Advanced On-Prem SSRS 2017 for Non-AD Users

Dr. Subramani Paramasivam
MVP & Microsoft Certified Trainer
DAGEOP, UK
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sqlbits
About the Speaker

Dr. SubraMANI Paramasivam
PhD., MVP, MCT, MCSE (x2), MCITP (x2), MCP, MCTS (x3), MCSA
CEO, Principal Solutions Architect
@ DAGEOP (UK)

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All possible solutions in one screen
Method 1

- End User System
- Firewall
- Reverse Proxy NetScaler
- Web Application Proxy
- EUM & ADFS
- Domain Controller
- SharePoint Server
- Report Server
- SQL Database
- FBA Logon Page
- Authentication Components
- Load Balancing NetScaler
- Relying Party

Components:
- EUM & ADFS
- Reverse Proxy NetScaler
- Web Application Proxy
- Domain Controller
- SharePoint Server
- Report Server
- SQL Database
Method 2
Effective solution for RLS
Method 3
Method 1
Form Based Authentication

Introduction

Custom Authentication

Single-Sign on (SSO)

Intranet & Extranet

Application

.NET Application

IAuthenticationExtension 2 (Interface)

Assemblies

SSRS

External / Other Domain Access

Access to Report Server

Access via custom application
Form Based Authentication

SSRS

Windows Integrated Security

Basic Authentication

Authenticate via SharePoint

RSReportServer.config

```xml
<Authentication>
  <AuthenticationTypes>
    <Custom />
  </AuthenticationTypes>
  <EnableAuthPersistence>true</EnableAuthPersistence>
</Authentication>
```

Web.config in Report Server

```xml
<authentication mode = "Forms" />
<identity impersonate = "false"/>
```

Web.config in Report Manager

```xml
<authentication mode = "Forms" />
<identity impersonate = "false"/>
```
Method 2
WAP - Reverse Policy
First introduced in Windows Server 2012, Web Application Proxy (WAP) provides reverse proxy functionality for web applications inside your corporate network to allow users on any device to access them from outside the corporate network.

AD FS
AD FS is a standards-based service that allows the secure sharing of identity information between trusted business partners (known as a federation) across an extranet. When a user needs to access a Web application from one of its federation partners, the user's own organization is responsible for authenticating the user and providing identity information in the form of "claims" to the partner that hosts the Web application.

NetScaler
NetScaler ADC is an Application Delivery Controller tool, that improves the delivery speed and quality of applications to end users. It also provides flexible delivery services for traditional, containerized and micro service applications from your data center or any cloud.

Kerberos
Kerberos is a secure protocol that grants authentication tickets to the Key Distribution Center (KDC) with valid user credentials and SPN (Service Principal Name). Kerberos is the preferred authentication type for SharePoint because it is faster, more secure, and reduces the number of errors you can get with username and passwords than NTLM.

EUM
Auto login for corporate users. Collaborate with external users.
WAP

• First introduced in Windows Server 2012
• Reverse proxy functionality for web applications inside your corporate network to allow users on any device to access them from outside the corporate network.
• WAP pre-authenticates access to web applications using Active Directory Federation Services (ADFS), and also functions as an ADFS proxy.
WAP
AD FS

**Steps**
- Register AD FS Web Agent
- Reference SSO Assemblies
- Obtain SSO Identity Object
- Verify Authentication
- Create Client Context
- Verify Authentication
- Retrieve Claims

**Components**
- Federation Service
- Centralized Federated Partner Management
- Claim mappings
- Identity Sharing
- Web Services (WS)-*
  - interoperability
- Web Single Sign On
- Claims Based Authentication
- Adfs.msc
- Extensible Architecture
NetScaler

Introduction - ADC

CiTRiX
Real-Time & Historical Analysis
Security
Load Balancing
High Availability
High Performance – Mobile Networks

Application

Traditional
Containerized
Micro Service
NetScaler
NetScaler
Kerberos Authentication

- Windows Server 2003 implements the Kerberos V5 protocol as a security support provider (SSP)
- The Kerberos Key Distribution Center (KDC) uses the domain’s Active Directory service database as its security account database. Active Directory is required for default NTLM and Kerberos implementations.
Kerberos Authentication
EUM

Extranet User Management

Extranet Access

Integrate with SharePoint
Shadow Account

• Normal user accounts
• It is an identity in secondary forests
• ADFS may be beneficial to use shadow account in some situations
Architecture Explained

Web Role Creation

Publish Web Application & Host (Map the Ips)

ADFS configuration as Pre-Authentication

External URL setup

Enable the EUM Claims

Update the Claim Rule to replace with “if” logic (if required)

Certificates

- Create certificates
- Certificate enrollment
- Assign the certificate
SSRS & Netscalar Config

Configure SSRS to use
Installed certificates

Update RSReportserver.config file to use
Windows Kerberos
Windows Negotiate

NetScaler

Content Switching Virtual Server
Content Switching policy
Load Balancing Service
Create domain user Service Principal Name (SPN)
NetBIOS =
`setspn -A MSSQLSvc/<SQL Server computer name>:1433 <Domain\Account>`

FQDN =
`setspn -A MSSQLSvc/<SQL Server FQDN>:1433 <Domain\Account>`

Verify the registered SPN
`setspn -L <domain\SQL Service Account>`

- Mutual Authentication
- Secure Authentication Tickets
- Integrated Authentication

Microsoft Kerberos Configuration Manager for SQL Server is a diagnostic tool that helps troubleshoot Kerberos related connectivity issues with:
- SQL Server
- SQL Server Reporting Services
- SQL Server Analysis Services
Sharepoint – Identity server

• Trusted Identity Provider
• SharePoint Relying Party in Identity Server
• SharePoint Role Claim – Allow Access

• Configuration with ADFS
  – Identity Provider
  – Relying Party
Scenario

<table>
<thead>
<tr>
<th>Role</th>
<th>AD Account</th>
</tr>
</thead>
<tbody>
<tr>
<td>HQ Manager</td>
<td><a href="mailto:alexander@sqlbits.com">alexander@sqlbits.com</a>, <a href="mailto:martin@sqlbits.com">martin@sqlbits.com</a></td>
</tr>
<tr>
<td>Division Manager</td>
<td><a href="mailto:sam@sqlbits.com">sam@sqlbits.com</a>, <a href="mailto:antony@sqlbits.com">antony@sqlbits.com</a></td>
</tr>
<tr>
<td>Store Manager</td>
<td><a href="mailto:alan@sqlbits.com">alan@sqlbits.com</a></td>
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Dataset

Profile Table

suser_name()

Security Policy & Function

RLS Config @DB level
Method 3
Scenario

**User Mapping**

<table>
<thead>
<tr>
<th>User Name</th>
<th>AD Account</th>
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<tbody>
<tr>
<td>Alex</td>
<td><a href="mailto:Alexander@SQLBITS.com">Alexander@SQLBITS.com</a></td>
</tr>
<tr>
<td>Martin</td>
<td><a href="mailto:Martin@SQLBITS.com">Martin@SQLBITS.com</a></td>
</tr>
<tr>
<td>Sam</td>
<td><a href="mailto:Sam@SQLBITS.com">Sam@SQLBITS.com</a></td>
</tr>
<tr>
<td>Antony</td>
<td><a href="mailto:Antony@SQLBITS.com">Antony@SQLBITS.com</a></td>
</tr>
<tr>
<td>Alan</td>
<td><a href="mailto:Alan@SQLBITS.com">Alan@SQLBITS.com</a></td>
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<th>Shadow AD Account</th>
<th>Categorization</th>
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<tbody>
<tr>
<td>SB_HQ_001</td>
<td>Head quarters</td>
</tr>
<tr>
<td>SB_HQ_001</td>
<td>Head quarters</td>
</tr>
<tr>
<td>SB_DM_001</td>
<td>Division Manager</td>
</tr>
<tr>
<td>SB_DM_002</td>
<td>Division Manager</td>
</tr>
<tr>
<td>SB_SM_001</td>
<td>Store Manager</td>
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**SharePoint**
EUM Alternate

Extranet Collaboration Manager (ExCM) for SharePoint – premierpointsolutions

Extradium for SharePoint - riolinx
More info...
Virtual Machine 1 – Domain Controller

- SharePoint Server 2013
- SQL Server 2012
- SQL Server 2016

Virtual Network

Virtual Machine 2

- SQL Server 2016
- SSRS 2017

Mobile Reports
Virtual Network

EUM Landing Page

EUM Admin Page

SSRS Native Mode – Report Viewer

End User SharePoint SSRS Report

RLS Report
Before SQL 2017 – SharePoint Integration Mode

SQL Server Installation

Reporting Services SharePoint
Reporting Services Add-in for SharePoint

SQL 2017 – Native Mode

No SharePoint Integration Mode

Deploy the webpart to SharePoint using PowerShell Script

Powershell Scripts

Add-SPSolution -LiteralPath "\{path to file\}\ReportViewerWebPart.wsp"

Install-SPSolution -Identity ReportViewerWebPart.wsp -CompatibilityLevel "14,15" -GACDeployment -WebApplication {URL to web application}

SharePoint Side

Create SSRS Service Application

Note: Supports Power BI Report Server reports
SSRS 2017

- Now, it is a standalone application as like Power BI Report Server.
- It can’t be installed on Domain Controller machine.
- Only one instance is possible in a machine.
Demo

- Virtual Network
- End User SharePoint SSRS Report
- EUM Admin Page
- EUM Landing Page
- SQL Server Reporting Service Native Mode – Report Viewer web part
- RLS Report
- RLS Database
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