Enable Remote access from intranet with TLS-SSL certificate (Advanced)

Last updated by | Veena Pachauri | Mar 8, 2023 at 11:10 PM PST

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For an detailled overview of the SSL/TLS Strong encryption technology please go here.

Certificate could be a general TLS certificate for a Web Server under the following requirements:

- The certificate must be a publicly trusted X509 v3 certificate. We recommend that you use certificates that are issued by a public partner certification authority (CA).
- Each integration runtime node must trust this certificate.
- We recommend Subject Alternative Name (SAN) certificates because all the fully qualified domain names (FQDN) of integration runtime nodes are required to be secured by this certificate. (WCF TLS/SSL validate only check last DNS Name in SAN was fixed in .NET Framework 4.6.1. Refer to Mitigation: X509CertificateClaimSet.FindClaims Method | Microsoft Docs)
- Wildcard certificates (*) is not supported.
- The certificate must have private key (like PFX format).
- The certificate can use any key size supported by Windows Server 2012 R2 for TLS/SSL certificates.
- We only support CSP (Cryptographic Service Provider) certificate so far. Certificates that use CNG keys (Key Storage Provider) aren't supported.

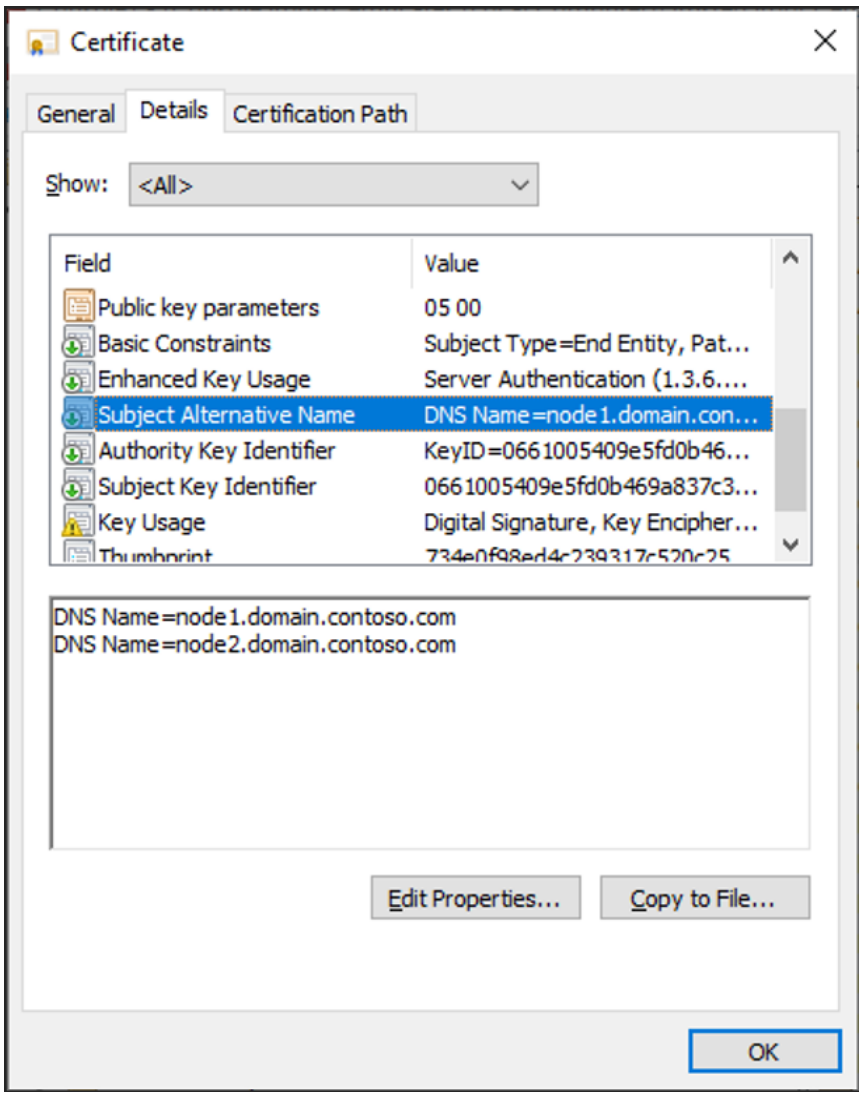
Step-by-step instructions:

1. Run below PowerShell command on all machines to get their FQDNs

```
[System.Net.Dns]::GetHostByName("localhost").HostName
```

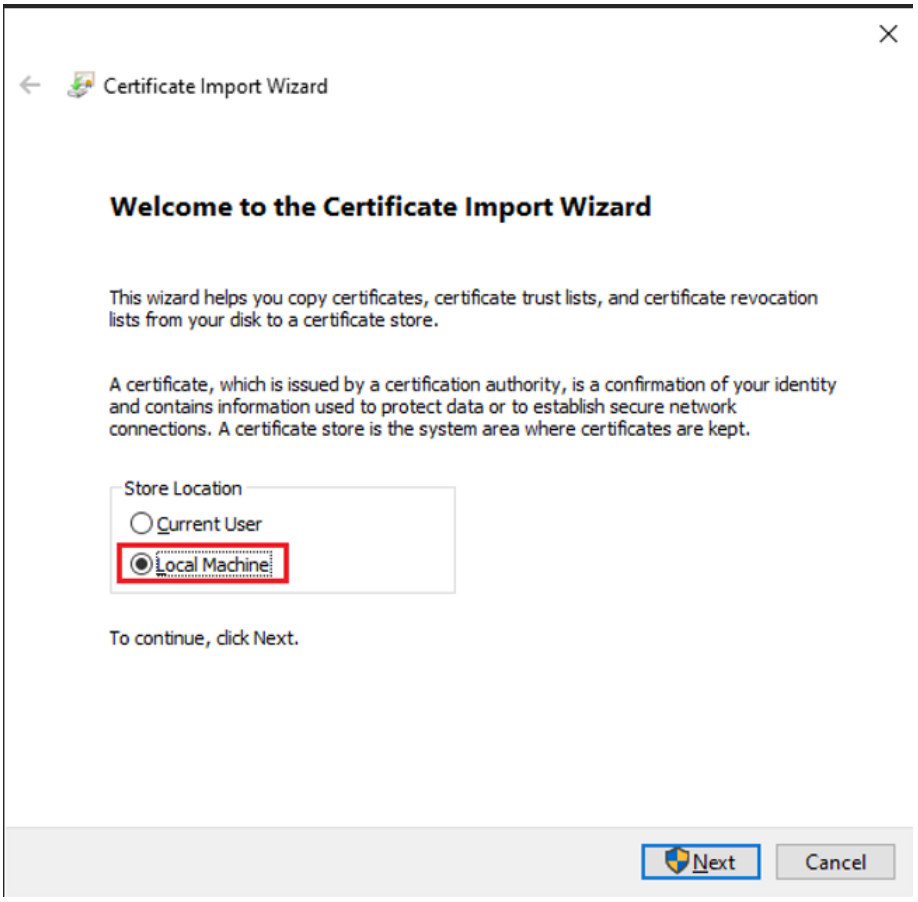
For example, the FQDNs are node1.domain.contoso.com and node2.domain.contoso.com.

2. Generate a certificate with the FQDNs of all machines in Subject Alternative Name



3. Install the certificate on all nodes to Local Machine -> Personal so that it can be selected on Integration Runtime configuration manager.

1. Click on the certificate and install it.

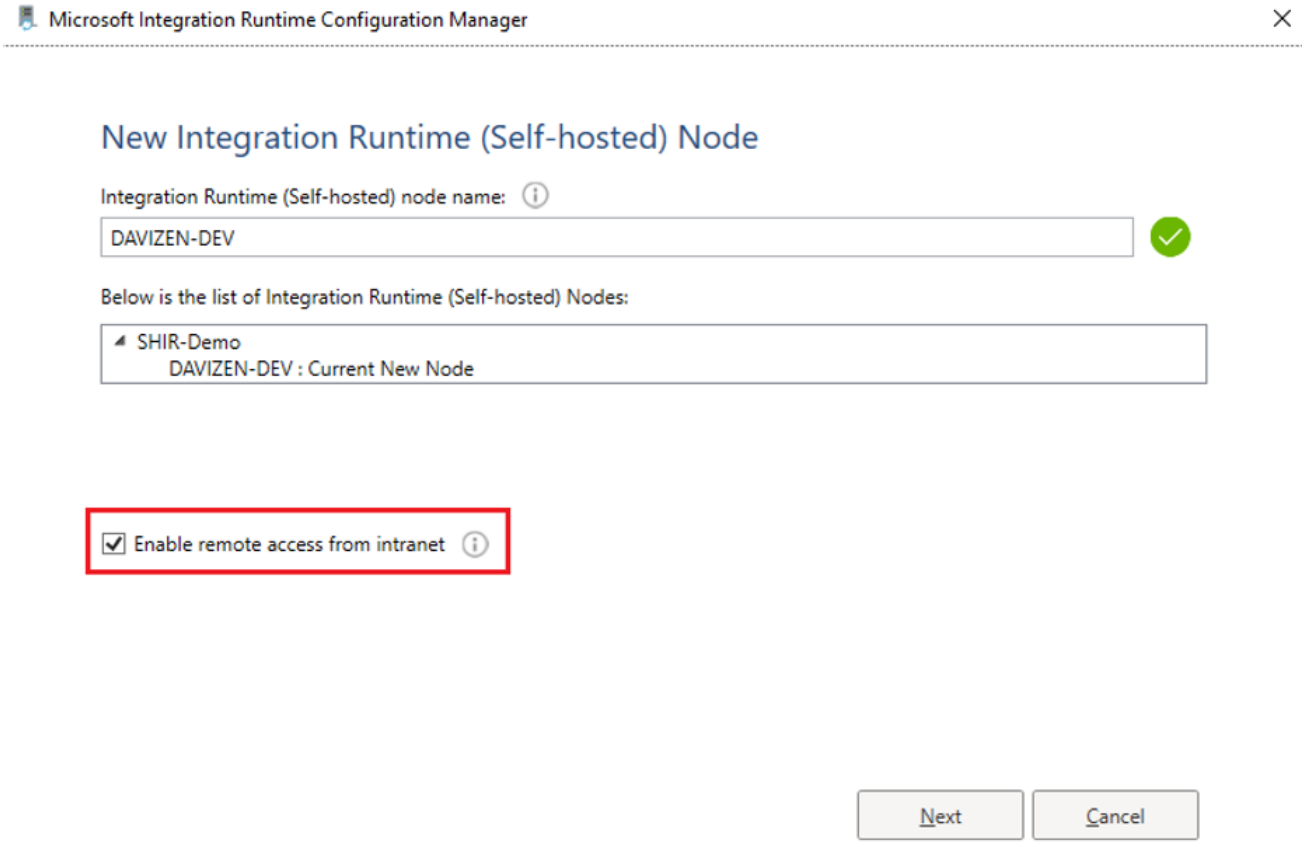


2. Select Local Machine and enter the password.
3. Select Place all certificates in the following store. Click Browse. Select Personal.
4. Select Finish to install the certificate.

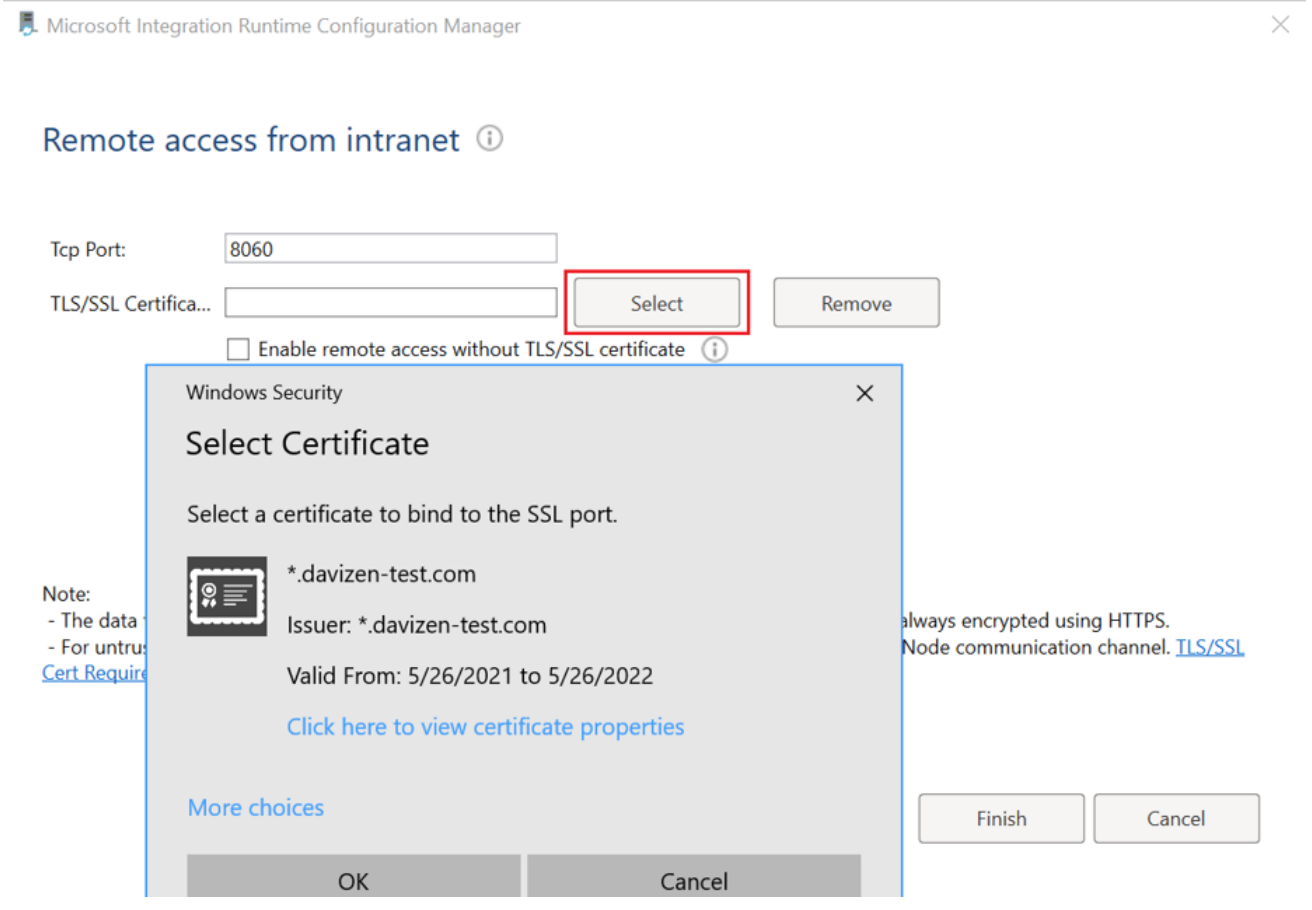
4. Enable Remote access from intranet

During Self-hosted Integration Runtime node registration:

- Select Enable remote access from intranet and select Next.

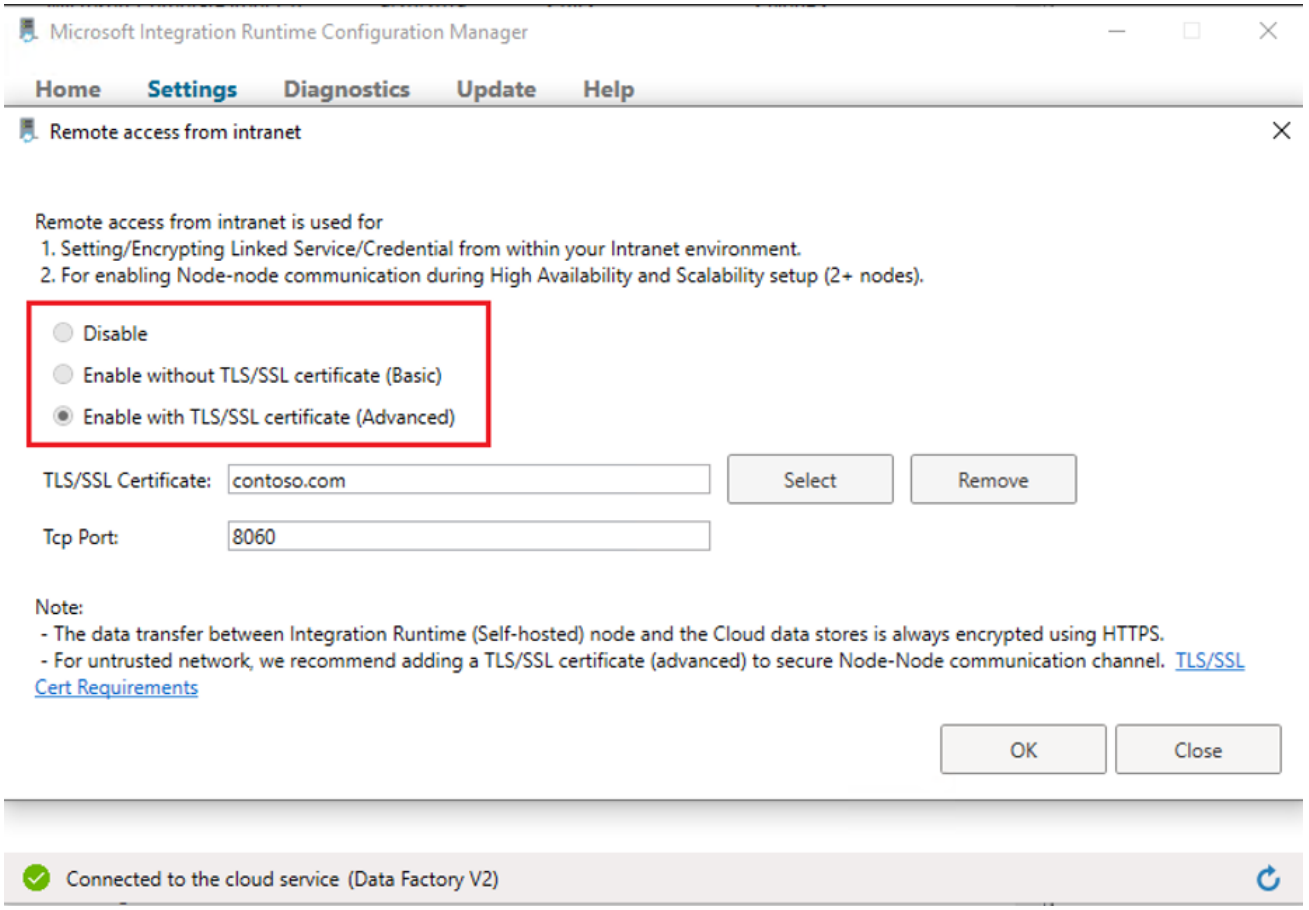


- Set the TCP Port (8060 by default). Make sure the port is open on firewall.
- Click Select. In the pop-up window, choose the right certificate and select Finish.



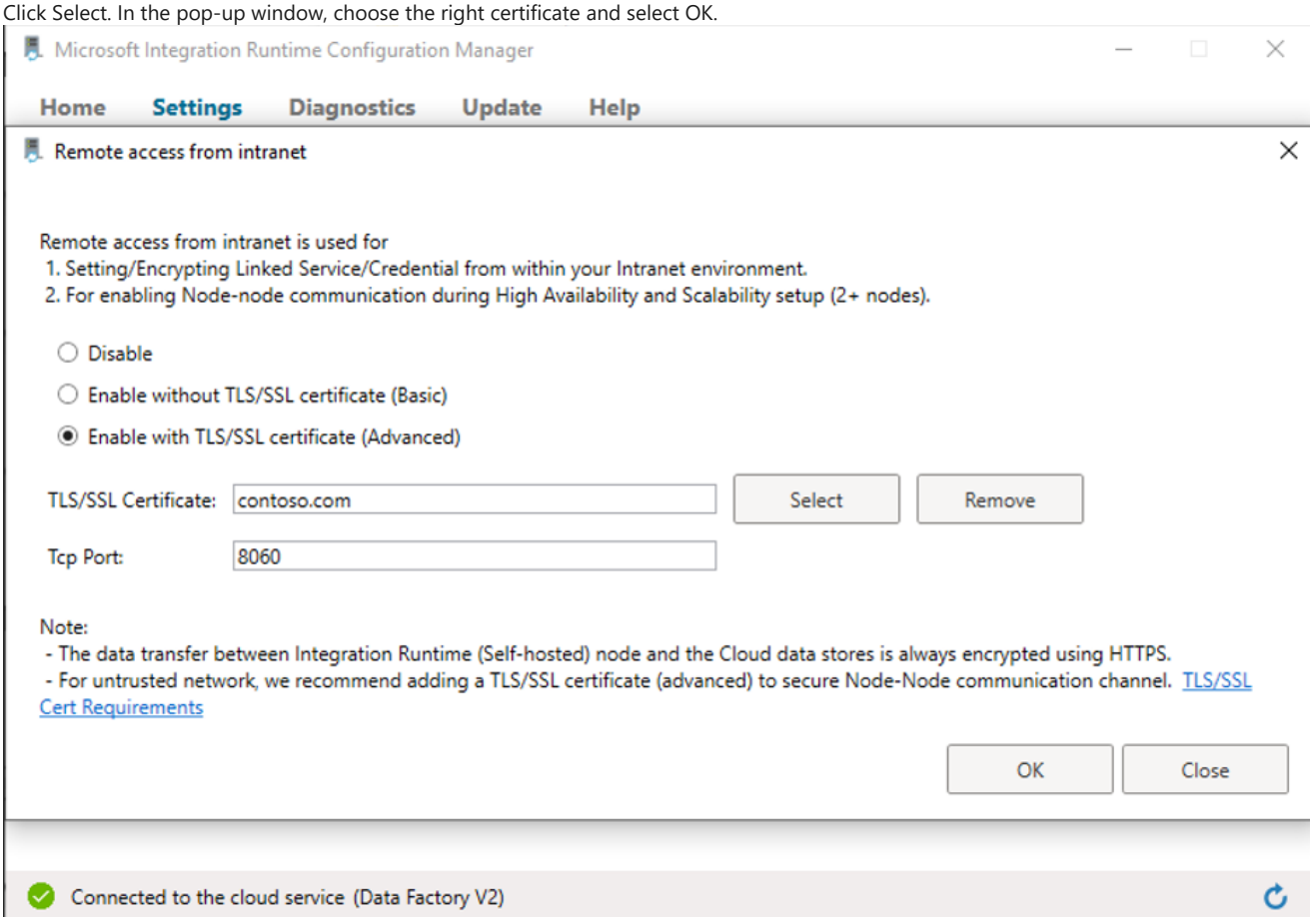
After Self-hosted Integration Runtime node is registered:

Please note that self-hosted Integration Runtime can change the remote access settings only when it has single node, which is by design. Otherwise, the radio button cannot be checked.

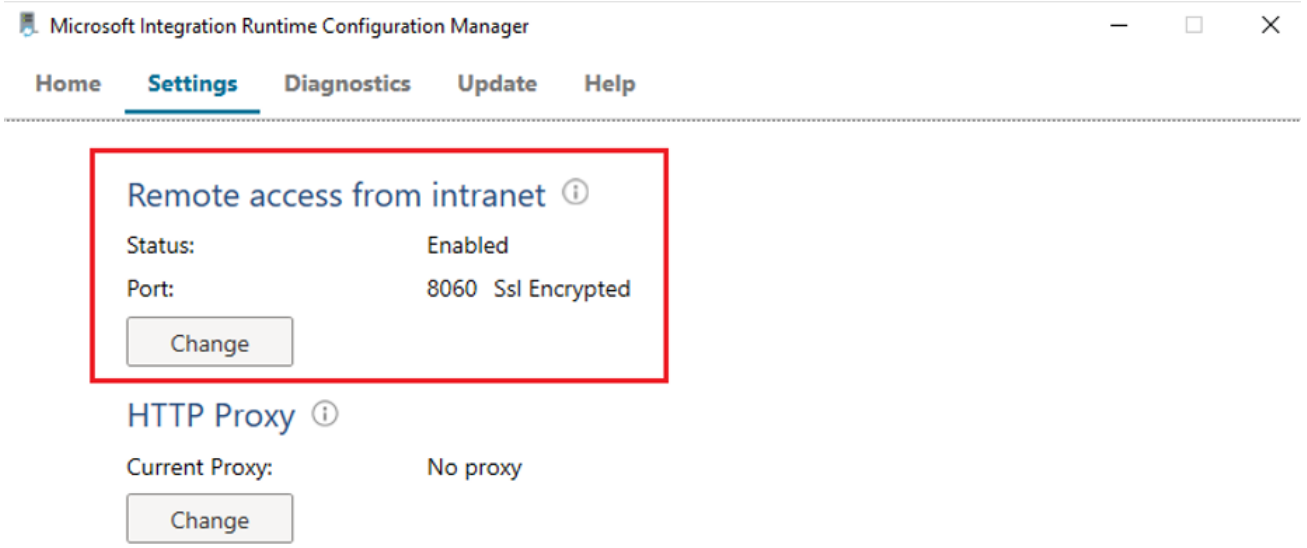


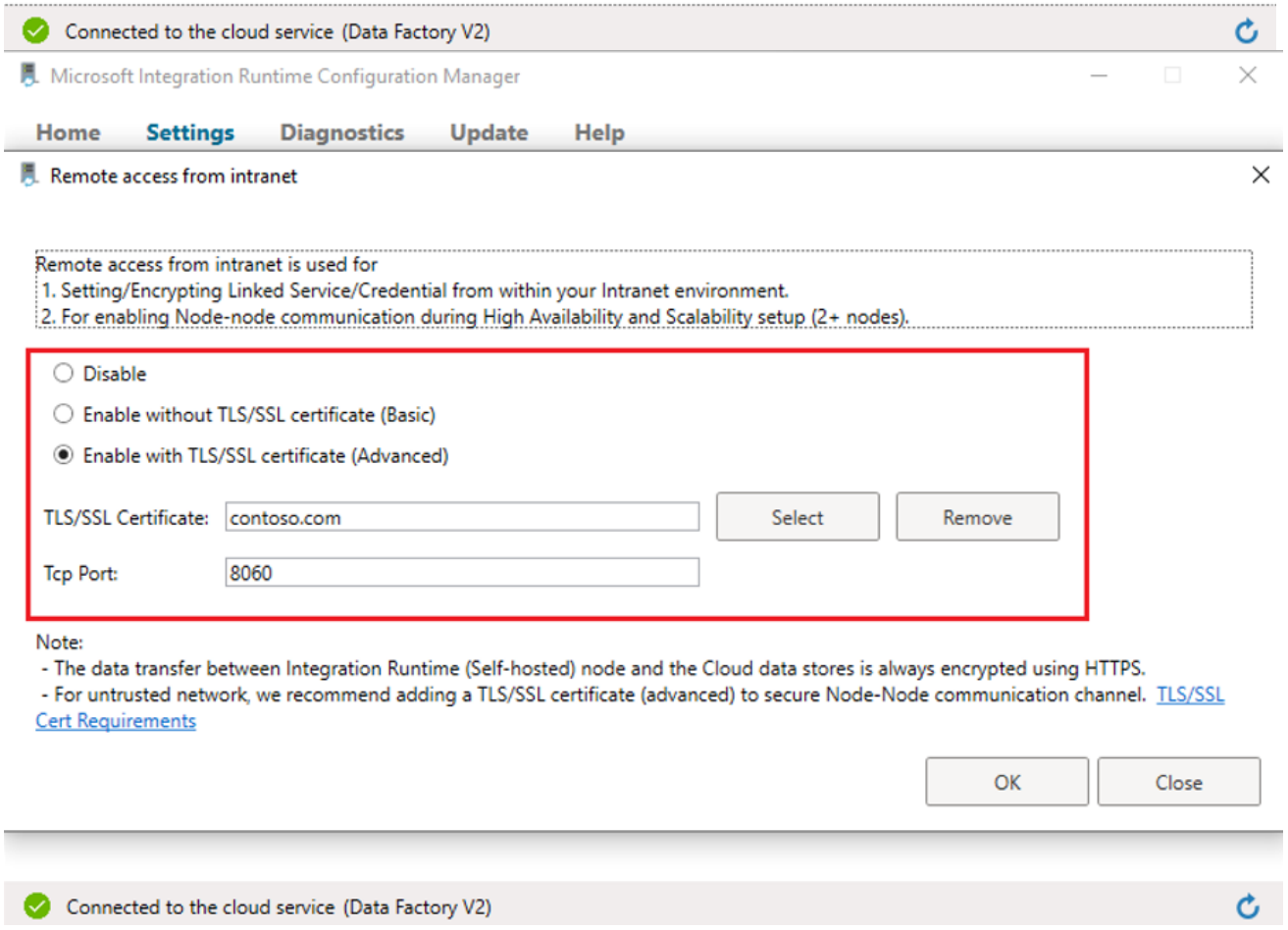
1. Self-hosted Integration Runtime Configuration Manager -> Settings -> Remote access from intranet. Click Change.
2. Choose Enable with TLS/SSL certificate (Advanced).

3. Click Select. In the pop-up window, choose the right certificate and select OK.



Verify the remote access settings in Self-hosted Integration Runtime Configuration Manager.





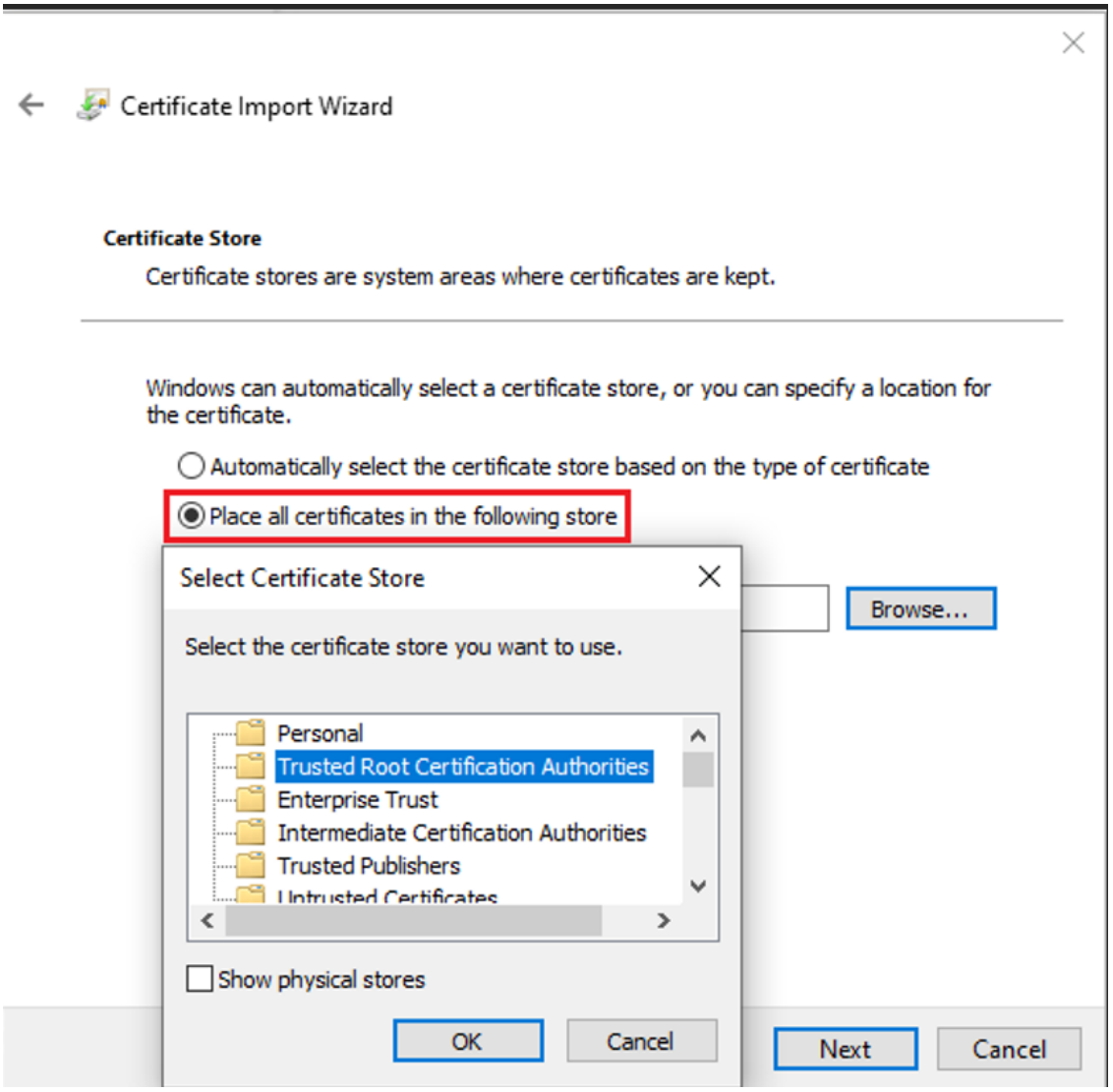
5. Using self-signed certificate

Generate and export self-signed certificate (this step can be skipped if you already have the certificate):

1. Generate self-signed certificate via PowerShell (with elevated privileges): New-SelfSignedCertificate -DnsName contoso.com, node1.domain.contoso.com, node2.domain.contoso.com -Provider "Microsoft Enhanced RSA and AES Cryptographic Provider" -CertStoreLocation cert:\LocalMachine\My
2. To export the generated certificate with a private key to a password protected PFX file, you will need its thumbprint. It can be copied from the results of New-SelfSignedCertificate command. For example, it is CEB5B4372AA7BF877E56BCE27542F9F0A1AD197F.
3. Export the generated certificate with private key via PowerShell (with elevated privileges): $CertPassword = ConvertTo-SecureString -String "Password" -Force –AsPlainText Export-PfxCertificate -Cert cert:\LocalMachine\My\CEB5B4372AA7BF877E56BCE27542F9F0A1AD197F -FilePath C:\self-signedcertificate.pfx -Password $CertPassword
4. You have exported the certificate with private key to C:\self-signedcertificate.pfx.

Install the certificate on all nodes to: Local Machine -> Trusted Root Certification Authorities store:

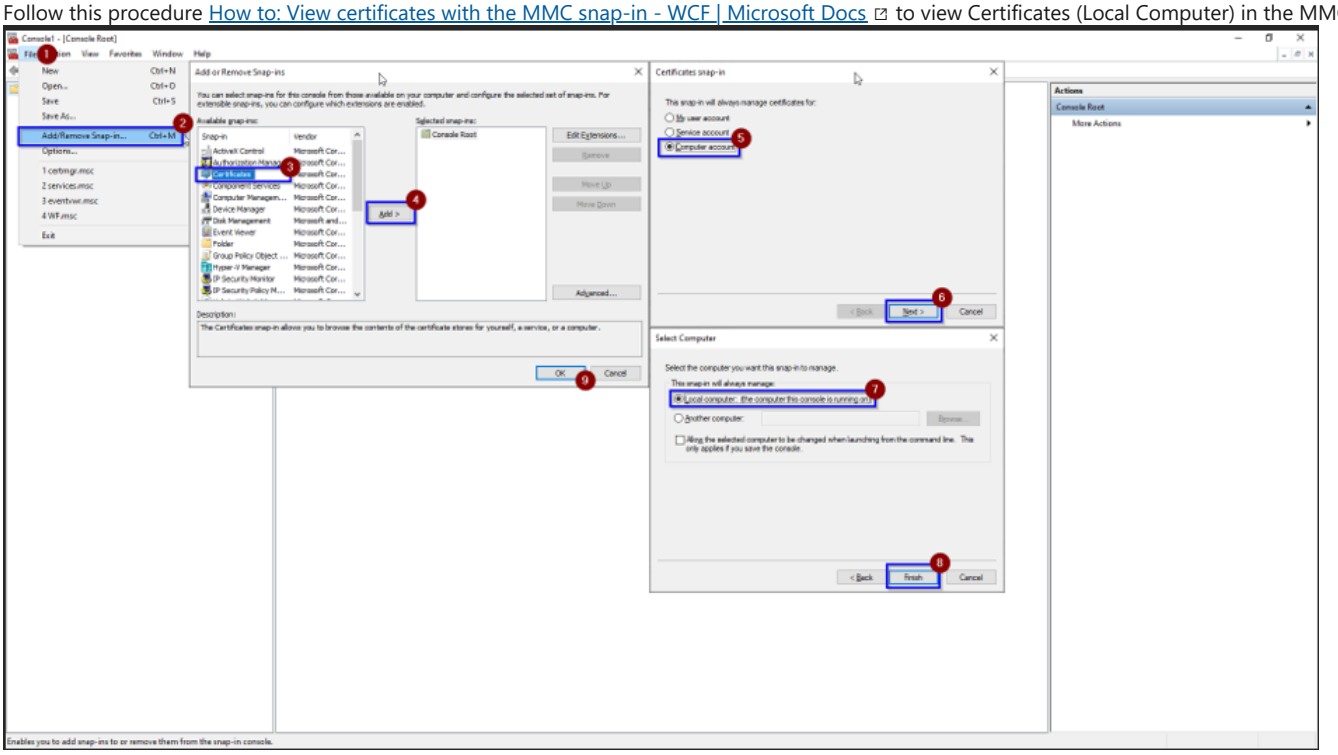
1. Click on the certificate and install it.
2. Select Local Machine and enter the password.
3. Select Place all certificates in the following store. Click Browse. Select Trusted Root Certification Authorities.
4. Select Finish to install the certificate.



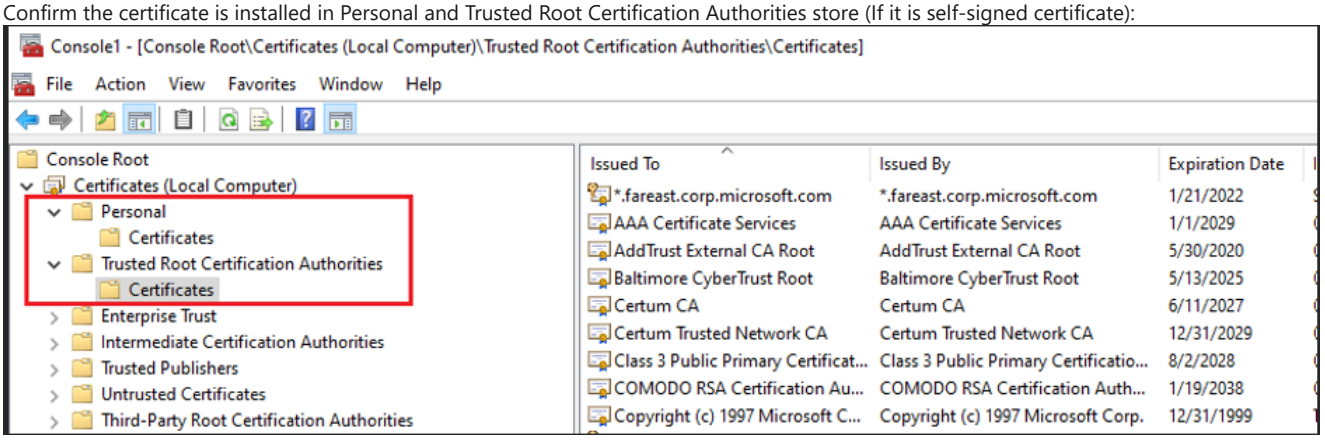
6. Trouble shooting

Verify the certificate exists in the target store:

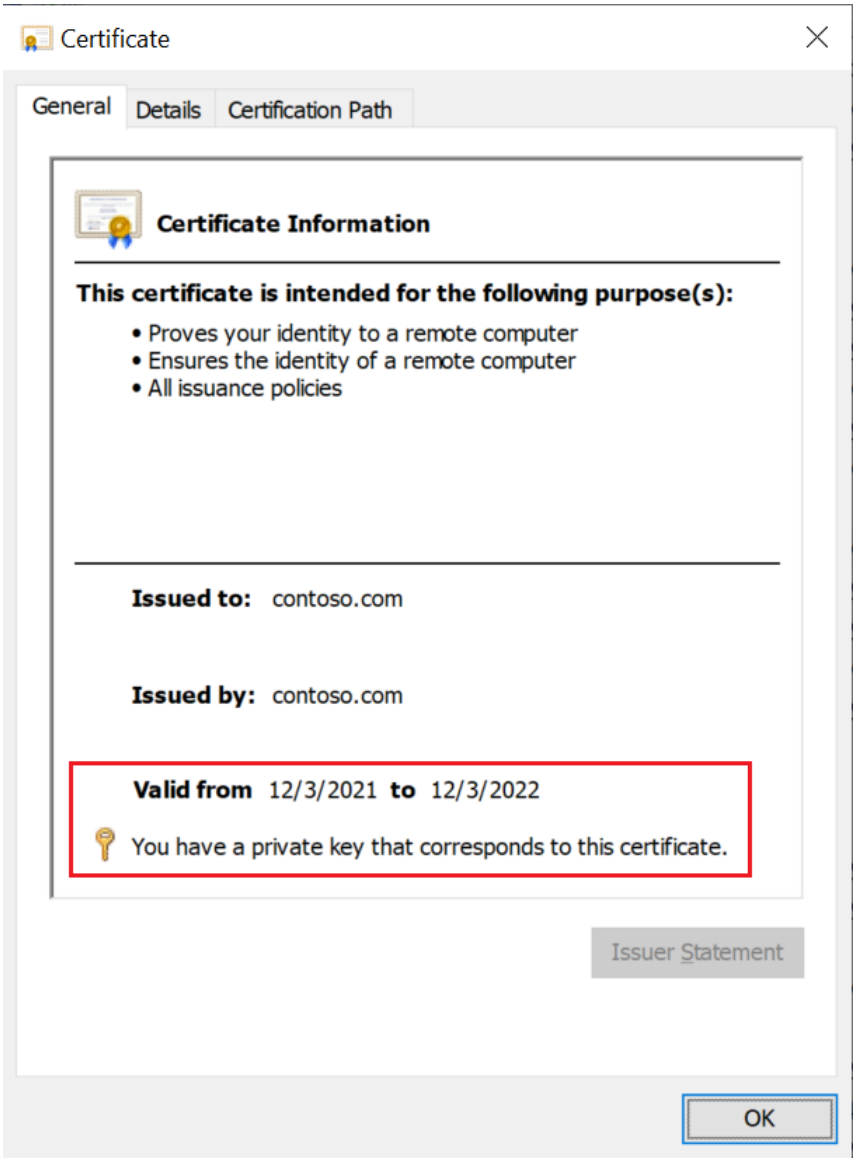
1. Follow this procedure How to: View certificates with the MMC snap-in - WCF | Microsoft Docs to view Certificates (Local Computer) in the MMC snap-in.



2. Confirm the certificate is installed in Personal and Trusted Root Certification Authorities store (If it is self-signed certificate):



Verify the certificate has private key and isn't expired:



Make sure the Service account for Self-hosted integration runtime (default account is NT SERVICE\DIAHostService) has read permission to the private keys of certificate.

1. Right lick on the certificate -> All Tasks -> Manage Private Keys.
2. If no, grant the permission, Apply and save.

Updating a certificate in a cluster:

The process to renew certificate is not much different from adding the new one.

1. Follow steps 1 ~ 3 to install the new certificate all nodes. If it is self-signed certificate, need additional step #5 to trust it.
2. Follow step 4.2 After Self-hosted Integration Runtime node is registered to update the certificate on all nodes (select the new one).