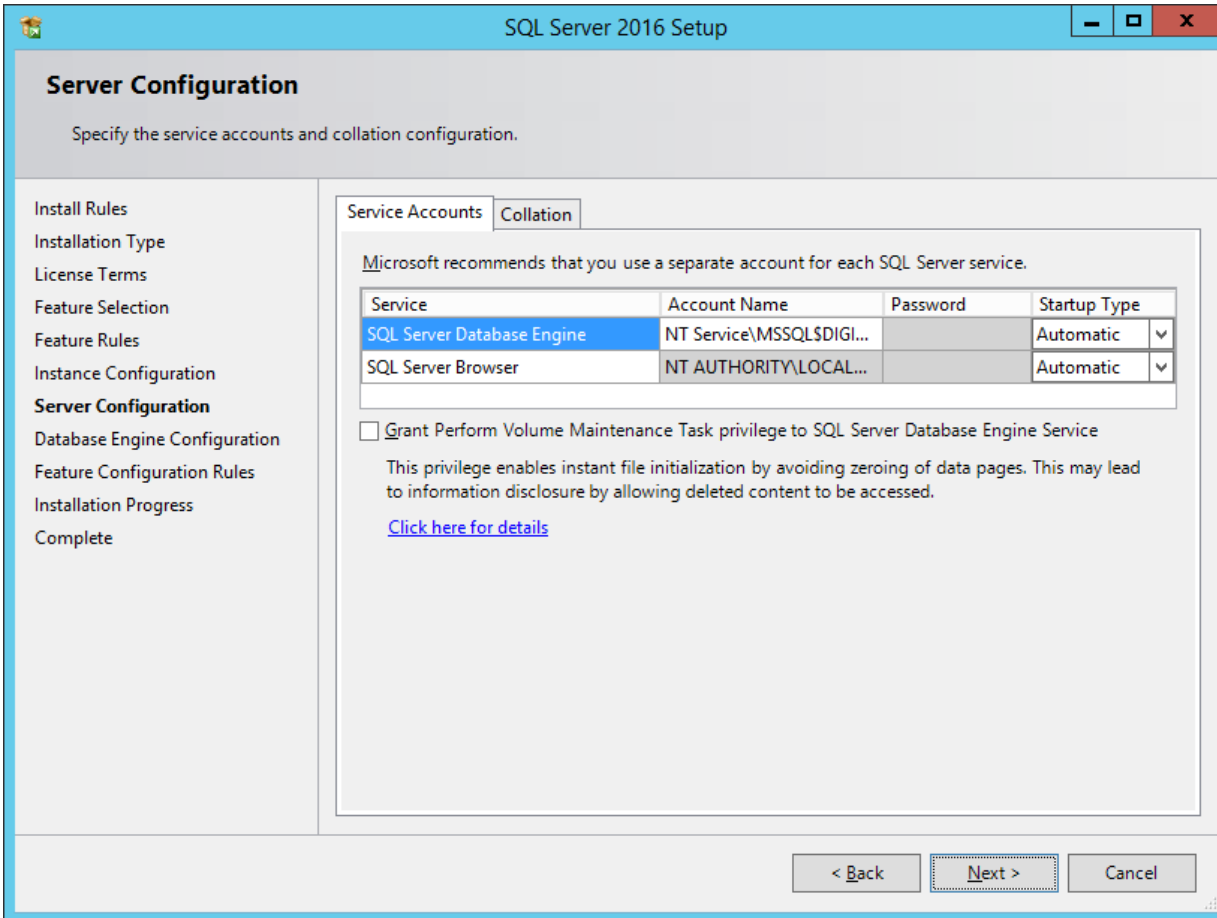
SQL Server directory: C:\Program Files\Microsoft SQL Server\MSSQL13.DIGITUS2016

Installed instances:

Instance Name	Instance ID	Features	Edition	Version
DIGITUS_LAB	MSSQL13.DIGITUS_...	SQLEngine, SQLEn...	Express	13.1.4001.0
DIGITUS2012	MSSQL11.DIGITUS2...	SQLEngine, SQLEn...	Express	11.2.5058.0
<Shared Compone...		Conn, BC, SDK		13.0.14500.10

< Back
Next >
Cancel

Give your SQL Server 2016 Express instance a meaningful name, then click Next



SQL Server 2016 Setup

Server Configuration

Specify the service accounts and collation configuration.

Install Rules
Installation Type
License Terms
Feature Selection
Feature Rules
Instance Configuration
Server Configuration
Database Engine Configuration
Feature Configuration Rules
Installation Progress
Complete

Service Accounts Collation

Microsoft recommends that you use a separate account for each SQL Server service.

Service	Account Name	Password	Startup Type
SQL Server Database Engine	NT Service\MSSQLSDIGI...		Automatic ▼
SQL Server Browser	NT AUTHORITY\LOCAL...		Automatic ▼

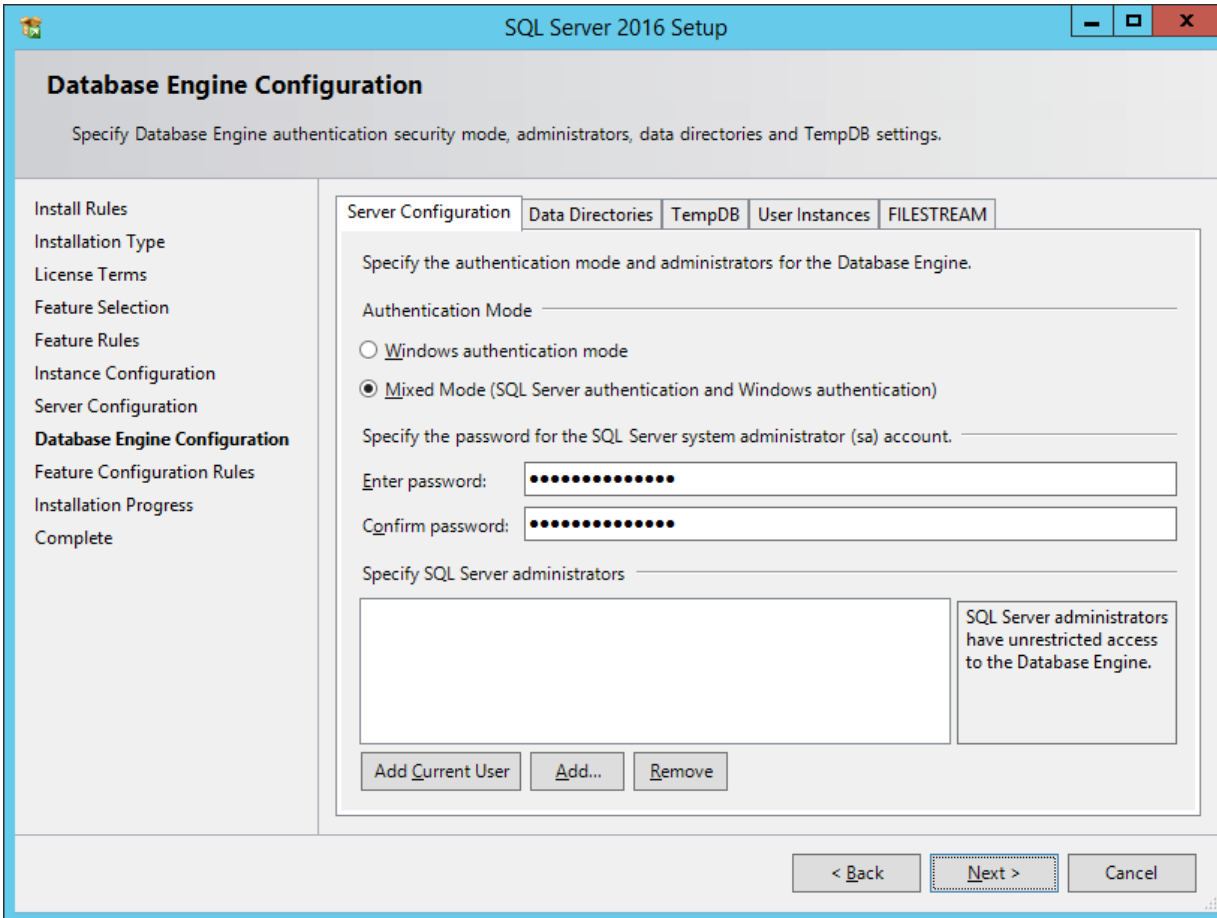
☐ Grant Perform Volume Maintenance Task privilege to SQL Server Database Engine Service

This privilege enables instant file initialization by avoiding zeroing of data pages. This may lead to information disclosure by allowing deleted content to be accessed.

[Click here for details](#)

< Back Next > Cancel

Makes changes to your Server Configuration if your organization requires it, we left the settings at default. Click Next



SQL Server 2016 Setup

Database Engine Configuration

Specify Database Engine authentication security mode, administrators, data directories and TempDB settings.

Install Rules
Installation Type
License Terms
Feature Selection
Feature Rules
Instance Configuration
Server Configuration
Database Engine Configuration
Feature Configuration Rules
Installation Progress
Complete

Server Configuration | Data Directories | TempDB | User Instances | FILESTREAM

Specify the authentication mode and administrators for the Database Engine.

Authentication Mode

☐ Windows authentication mode

☒ Mixed Mode (SQL Server authentication and Windows authentication)

Specify the password for the SQL Server system administrator (sa) account.

Enter password:

Confirm password:

Specify SQL Server administrators

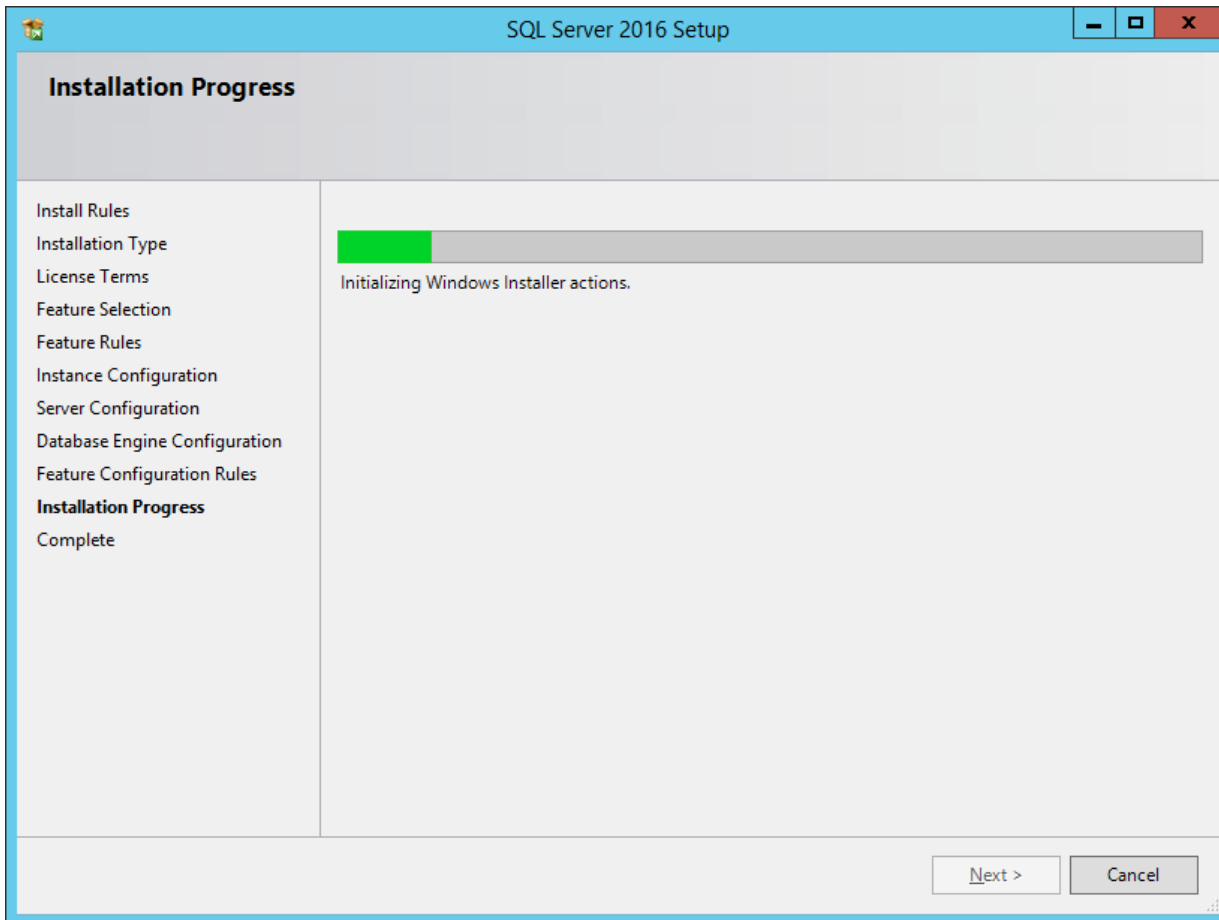
SQL Server administrators have unrestricted access to the Database Engine.

Add Current User | Add... | Remove

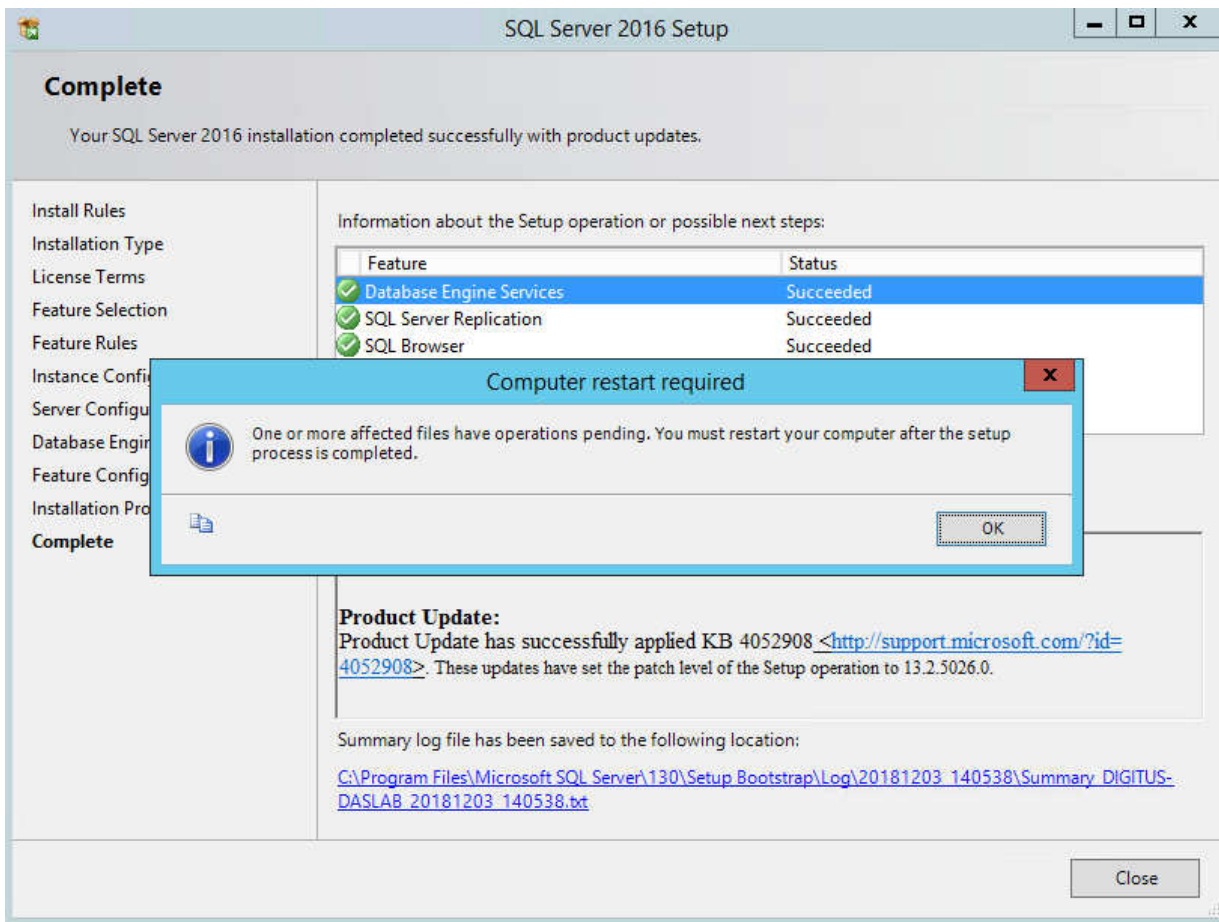
< Back | Next > | Cancel

Digitus recommends that your SQL Server 2016 Express instance is installed in mixed mode. Select a suitable password for the 'sa' account – this will be used to connect your DAS-SQL Server / Service to the SQL database.

Don't forget to add any additional SQL Server admin users. Click Next



SQL Server installation has now started.

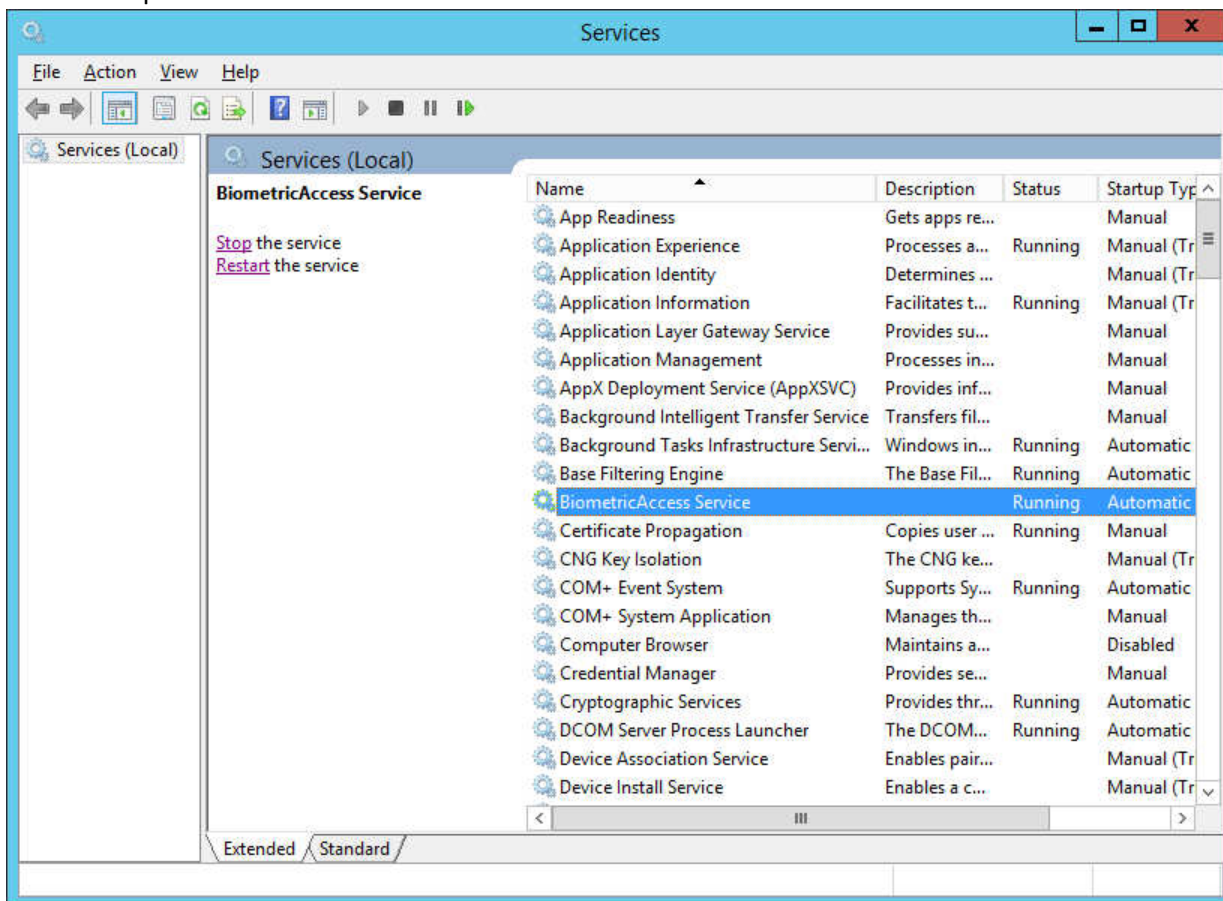


The installation of the new SQL Server 2016 Express instance is finished but a reboot is required to complete the installation.

Preparing to connect DAS SQL to the New SQL instance

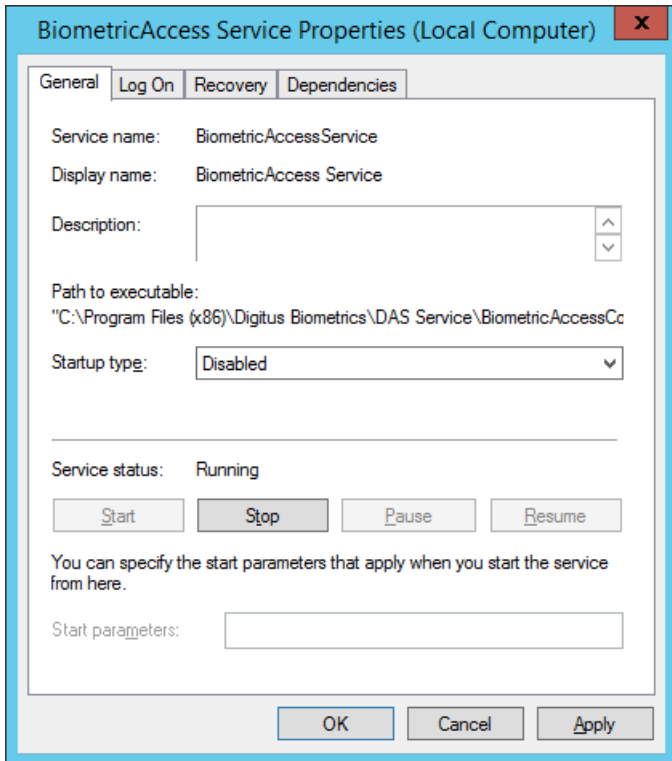
Next, we need to transfer the DAS-SQL databases.

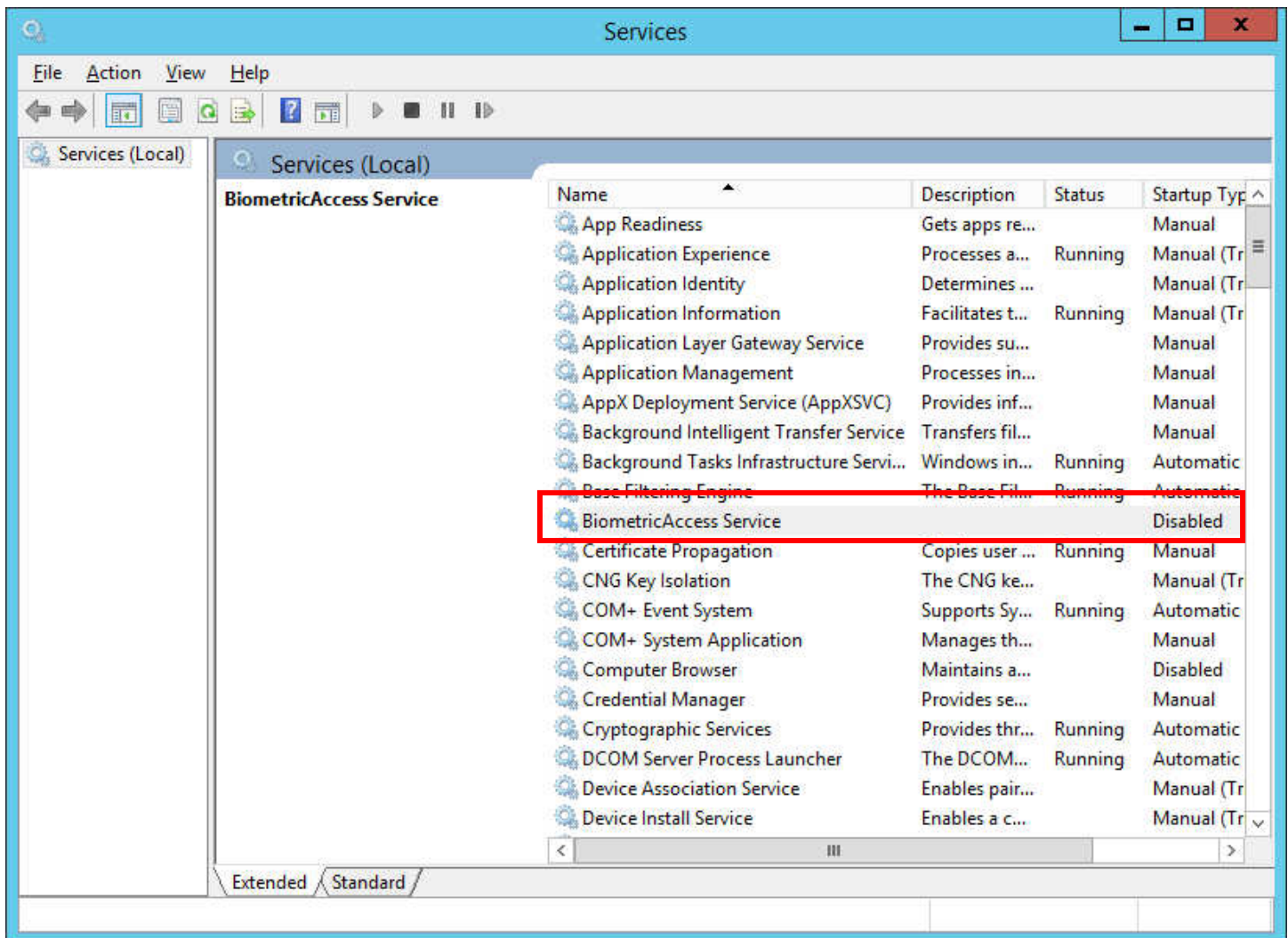
In order to do this and ensure that no further data is pulled in by the DAS Server / Service updating the old database, we need to stop the BiometricAccess Service on the old server.



Find the BiometricAccess service and click Stop to stop the service.

As an additional security measure, it is also recommended to the startup type for the “BiometricAccess Service” is set to “Disabled”.

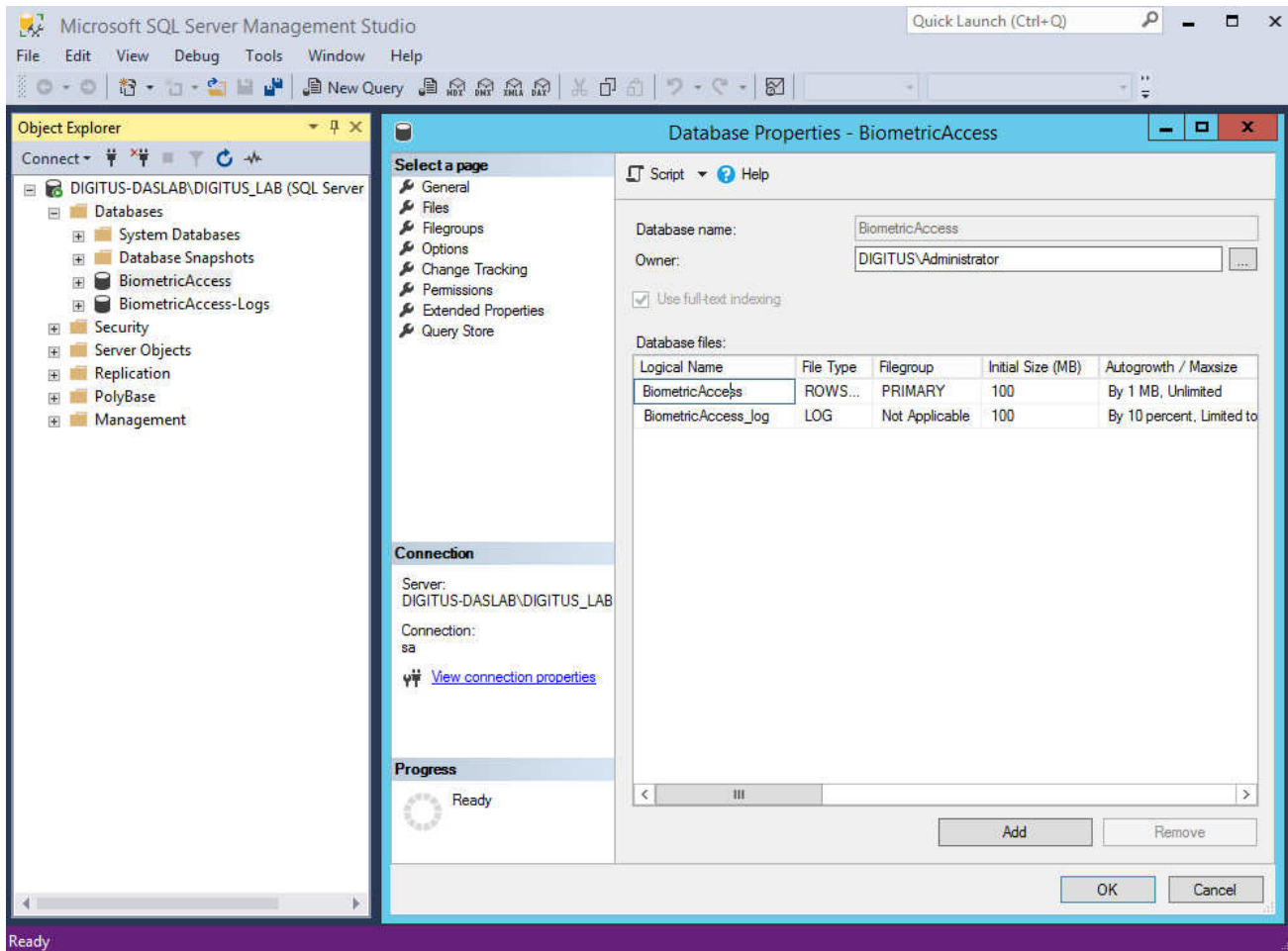




Confirmation that the "BiometricAccess Service" is stopped and its startup type is set to "Disabled".

Preparing to transfer the DAS-SQL database files





Open SQL Server Management Studio (SSMS) and connect to the DAS-SQL Instance, before opening the Databases tree and right-clicking BiometricAccess -> select "Properties" from the dropdown



In the Database Properties window, use the horizontal scroll bar to check the database path – this is where you are going to COPY your data from. Just double check the same path is set for the BiometricAccess-Logs database.

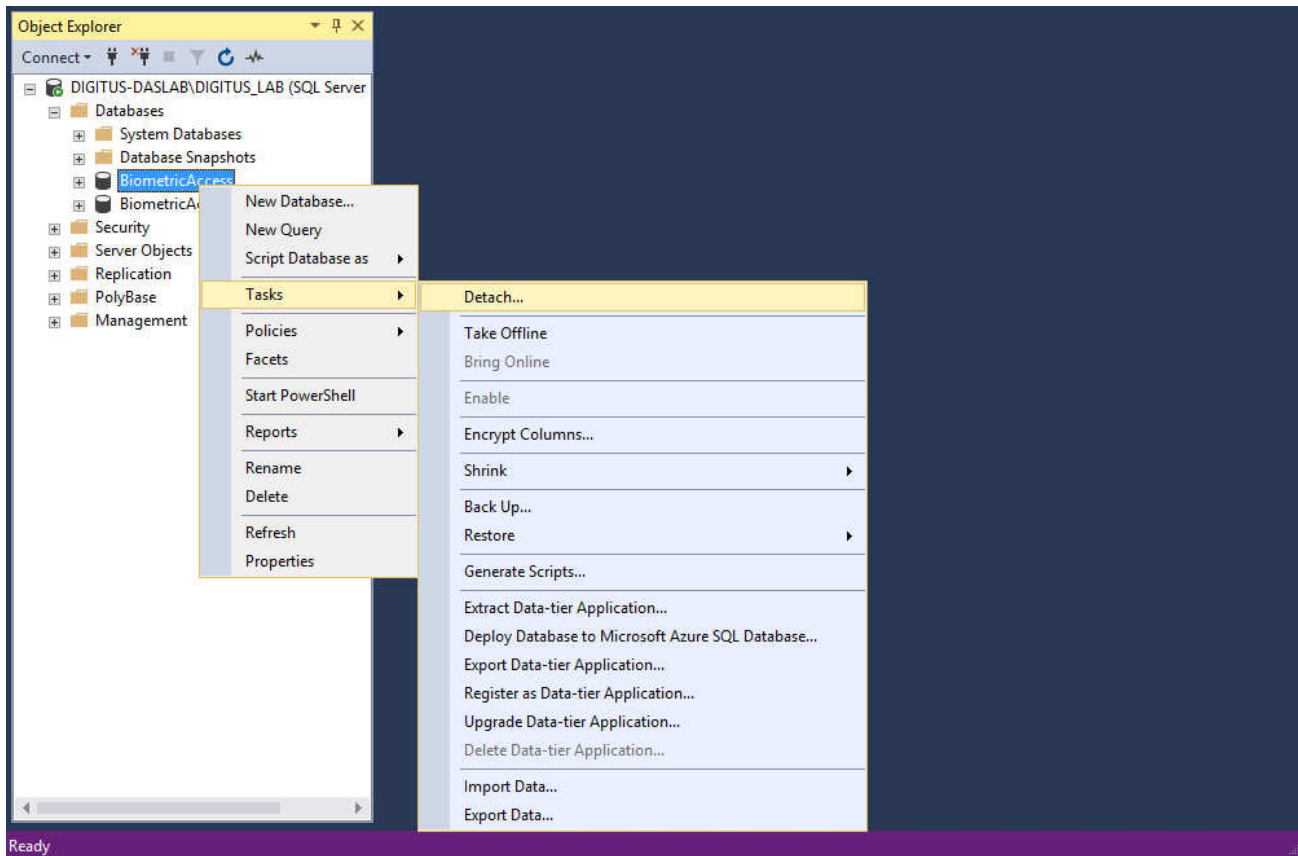
Once you have made a note of your data path, open Window Explorer and browse to the path noted above.

You should see 4 files as follows:

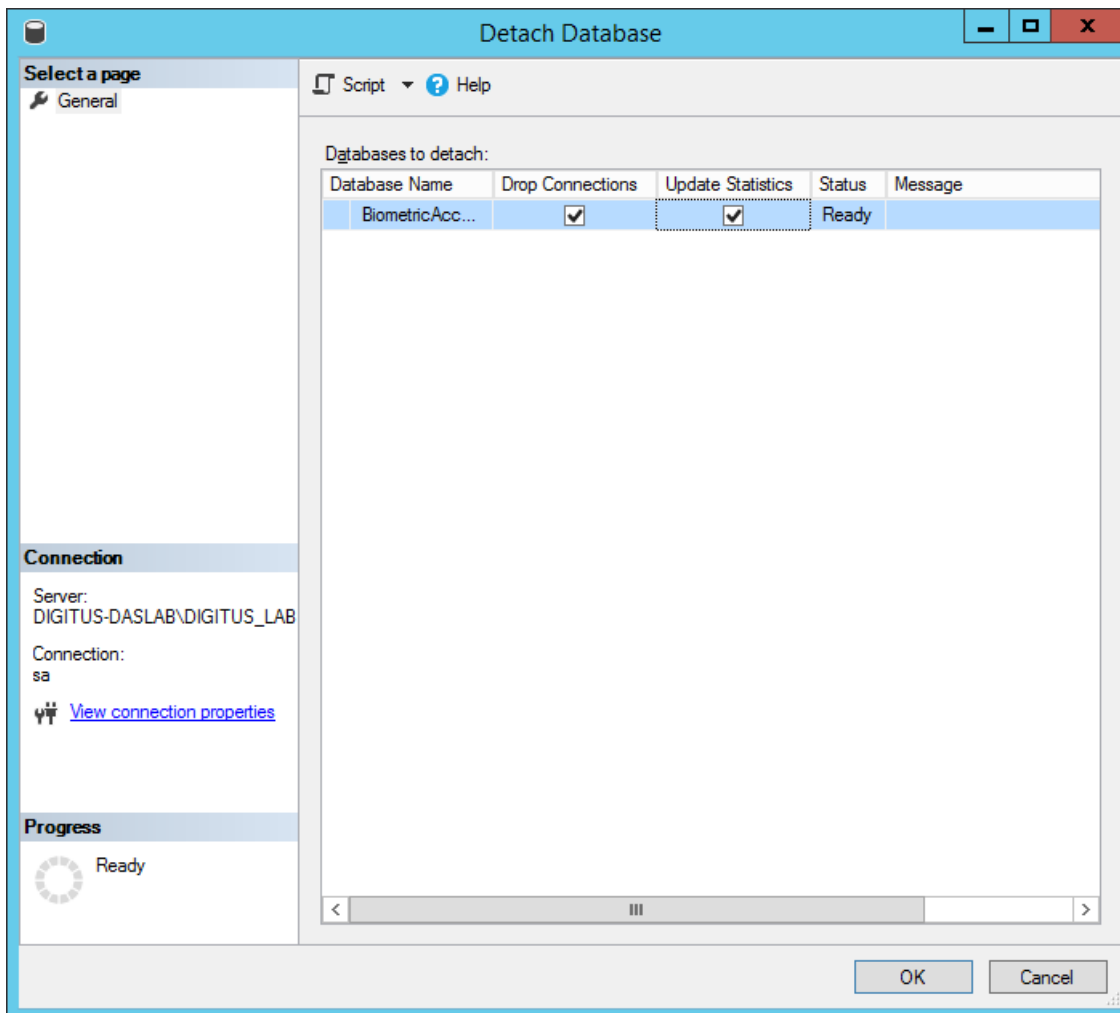
Name	Date modified	Type	Size
 BiometricAccess	12/3/2018 3:09 PM	SQL Server Databa...	102,400 KB
 BiometricAccess_log	12/3/2018 3:09 PM	SQL Server Databa...	102,400 KB
 BiometricAccess-Logs	12/3/2018 3:12 PM	SQL Server Databa...	1,087,808 KB
 BiometricAccess-Logs_log	12/3/2018 3:12 PM	SQL Server Databa...	1,475,904 KB

Detaching the DAS-SQL databases

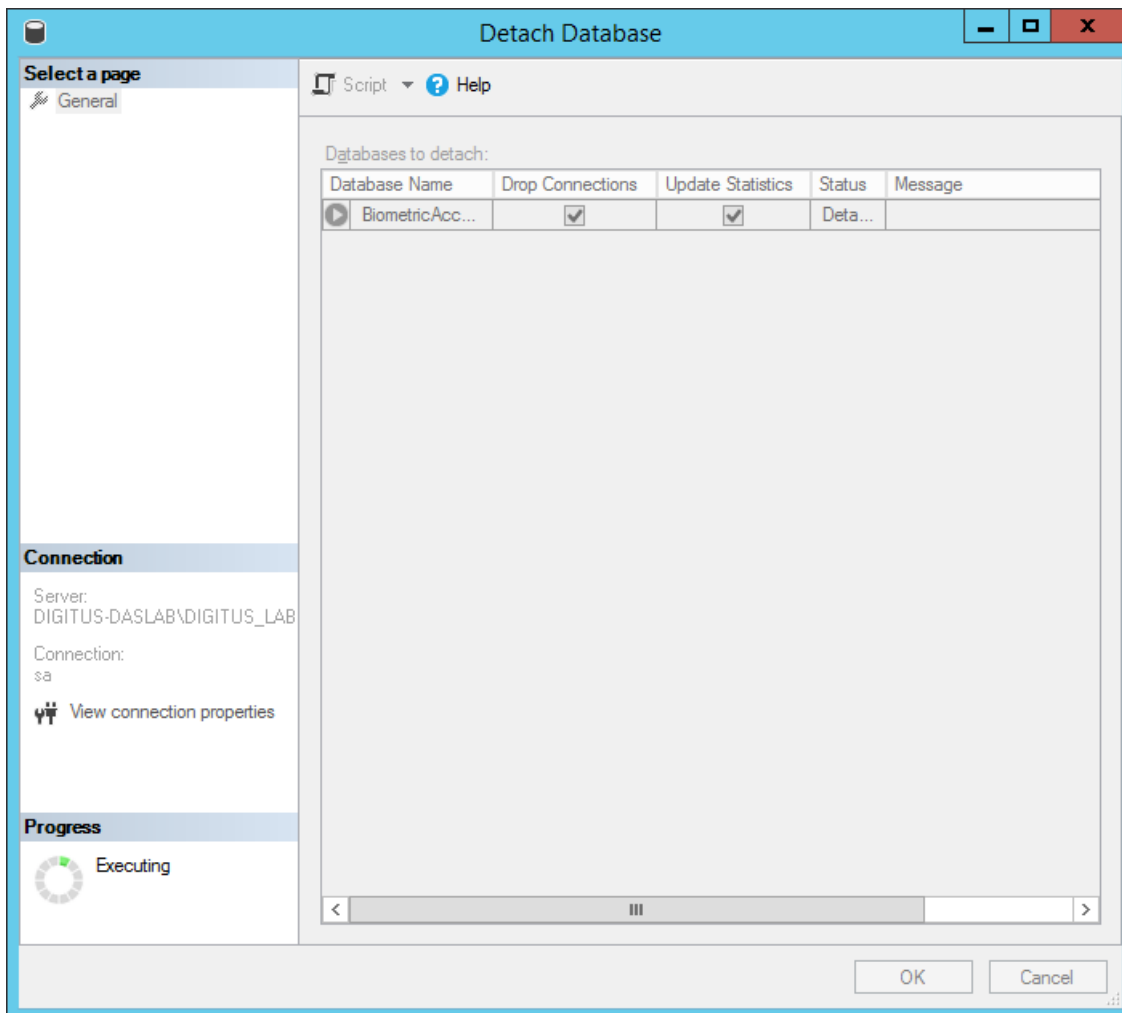
You now need to “detach” your BiometricAccess and BiometricAccess-Logs databases, so back in SQL Server Management Studio, browse to the BiometricAccess database, right click it, select Tasks, then Detach.



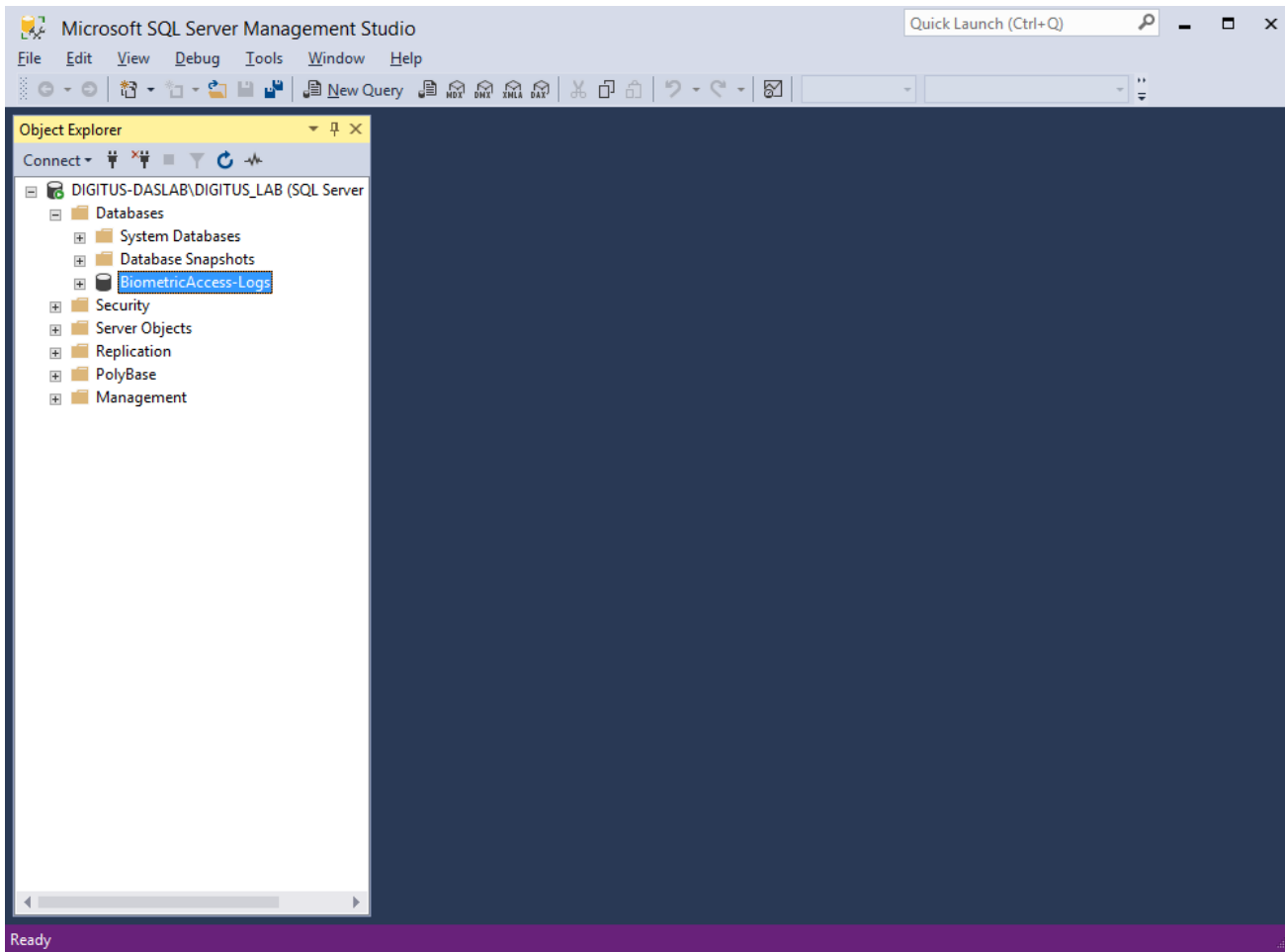
Detach Database, check both Drop Connections and Update Statistics before clicking OK



The Detach takes a few seconds to run

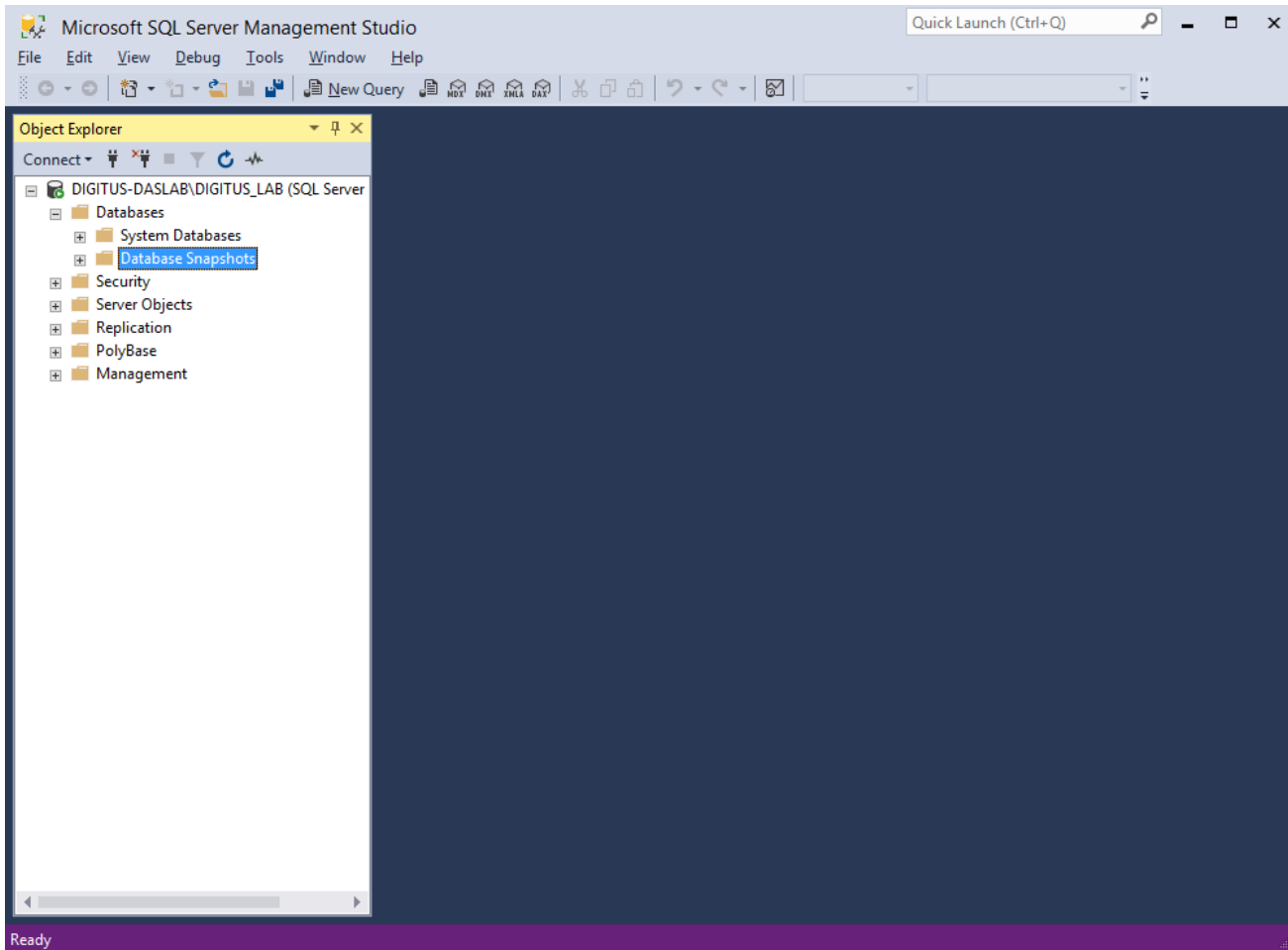


Checking back in SQL Server Management Studio shows that the BiometricAccess database is longer connected







Now repeat the process to detach the BiometricAccess-Logs database.

Once completed, you should see that SQL Server Management Studio has updated and both databases have been detached.



You should also notice that the time stamps have been updated for your 4 files in Windows Explorer.

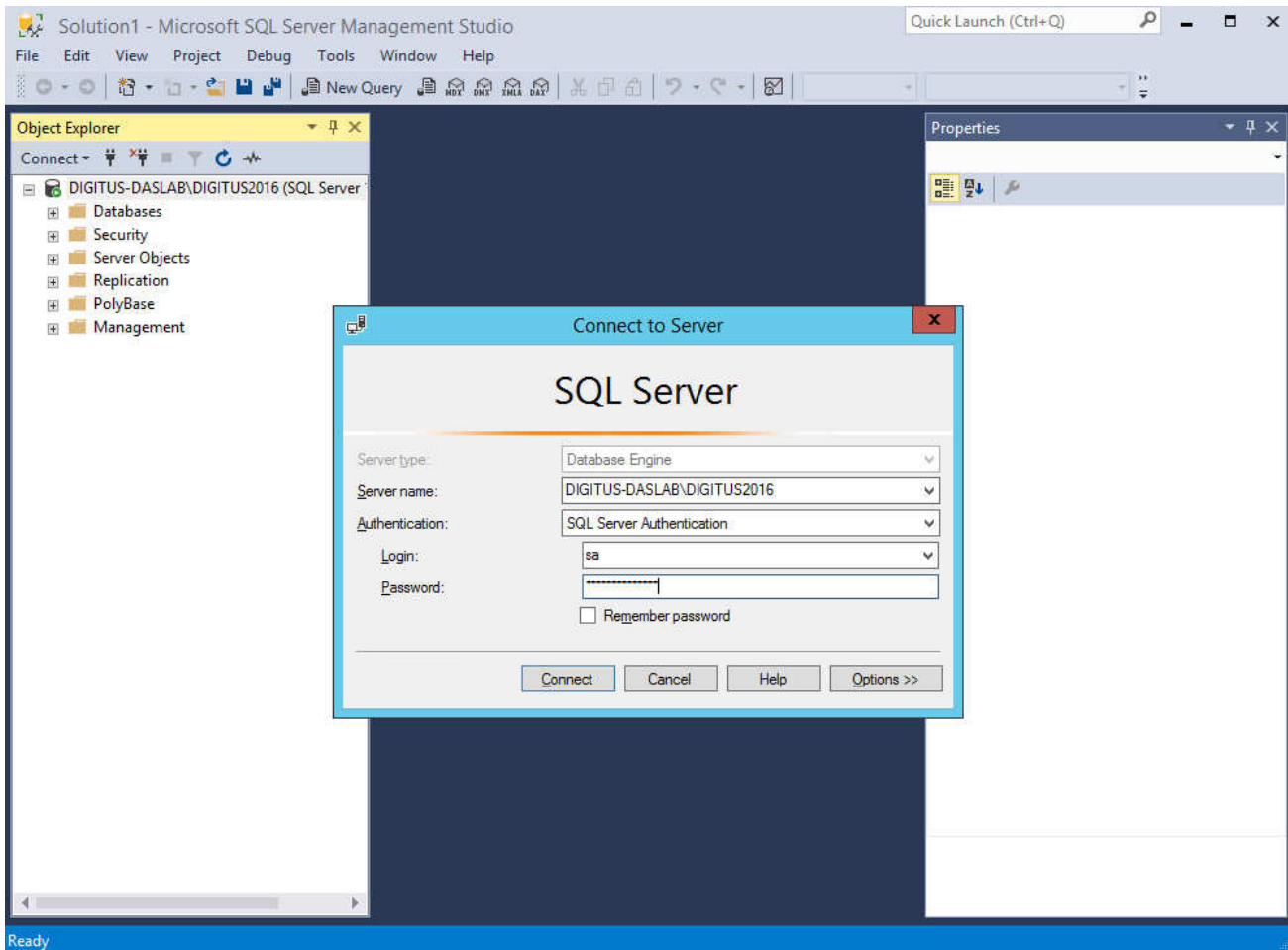
Name	Date modified	Type	Size
 BiometricAccess	12/3/2018 3:56 PM	SQL Server Databa...	102,400 KB
 BiometricAccess_log	12/3/2018 3:56 PM	SQL Server Databa...	102,400 KB
 BiometricAccess-Logs	12/3/2018 3:58 PM	SQL Server Databa...	1,087,808 KB
 BiometricAccess-Logs_log	12/3/2018 3:58 PM	SQL Server Databa...	1,475,904 KB

Copying the data over

Select your 4 files and copy them to the clipboard. In the event of large file sizes, and depending on whether you are moving to a new physical / virtual server, it may be worth zipping / compressing your files prior to copying them, copying the compressed files and then uncompressing them in the destination folder.

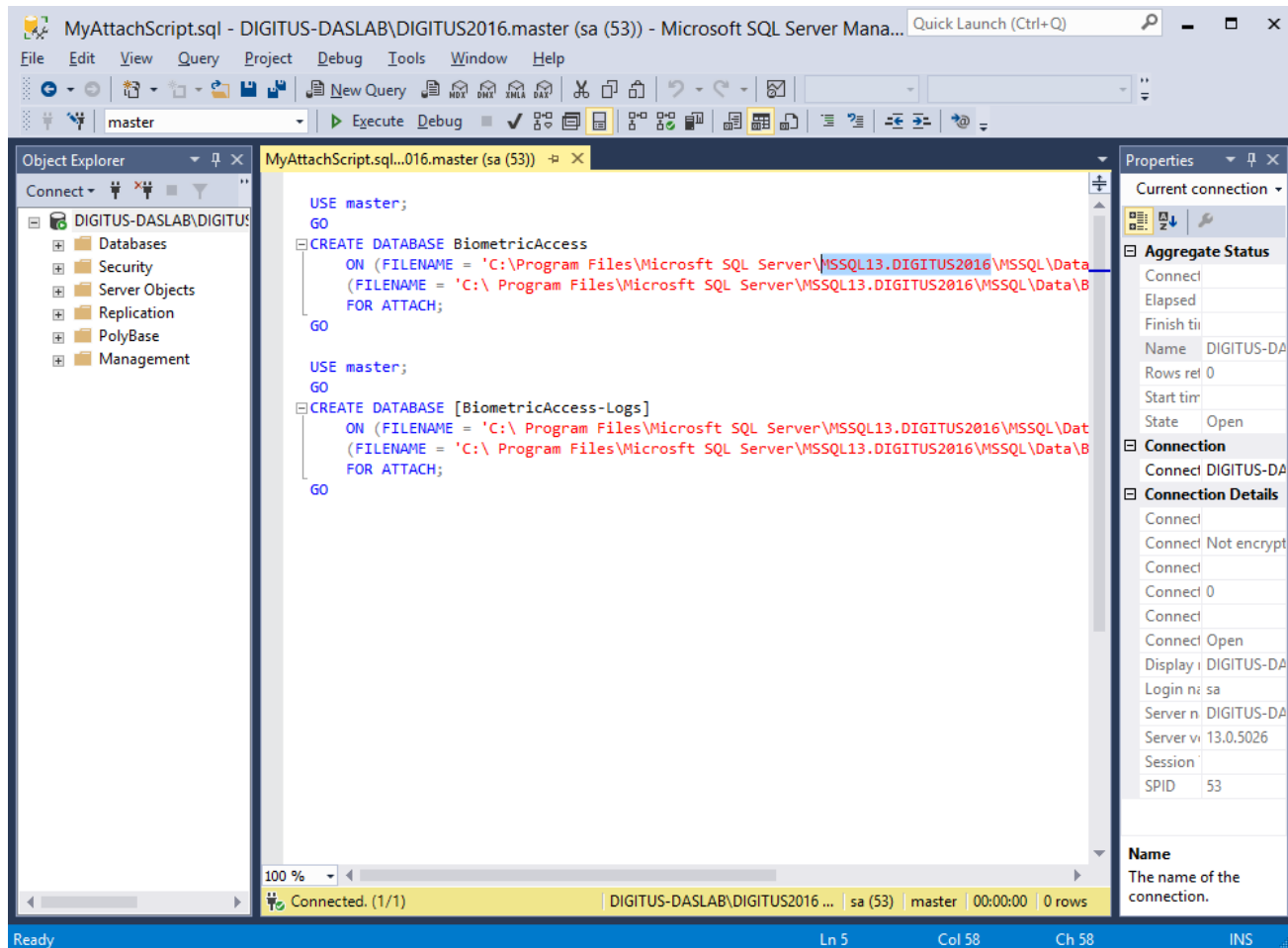
Connect to the new SQL instance

Connect SSMS to your new instance, using the 'sa' password you set when configuring your SQL Server 2016 Express instance.



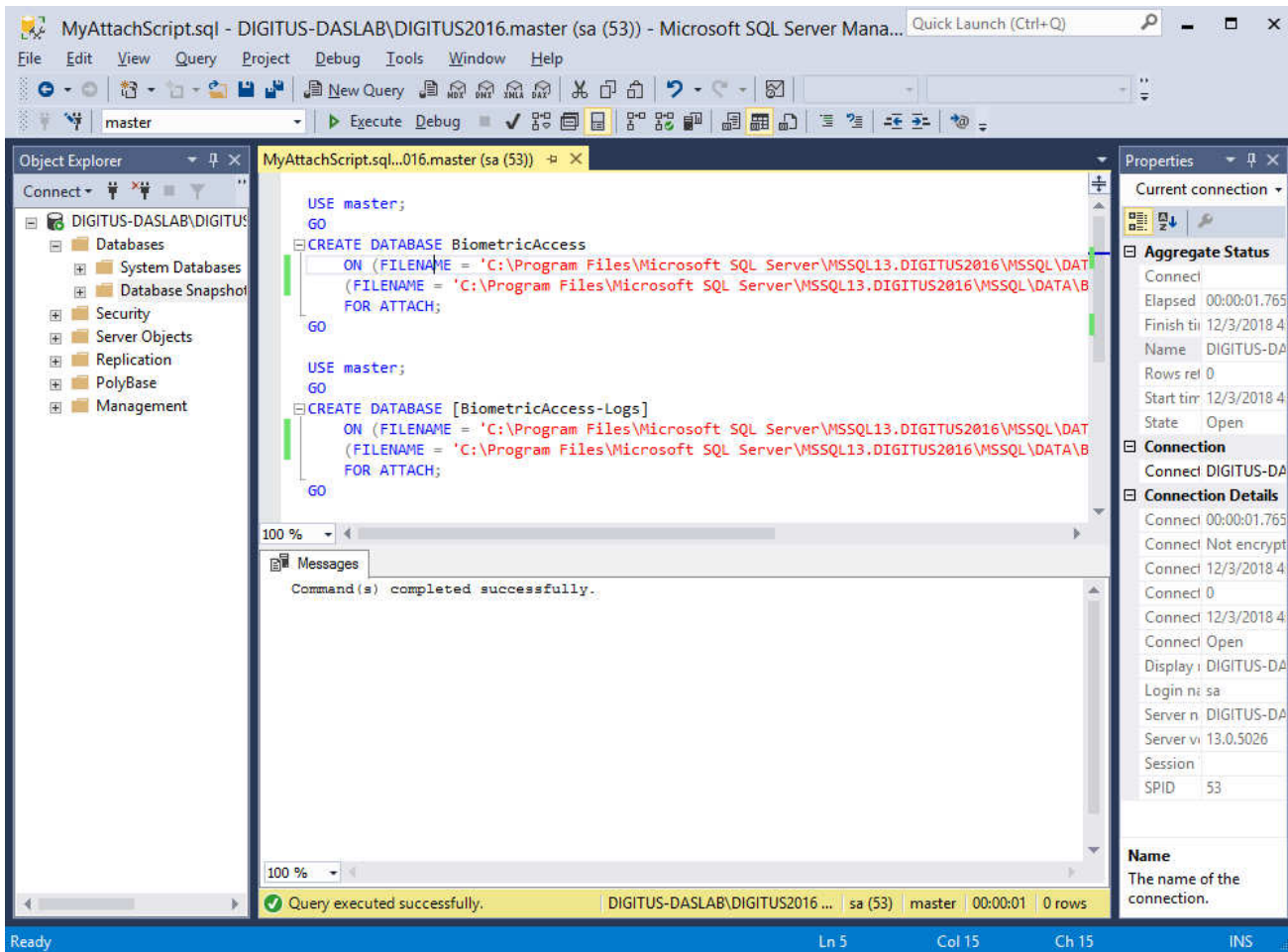
Attaching the database files

Load the MyAttachScript SQL script (provided separately), and be sure to change the data paths for the 4 files to match where you copied your SQL data

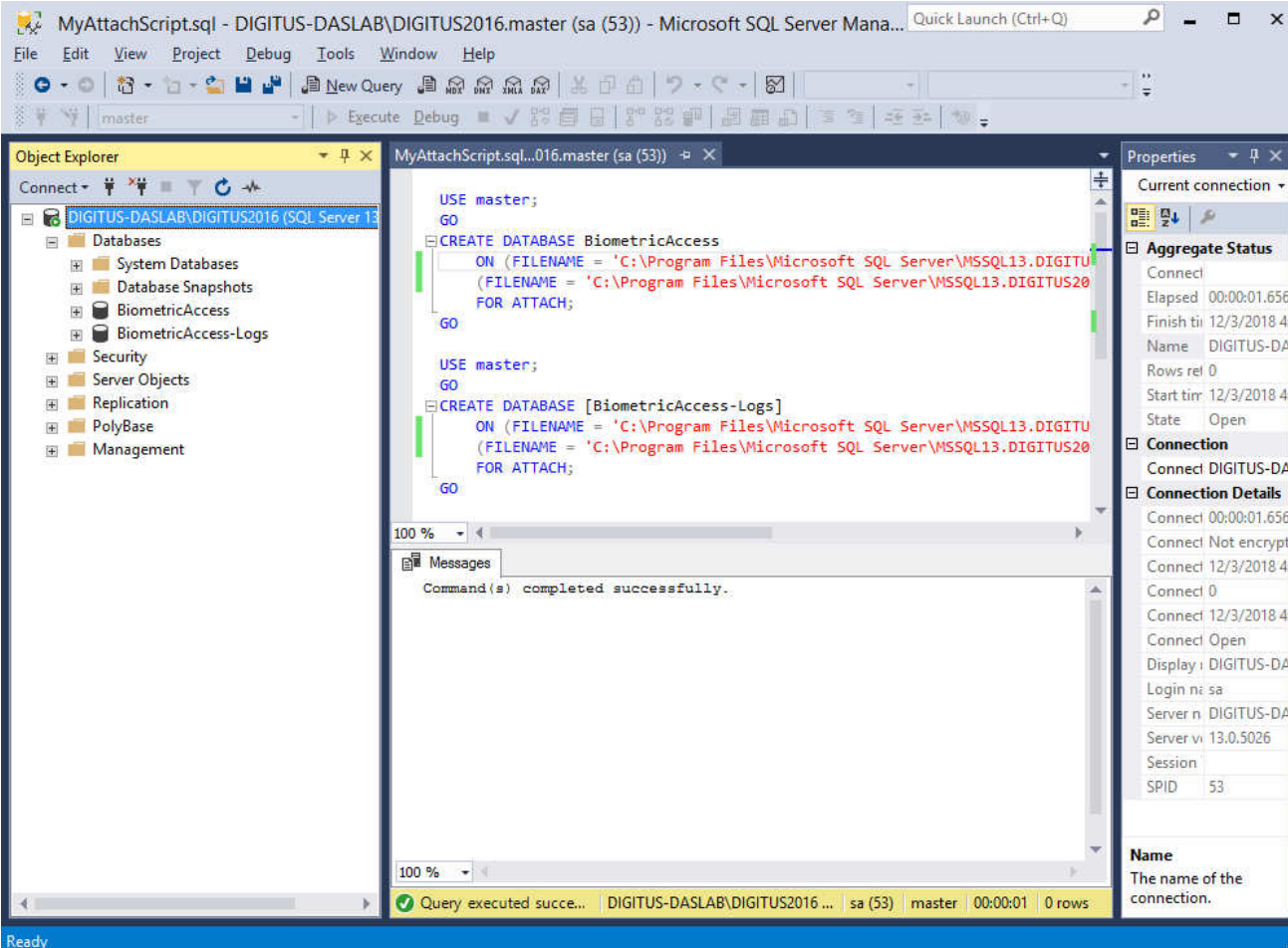


Notice the Instance path highlighted above.

Once you have modified the files paths, execute / run the script to attach your databases.



Once you see the “Command(s) completed successfully” message in the Messages window, click on your instance name in the top left of the SQL Server Management Studio window followed by Refresh in order to see the newly attached databases.



The screenshot shows the Microsoft SQL Server Enterprise Manager interface. The title bar indicates the connection is to 'MyAttachScript.sql - DIGITUS-DASLAB\DIGITUS2016.master (sa (53)) - Microsoft SQL Server Mana...'. The Object Explorer on the left shows the 'DIGITUS-DASLAB\DIGITUS2016 (SQL Server 13)' server with various databases listed. The central pane displays the following SQL script:

```
USE master;
GO
CREATE DATABASE BiometricAccess
ON (FILENAME = 'C:\Program Files\Microsoft SQL Server\MSSQL13.DIGITUS2016\BiometricAccess.mdf',
    FILENAME = 'C:\Program Files\Microsoft SQL Server\MSSQL13.DIGITUS2016\BiometricAccess.ldf')
FOR ATTACH;
GO

USE master;
GO
CREATE DATABASE [BiometricAccess-Logs]
ON (FILENAME = 'C:\Program Files\Microsoft SQL Server\MSSQL13.DIGITUS2016\BiometricAccess-Logs.mdf',
    FILENAME = 'C:\Program Files\Microsoft SQL Server\MSSQL13.DIGITUS2016\BiometricAccess-Logs.ldf')
FOR ATTACH;
GO
```

The Messages pane at the bottom shows the command completed successfully. The Properties pane on the right displays connection details for the current connection.

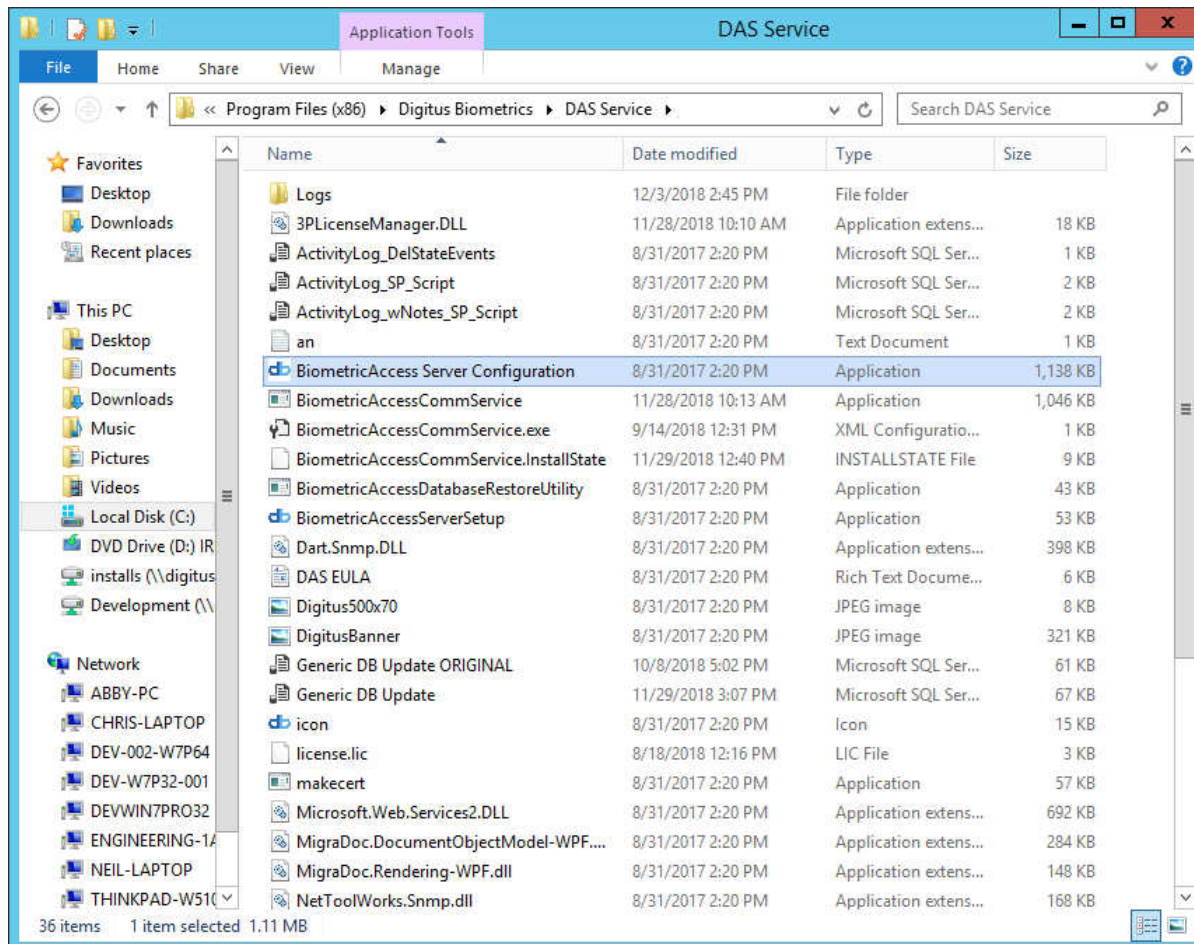
Aggregate Status	
Connect	00:00:01.656
Finish time	12/3/2018 4
Name	DIGITUS-DA
Rows read	0
Start time	12/3/2018 4
State	Open

Connection Details	
Connect	00:00:01.656
Connect Not encrypt	
Connect	12/3/2018 4
Connect	0
Connect	12/3/2018 4
Connect	Open
Display name	DIGITUS-DA
Login name	sa
Server name	DIGITUS-DA
Server version	13.0.5026
Session	
SPID	53

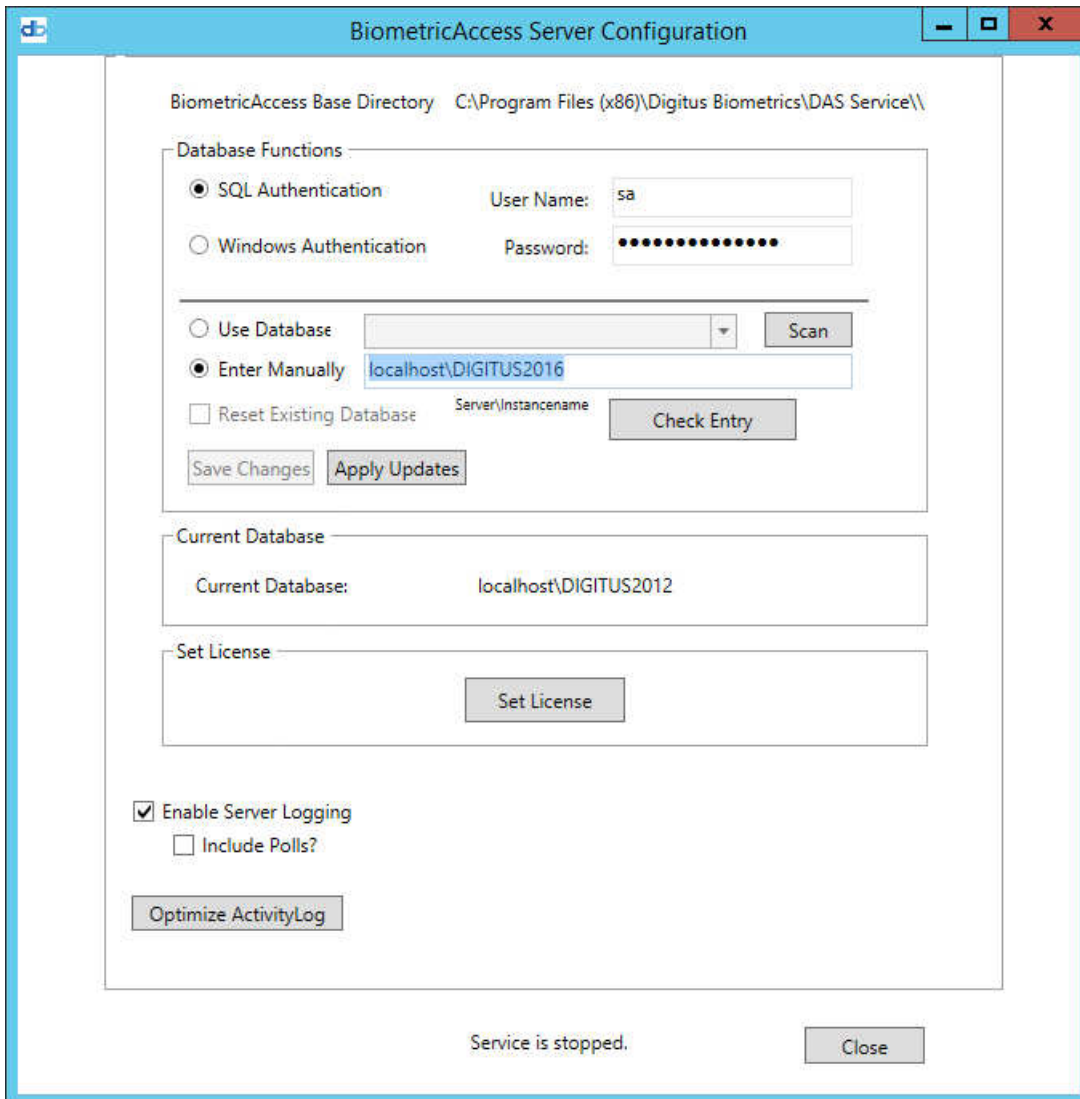
The status bar at the bottom indicates: 'Query executed successfully. DIGITUS-DASLAB\DIGITUS2016 ... | sa (53) | master | 00:00:01 | 0 rows'.

Connect DAS SQL to the new databases

Connect your new SQL Server 2016 Express instance and newly copied / attached databases to DAS SQL.



Right click and run BiometricAccessServer Configuration as Admin.

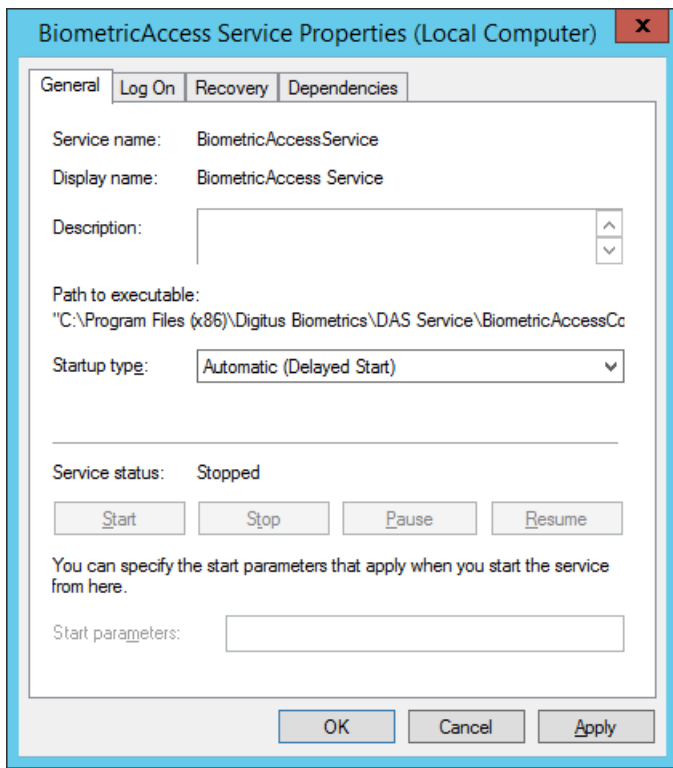


Enter your SQL Server instance name, then click the Check Entry button.

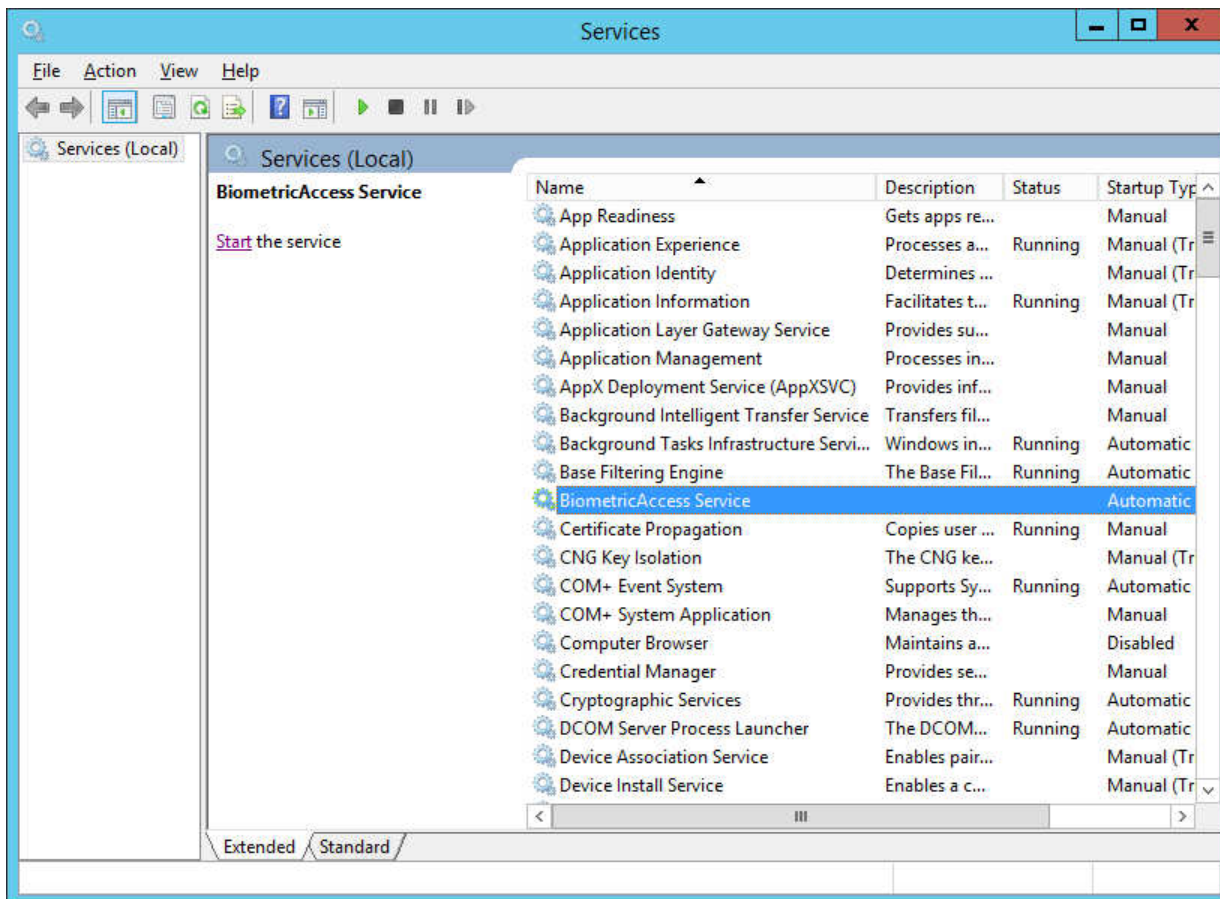
If DAS SQL can successfully connect to your instance, the Save Changes button will enable. Click the Save Changes button, the save operation should only take a second or 2. Then click Apply Updates to apply any schema changes to the DAS SQL databases. Again this should only take a matter of a couple of seconds.

Failing to Apply Updates could render DAS-SQL in-operable, if data fields have been added to the schema.

Once finished, click Close. You will be asked if “you wish to start the service at this time” – as we disabled the service earlier in the process, click No.



Go back to Windows Service and select / double click the BiometricAccess Service and set the startup type to “Automatic (Delayed Start)”, before clicking OK.



Now click Start to start the BiometricAccess Service, making sure that the service enters the “Running” state.

The final thing is to test you can access your DAS SQL by logging in to the client.