

Video Store DB Production Project

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IS470

March 9, 2023

Tools Used

- VMWare Workstation Pro, SSMS, SSRS, VS
- Windows Server 2022, SQL Server,

Notes:

VM-DC1

Domain admins:

dcadmin

Thesus14

Local admins:

Administrator

Thesus14

Both VM-DC1 and VM-SQL1 do not have password to login to VM

Windows IP Configuration

Host Name : VM-DC1
Primary Dns Suffix : student.wou.home
Node Type : Hybrid
IP Routing Enabled. : No
WINS Proxy Enabled. : No
DNS Suffix Search List. : student.wou.home

Ethernet adapter Ethernet0:

Connection-specific DNS Suffix . :
Description : Intel(R) 82574L Gigabit Network Connection
Physical Address. : 00-0C-29-1D-9D-F3
DHCP Enabled. : No
Autoconfiguration Enabled : Yes
Link-local IPv6 Address : fe80::2e:b698:8144:74ca%14(Preferred)
IPv4 Address. : 192.168.248.5(Preferred)
Subnet Mask : 255.255.255.0
Default Gateway : 192.168.248.2
DHCPv6 IAID : 100666409
DHCPv6 Client DUID. : 00-01-00-01-2B-97-09-21-00-0C-29-1D-9D-F3
DNS Servers : ::1
 192.168.248.2
 127.0.0.1
NetBIOS over Tcpip. : Enabled

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DHCPv6 IAID : 100666409

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DNS Servers : ::1

192.168.248.2

127.0.0.1

NetBIOS over Tcpip. : Enabled

SQLServerDB

No Pass

Accounts:

sqldev

Tango01

VM-SQL1\SQLServerDB

1diJ40Cap7jcHxYuplLw

```
Windows IP Configuration

Host Name . . . . . : VM-SQL1
Primary Dns Suffix . . . . . : student.wou.home
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : student.wou.home


Ethernet adapter Ethernet0:

Connection-specific DNS Suffix . :
Description . . . . . : Intel(R) 82574L Gigabit Network Connection
Physical Address. . . . . : 00-0C-29-31-7C-07
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::48c4:1cc9:56d3:abc9%8(Preferred)
IPv4 Address. . . . . : 192.168.248.10(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.248.2
DHCPv6 IAID . . . . . : 100666409
DHCPv6 Client DUID. . . . . : 00-01-00-01-2B-97-08-6B-00-0C-29-31-7C-07
DNS Servers . . . . . : 192.168.248.5
NetBIOS over Tcpip. . . . . : Enabled
```

Microsoft SQL Server 2022 Setup Discovery Report

Product	Instance	Instance ID	Feature	Language	Edition	Version	Clustered	Configured
Microsoft SQL Server 2022	SQLEXPRESS	MSSQL16.SQLEXPRESS	Database Engine Services	1033	Express Edition	16.0.1000.6	No	Yes
Microsoft SQL Server 2022	MSSQLSERVER	MSSQL16.MSSQLSERVER	Database Engine Services	1033	Express Edition	16.0.1000.6	No	Yes
Microsoft SQL Server 2022	MSSQLSERVER	MSSQL16.MSSQLSERVER	SQL Server Replication	1033	Express Edition	16.0.1000.6	No	Yes
Microsoft SQL Server 2022	MSSQLSERVER	MSSQL16.MSSQLSERVER	Full-Text and Semantic Extractions for Search	1033	Express Edition	16.0.1000.6	No	Yes
Microsoft SQL Server 2022	MSSQLSERVER	MSSQL16.MSSQLSERVER	Machine Learning Services and Language Extensions	1033	Express Edition	16.0.1000.6	No	Yes

1. Created a windows server 2022 VM in VMWare VM-DC1 to promote to domain controller.
2. Created VM-SQL1 to install SQL server, SSMS and SSRS on it and add a db instance.
3. Installed SQL Server 2022 to setup the accounts, instance, and dependencies.

SQL Server 2022 Setup

Server Configuration

Specify the service accounts and collation configuration.

Global Rules

Microsoft Update

Product Updates

Install Setup Files

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\MSSQL\$ISWOU		Automatic
SQL Server Launchpad	NT Service\MSSQLLaunchpad\$ISWOU		Automatic
SQL Full-text Filter Daemon Launcher	NT Service\MSSQLFDLauncher\$ISWOU		Manual
SQL Server Browser	NT AUTHORITY\LOCALSERVICE		Disabled

☐ Grant Perform Volume Maintenance Tasks 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](#)

4. Added ISDev domain

SQL Server 2022 Setup

Select Users, Computers, Service Accounts, or Groups

Select this object type:
Users, Service Accounts, Groups, or Built-in security principals

From this location:
Entire Directory

Enter the object names to select (examples):
ISDev (ISDev@student.wou.home)

Advanced... OK Cancel

Feature Selection
Feature Rules
Instance Configuration
Server Configuration
Database Engine Configuration
Feature Configuration Rules
Installation Progress
Complete

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

Specify SQL Server administrators
VM-SQL1\SQLServerDB (SQLServerDB)
SQL Server administrators have unrestricted access to the Database Engine.

Add Current User Add... Remove

Specify SQL Server administrators

VM-SQL1\SQLServerDB (SQLServerDB)
STUDENT\ISDev (ISDev)

Add Current User Add... Remove

5. Finalized

SQL Server 2022 Setup

Complete

Your SQL Server 2022 installation completed successfully with product updates.

- Global Rules
- Microsoft Update
- Product Updates
- Install Setup Files
- Install Rules
- Installation Type
- License Terms
- Feature Selection
- Feature Rules
- Instance Configuration
- Server Configuration
- Database Engine Configuration
- Feature Configuration Rules
- Installation Progress
- Complete**

Information about the Setup operation or possible next steps:

Feature	Status
Full-Text and Semantic Extractions for Search	Succeeded
Machine Learning Services and Language Extensions	Succeeded
Database Engine Services	Succeeded
SQL Server Replication	Succeeded

Details:

Install successful.

6. Then verified the service as a server in sql server configuration manager. You can see I had created two instances one default SQLEXPRESS and the other ISWOU

SQL Server Configuration Manager

- SQL Server Configuration Manager (Local)
- SQL Server Services
- SQL Server Network Configuration (32bit)
- SQL Native Client 11.0 Configuration (32bit)
- Azure Extension For SQL Server
- SQL Server Network Configuration
 - Protocols for SQLEXPRESS
 - Protocols for MSSQLSERVER
- SQL Native Client 11.0 Configuration
- Azure Extension For SQL Server

Name	State	Start Mode	Log On As	Process ID	Service Type
SQL Server (SQLEXPRESS)	Running	Automatic	NT Service\MSSQLS...	6752	SQL Server
SQL Server Agent (SQLEXPRESS)	Stopped	Other (Boot, System...	NT AUTHORITY\NET...	0	SQL Agent
SQL Server Browser	Stopped	Other (Boot, System...	NT AUTHORITY\LOC...	0	
SQL Server (MSSQLSERVER)	Running	Automatic	NT Service\MSSQLS...	5820	SQL Server
SQL Server Agent (MSSQLSERVER)	Stopped	Automatic	NT AUTHORITY\NET...	0	SQL Agent
SQL Server Launchpad (MSSQLSERVER)	Running	Automatic	NT Service\MSSQL...	3500	
SQL Full-text Filter Daemon Launcher (MSSQLSER...	Running	Manual	NT Service\MSSQL...	3416	
SQL Server (ISWOU)	Running	Automatic	NT Service\MSSQLS...	2456	SQL Server
SQL Server Agent (ISWOU)	Stopped	Other (Boot, System...	NT AUTHORITY\NET...	0	SQL Agent
SQL Server Launchpad (ISWOU)	Running	Automatic	NT Service\MSSQL...	8184	
SQL Full-text Filter Daemon Launcher (ISWOU)	Running	Manual	NT Service\MSSQL...	5940	

7. Then I had to enable TCP/IP under SQL Server Network configuration > Protocols for MSSQLSERVER

SQL Server Configuration Manager (Local)

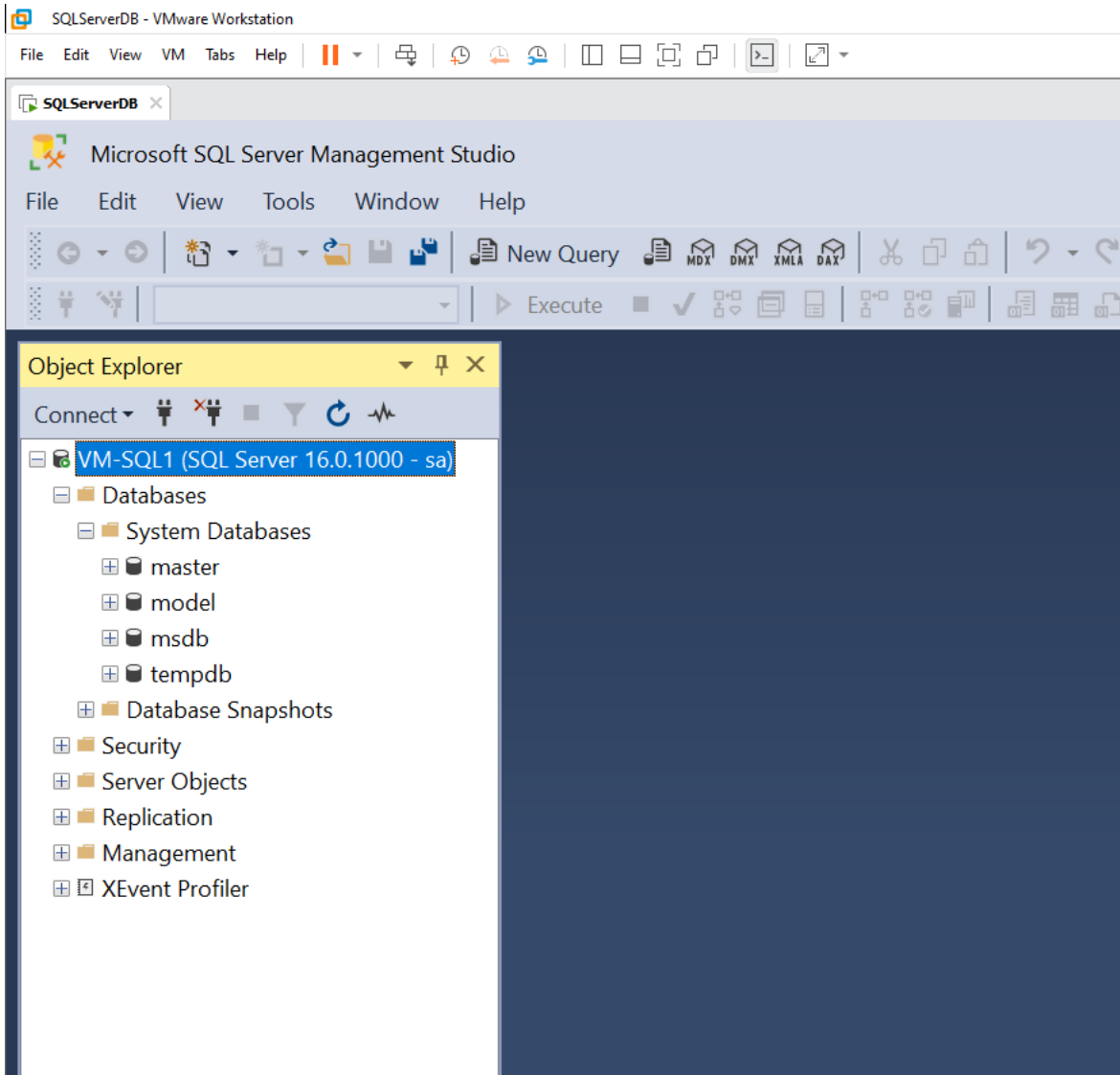
- SQL Server Services
- SQL Server Network Configuration (32bit)
- SQL Native Client 11.0 Configuration (32bit)
- Azure Extension For SQL Server
- SQL Server Network Configuration
 - Protocols for SQLEXPRESS
 - Protocols for MSSQLSERVER
- SQL Native Client 11.0 Configuration
- Azure Extension For SQL Server

Protocol Name	Status
Shared Memory	Enabled
Named Pipes	Disabled
<u>TCP/IP</u>	Enabled

8. Created Inbound firewall rule to allow port 1433 otherwise I can't connect to the db instance

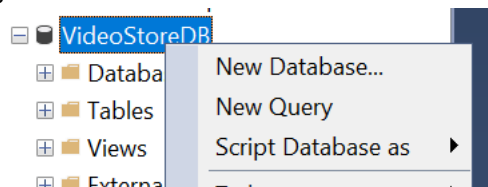


9. The SQL account was used for the SSMS connection

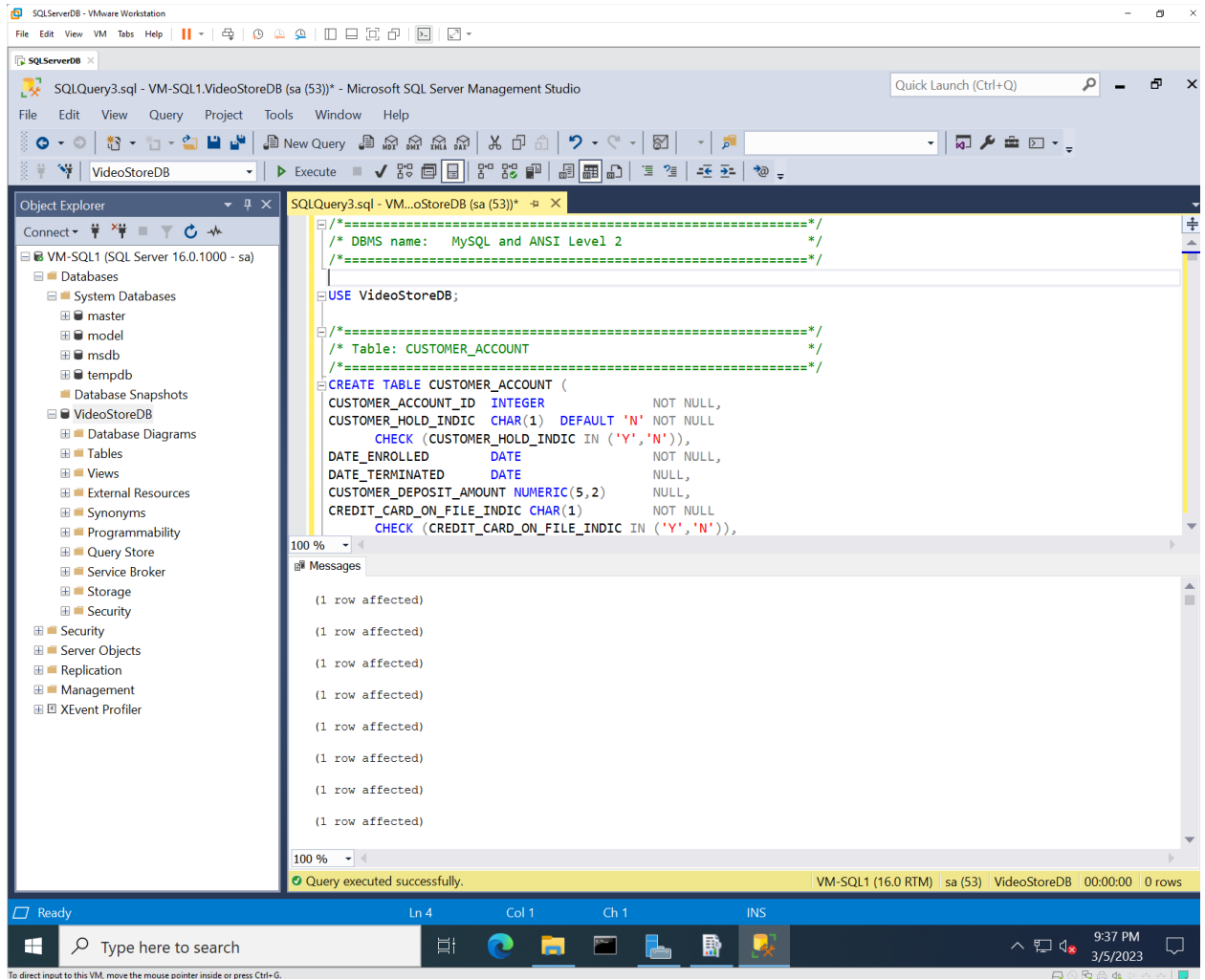


10. I need to import the VideoStore database code by creating a new database.

11. I right clicked on the MovieStoreDB and selected New Query



12. Then inject the SQL code in VideoStoreDB yet since the database video store was created in SSMS, I will use that then follow with injection execution commands.
13. It did not take long to execute the injection query.



14. I double check the tables and columns and run a query to return all data within the table

The screenshot shows the SQL Server Enterprise Manager interface. On the left, the Object Explorer displays the database structure for 'VideoStoreDB', including tables, columns, keys, constraints, triggers, indexes, and statistics. The 'dbo.CUSTOMER_ACCOUNT' table is selected, showing its columns: CUSTOMER_ACCOUNT_ID (PK, int, not null), CUSTOMER_HOLD_INDIC (char(1), not null), DATE_ENROLLED (date, not null), DATE_TERMINATED (date, null), CUSTOMER_DEPOSIT_AMOUNT (numeric(5,2), null), CREDIT_CARD_ON_FILE_INDIC (char(1), not null), and CHILD_RENTAL_ALLOWED_INDIC (char(1), not null). On the right, the SQL Query window shows the query: `SELECT * FROM dbo.CUSTOMER_ACCOUNT;`. The Results pane displays the data for the table, showing 9 rows. The status bar at the bottom indicates 'Query executed successfully. VM-SQL1 (16.0 RTM) sa (68) VideoStoreDB 00:00:00 9 rows'.

	CUSTOMER_ACCOUNT_ID	CUSTOMER_HOLD_INDIC	DATE_ENROLLED	DATE_TERMINATED	CUSTOMER_DEPOSIT_AMO
1	1	N	2010-01-01	NULL	NULL
2	2	N	2010-01-18	NULL	NULL
3	3	N	2010-02-01	NULL	NULL
4	4	N	2010-02-01	NULL	50.00
5	5	N	2010-02-01	NULL	50.00
6	6	Y	2010-02-15	2010-03-01	NULL
7	7	N	2010-02-15	NULL	NULL
8	8	N	2010-03-01	NULL	NULL
9	9	Y	2005-03-01	NULL	50.00

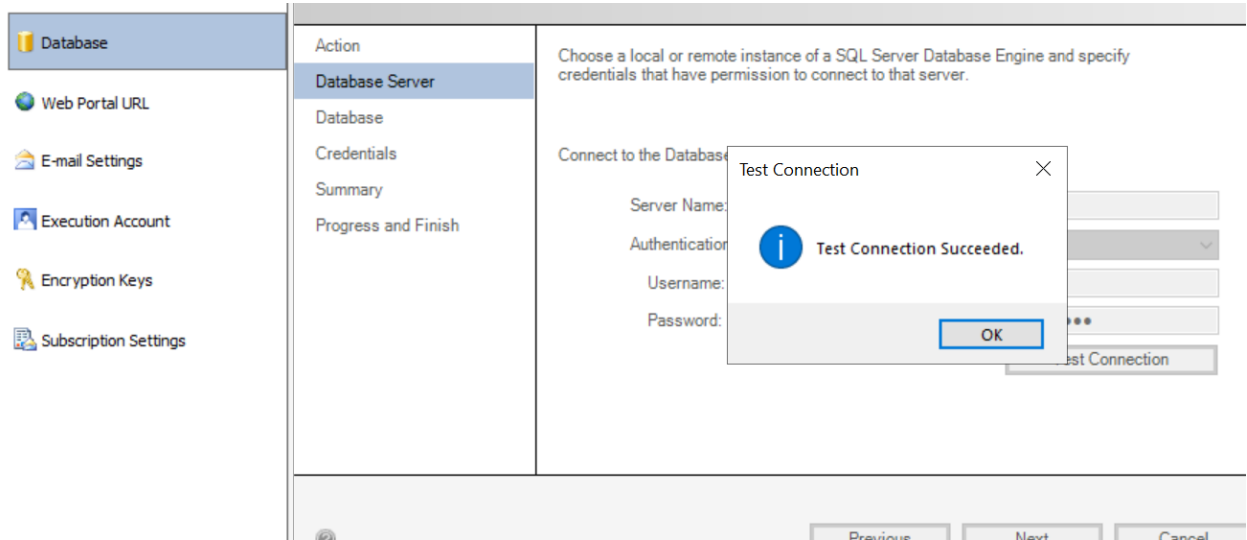
15. Perfect, now I am able to begin the SSRS integration before the web search applications

16. In SSRS configuration manager and connected to the SQL server VM-SQL1

17. The sqldev account can be used as the service account or not. I use ISDev

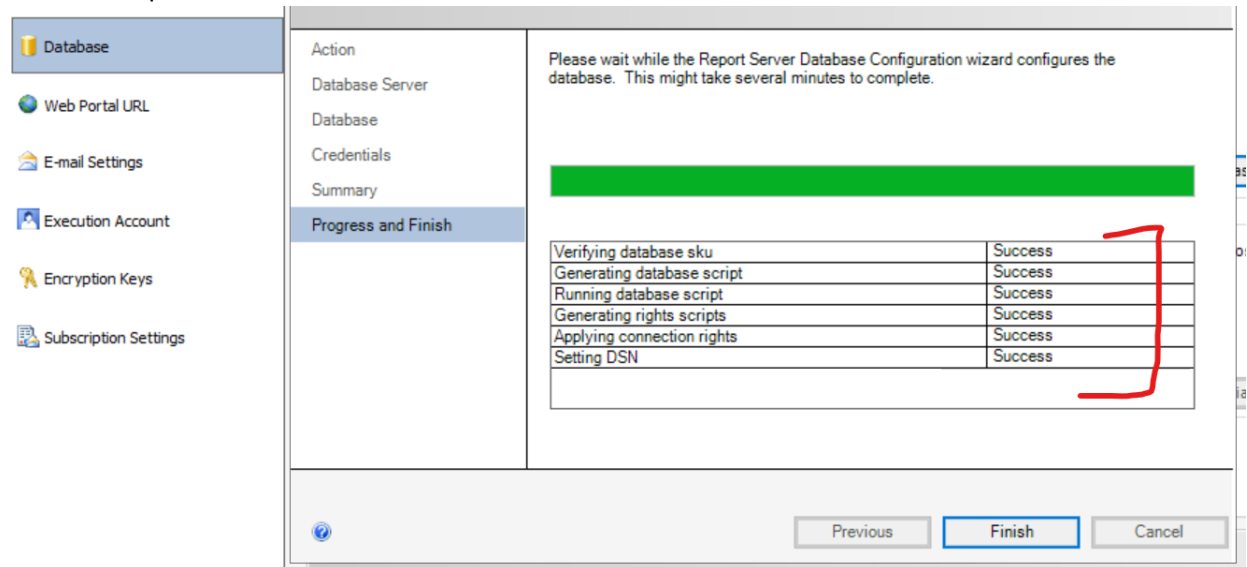
The screenshot shows the SSRS configuration manager interface. On the left, the 'Service Account' option is selected under the 'VM-SQL1\SSRS' folder. The main pane displays the 'Specify a built-in account or Windows domain user account to run the report server service.' dialog. The 'Report Server Service Account' section shows the 'Use another account' option selected. The 'Account (Domain\user):' field is set to 'student.wou.home\ISDev', and the 'Password:' field is masked with dots. The status bar at the bottom indicates 'Query executed successfully. VM-SQL1 (16.0 RTM) sa (68) VideoStoreDB 00:00:00 9 rows'.

18. Then in Database I entered the instance admin credentials and tested connection



19. Followed the prompt by entering database name "ISProject" and credential authentication will be the service account credentials

20. Ensured the process is successful



21. Now the Web Service URL must be established before the Web Portal URL. TCP Port is 80 because I do not have a cert for HTTPS yet this can be changed at a later time

VM-SQL1\SSRS

Service Account

Web Service URL

Database

Web Portal URL

E-mail Settings

Execution Account

Encryption Keys

Subscription Settings

Configure a URL used to access the Report Server. Click Advanced to define multiple URLs for a single Report Server instance, or to specify additional parameters on the URL.

Report Server Web Service Virtual Directory

Virtual Directory: ReportServer

Report Server Web Service Site identification

IP Address: All Assigned (Recommended)

TCP Port: 80

HTTPS Certificate: (Not Selected)

HTTPS Port:

Advanced...

Report Server Web Service URLs

URLs: <http://VM-SQL1:80/ReportServer>

Results

21:51:06.720 | Reserving url http://+:

21:51:07.1940 | Stopping report server "SQLServerReportingServices" on VM-SQL1.

21:51:07.9164 | Starting report server "SQLServerReportingServices" on VM-SQL1.

The task completed successfully.

Copy

22. In Web Portal URL I clicked apply and ensure the process is successful

Web Portal URL

E-mail Settings

Execution Account

Encryption Keys

Subscription Settings

URLs: <http://VM-SQL1:80/Reports>

Advanced

Results

21:51:54.7112 | Creating virtual directory Reports

21:51:59.9145 | Reserving url http://+:80

21:52:00.2812 | Stopping report server "SQLServerReportingServices" on VM-SQL1.

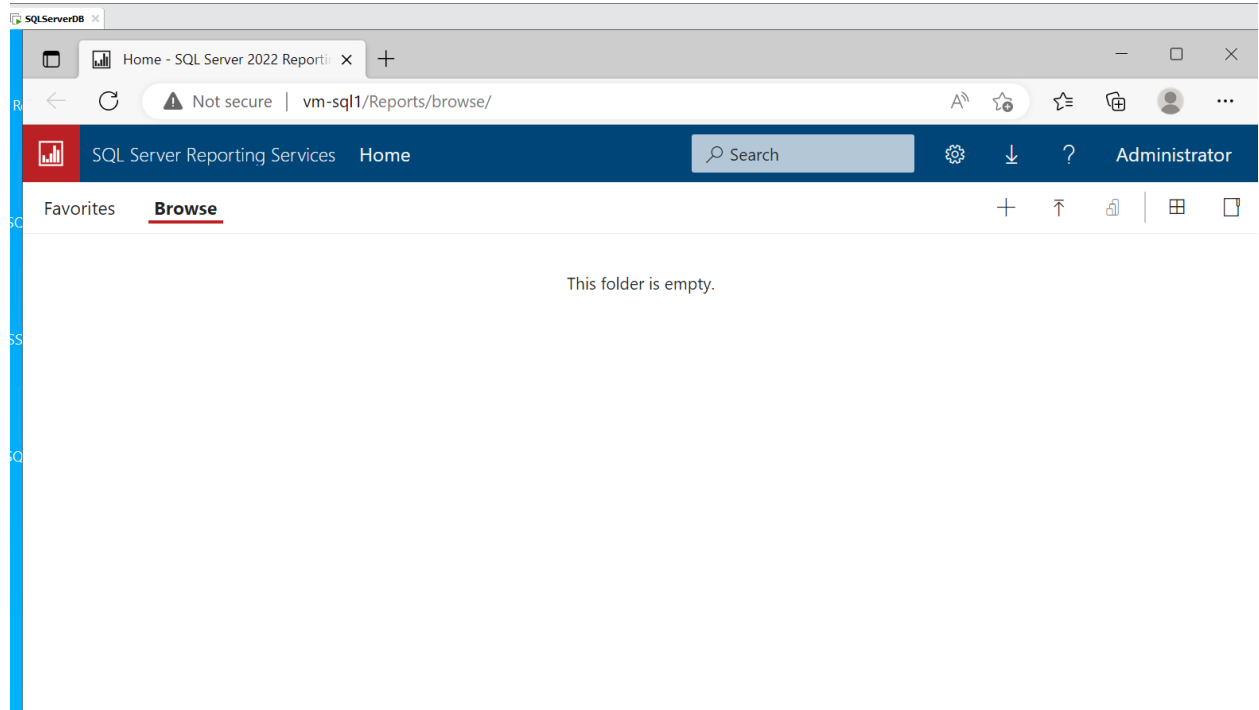
21:52:01.1458 | Starting report server "SQLServerReportingServices" on VM-SQL1.

The task completed successfully.

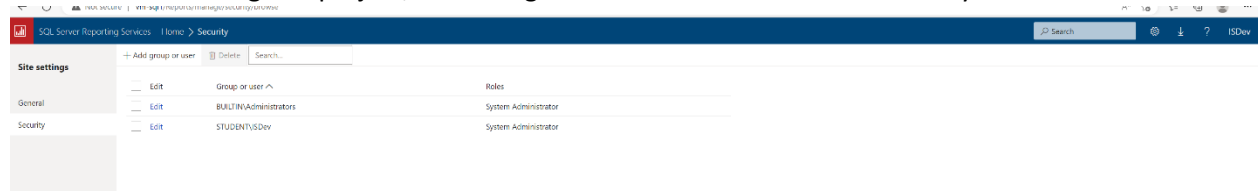
Copy

Apply Exit

23. I used the default directories for both web service and portal
24. Now I need to test both web links. Therefore, I initiated them to ensure I can see a connection and typed the admin password which is the DC1 admins password since VM-SQL1 is in the domain. However, once I setup and delegate access permissions then I could log in to SSRS or use the web interface as another user with less access.

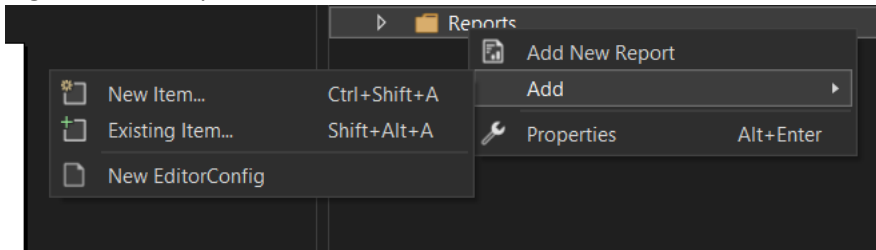


25. The administrator account is to apply or remove access where needed for admins to use. In this case since I am doing this project, I am using domain admin to not bottleneck my movement.



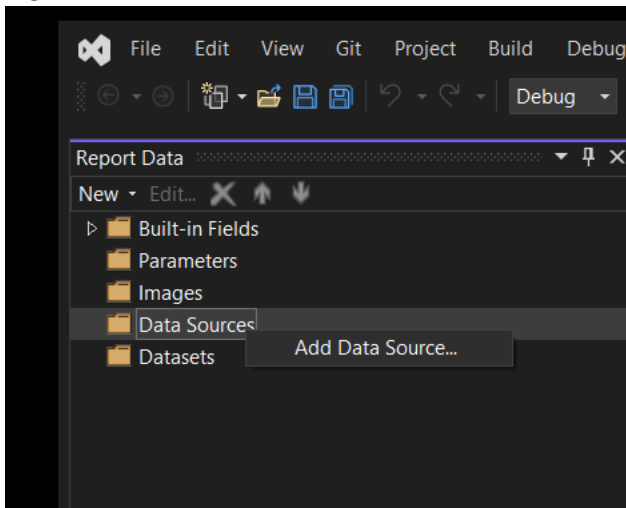
26. Setup Windows 10 Education VM with Visual Studio Enterprise 2022
27. Install SQL Server Data Tools in Visual Studio in the W10 host.
28. Setup connections in VS to SSRS database reports then apply configuration properties.
29. Open VS and start a Report Server Project

30. Right click on Reports and select New Item



31. Then Select Report

32. Right click on Data Sources and Add Data Source

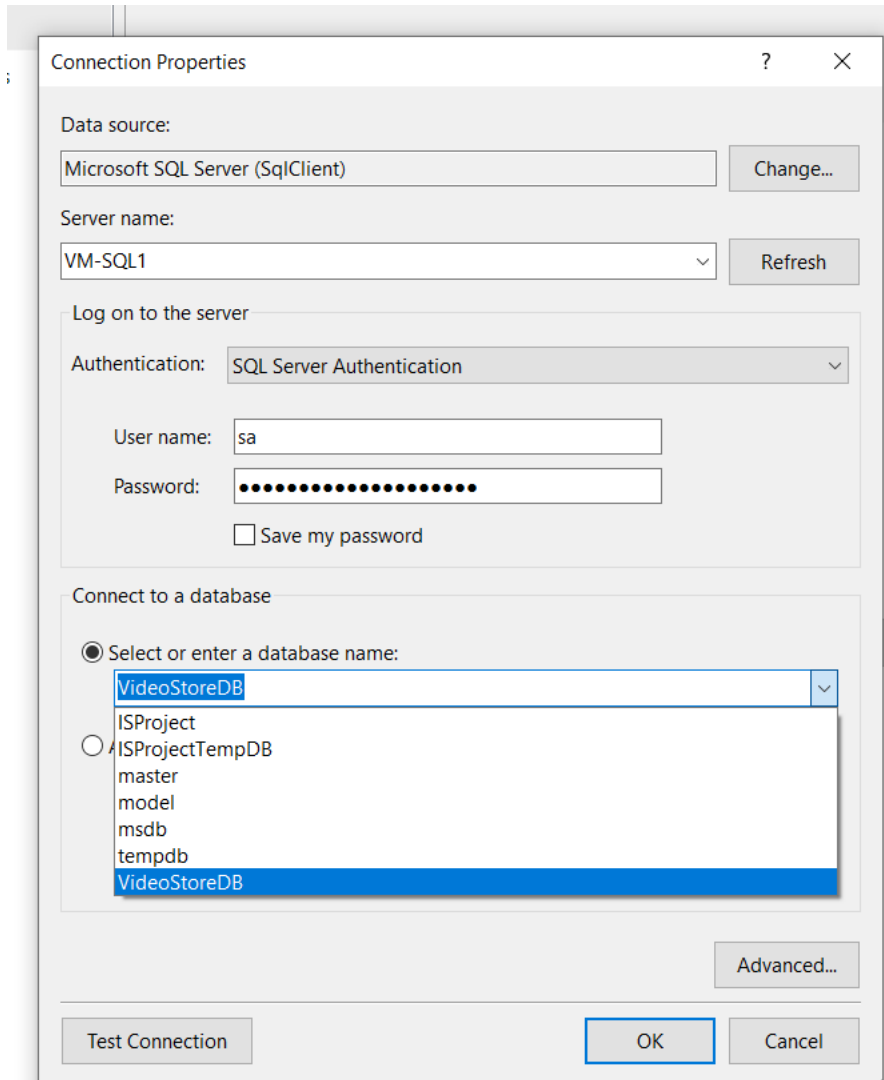


33. I named it ISProjectDB then select Build on the lower right

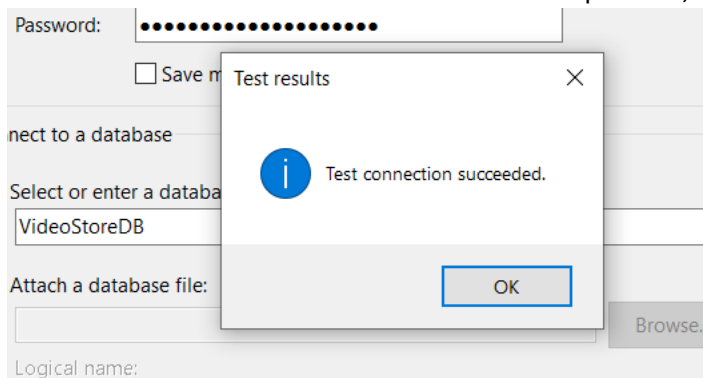
34. Data Source is Microsoft SQL Server, Server name is VM-SQL1 (I created it in the SQL server previously)

35. Then select a database to connect to using SQL Server Authentication which is the sa account and password

36. Once authenticated we can view the databases and I selected VideoStoreDB



37. Test connection to make sure it succeeded then press ok, ok



38. Now we can run a small test before we begin a web report.

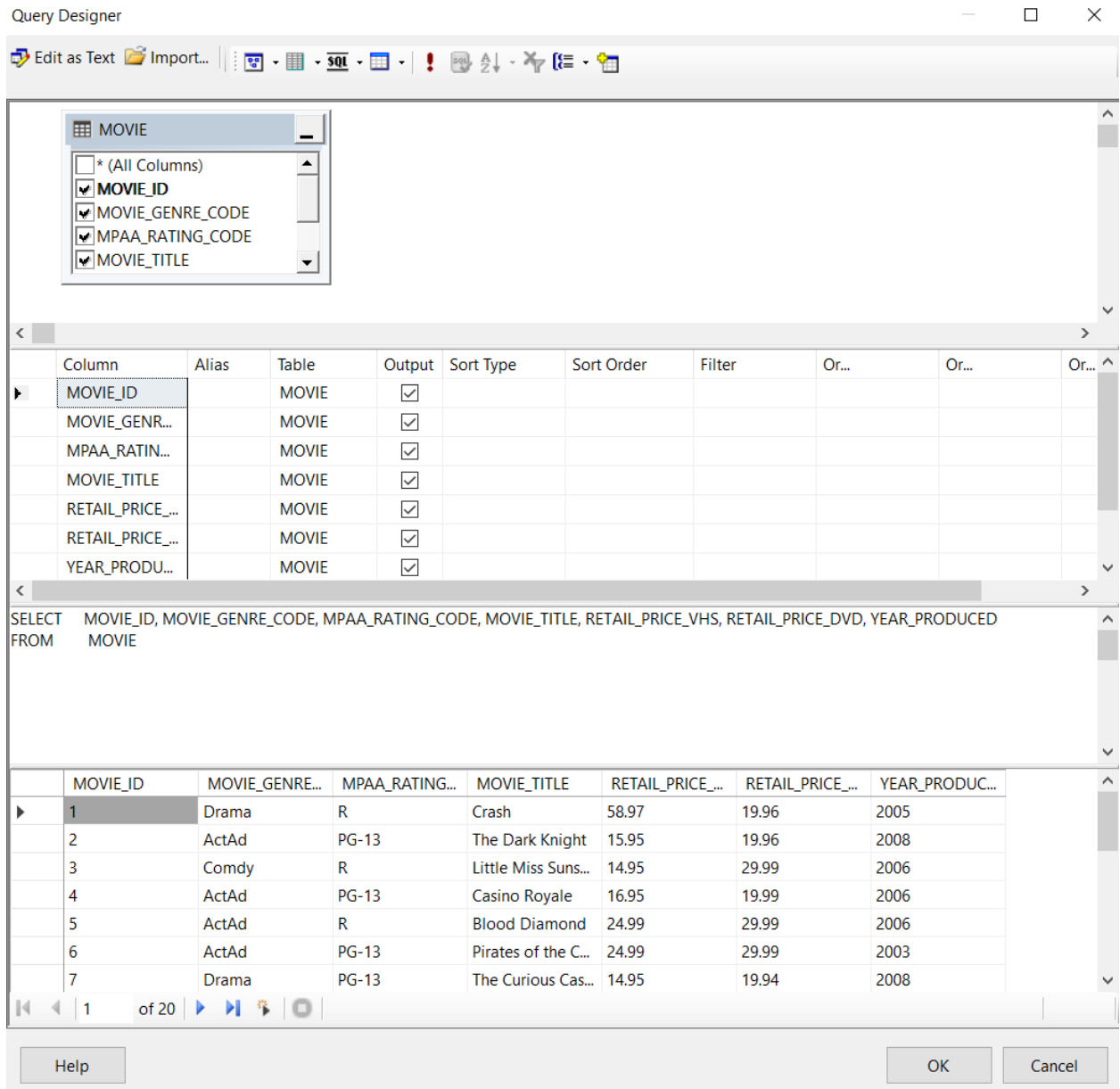
39. Add a dataset and select Use a dataset embedded in my report and make sure it is the ISProjectDB data source

The screenshot shows the 'Query' tab in a report designer. On the left is a sidebar with a list of options: 'Query' (selected), 'Fields', 'Options', 'Filters', and 'Parameters'. The main area has a header 'Choose a data source and create a query.' Below this is a 'Name:' label followed by a text box containing 'DataSet1'. There are two radio buttons: 'Use a shared dataset.' (unselected) and 'Use a dataset embedded in my report.' (selected). Below the radio buttons is a 'Data source:' label, a dropdown menu showing 'ISProjectDB', and a 'New...' button. At the bottom is a 'Query type:' label with three radio buttons: 'Text' (selected), 'Table' (unselected), and 'Stored Procedure' (unselected).

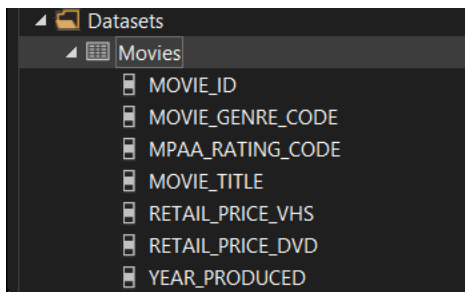
Query	Choose a data source and create a query.
Fields	Name: DataSet1
Options	<input type="radio"/> Use a shared dataset.
Filters	<input checked="" type="radio"/> Use a dataset embedded in my report.
Parameters	Data source: ISProjectDB New...
	Query type: <input checked="" type="radio"/> Text <input type="radio"/> Table <input type="radio"/> Stored Procedure

40. Then go to Query Designer to add code.

41. I create an easy SELECT SQL query to run.

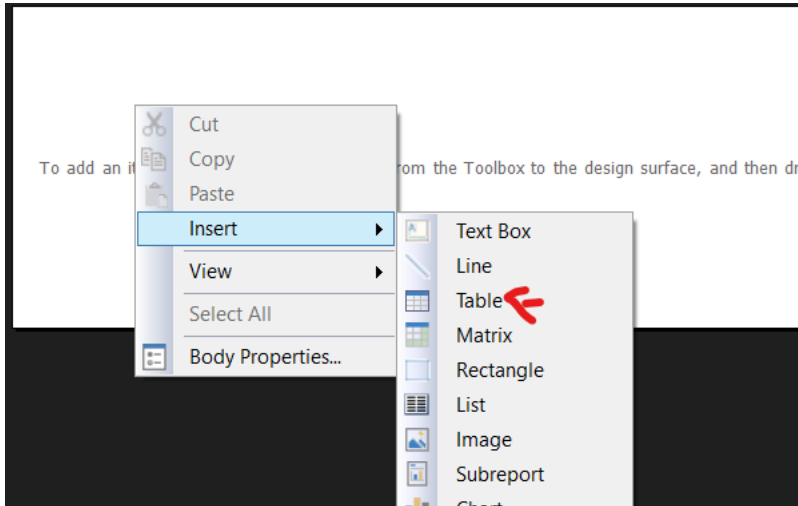


42. In query designer when I add “SELECT * FROM Movie” it will inset all the column titles. Then insert those values to the dataset like so

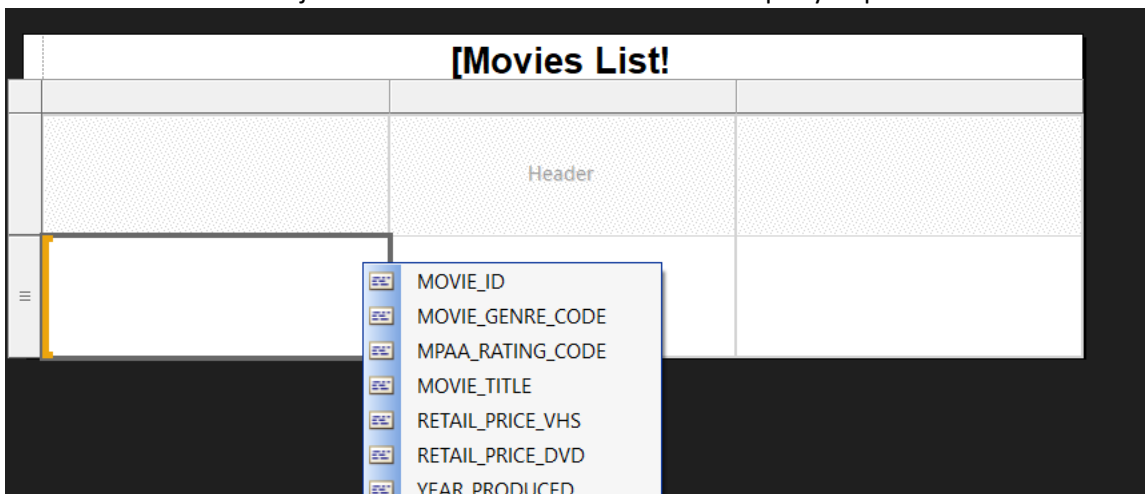


43. It is working! Let's push this to the ssrs server! Before that I have to add a parameter and table in order for a user or myself have the ability to search for movies on the web from any computer as long as it is in the domain, has access or permissions to the server, even across a vpn if it is setup that way.

44. Right click on the white space to add a table



45. I added a title and now I just need to add the values I want the query to pull



46. Lets go with Movie title, vhs and dvd price

[Movies List!]		
Header		
MOVIE TITLE	RETAIL PRICE VHS	RETAIL PRICE DVD
[MOVIE_TITLE]	[RETAIL_PRICE_VHS]	[RETAIL_PRICE_DVD]

47. Also we can add expressions for the text box, we can add expressions anywhere like header and footer to show page numbers or the same title across different pages. For now I just want to keep it simple.

48. Under parameters right click and add a new parameter then named it Movie and prompt it for Search for Movies

Report Parameter Properties

General

Available Values

Default Values

Advanced

Change name, data type, and other options.

Name:

Movie

Prompt:

Search for Movies

Data type:

Text

☐ Allow blank value ("")

49. However, when I ask it to pull for values, it lists many values but I can only select one. The reason for that is because I only had one dataset called Movies with many values.

Report Parameter Properties

General

Available Values

Default Values

Advanced

Choose the available values for this parameter.

Select from one of the following options:

☐ None

☐ Specify values

☒ Get values from a query

Dataset: (Warning: Possible performance impact)

Movies

Value field:

Mov
MOVIE_ID
MOVIE_GENRE_CODE
MPAA_RATING_CODE
MOVIE_TITLE
RETAIL_PRICE_VHS
RETAIL_PRICE_DVD
YEAR_PRODUCED

50. I have to create a new dataset and named it SearchMovies

Name:

SearchMovies

☐ Use a shared dataset.

☒ Use a dataset embedded in my report.

Data source:

ISProjectDB

Query type:

☒ Text ☐ Table ☐ Stored Procedure

Query:

```
SELECT DISTINCT MOVIE_TITLE AS MovieTitle
FROM    MOVIE
ORDER BY MovieTitle
```

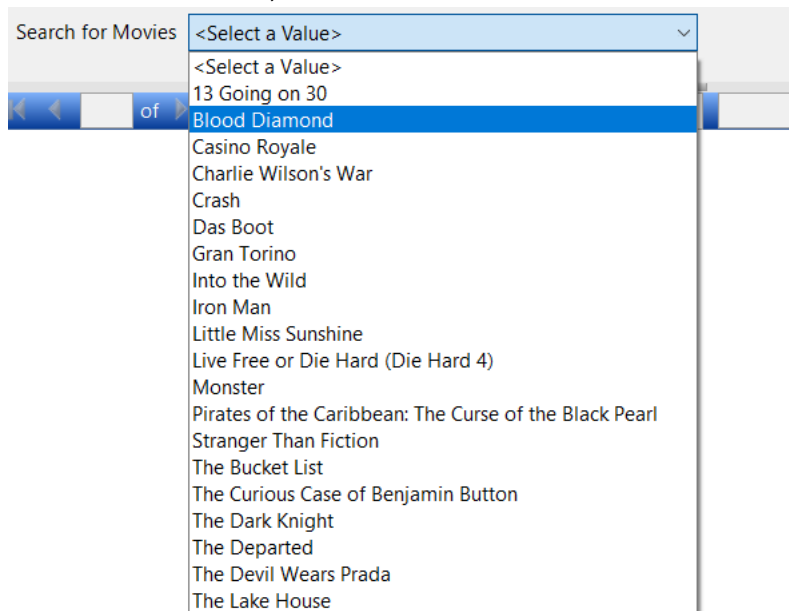
51. Included a simple search for movies

52. In the Movie parameter now I've selected one value to return titles

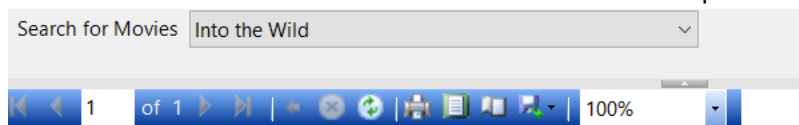
Report Parameter Properties

General	<p>Choose the available values for this parameter.</p> <p>Select from one of the following options:</p> <p><input type="radio"/> None</p> <p><input type="radio"/> Specify values</p> <p><input checked="" type="radio"/> Get values from a query</p> <p>Dataset: (Warning: Possible performance impact)</p> <p>SearchMovies</p> <p>Value field:</p> <p>MovieTitle</p> <p>Label field:</p> <p>MovieTitle</p>
Available Values	
Default Values	
Advanced	

53. Next in Preview mode, I can search for movies! Here is the list



54. I selected the movie titled "Into The Wild" and view the report



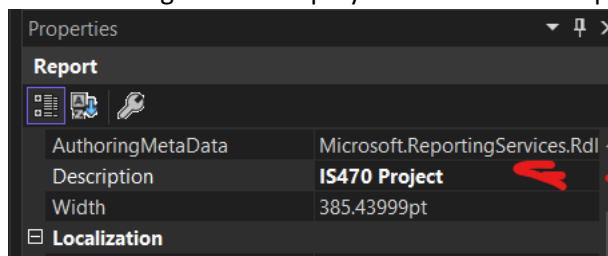
Movies List!

MOVIE TITLE	RETAIL PRICE DVD	RETAIL PRICE VHS
Into the Wild	39.99	12.98

55. Awesome! One thing to not forget to avoid displaying a full list even after selecting one value is to include the parameter for the query in the dataset

```
SELECT DISTINCT MOVIE_TITLE, RETAIL_PRICE_VHS, RETAIL_PRICE_DVD
FROM    MOVIE
WHERE Movie_Title = (@Movie)
```

56. One last thing before I deploy it is to add a Description within the Report Properties



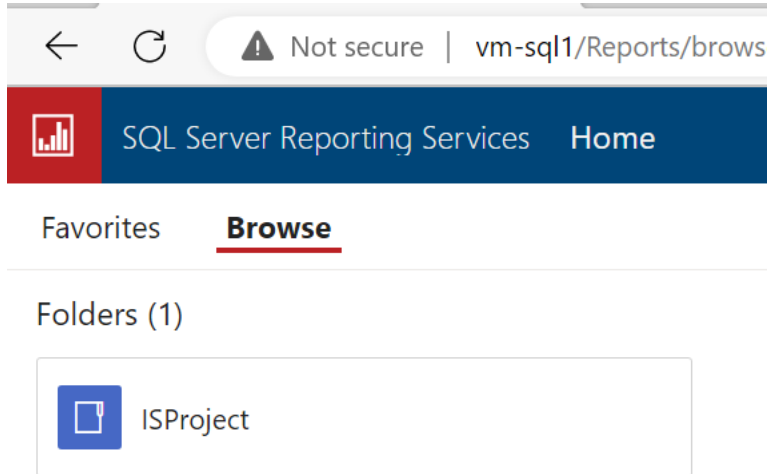
57. Now for the great moment! Push this out to development or test

58. Save all files first. Then I went back to the SSRS server which is the SQL virtual machine. To gather the URL

Report Server Web Service URLs

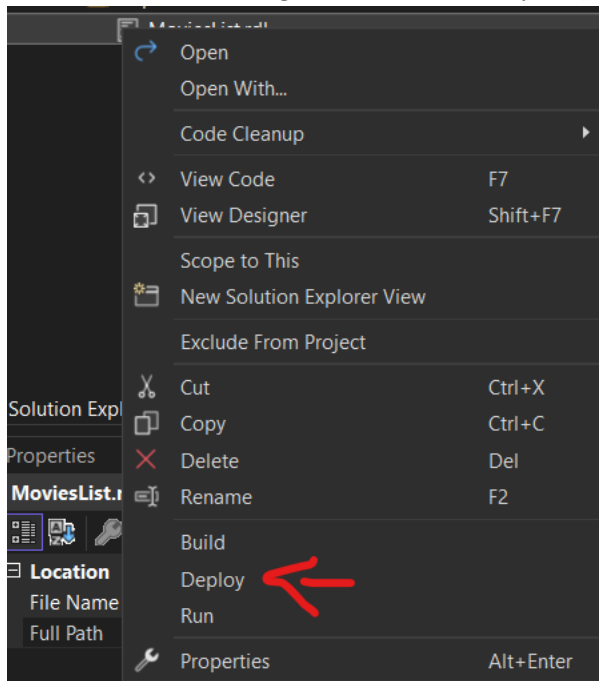
URLs: <http://VM-SQL1:80/ReportServer>

59. Then we also get the file directory where this report will be deployed to



60. I right clicked on ISProject the solution for the report. Then changed the TaretServerURL and TargetReportFolder to match what I had setup in VM-SQL1

61. I clicked OK and now right clicked on the report (changed the name to MovieList)



62. Then selected Deploy.

63. If we take a look at the SSRS web we can now see the data that was deployed

SQLServerDB - VMware Workstation 17 Player

Player ▾ || ▴ ▹ ▸

MoviesList - SQL Server 2022 Re... x vm-sql1/ReportServer - / x +

← ↻ ⚠ Not secure | vm-sql1/Reports/report/ISProject_Reports/MoviesList

SQL Server Reporting Services Home > ISProject_Reports > MoviesList

Favorites Browse

Search for Movies Gran Torino ▾

⏮ < 1 of 1 > ⏭ ↺ ⏪ 100% ▾ 📁 ✓ 🖨 🔍 | →

Movies List!

MOVIE TITLE	RETAIL PRICE DVD	RETAIL PRICE VHS
Gran Torino	29.99	24.99

SQLServerDB - VMware Workstation 17 Player

Player ▾ | [Icons]

MoviesList - SQL Server 2022 Rej x | vm-sql1/ReportServer - / x | +

← ↻ ⚠ Not secure | vm-sql1/Reports/report/ISProject_Reports/MoviesList

SQL Server Reporting Services Home > ISProject_Reports > MoviesList

Favorites Browse

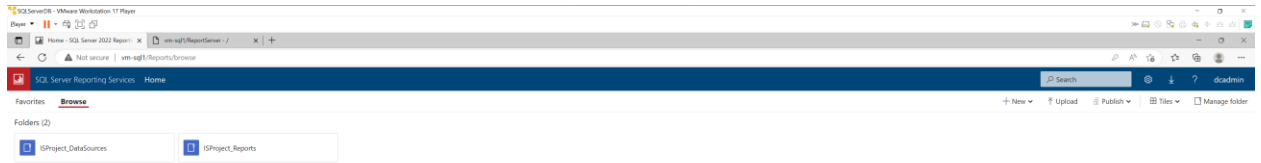
Search for Movies ▾

Gran Torino

13 Going on 30
Blood Diamond
Casino Royale
Charlie Wilson's War
Crash
Das Boot

100% ▾ [Icons]

MOVIE TITLE	
Gran Torino	24.99
Into the Wild	
Iron Man	
Little Miss Sunshine	
Live Free or Die Hard (Die Hard 4)	
Monster	
Pirates of the Caribbean: The Curse of the Black Pearl	
Stranger Than Fiction	
The Bucket List	
The Curious Case of Benjamin Button	
The Dark Knight	
The Departed	
The Devil Wears Prada	
The Lake House	



65. This is it. It is a long process, but this is the right way to set it up with a domain, the VMs separated not in the DC. Also, setting up security settings and configuring access. There is much more to do with it like setting up GitHub in VS and a repository with a dev, test, and prod branch. It can also be used with DevOps.