

# How to automatically backup SSRS reports

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# Structure

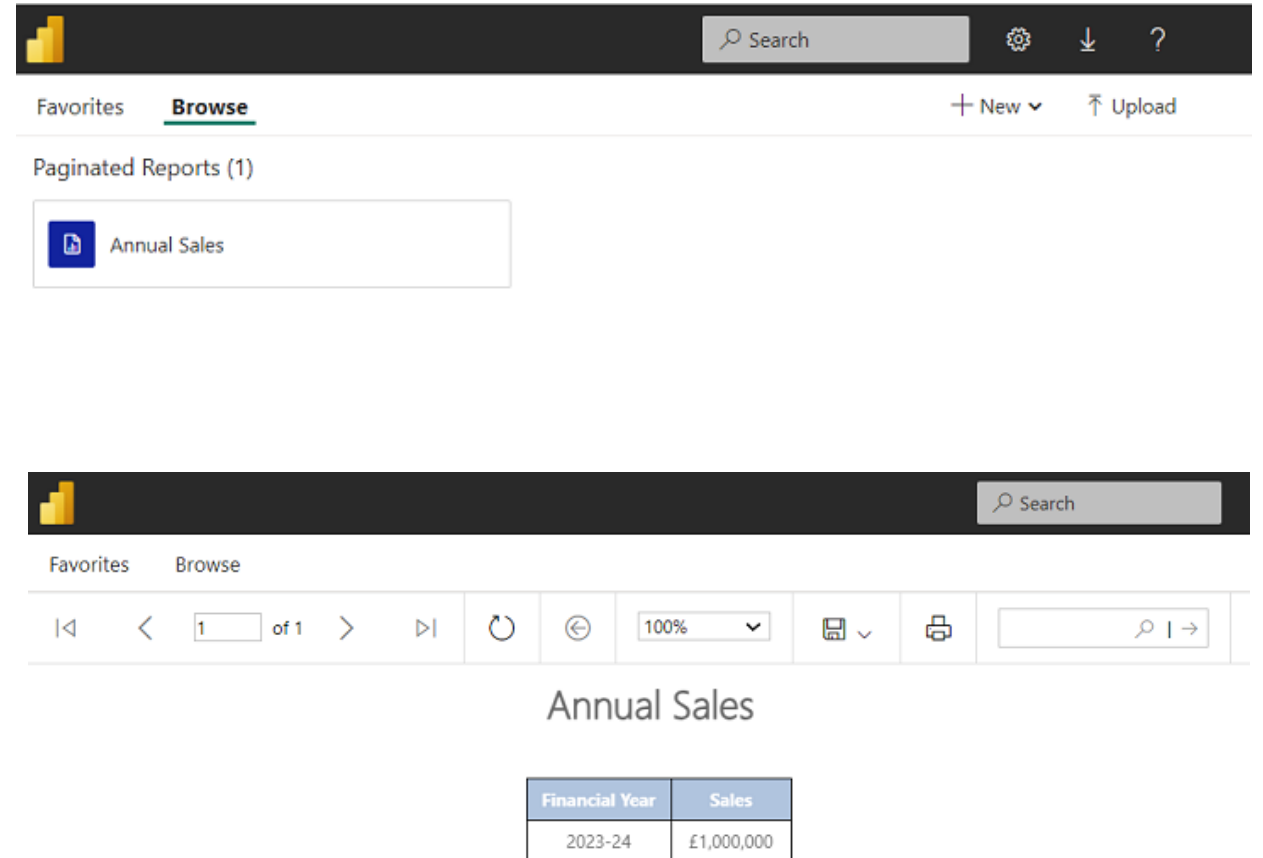
- What is SSRS?
- What problem are we trying to solve?
- How SSRS reports work behind the scenes
- A fully automated solution
- Any questions?

# What is SSRS?

SSRS is a widely used piece of reporting software which allows you to connect to a range of data sources such as Excel Spreadsheets and SQL Server databases.

It allows you to display data in a wide range of different ways including tables, matrixes (basically what Pivot tables are in Excel) and an array of different charts.

SSRS reports use RDL files and have to be uploaded to an SSRS Server for them to work successfully where they will appear like a web page.



The screenshot displays the SSRS web interface. At the top, there is a search bar and navigation icons. Below this, the 'Browse' tab is active, showing a list of paginated reports. One report, 'Annual Sales', is visible. Below the report list, there is a detailed view of the 'Annual Sales' report. The report title is 'Annual Sales'. Below the title, there is a table with two columns: 'Financial Year' and 'Sales'. The table contains one row of data for the financial year 2023-24, with sales of £1,000,000.

Financial Year	Sales
2023-24	£1,000,000

# What problem are we trying to solve?

Issue	Why it's a problem
SSRS does not come with an in built solution for the backing up of report files.	If an analyst makes a change in error and deploys the report then this can be really difficult to reverse as the original file will have been overwritten.
There are widely used solutions such as Git for version control which help to store and manage the history of code and reports.	Version control systems would add extra manual steps for analysts and require a large amount of training for staff to use them well.

What we want is an automated solution which we can run in the background that will back up changes to SSRS reports when they're made, allowing us to rollback changes when we need to.

Through using an automated approach, we can have all the gains of backing up reports without the need for any extra work on the part of analysts or any changing of workflows.

# How SSRS reports work behind the scenes

The files that make the reports are stored in the ReportServer database. The problem is they are stored in image format that we can't easily work with so we need to transform them into XML.

```
SELECT CONVERT(NVARCHAR(MAX),  
CONVERT(XML,CONVERT(VARBINARY(MAX)  
,C.CONTENT)))  
from  
dbo.Catalog c
```

*SQL query to perform our transformation*

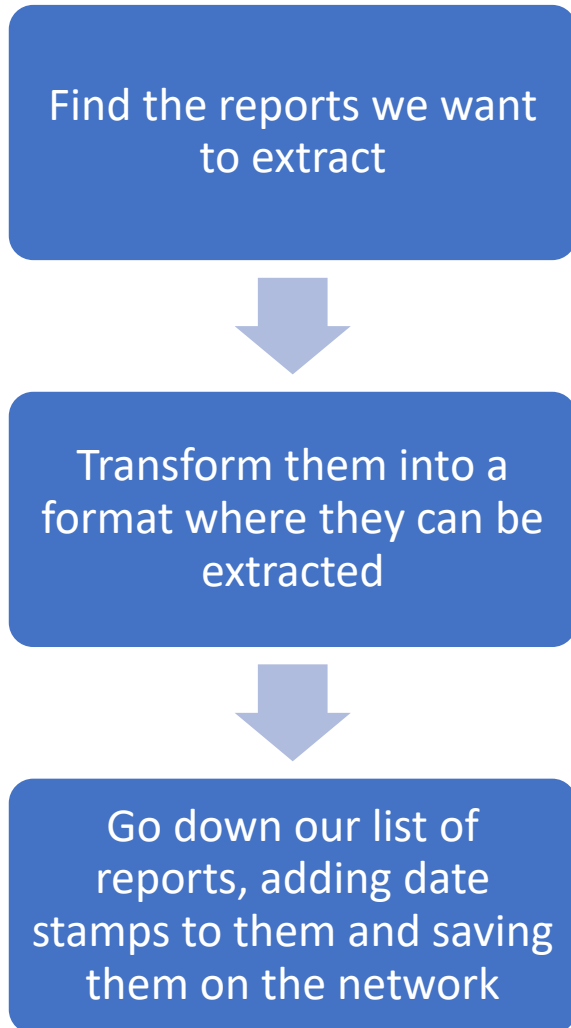
```
0xEFBBBF3C3F786D6C2076657273696F6E3D22312E30222  
0656E636F64696E673D227574662D38223F3E3C5265706F  
727420786D6C6E733D22687474703A2F2F736368656D617  
32E6D6963726F7
```

*Extract of report stored in image format in Report Server database.*

```
<DataSourceDefinition  
xmlns="http://schemas.microsoft.com/sqlserver/reporting/200  
6/03/reportdatasource"><Extension>SQL</Extension><Connec  
tString>Data Source=CLServ01;Initial  
Catalog=CL</ConnectionString><CredentialRetrieval>Integrated</  
CredentialRetrieval><Enabled>True</Enabled></DataSourceDe  
finition>
```





*Extract of report after being transformed back into XML.*

# A fully automated solution



We used the SQL query I've just shown to transform reports we've modified in the last 24 hours.

Then we use some C# code to go down that list of reports in an automated way, turning them into RDL files (the filetype used by SSRS). and save them on the network with a date stamp allowing us to know when they were saved.

Name	Date modified
 Annual Sales 07.12.2023.rdl	07/12/2023 13:08
 Annual Sales 08.12.2023.rdl	08/12/2023 11:06
 Annual Sales 17.01.2024.rdl	17/01/2024 14:53
 Annual Sales 18.01.2024.rdl	18/01/2024 12:12

Any Questions?