Ramco Aviation Solution

Version 5.8

Installation Manual

VirtualWorks™ RunTime Installation Document - Prerequisites

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Revision History

Version	Date	Author	Description
1.0	21/04/2010	Manigandan R	Created
1.1	18/06/2010	Vijayalakshmi G	Reviewed and incorporated the changes
1.2	30/12/2010	Vinoth Kumar K	Modified the Changes for Dot Net Framework 4.0
1.3	28/03/2013	Vinoth Kumar K	Modified for Windows 2012 and SQL 2012 Environments

Table of Contents

This document walks through the prerequisites before start installing VirtualWorks™ .Net Runtime (Microsoft Version) installation.

Note: Settings specified in this document are applicable to all layers like File Server, Web Server, App Server and RM Server unless it explicitly mentioned that applicable to particular layer.

1. Prerequisites

Operating System	Windows Server 2012. Note: Application and RM (Database) Servers should always have same OS + Service Pack
.Net Framework Version	2.0, 3.5 SP1, 4.0 and 4.5
VC 7 Runtime	Installer for this application is packaged along with the installation kit itself. Run the file VC7RuntimeSetup.MSI that is given with the installation kit.
XML	MSXML 4.0 + SP2 or above
IIS	8.0
SQL Server	2012 (only in RM Server) The server default collation should be (Latin1-General, case-insensitive, accent-sensitive, kanatype-insensitive, and width-insensitive for Unicode Data, SQL Server Sort Order 52 on Code Page 1252 for non-Unicode Data). During setup choose **"SQL_Latin1_General_CP1_CI_AS"** as SQL collation
Microsoft Web Deploy	Microsoft Web Deploy v3.5 needs to be installed in Application Server (Choose installation type as complete) – *Software Available in DVD4 - Tools*

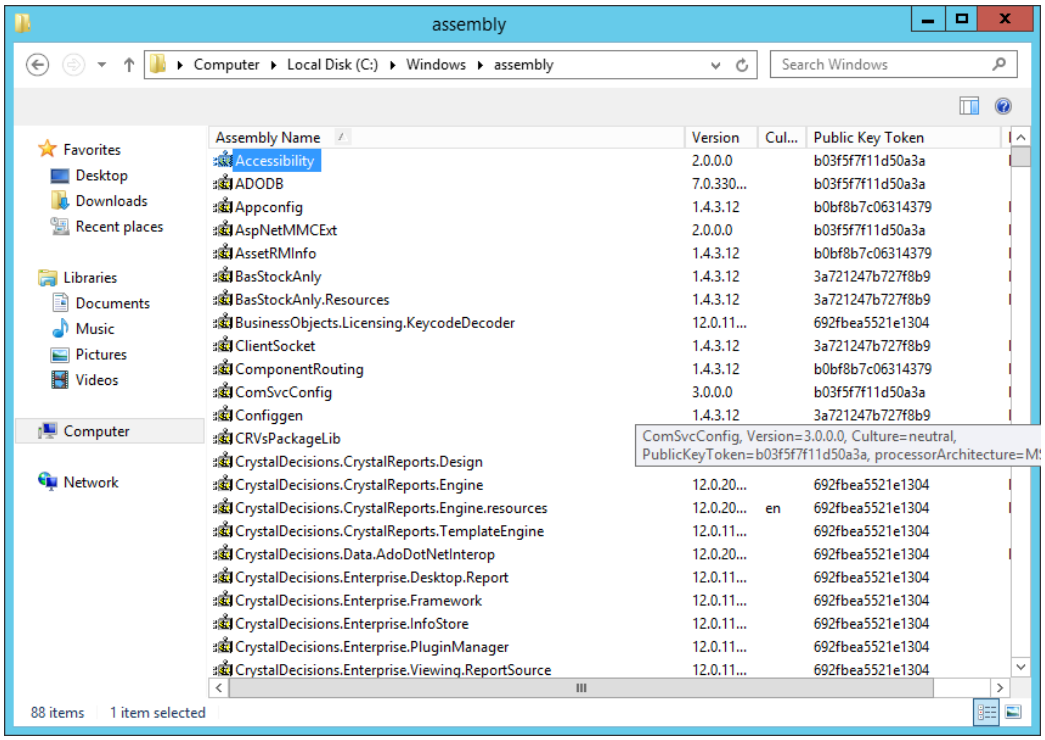
1.1. Server Settings before proceeding with installation

Before proceeding with the installation, make sure that,

- ✓ All Servers have sufficient Disk space (as per the Hardware Specification & COTS List) and also partitioned. It is recommended to have at least one more drive apart from Default "C" Drive. It is advisable to install the VirtualWorks™ in the User partitioned Drive, instead of System Drive (C:)
- ✓ System Drive should have partitioned with minimum of 40GB allocation and User Drive with remaining
- ✓ User Drives for RM Server should be partitioned to keep Database files and Log files separately. This enhances performance of SQL Server IO operations
- ✓ Server name (across all layers) should not have any special characters. All server names participating in the VirtualWorks™ deployment architecture should start with alphabets and can contain numbers. Non-Alphanumeric characters are

not allowed. Servers should also not have any VirtualWorks™ component name and part of the Server Name.

✓ Check the Global Assembly Cache path (**C:\Windows\Assembly**); it should not appear as a folder. It should appear like as specified in below screenshot.

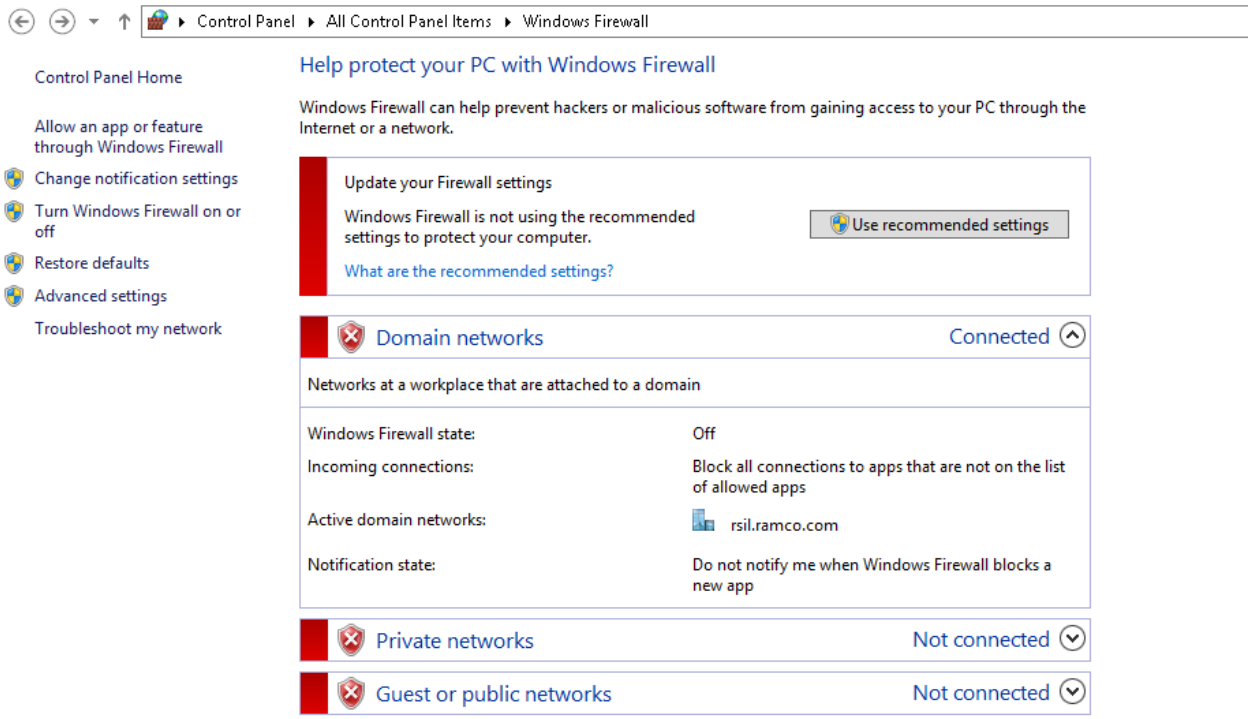


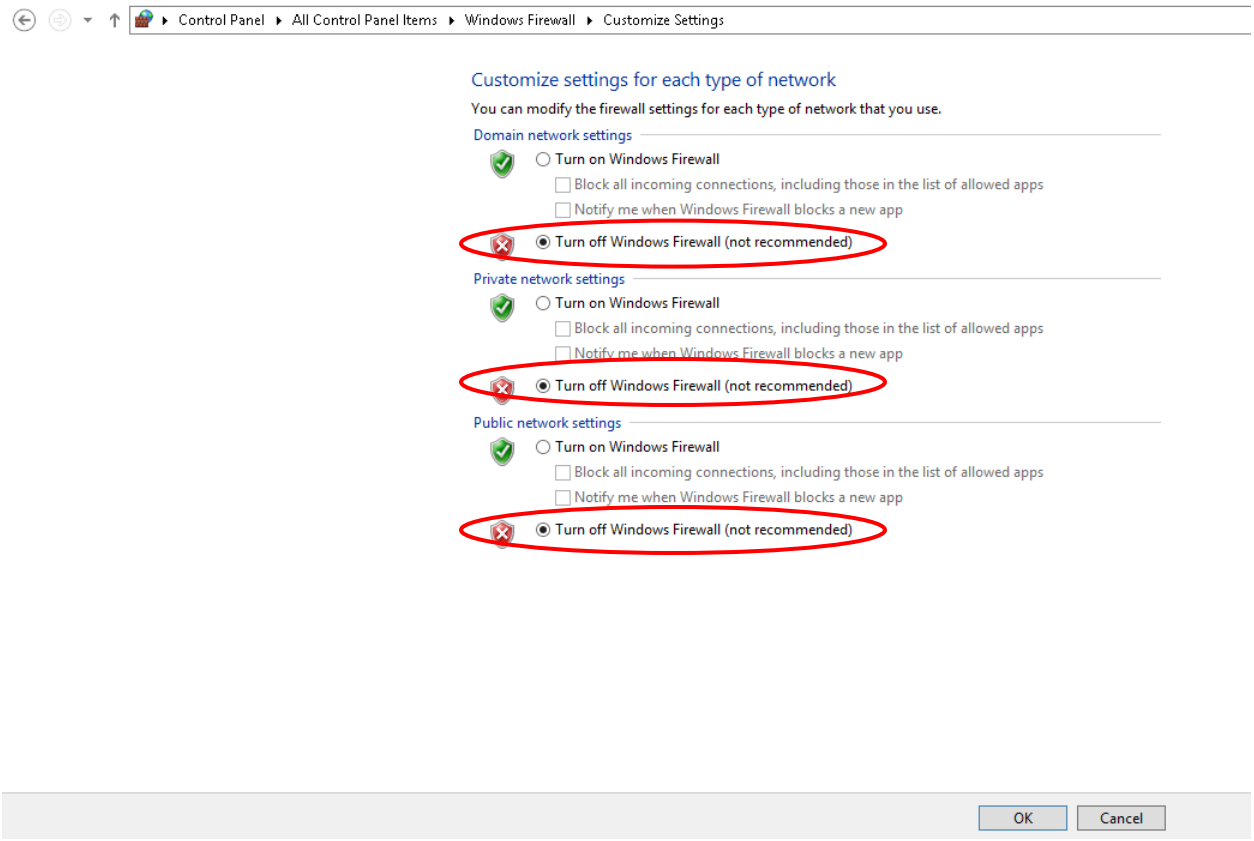
✓ Windows Firewall is off for all state viz., Domain Profile, Public Profile and Private Profile.

During runtime installation, the app and web server will communicate through a port number (which will be defined during installation); to make sure firewall is not blocking this process, the following settings needs to be done.
Also refer section 2.0 Enabling VirtualWorks™ Runtime specific ports in Firewall to set firewall for the ports between the servers

<u>To change Windows Firewall settings</u>

Go to Control Panel -> Click on Windows Firewall -> Click on Change Notification Settings


Control Panel ▸ All Control Panel Items ▸ Windows Firewall
Control Panel Home
Allow an app or feature through Windows Firewall
Change notification settings
Turn Windows Firewall on or off
Restore defaults
Advanced settings
Troubleshoot my network
Help protect your PC with Windows Firewall
Windows Firewall can help prevent hackers or malicious software from gaining access to your PC through the Internet or a network.
Update your Firewall settings
Windows Firewall is not using the recommended settings to protect your computer.
Use recommended settings
What are the recommended settings?
Domain networks
Connected
Networks at a workplace that are attached to a domain
Windows Firewall state:
Off
Incoming connections:
Block all connections to apps that are not on the list of allowed apps
Active domain networks:
rsil.ramco.com
Notification state:
Do not notify me when Windows Firewall blocks a new app
Private networks
Not connected
Guest or public networks
Not connected



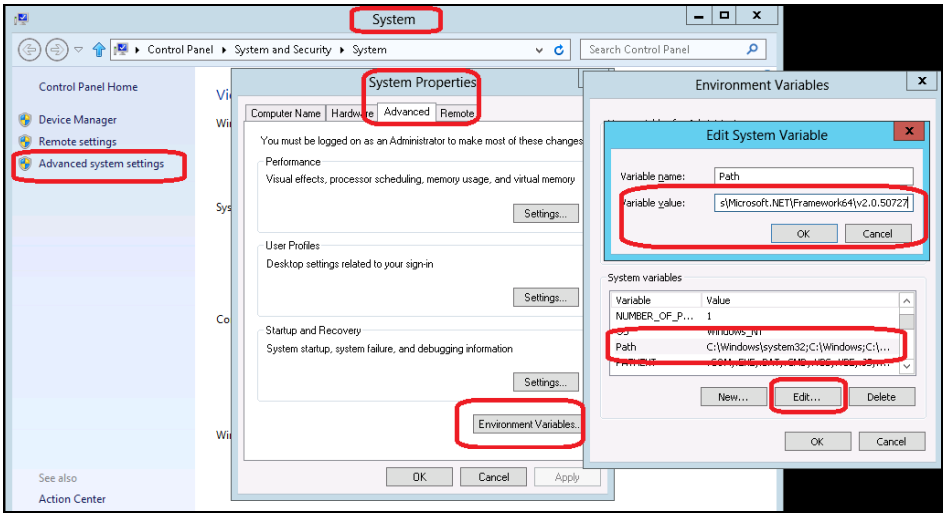
Ensure that the above rounded firewall state setting is done for all three profiles and click on **OK**.

1.1.1. Environment Variables Settings

- Set .Net Framework v3.5 and v2.0.50727 in environment path. Right click on My Computer -> System Properties -> Advanced System Settings -> Advanced Tab -> Environment Variables -> System Variables -> Edit the "Path" variable and paste the physical paths for .Net Framework 3.5 and 2.0 in the same order as specified at the end (after adding a ; [semicolon]) and click on **OK** . This should be set in all participating servers (WEB, APP and DB/RM Server).

For Ex: 32 bit machines: %systemroot%\Microsoft.NET\Framework\v2.0.50727
For Ex: 64 bit machines - %systemroot%\Microsoft.NET\Framework64\v2.0.50727
Similarly for Framework 3.5 version also.

This setting is required to enable command line invocation of dotnet compiler program.



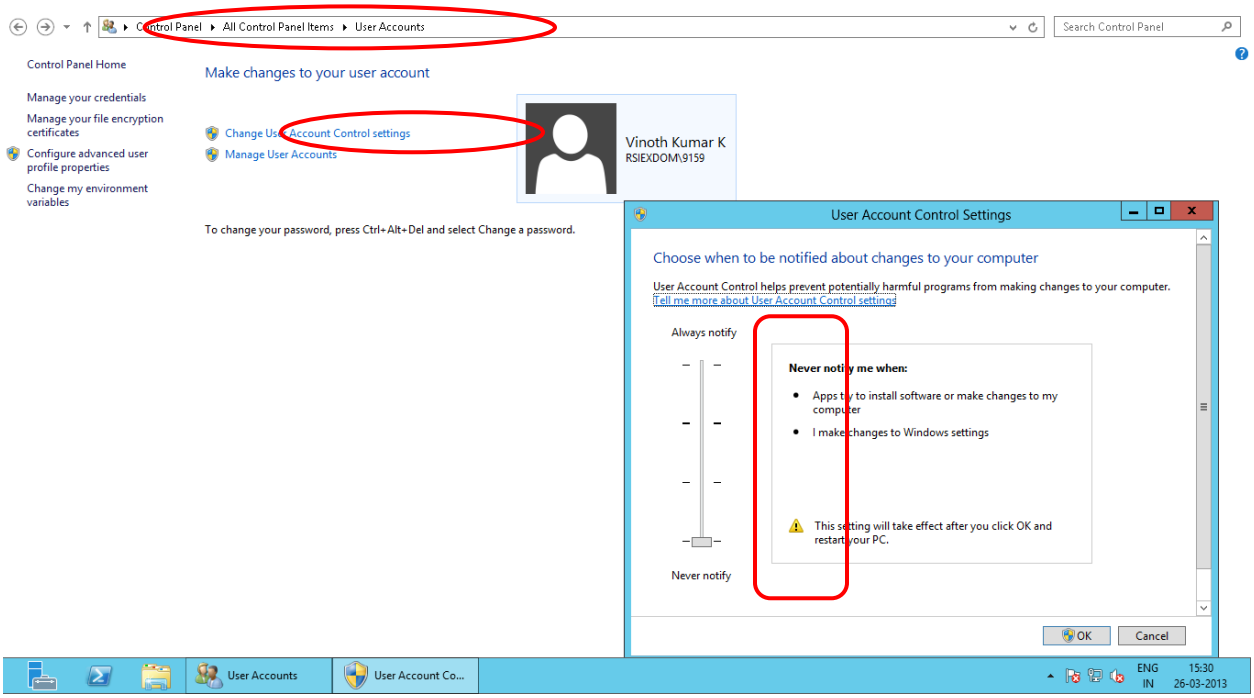
- In case if the installation should happen on a different drive other than the default system drive (for ex. instead of C:\Program Files, if the installation should be done on D:\Program Files), then change the Program Files directory path in Registry as below:
  - For 32 bit OS – Change the value of the Key ProgramFilesDir under the registry key HKEY_LOCAL_MACHINE\SOFTWARE\ \Microsoft\Windows\CurrentVersion from C:\Program Files to D:\Program Files
  - For 64 bit OS – Change the value of the Keys ProgramFilesDir and ProgramFilesDir(X86) under the registry key HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Windows\CurrentVersion and HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion from C:\Program Files (X86) to D:\Program Files (X86).

  Note: This modifies the default program Files installation directory path for all new software installations. If this is acceptable then proceed with this settings, otherwise change the settings back to original after completing the runtime installation and also ensuring that the applications are launches properly. And also during RT Patch installation and un-installation, these settings needs to be same as given during RT installation.

1.1.2. User Access Control Settings

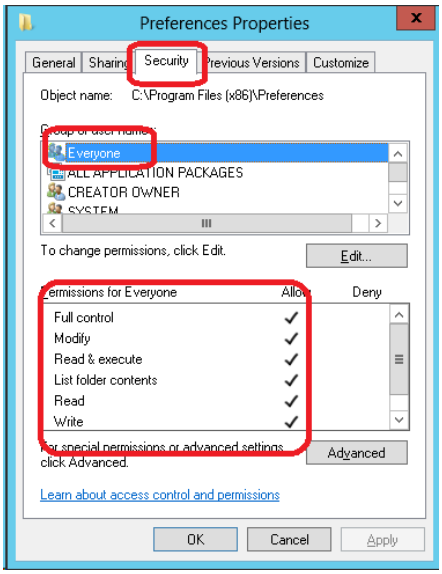
- If the Runtime installation is not done through the "Administrator" user account and is done through a user account with "Administrator" privileges (added in "Administrators" Group), then the following needs to be done. Please note that adding a user account to "Administrators" Group does not mean that the user has got "Administrator" equivalent privileges. So following privileges are required:

  - ✓ User should be part of "Administrators" group
  - ✓ User should be part of "Power Users" group
  - ✓ The "User Account Control Settings" for the logged-in user account should be set to "Never Notify". See image below for details:



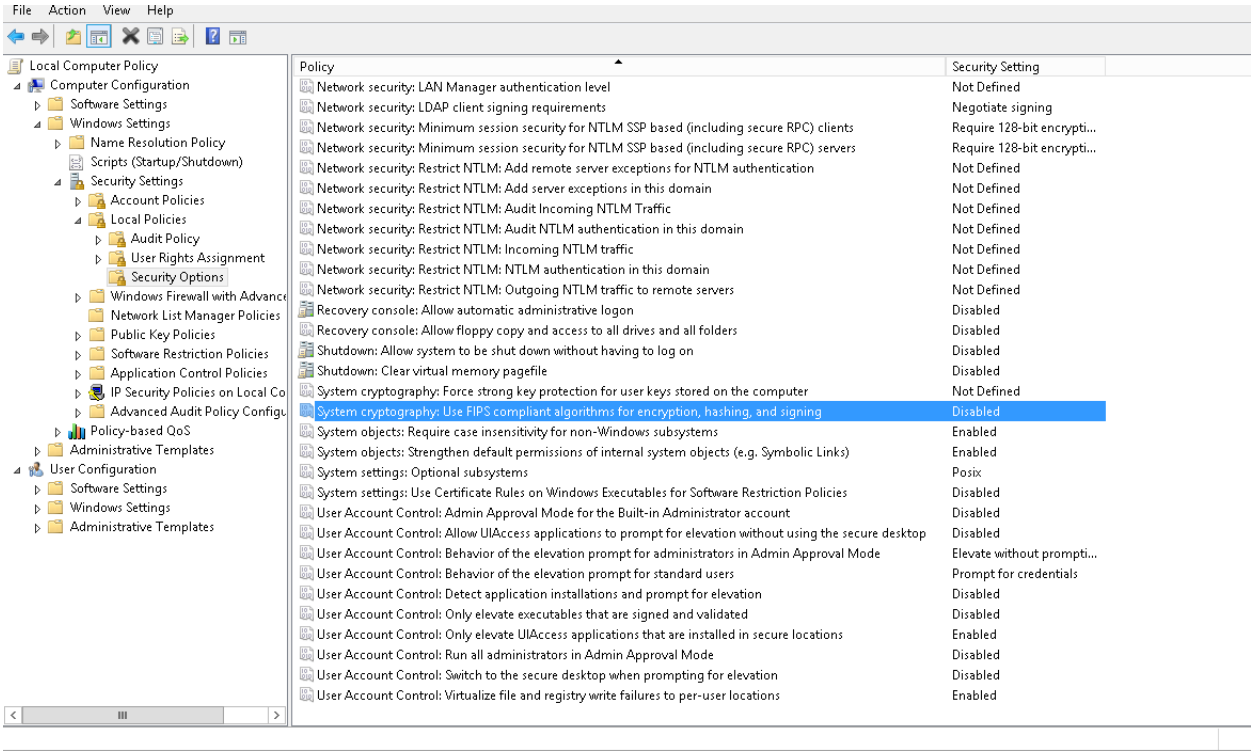
Note: 1. In the above screenshot "RSIEXDOM|9159" is a sample user account created for demonstration purpose. 2. This setting is required without which Create folder permission will not exist for a non- Administrator User account

✓ Manually create a folder called “Preferences” under .\Program Files (x86) folder and provide “Full Control” (under Security Tab) for the logged-in user account. See image below for details.

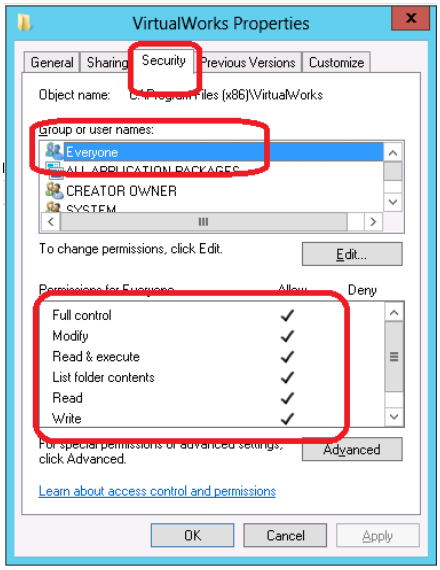


✓ Do the settings as given below. These settings should also be done on all participating layers (WEB, APP and DB).

- Run gpedit.msc from Run, navigate and browse to Computer Configuration -> Windows Settings -> Security Settings -> Local Policies -> Security Options
- Set policy User Account Control: Behavior of the elevation prompt for administrators in Admin Approval Mode to – Elevate without prompting
- Set policy User Account Control: Detect application installations and prompt for elevation to – Disabled
- Set policy User Account Control: Run all administrators in Admin Approval Mode to – Disabled



- ✓ After completing the above steps, settings to be set in all layer machines where the installation would be done. While running the RSSetup.exe from the Base Runtime installation kit, VirtualWorks folder would get created under ..\Program Files (x86) folder. User should have “Full Control” privileges for VirtualWorks and its sub-folders (under Security Tab). This permission should be given before running the RuntimeSetup.MSI.



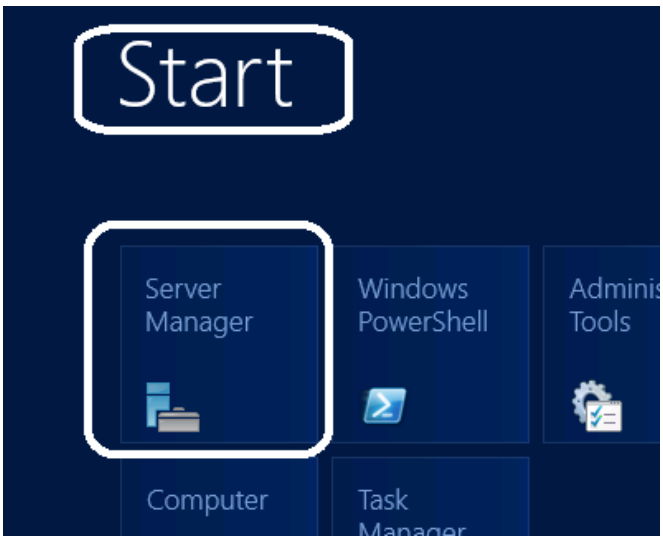
✓ Restart the Servers.

1.1.3. Server Roles Settings

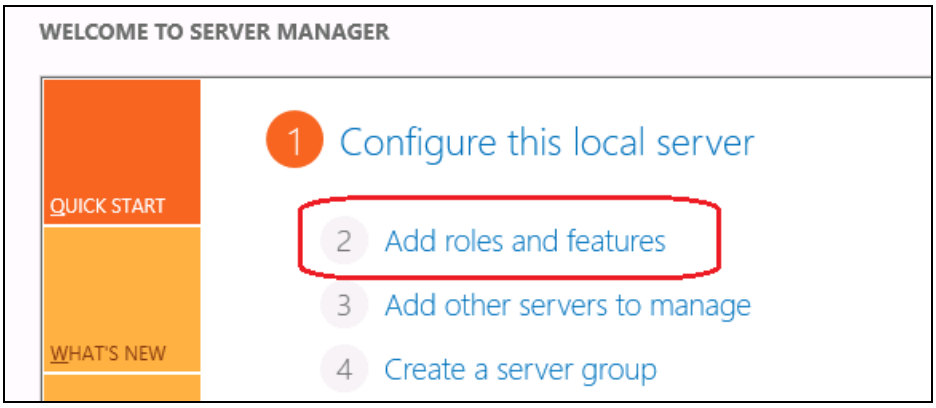
Generally in Windows 2012 server, most of the Roles and Features are in uninstalled state and wherever we need, we could initiate the required Roles and Features.

For installing VirtualWorks™ Runtime, it is mandatory to enable the following Roles and Features.

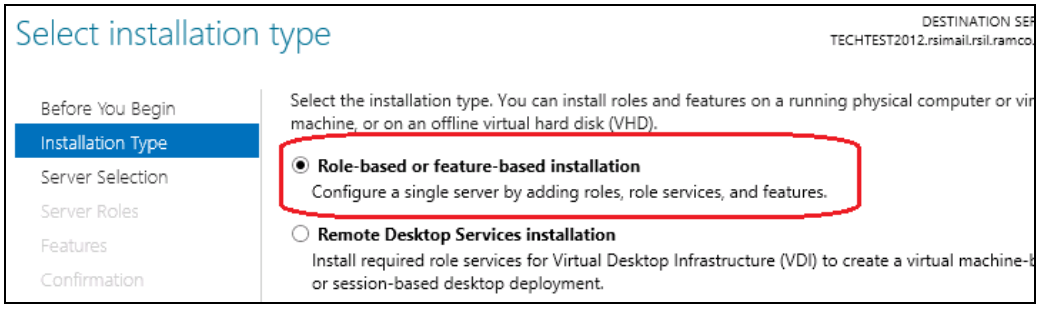
1. Go to Server Manager.



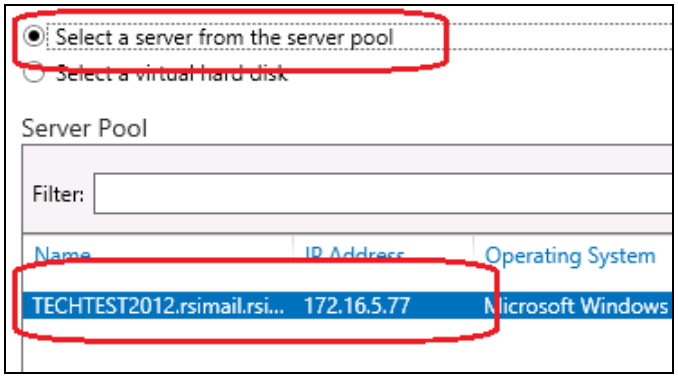
2. Click on **Add Roles and Features.**



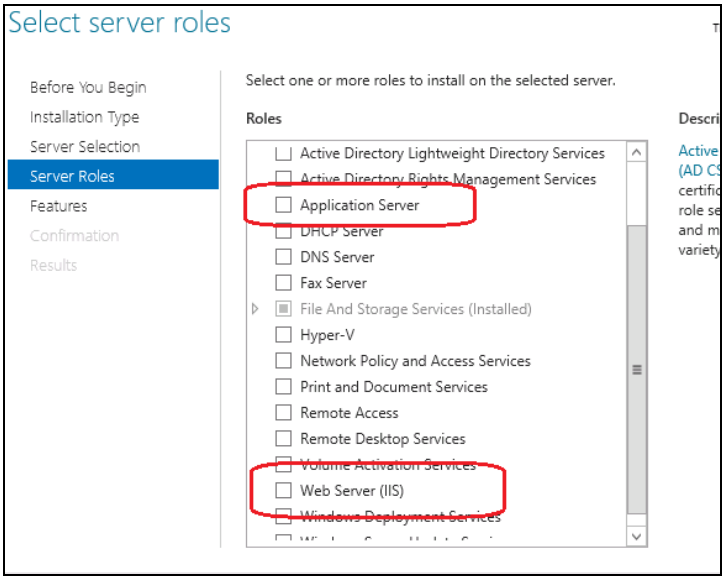
3. On the installation type, select “Role-based or feature-based installation” and click on Next.



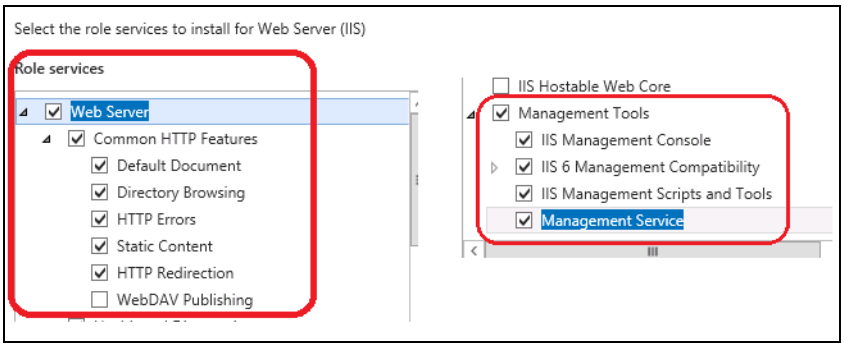
4. Select the “Select a server from the server pool” option and select the current server name from the server pool.



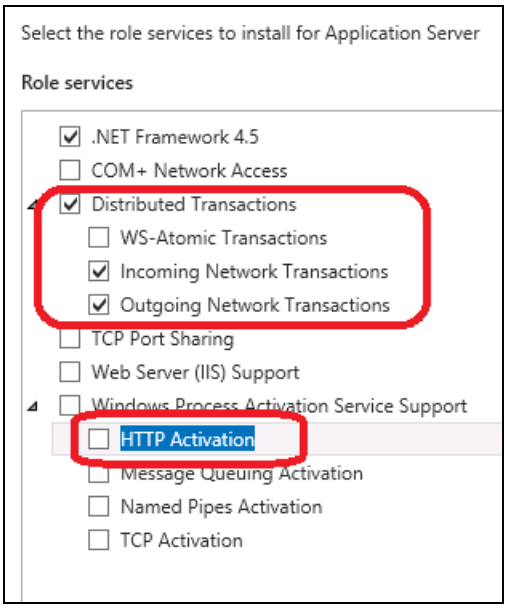
5. Select the layer to be installed in the server. If WEB layer of VirtualWorks™ is to be installed, then select the WEB Layer and if APP layer of Virtualworks™ is to be installed, select the WEB and APP Layers. While selecting the WEB / APP layers, if the system by default prompts for some Role services/features to be installed, select the same and proceed further.



For Web and App Servers, select the following Role services:

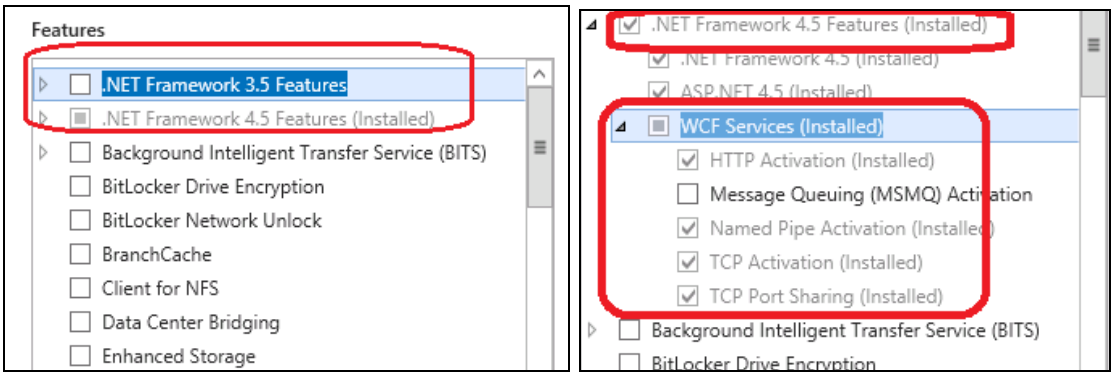


For App Server, select the following Role services:

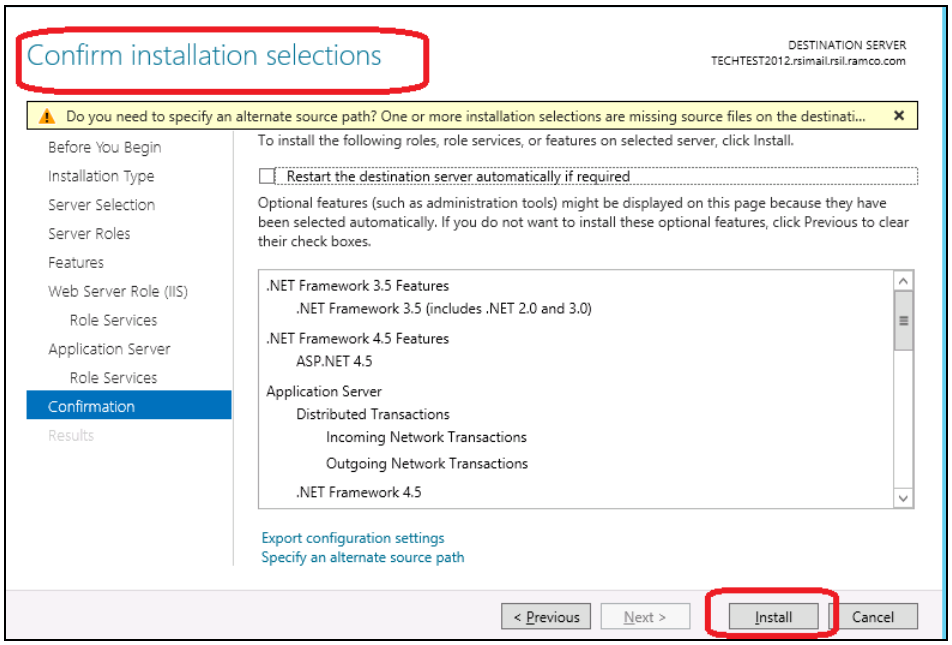


6. On clicking **Next**, the features respective to the layers would be prompted. Select .Net Framework on all installing servers. (Make sure that the features HTTP Activation and Non-HTTP activation under ".Net Framework 3.5 features **<u>are not selected</u>** and .NET Framework 3.5 (includes .NET 2.0 and 3.0) feature **<u>is selected</u>**) And make sure HTTP Activation, Named Pipe Activation, TCP Activation and TCP Port Sharing options are selected under WCF Services of .Net Framework 4.5 Features.

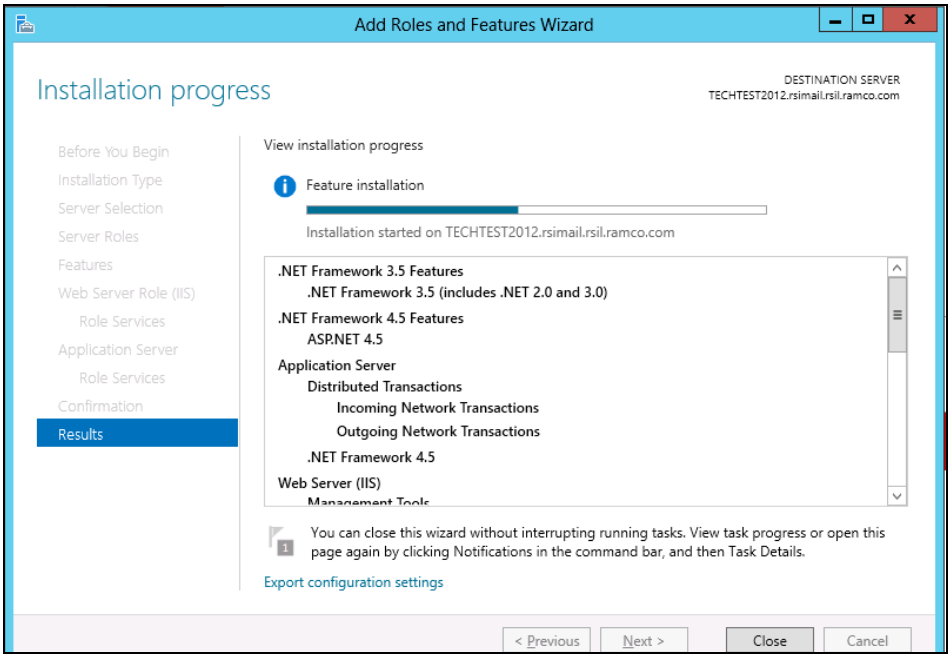
For Web, App and RM Server, select the following Features



7. Clicking **Next**, system will automatically display the selected Roles and Role Services to be installed in this server. Click on **Install** to install the same.



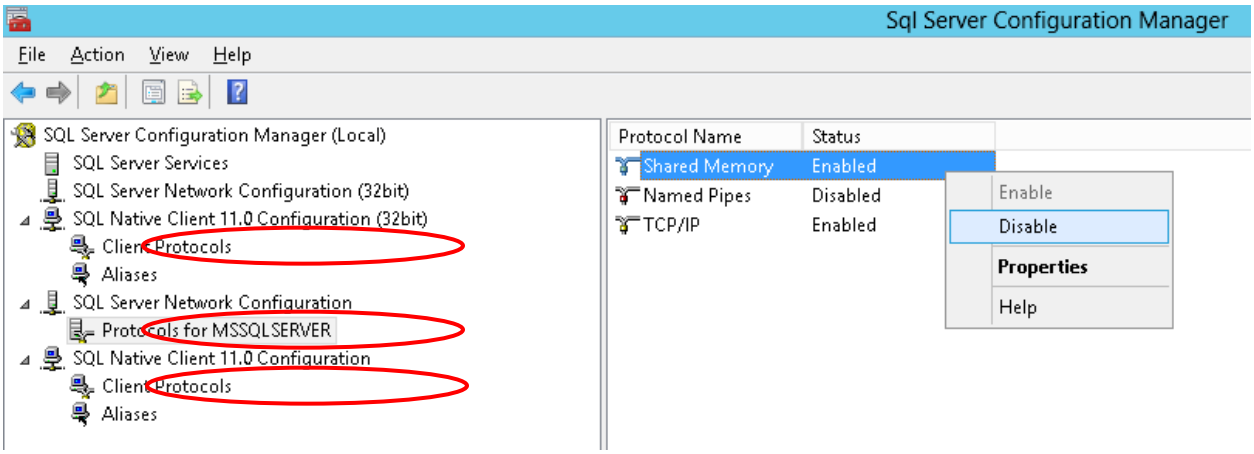
Wait for the installation to complete and restart the server if the same is prompted.



1.1.4. RMSERVER Settings

1. Go to SQL Server Configuration Manager.

2. Disable Shared Memory Protocol as this is not supported. This needs to be disabled under both "Protocols for SQL Server" as well as under "Client Protocols" as shown below.



3. If Sql server is set with instance name and the Virtualworks™ Runtime executable is allowed to run RM server, then do the following settings

   Create Alias name for the Server Instance through SQL Configuration Manager.

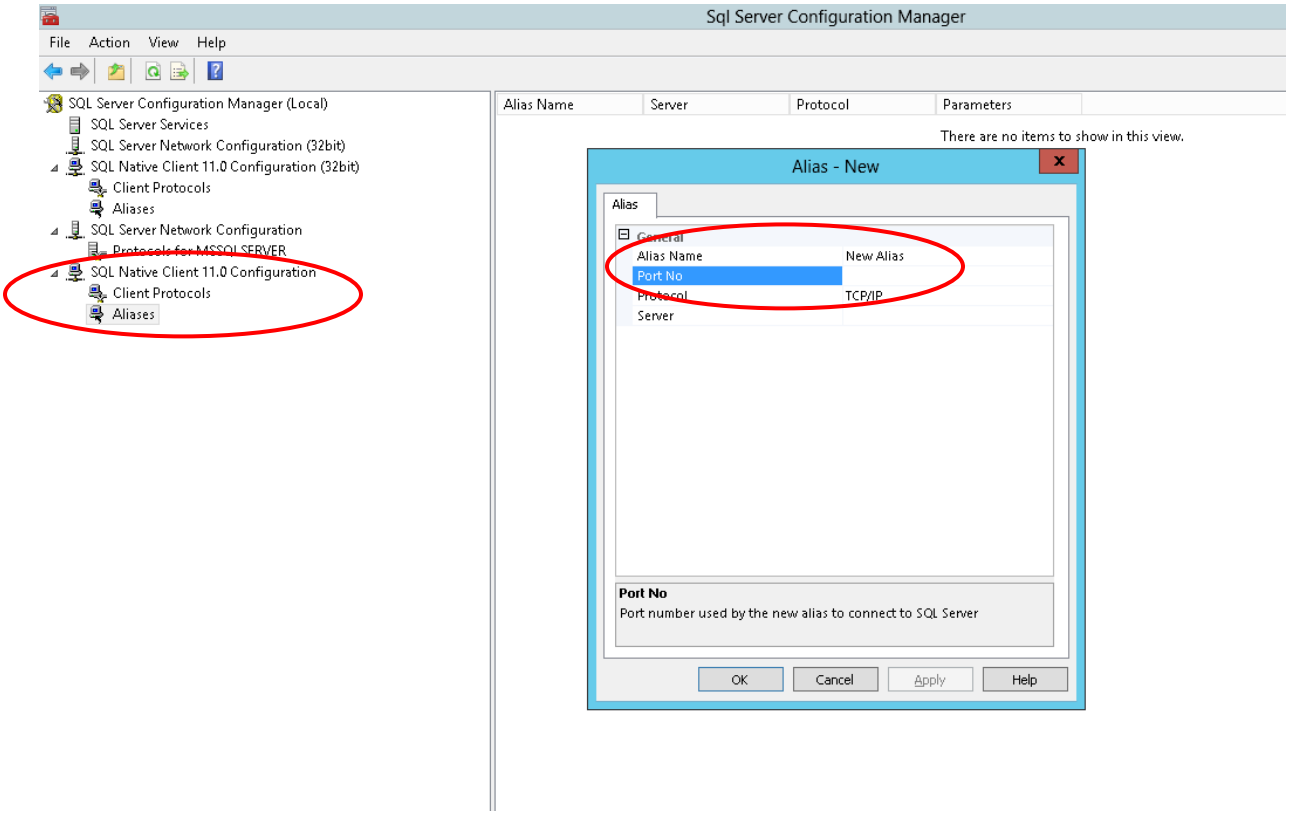
   Goto SQL Configuration Manager -> SQL Native Client 11.0 Configuration -> Aliases -> Right click -> New Alias…

   Give an Alias Name and TCP Port no (Default is 1433 if it is not changed during SQL Server installation, if TCP port no is changed during installation and not known while creating Alias then change the Protocol to “Named Pipes”).

   Give Server Name with *ServerName\InstanceName* and Click **OK**

   After this setting has done, the sql server should be able to connect with alias name, instead of *ServerName\InstanceName.* This Alias name should be given in Resource Manager (RM) Server Name during all the course of VirtualWorks™ Runtime installation.

   Refer screenshot given below:



4. Restart SQL Server Services

1.1.5. Component Services Settings

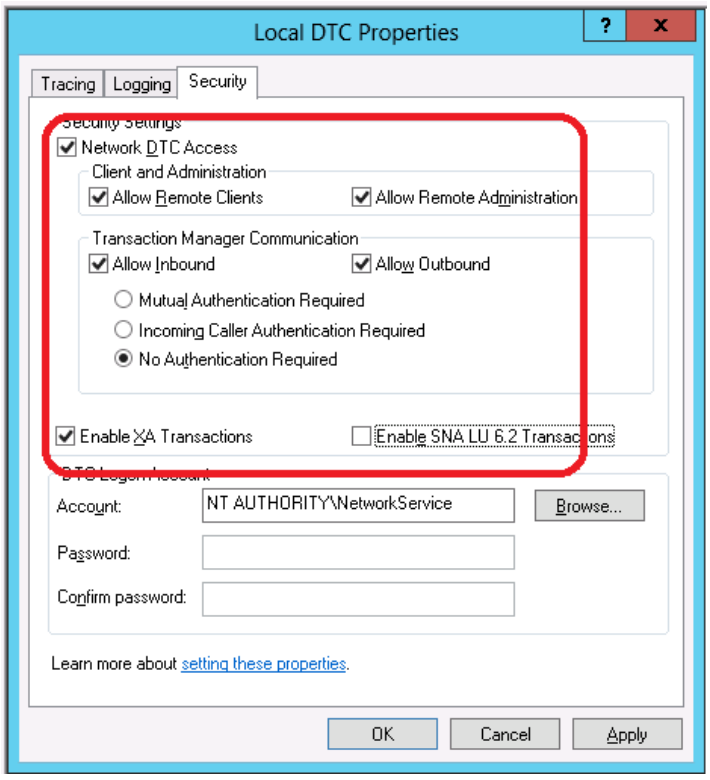
Note: These settings need to be done in App and RM Layers.

The following changes should be done in Com+ Explorer (To launch Component Services Goto Start -> Run -> Type dcomcnfg -> Ok). If “APP Server” role is not available in Database layer machine, add the same and do these settings.

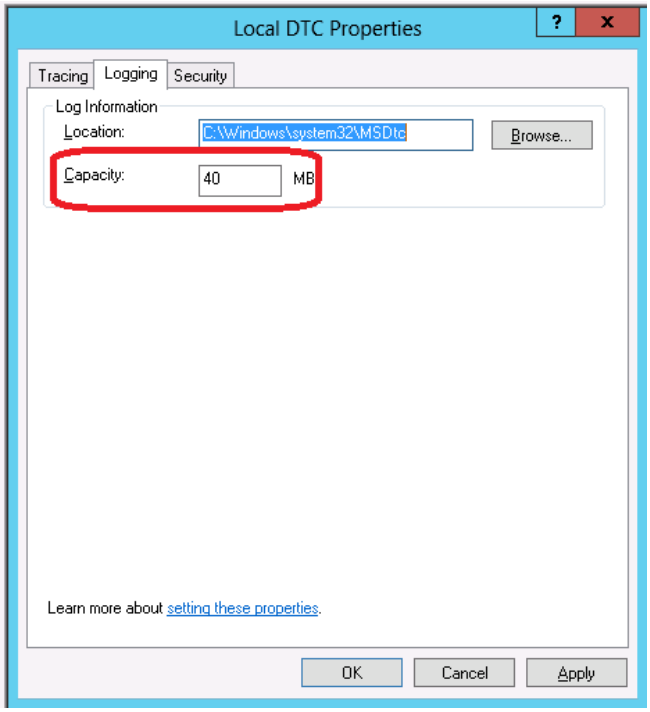
1. Open COM+ Explorer

2. Expand to “My Computer” node

3. Expand Distributed Transactions Coordinator -> Select Local DTC and click on properties and click on Security tab and choose the options as per the image below:



4. Choose Logging tab and change the Capacity to 40 MB. Click on OK.



2. Recommended Settings in WEB, APP and Database Servers

Entries in LMHOSTS and HOSTS file

- Add the IP address of the APP Server in LMHosts file of the WEB Server (in case WEB and APP servers are two different physical machines)
    a. Open the LMHOSTS (without extension) file available under %systemroot%\SYSTEM32\Drivers\ETC folder and go to the end of the file.
    b. Add a new line and type the IP address (of the App server name) and the App server machine name separated by the tab space and save the file.

- Add the WEB Server IP and the Application Server IP Address in the HOSTS file of the WEB Server (in case WEB and APP servers are two different physical machines)
    a. Open the HOSTS (without extension) file available under %systemroot%\SYSTEM32\Drivers\ETC folder and go to the end of the file.
    b. Add a new line and specify the IP Address of the WEB and the Application Server and its machine name separated by Tab space. Save the file and close it.

- Add the IP address of the WEB Server and RM Server in LMHosts file of the APP Server
    a. Open the LMHOSTS (without extension) file available under %systemroot%\SYSTEM32\Drivers\ETC folder and go to the end of the file.
    b. Add a new line and type the IP address (of the WEB server name and the RM Server) and the WEB and RM server machine names separated by the tab space and save the file.

- Add the WEB Server IP, Application Server IP and the RM Server IP Addresses in the HOSTS file of the APP Server
    a. Open the HOSTS (without extension) file available under %systemroot%\SYSTEM32\Drivers\ETC folder and go to the end of the file.
    b. Add a new line and specify the IP Address of the WEB, Application and the RM Server and its machine name separated by Tab space. Save the file and close it.

- Add the IP address of the Application Server in LMHosts file of the RM Server
    a. Open the LMHOSTS (without extension) file available under %systemroot%\SYSTEM32\Drivers\ETC folder and go to the end of the file.
    b. Add a new line and type the IP address of the App server name and the Application server machine names separated by the tab space, save the file and close it.

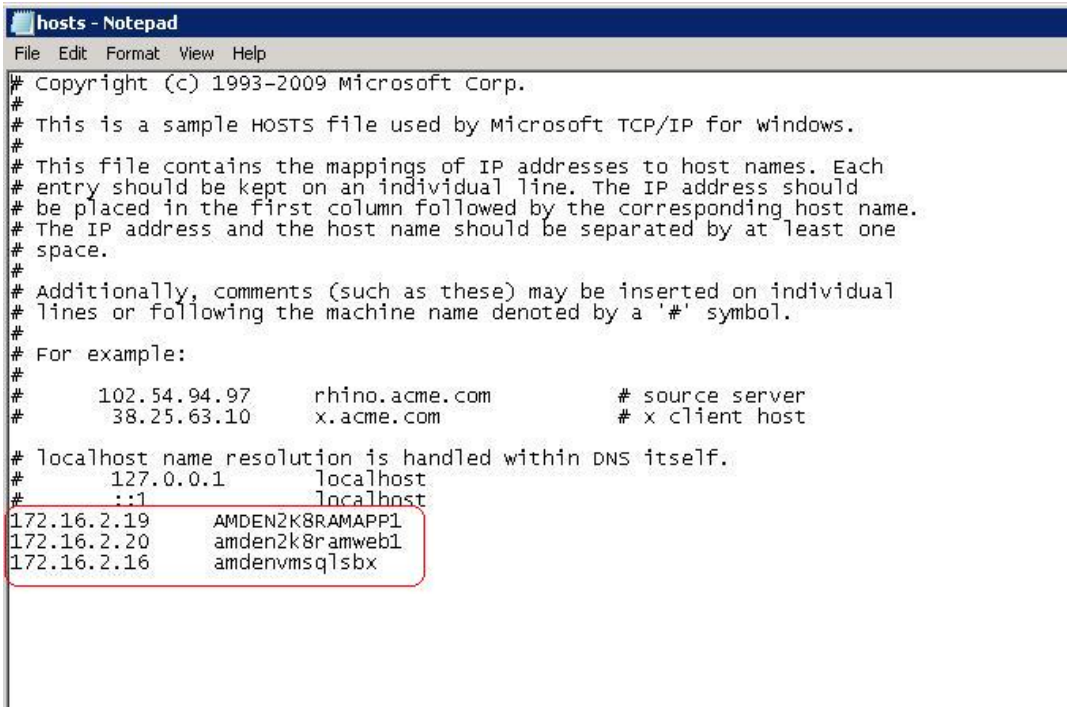
- Add the Application Server IP and the RM Server IP Addresses in the HOSTS file of the RM Server
    a. Open the HOSTS (without extension) file available under %systemroot%\SYSTEM32\Drivers\ETC folder and go to the end of the file.

b. Add a new line and specify the IP Address of the Application and RM Server and its machine name separated by Tab space. Save the file and close it.

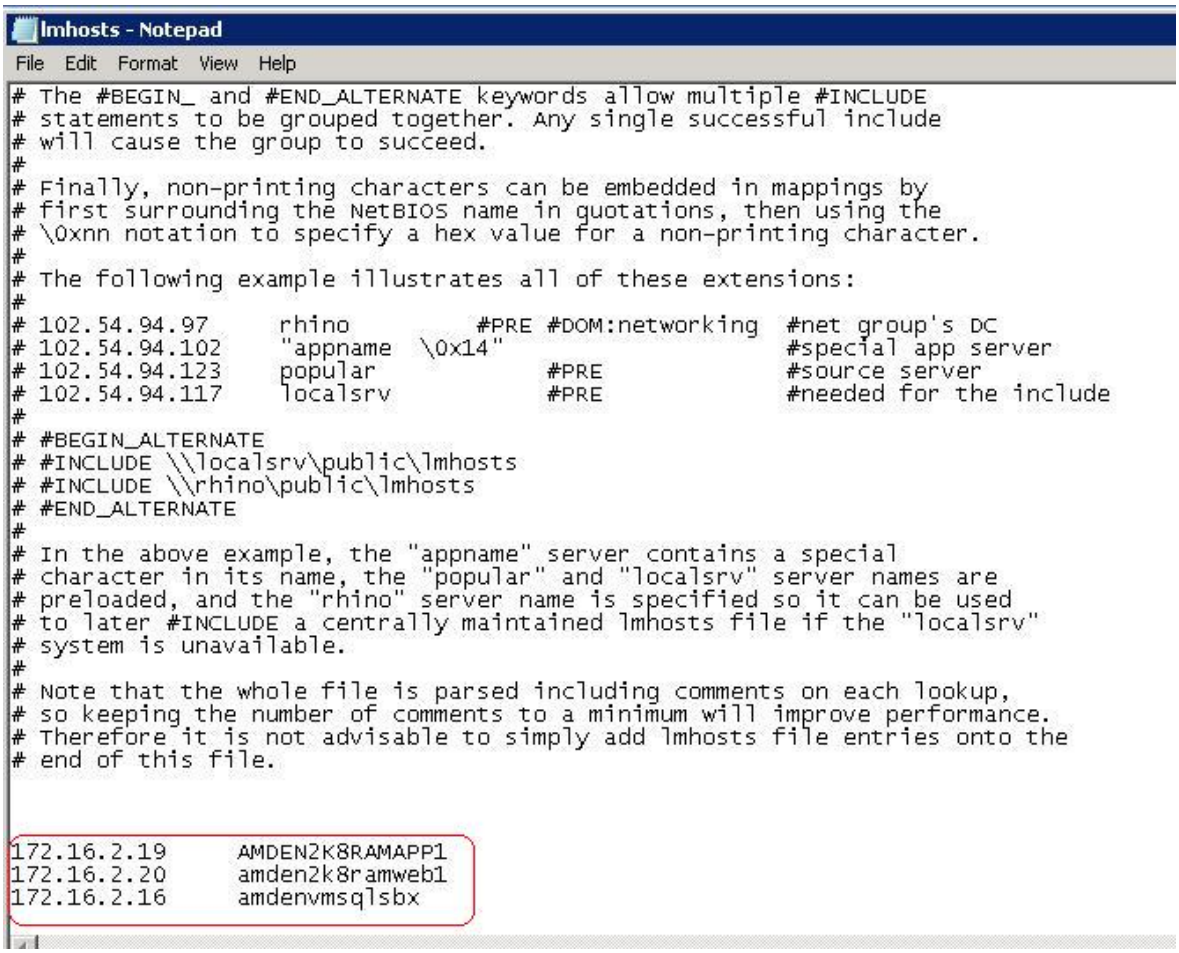
Once all the above settings are completed, restart the WEB, Application and the RM Server. Make sure all the necessary services are restarted.

Refer attachment given below:

Hosts File Table:



LMHosts File Table:



3. Enabling VirtualWorks™ Runtime specific ports in Firewall

In case firewall needs to be set between WEB/APP/Database layers, open the following ports Bi-Directionally in the Firewall between the immediate source and the destination servers

For VirtualWorks™ .Net Runtime, following ports are mandatory:

Service Name	Port No.	Direction
Internet Information Services (IIS)	Default Port 80 (If this is changed in IIS, then the modified port should be enabled in Firewall)	Bi-Directional – Between WEB and APP Servers.
VWSocketServer	Whichever port is specified while generating WEBConfig and APPConfig DLLs through ConfigGenerator	Bi-Directional – Between WEB and APP Servers.
Ramco Daemon Service (proprietary to VirtualWorks™)	Default Port 1306 (Configurable through RDE Configuration)	Bi-Directional – Between the server on which Daemon Engine is configured and Database Server.
MS SQL Server	Default Port 1433, 1434 (Can be changed at the time of installation of MS SQL Server)	Bi-Directional – Between APP and Database Server.
MSDTC	This service uses 135 as a mandatory port and also another port for communication between APP and RM Layer. The second port is dynamic and can vary between the entire allowable TCP port ranges. This port range can be restricted manually through COM. Contact Runtime Support team on how to configure manual port ranges.	Bi-Directional – Between APP and Database Server.
Net.TCP, Net.Pipe (Services running on APP Server)	Ports – 807 and 808 (This is required only if Communicator Type is set to 1 in WEB.Config file in WEB Server under ..\VirtualWorks\IIS).	Bi-Directional – Between WEB and APP Servers.

- End of Document -

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