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#### Rainbow CTI & Media Bridge (CISCO) - INSTALLATION

GUIDE

# Rainbow CTI & Media Bridge



# Legal Notice

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#### 1 Document History

Edition	Date	Changes / Comments / Details
01	16/02/2018	Initial Installation Guide created
02	24/09/2018	Screenshots for application UI has been added
03	19/08/2019	Pre-requisites section has been updated
04	22/08/2019	Screenshot has been updated for screen where CISCO connectivity details are provided
05	07/01/2020	Copyright information has been updated for pages footer
06	19/11/2020	Section 3Details about Pre-requisites has been updated according to Windows OS version.Section 3.1New section about IIS & .NET Framwork Configurations for Windows 7 has been added.Section 3.2New section about IIS & .NET Framwork Configurations for Windows 10 has been added.Section 3.3New section about IIS & .NET Framwork Configurations for Windows 10 has been added.Section 3.3New section about IIS & .NET Framwork Configurations for Windows 10 has been added.Section 4 Installation process and related screenshots have been updated.
07	07/03/2021	Legal notice has been updated. Section 3.1 Section about IIS & .NET Framework Configuration about Windows 7 has been removed and remaining sections have been renumbered. Section 4 Some steps and screenshots related to Rainbow CTI & Media Bridge Installation have been removed. Section 6 Screenshot has been updated.
08	25/05/2021	Section 4 Screenshots have been added. Section 6 Screenshot has been added. Information about application startup has been updated. Screenshot has been updated.



### 2 Introduction

Rainbow CTI & Media Bridge works with a number of telephone systems e.g. Cisco Call Manager, Avaya IP Office, NEC 3C etc. This document describes the installation of Rainbow CTI and Media Bridge for Cisco Unified Communication Manager.

Rainbow CTI & Media Bridge application is installed on a local machine in customer premises. It connects with Rainbow Server to push the list of extensions so that they can be associated to Rainbow Users for CTI and VOIP calling, and it also interacts with third-party telephone systems to monitor those extensions for signaling information and call controls.

This document will take you step by step through the installation process. Everything is explained in detail to get hold of the understanding of the solutions architecture.

Note: Red Boxes and Arrows indicate the functional areas on every screen or window.



### 3 Pre Requisites

Following configurations have to be made in the IIS configurations as pre-requisites on the machine before proceeding with Rainbow CTI & Media Bridge installation.

Following configurations have to be done for all applicable version of Windows i.e. Windows 10 and Windows Server 2012, 2016 & 2019.

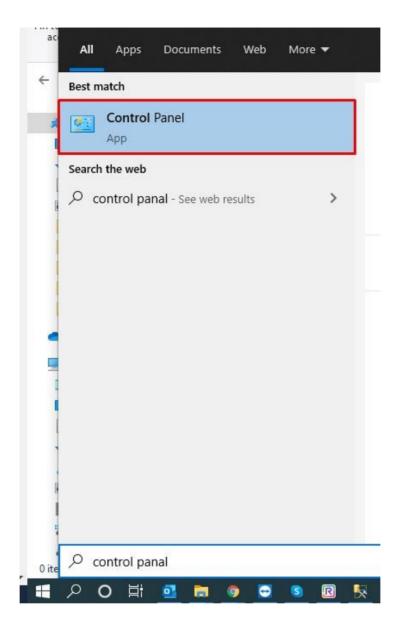
**IMPORTANT:** When installing the Rainbow CTI & Media Bridge, you must be logged in as a Local Administrator. Failing to do this may prevent that application from being installed correctly.

#### 3.1 IIS & .NET Framework Configurations for Windows 10

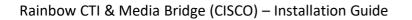
Please perform following configurations of IIS & .NET Framework on a machine that is operating on Windows 10 OS prior to installation of Rainbow CTI & Media Bridge on it.

1. Click on Start Icon 🔣 and open Control Panel as displayed below:





2. Select **Programs and Features** as highlighted below:



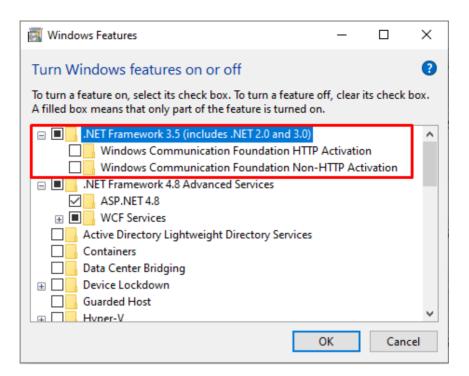


→ * ↑ Sontrol Panel >	All Control Panel Items >			<u>б</u>
djust your computer's setting:	s			View by: Large ici
Administrative Tools	AutoPlay	Backup and Restore (Windows 7)	RitLocker Drive Encryption	Color Management
Credential Manager	Date and Time	Default Programs	Device Manager	Devices and Printers
Ease of Access Center	File Explorer Options	File History	Flash Player (32-bit)	A Fonts
Indexing Options	Intel(R) Graphics and Media	Internet Options	Keyboard	Mail (Microsoft Outlook 2016)
Mouse	Network and Sharing Center	Phone and Modem	Power Options	Programs and Features
Recovery	Region	RemoteApp and Desktop Connections	Security and Maintenance	Sound
Speech Recognition	Storage Spaces	Sync Center	System	Taskbar and Navigation
Troubleshooting	User Accounts	Windows Defender	Windows Mobility Center	Work Folders

3. Click on **Turn Windows features on or off** option in the left hand menu as highlighted below:

Programs and Features		
← → × ↑ 🗖 > Control I	Panel > All Control Panel Items > Programs and Fe	atures
Control Panel Home	Uninstall or change a program	
View installed updates	To uninstall a program, select it from the list ar	nd then cli
Turn Windows features on or		
off	Organize 🔻	
Install a program from the network	Name	1
	🚴 Adobe Acrobat Reader DC	
	🛃 Advanced IP Scanner 2.5	1
	AnyDesk	1
	Bitvise SSH Client 8.44 (remove only)	1
	Sisco IP Communicator	1

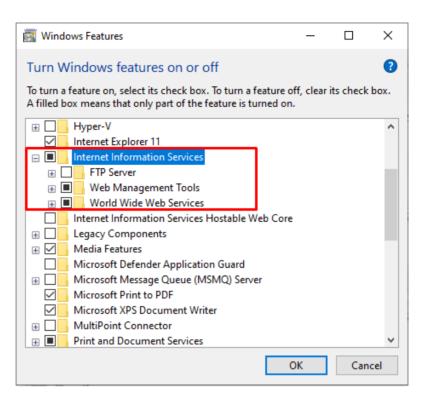
4. You need to turn on a Windows feature by checking the boxes next to those features. Expand .NET Framework 3.5 (includes .NET 2.0 and 3.0) by clicking on ⊞ icon next to it as displayed below:



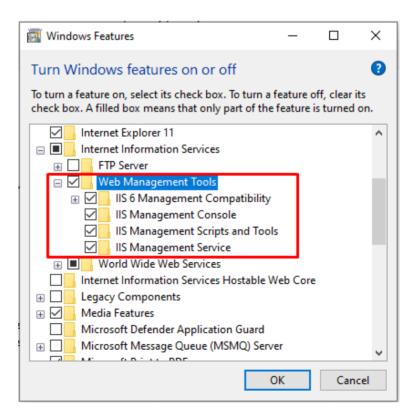
5. Check the boxes next to both options displayed below .NET Framework 3.5 (includes .NET 2.0 and 3.0) as shown:

			×
Turn Windows features on or off			?
To turn a feature on, select its check box. To turn a feature off, filled box means that only part of the feature is turned on.	clear its	check bo	х. А
<ul> <li>NET Framework 3.5 (includes .NET 2.0 and 3.0)</li> <li>Windows Communication Foundation HTTP Action</li> <li>Windows Communication Foundation Non-HT</li> </ul>		ition	^
.NET Framework 4.8 Advanced Services     Active Directory Lightweight Directory Services     Containers			
□ Data Center Bridging □ Device Lockdown □ Guarded Host			
Internet Information Services      Internet Information Services Hostable Web Core	ОК	Can	v

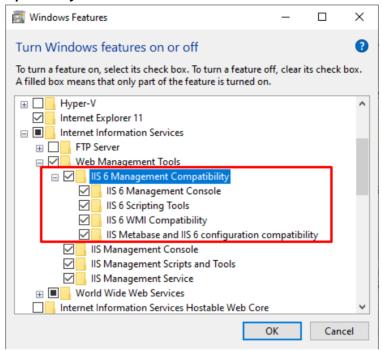
6. Expand Internet Information Services (IIS) as displayed below:



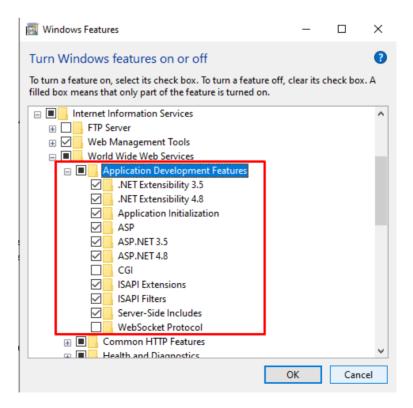
7. From the expanded options displayed expand **Web Management Tools.** Now check the boxes next to **IIS Management Console, IIS Management Scripts and Tools** and **IIS Management Service** options as shown below:



8. Expand IIS 6 Management Compatibility and check all the boxes next to the features listed under IIS 6 Management Compatibility as shown below:

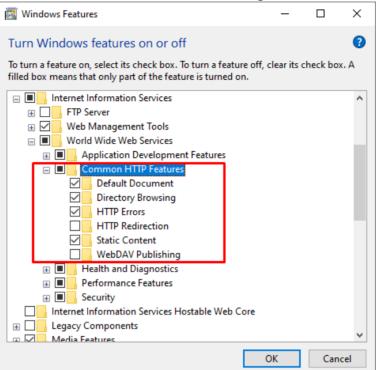


9. Close expanded menu of **Web Management Tools** by clicking on the <sup>□</sup> icon displayed next to it and expand **Application Development Features** option. Check all the boxes next to the features listed in the menu except for **CGI** and **WebSocket Protocol** as shown below:

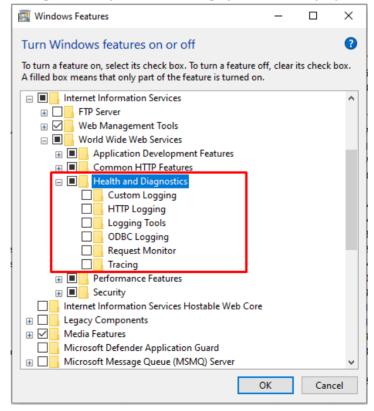




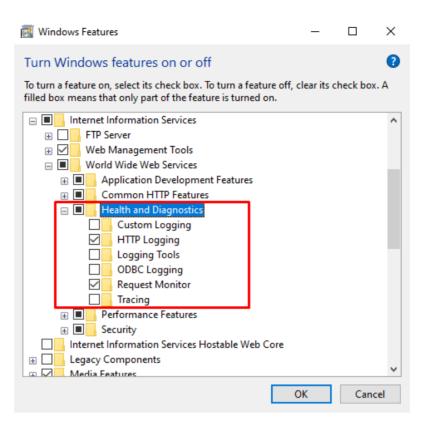
10. Now expand **Common HTTP Features** option. Check all the boxes next to the features listed in the menu except for **HTTP Redirection** and **WebDAV Publishing** as shown below:



11. Now expand **Health and Diagnostics** option. Following options are displayed:



Check the boxes next to HTTP Logging and Request Monitor options as shown below:

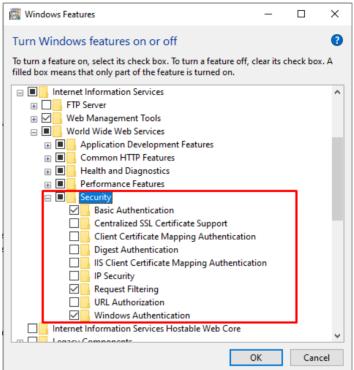


12. Now expand **Performance Features** option. Check the box next to **Static Content Compression** option as shown below:

👿 Windows Features	-		×	
Turn Windows features on or off			?	
To turn a feature on, select its check box. To turn a feature of filled box means that only part of the feature is turned on.	off, clear its c	heck box.	. Α	
Internet Information Services			^	
FTP Server				
🗉 🗹 📙 Web Management Tools				
🖃 🔳 📕 World Wide Web Services				
🗉 🔳 📙 Application Development Features				
🗉 🔳 🔤 Common HTTP Features				
🕢 🔳 🔄 Health and Diagnostics				
Performance Features				
Dynamic Content Compression				
Static Content Compression				
🕀 🔳 🔄 Security				
Internet Information Services Hostable Web Core	e			
Microsoft Defender Application Guard				
⊞				
Microsoft Print to PDF				
Microsoft XPS Document Writer			•	
	ОК	Canc	el	



13. Now expand **Security** option. Check the box next to **Basic Authentication**, **Request Filtering** and **Window Authentication** options as shown below:



14. Now expand **Windows Process Activation Service** option. Check the boxes next to all 3 displayed options as shown below. Once you have made all the above configurations, click on the OK button highlighted below:

📷 Windows Features	_		×
Turn Windows features on or off			?
To turn a feature on, select its check box. To turn a feature off, c filled box means that only part of the feature is turned on.	lear its (	check bo	с. <b>А</b>
<ul> <li>Services for NFS</li> <li>Simple TCPIP services (i.e. echo, daytime etc)</li> <li>SMB 1.0/CIFS File Sharing Support</li> <li>SMB Direct</li> <li>Telnet Client</li> <li>TFTP Client</li> <li>Virtual Machine Platform</li> <li>Windows Hypervisor Platform</li> <li>Windows Hypervisor Platform</li> <li>Windows PowerShell 2.0</li> <li>Windows Process Activation Service</li> <li>NET Environment</li> <li>Configuration APIs</li> <li>Process Model</li> <li>Windows Sandbox</li> </ul>			^
☐ Windows Subsystem for Linux ☐ Windows TIFF IFilter ☑ Work Folders Client			*
c	)K	Can	cel



×  $\leftarrow$ 🛐 Windows Features Searching for required files Cancel × ← 🛐 Windows Features Applying changes Cancel

A new window will be displayed once you press OK button as shown below:

**Note:** When the above progress window disappears, please restart your computer. This will ensure that the new configuration can take effect.

15. Now go back to the **Control Panel** and select **Administrative Tools** as highlighted below:

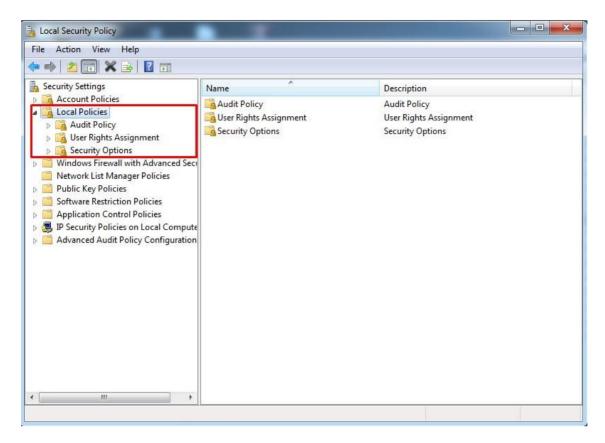


ust your computer's settings				View by: Large icons 🔻
2050 IP Softphone (32-bit)	Action Center	Administrative Tools	AutoPlay	Backup and Restore
Color Management	Credential Manager	Date and Time	Default Programs	Desktop Gadgets
Device Manager	Devices and Printers	Display	Ease of Access Center	Folder Options
Fonts	Getting Started	NomeGroup	IDT Audio Control Panel	Indexing Options
Intel(R) Graphics and Media	Internet Options	Java (32-bit)	👟 Keyboard	Location and Other Sensors
Mail (32-bit)	J Mouse	Network and Sharing Center	Notification Area Icons	NVIDIA Control Panel
Performance Information and Tools	Personalization	Phone and Modem	Power Options	Programs and Features
Recovery	🔗 Region and Language	RemoteApp and Desktop Connections	Sound	Speech Recognition
Sync Center	Kalen System	Taskbar and Start Menu	Troubleshooting	Ser Accounts
Windows Anytime Upgrade	Windows CardSpace	Windows Defender	Windows Firewall	Windows Mobility Center
Windows Update				

16. Select Local Security Policy as highlighted below:

Name	Date modified	Туре	Size
🏇 Component Services	07/12/2019 2:09 pm	Shortcut	2 KB
🎥 Computer Management	07/12/2019 2:09 pm	Shortcut	2 KB
🗯 Defragment and Optimize Drives	07/12/2019 2:09 pm	Shortcut	2 KB
🔚 Disk Cleanup	07/12/2019 2:09 pm	Shortcut	2 KB
🔠 Event Viewer	07/12/2019 2:09 pm	Shortcut	2 KB
Internet Information Services (IIS) 6.0 Ma	07/12/2019 2:10 pm	Shortcut	2 KB
鶢 Internet Information Services (IIS) Manager	07/12/2019 2:10 pm	Shortcut	2 KB
👧 iSCSI Initiator	07/12/2019 2:09 pm	Shortcut	2 KB
📠 Local Security Policy	07/12/2019 2:10 pm	Shortcut	2 KB
Representation of the terminal strategy and terminal strategy and the terminal strategy and terminal strateg	28/07/2020 2:21 pm	Shortcut	2 KB
Microsoft .NET Framework 1.1 Wizards	28/07/2020 2:21 pm	Shortcut	2 KB
📻 ODBC Data Sources (32-bit)	07/12/2019 2:10 pm	Shortcut	2 KB
📻 ODBC Data Sources (64-bit)	07/12/2019 2:09 pm	Shortcut	2 KB
Performance Monitor	07/12/2019 2:09 pm	Shortcut	2 KB
汩 Print Management	07/12/2019 2:46 am	Shortcut	2 KB
📷 Recovery Drive	07/12/2019 2:09 pm	Shortcut	2 KB
寣 Registry Editor	07/12/2019 2:09 pm	Shortcut	2 KB
Resource Monitor	07/12/2019 2:09 pm	Shortcut	2 KB

17. Double Click on Local Policies option in the left menu and following options will be displayed:



18. Double click on **User Rights Assignment** option from the displayed menu as highlighted below and the right hand screen will display a list of rights as shown below:

File Action View Help		
• 🔿 🔁 🗊 🗙 🗟 🛛 🖬		
Security Settings	Policy	Security Setting
<ul> <li>Local Policies</li> <li>Audit Policy</li> <li>User Rights Assignment</li> </ul>	Access Credential Manager as a trusted caller     Access this computer from the network     Act as part of the operating system     Add workstations to domain	Everyone,Administrators
A Security Options     Windows Firewall with Advanced Secu     Network List Manager Policies     Public Key Policies	Adjust memory quotas for a process     Allow log on locally     Allow log on through Remote Desktop Services	LOCAL SERVICE, NETWO Guest, Administrators, Us Administrators, Remote
Software Restriction Policies	Back up files and directories	Administrators,Backup Everyone,LOCAL SERVIC
IP Security Policies on Local Compute Advanced Audit Policy Configuration	Change the system time Change the time zone Create a pagefile	LOCAL SERVICE, Admini LOCAL SERVICE, Admini Administrators
	Create a token object	LOCAL SERVICE, NETWO
	Create permanent shared objects     Create symbolic links     Debug programs	Administrators Administrators
	Deny access to this computer from the network     Deny log on as a batch job     Deny log on as a service	Guest
m	Deny log on as a service     Deny log on locally     Deny log on through Remote Desktop Services     Deny log on through Remote Desktop Services     Deny log on through Remote Desktop Services	Guest



19. Now go to the right hand side panel, double click on the command **Log on as a service**, as shown below:

ile Action View Help			
• 🔿 🛛 📰 🗙 🖻 😖 🛛 🗊			
Security Settings	Policy	Security Setting	
Account Policies	B Enable computer and user accounts to be trusted for delega		
Local Policies	Force shutdown from a remote system	Administrators	
Audit Policy	B Generate security audits	LOCAL SERVICE, NETWO	
User Rights Assignment Gamma Security Options	B Impersonate a client after authentication	LOCAL SERVICE, NETWO	
Windows Firewall with Advanced Secu	🕃 Increase a process working set	Users	
Windows Firewall with Advanced Seci Network List Manager Policies	🕅 Increase scheduling priority	Administrators	
Public Key Policies	💹 Load and unload device drivers	Administrators	
Software Restriction Policies	📓 Lock pages in memory		
Application Control Policies	🖾 Log on as a batch job	Administrators, Backup	
IP Security Policies on Local Compute	🐻 Log on as a service	NETWORK SERVICE, SQL	
Advanced Audit Policy Configuration	🕅 Manage auditing and security log	Administrators	
	💹 Modify an object label		
	🕅 Modify firmware environment values	Administrators	
	🕅 Perform volume maintenance tasks	Administrators	
	🔯 Profile single process	Administrators	
	🕅 Profile system performance	Administrators, NT SERVI	
	Remove computer from docking station	Administrators, Users	
	📓 Replace a process level token	LOCAL SERVICE, NETWO	
	Restore files and directories	Administrators, Backup	
	Shut down the system	Administrators, Users, Ba	
	Synchronize directory service data		
	🖳 Take ownership of files or other objects	Administrators	

20. Click on Add User or Group, as shown below:



Log on as a service Properties	?	$\times$
Local Security Setting Explain		
Log on as a service		
*S-1-5-21-701814442-4272699955-3851783055-500 ASPNET IIS APPPOOL\.NET v2.0 IIS APPPOOL\.NET v2.0 Classic IIS APPPOOL\.NET v4.5 Classic IIS APPPOOL\.NET v4.5 Classic IIS APPPOOL\Classic .NET AppPool IIS APPPOOL\DefaultAppPool NETWORK SERVICE NT SERVICE\ALL SERVICES NT SERVICE\ALL SERVICES NT SERVICE\SQLEXPRESS NT SERVICE\SQLEXPRESS NT SERVICE\SQLEXPRESS		
Add User or Group Remove		
OK Cancel	A	oply

21. To add a New User, click on the highlighted button Advanced.

Select this object type:		
Users, Service Accounts, Groups, or Built-in	security principals	Object Types
From this location:		
production and		Locations
Enter the object names to select (examples):		
Enter the object names to select ( <u>examples</u> ):		Check Names
Enter the object names to select ( <u>examples</u> ):		Check Names

22. To display the **list of users**, click on the highlighted button **Find Now** as highlighted below:



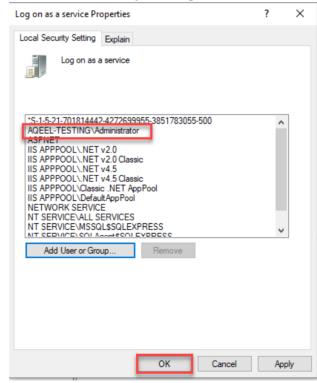
Select Users or	Groups			×
Select this object	t type:			
Users or Built-in	security principals		Object T	ypes
From this location				
AQEEL-TESTIN	G		Locatio	ins
Common Queri	es			
Name:	Starts with $\ \lor$			Columns
Description:	Starts with $\sim$			Find Now
Disabled a				Stop
Non expiri	ng password			~
Days since la	st logon:	$\sim$		P
			ОК	Cancel
Search results:			UN	Cancer
Name	In Folder			

A list of users is displayed in the lower section Select the **Administrator** and click **OK** as shown below:



Select this object type:				
Users, Service Accounts, Group	s, or Built-in security	principals	Object Ty	pes
From this location:				
ghostsoftware.local			Location	IS
Common Queries				
Name: Starts with  Description: Starts with				Columns Find Now
				0
Disabled accounts				Stop
Non expiring password				
Description leaders and				<u></u>
Days since last logon:	Ŧ	E	ок	Cancel
Search results:	- Hail Address	Description	OK In Folder	Service Cancel
Search results: iame (RDN)		Description		Cancel
Search results: iame (RDN)		Description		
Search results: iame (RDN)		Description		
Search results: iame (RDN)		Description		
Search results: iame (RDN)		Description		
Search results: iame (RDN)		Description		
Days since last logon:		Description		
Search results: Jame (RDN)		Description		
Search results: Jame (RDN)		Description		

- 23. The User has now been selected so click OK to finish the process.
- 24. The user is shown below, under Local Security Settings section. Now click OK, as shown below.





25. Close the Local Security Policy window, and also close the Administrative Tools window.

26. Go to the **Control Panel** select **Administrative Tools** and double click on the **Internet Information Services (IIS) Manager** window as shown below:

All Control Panel Items	>	Administrative Tools
All control runci iterns	~	Administrative 10013

lame	Date modified	Туре	Size
🦻 Component Services	07/12/2019 2:09 pm	Shortcut	2 KB
F Computer Management	07/12/2019 2:09 pm	Shortcut	2 KB
Defragment and Optimize Drives	07/12/2019 2:09 pm	Shortcut	2 KB
📱 Disk Cleanup	07/12/2019 2:09 pm	Shortcut	2 KB
🖠 Event Viewer	07/12/2019 2:09 pm	Shortcut	2 KB
lnternet Information Services (IIS) 6.0 Manager	07/12/2019 2:10 pm	Shortcut	2 KB
Internet Information Services (IIS) Manager	07/12/2019 2:10 pm	Shortcut	2 KB
🏃 iSCSI Initiator	07/12/2019 2:09 pm	Shortcut	2 KB
Local Security Policy	07/12/2019 2:10 pm	Shortcut	2 KB
Microsoft .NET Framework 1.1 Configuration	28/07/2020 2:21 pm	Shortcut	2 KB
Microsoft .NET Framework 1.1 Wizards	28/07/2020 2:21 pm	Shortcut	2 KB
🖥 ODBC Data Sources (32-bit)	07/12/2019 2:10 pm	Shortcut	2 KB
📓 ODBC Data Sources (64-bit)	07/12/2019 2:09 pm	Shortcut	2 KB
Performance Monitor	07/12/2019 2:09 pm	Shortcut	2 KB
🖥 Print Management	07/12/2019 2:46 am	Shortcut	2 KB
🝙 Recovery Drive	07/12/2019 2:09 pm	Shortcut	2 KB
🖁 Registry Editor	07/12/2019 2:09 pm	Shortcut	2 KB
Resource Monitor	07/12/2019 2:09 pm	Shortcut	2 KB
Services	07/12/2019 2:09 pm	Shortcut	2 KB
System Configuration	07/12/2019 2:09 pm	Shortcut	2 KB
System Information	07/12/2019 2:09 pm	Shortcut	2 KB
🕑 Task Scheduler	07/12/2019 2:09 pm	Shortcut	2 KB

27. Now expand **PC name** from the left hand panel and select **Application Pools**, in the left hand side panel, as shown below:

→ ② ► AQEEL-TESTING ► Application Pool	ls							🚥 🔤 🏠 🕷
File View Help								
onnections	Applicat	ion Doc	ale				A	ctions
2	Applicat	J.	Add Application Pool					
> Sites more	This page lets you view more applications, and		Set Application Pool Defaul Help					
	Filter	- 3	Go 👒 🕁 Sho	w All Group by:	No Grouping			
	Name	Status	.NET CLR V	Managed Pipel	Identity	Applications		
	@.NET v2.0	Started	v2.0	Integrated	ApplicationPoolId			
	.NET v2.0 Classic	Started	v2.0	Classic	ApplicationPoolId			
	.NET v4.5 .NET v4.5 Classic	Started Started	v4.0 v4.0	Integrated Classic	ApplicationPoolld ApplicationPoolld			
	Classic .NET Ap		v2.0	Classic	ApplicationPoolld			
			v4.0	Integrated	ApplicationPoolId			

28. The **Applications Pools** pane appears in the central pane. Click on **DefaultAppPool** as highlighted below:



nnections Application Pools	AQEEL-TESTING      Application Pool	5						) 🔤 🔤 🏠 I
	ile View Help  nnections  AQEEL-TESTING (AQEEL-TESTING)Administrator)  Application Poole	Applicat This page lets you view more applications, an Filter: Name MET V2.0 MET V2.0 Classic Classic ANET Ap	v and managed provide iso v v v v v v v v v v v v v v v v v v v	ge the list of ap olation among Go ~ C Sho .NET CLR V v2.0 v4.0 v4.0 v4.0 v2.0	different applicatio w All Group by: Managed Pipel Integrated Classic Integrated Classic Classic	No Grouping Identity ApplicationPoolld ApplicationPoolld ApplicationPoolld ApplicationPoolld	Applications 0 0 0 0 0	Actions Add Application Pool Set Application Pool Defax Application Pool Tasks Start Start Start Exit Application Pool Basic Settings Recycling Advanced Settings Remove View Applications

30. Now go to the **Actions** panel on the right hand side, and click on **Advanced Settings**, as shown below:

Eile View Hale								
AQEEL-TESTING AQEEL-TESTING Administrator)     Application Pools     Sites	Applicat	v and manage d provide isol • • • • • • • • • • Status Started Started Started Started Started Started Started	e the list of ap lation among Go 🕞 🙀 Shor	plication pools on different applicatio w All Group by: Integrated Classic Integrated Classic Classic Integrated	ns. No Grouping	Applications 0 0 0 0 0 0	I with worker processes, contain one or	Actions       Set Application Pool Desults       Application Pool Tasks       Application Pool Tasks       Stop       Recycle       Edit Application Pool       Advanced Settings       Recycling       Advanced Settings       Renove       View Applications       View Applications       Help
	Features View C							

Following screen is displayed when you click on **Advanced Settings**. In **Advanced Settings**, if the **General** option is closed, with a + sign beside it, click on + sign to open and expand it.

31. Choose .NET Framework Version and set its value to V4.0 as shown below:

	.NET Framework Version	v4.0	T
	Enable 32-Bit Applications	v4.0	
	Managed Pipeline Mode	v2.0	
	Name	No Managed Code	
	Queue Length	1000	Ч
	Start Automatically	True	
Ξ	CPU		
	Limit	0	
	Limit Action	NoAction	
	Limit Interval (minutes)	5	
	Processor Affinity Enabled	False	
	Processor Affinity Mask	4294967295	
Ξ	Process Model		
	Identity	ApplicationPoolIdentity	
	Idle Time-out (minutes)	20	
	Load User Profile	True	
	Maximum Worker Processes	1	
	Ping Enabled	True	
[ s	VET Framework Version managedRuntimeVersion] Confi	gures the application pool to load a work. Selecting "No Managed Code"	wi

32. Choose Enable 32-Bit Applications and set its value to True, as shown below:

NET Framework Version Enable 32-Bit Applications Managed Pipeline Mode	v4.0 True	,
	True 🔻	1
Vanaged Pipeline Mode		
nanagea i ipenne moae	True	
Name	False	≣
Queue Length	1000	4
Start Automatically	True	
CPU		
limit	0	
limit Action	NoAction	
limit Interval (minutes)	5	
Processor Affinity Enabled	False	
Processor Affinity Mask	4294967295	
Process Model		
dentity	ApplicationPoolIdentity	
dle Time-out (minutes)	20	
.oad User Profile	True	
Maximum Worker Processes	1	
Ping Enabled	True	Ŧ
erating system, the worker proce	ess(es) serving the application pool wil	L
	tart Automatically PU imit imit Action imit Interval (minutes) rocessor Affinity Enabled rocessor Affinity Mask rocess Model dentity dle Time-out (minutes) oad User Profile Maximum Worker Processes ing Enabled ble 32-Bit Apploations able32BitAppOnWin64] If set to rating system, the worker proces	tart Automatically True PU imit 0 imit 0 imit Action NoAction imit Interval (minutes) 5 rocessor Affinity Enabled False rocessor Affinity Mask 4294967295 rocess Model dentity ApplicationPoolIdentity dle Time-out (minutes) 20 oad User Profile True Maximum Worker Processes 1 ing Enabled True



33. Select **Managed Pipeline Mode** option using the dropdown menu and select **Integrated** option as shown below:

	(General)		-
	.NET Framework Version	v4.0	
	Enable 32-Bit Applications	True	
	Managed Pipeline Mode	Integrated 🗨	
	Name	Integrated	
	Queue Length	Classic	
	Start Automatically	True	1
Ξ	CPU		
	Limit	0	
	Limit Action	NoAction	
	Limit Interval (minutes)	5	
	Processor Affinity Enabled	False	
	Processor Affinity Mask	4294967295	
Ξ	Process Model		
	Identity	ApplicationPoolIdentity	
	Idle Time-out (minutes)	20	
	Load User Profile	True	
	Maximum Worker Processes	1	
	Ping Enabled	True	

34. Press **OK** and close the **Internet Information Services (IIS) Manager** and **Administrative Tools** window.

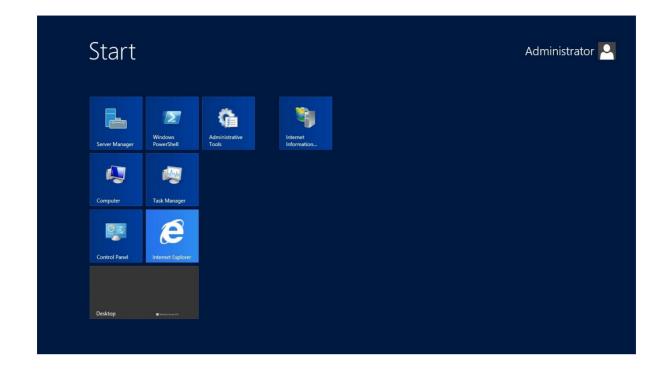
Please restart your computer after you have made the above mentioned configurations so that the changes can be applied.

#### 3.2 IIS & .NET Framework Configurations for Windows Server 2012, 2016 & 2019

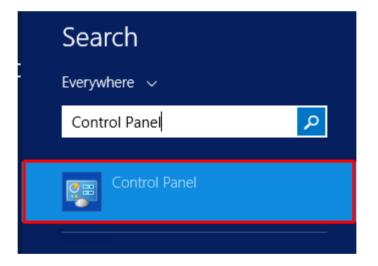
Please perform following configurations of IIS & .NET Framework on a machine that is operating on Windows Server 2012, 2016 or 2019 OS prior to installation of Rainbow CTI & Media Bridge on it.

1. Click on the Windows button by dragging the cursor to the bottom right corner. This opens the following screen:



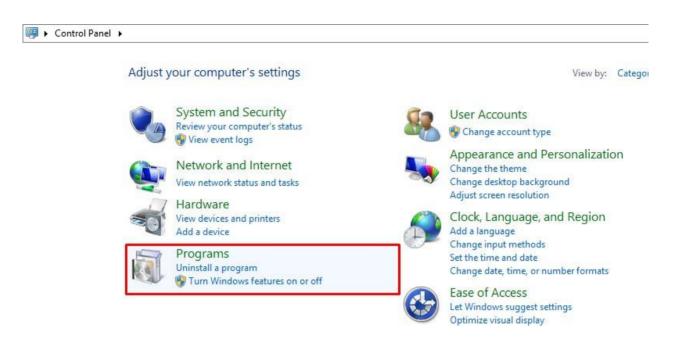


2. Go to search bar and type **Control Panel** as displayed below:

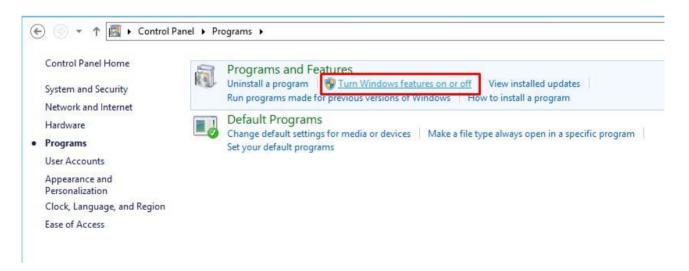


3. Click on **Programs** option that is highlighted below:

Alcatel·Lucent



4. Click on **Turn Windows features on or off** as highlighted below:



Following screen is displayed when you click on Turn Windows features on or off:



Server M	anager • Dashboa	rd		
Dashboard	WELCOME TO SERVER MA	NAGER		
Local Server				
All Servers		Confi	gure this local server	
File and Storage Services 👂		Conng	gure this local server	
	QUICK START			
		2 Add	l roles and features	
		3 Add	other servers to manage	
	WHAT'S NEW	A Cro	ate a server group	
		4 CIE	ate a server group	
		5 Con	nnect this server to cloud services	5
	LEARN MORE			
	ROLES AND SERVER GRO Roles: 1   Server groups: 1   File and Storage			
	Services	1	Local Server 1	All Servers 1
	Manageability		Manageability	<ol> <li>Manageability</li> </ol>
	Events		1 Events	1 Events
	Performance		Services	Services
	BPA results		Performance	Performance
			BPA results	BPA results
			11/6/2020 4:00 AM	11/6/2020 4:00 AM

5. In the Server Manager, click on Add Roles and Features and click on Next button as highlighted below:



L	Add Roles and Features Wizard
Before you begin	DESTINATION SERVER WIN-NRMM9HK6TQH
Before You Begin Installation Type Server Selection Server Roles Features Confirmation Results	This wizard helps you install roles, role services, or features. You determine which roles, role services, or features to install based on the computing needs of your organization, such as sharing documents, or hosting a website. To remove roles, role services, or features: Start the Remove Roles and Features Wizard Before you continue, verify that the following tasks have been completed: • The Administrator account has a strong password • Network settings, such as static IP addresses, are configured • The most current security updates from Windows Update are installed If you must verify that any of the preceding prerequisites have been completed, close the wizard, complete the steps, and then run the wizard again. To continue, click Next.
	Skip this page by default
	< Previous Next > Install Cancel

Once on next screen, click on **Role-based or feature-based installation** option and click on **Next** as highlighted below:

a	Add Roles and Features Wizard	_ <b>D</b> X
Select installation	n type	DESTINATION SERVER WIN-NRMM9HK6TQH
Before You Begin Installation Type	Select the installation type. You can install roles and features on a running machine, or on an offline virtual hard disk (VHD).	physical computer or virtual
Server Selection	Role-based or feature-based installation Configure a single server by adding roles, role services, and features.	
Features Confirmation Results	<ul> <li>Remote Desktop Services installation         Install required role services for Virtual Desktop Infrastructure (VDI) to cr         or session-based desktop deployment.     </li> </ul>	eate a virtual machine-based
- Nudarka		
	< <u>P</u> revious <u>N</u> ext >	<u>I</u> nstall Cancel



6. This is the server selection screen, select your desired **Server** and then Click **Next** as highlighted below:

Add Roles and Features Wizard				
Select destination	on server		DESTINATION SERVER WIN-NRMM9HK6TQH	
Before You Begin	Select a server or a virtual	Select a server or a virtual hard disk on which to install roles and features.		
Installation Type	<ul> <li>Select a server from the</li> </ul>	Select a server from the server pool		
Server Selection	<ul> <li>Select a virtual hard dis</li> </ul>	Select a virtual hard disk		
Server Roles	Server Pool	Server Pool		
Features				
Confirmation	Filter:			
Results	Name	IP Address	Operating System	
	WIN-NRMM9HK6TQH	172.20.22.108	Microsoft Windows Server 2012 R2 Standard	
	1 Computer(s) found This page shows servers that are running Windows Server 2012, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.			
		< Pre	vious Next > Install Cancel	

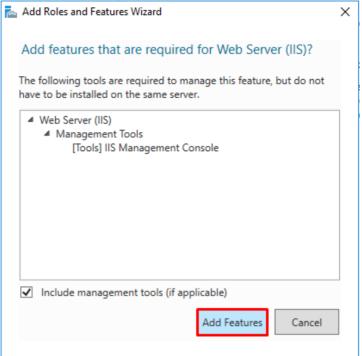
On the next screen, scroll down and go to the Web Server (IIS) option.

When you click on the **Web Server (IIS)** option. Once open, click on the box next to **Include Management tools (if applicable)** as shown below:

Add Roles and Features Wizard	
Add features that are required for Web Server (IIS)?	
The following tools are required to manage this feature, but do not have to be installed on the same server.	
<ul> <li>Web Server (IIS)</li> </ul>	٦
Management Tools	
[Tools] IIS Management Console	
	_
<ul> <li>Include management tools (if applicable)</li> </ul>	
Add Features Cancel	



#### Then click on Add Features button as displayed below:



Following screen is displayed when you click on Add Features button. Web Server (IIS) option is checked. Click on Next button.

Select server role	25	DESTINATION SERVER WIN-Q3DREI9MDK5
Before You Begin Installation Type Server Selection	Select one or more roles to install on the selected server. Roles Active Directory Lightweight Directory Services	Description Web Server (IIS) provides a reliable,
Server Selection Server Roles Features Web Server Role (IIS) Role Services Confirmation Results	<ul> <li>Active Directory Rights Management Services</li> <li>Device Health Attestation</li> <li>DHCP Server</li> <li>DNS Server</li> <li>Fax Server</li> <li>File and Storage Services (1 of 12 installed)</li> <li>Host Guardian Service</li> <li>Hyper-V</li> <li>MultiPoint Services</li> <li>Network Policy and Access Services</li> <li>Print and Document Services</li> <li>Remote Access</li> <li>Remote Desktop Services</li> <li>Volume Activation Services</li> <li>Windows Deployment Services</li> <li>Windows Server Update Services</li> </ul>	manageable, and scalable Web application infrastructure.



7. Expand the option of **NET Framework 3.5 Features** on the next screen by clicking on the ▷ icon. Following menu of features will be displayed:

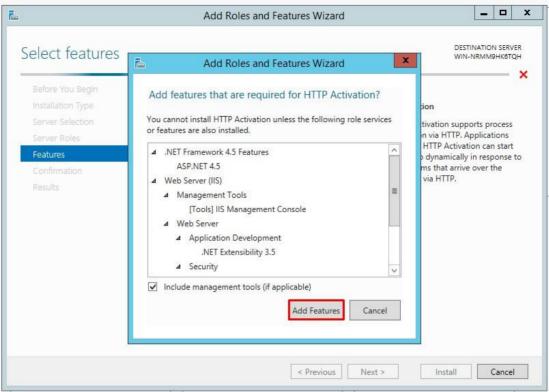
Select features		DESTINATION SERVER WIN-NRMM9HK6TQF
Before You Begin Installation Type Server Selection Server Roles Features Confirmation Results	Select one or more features to install on the selected server.  Features           Image: NET Framework 3.5 Features (1 of 3 installed)         Image: NET Framework 3.5 (includes .NET 2.0 and 3.0)         Image: HTTP Activation         Image: NET Framework 4.5 Features (2 of 7 installed)         Image: NET Framework 4.5 Features (2 of 7 installed)         Image: NET Framework 4.5 Features (2 of 7 installed)         Image: NET Framework 4.5 Features (2 of 7 installed)         Image: NET Framework 4.5 Features (2 of 7 installed)         Image: NET Framework 4.5 Features (2 of 7 installed)         Image: NET Framework 4.5 Features (2 of 7 installed)         Image: Network Unlock         Image: Network Unlock         Image: Network Unlock         Image: Direct Play         Image: Direct Play         Image: The Image: Direct Play         Image: Direct Play         Image: Direct Play         Image: Direct Play         Image: Direct Play	Description .NET Framework 3.5 combines the power of the .NET Framework 2.0 APIs with new technologies for building applications that offer appealing user interfaces, protect your customers' personal identity information, enable seamless and secure communication, and provide the ability to model a range of business processes.

8. Select **Features** from the left panel and a dialogue box will be displayed as shown below:

elect features	Add Roles and Features Wizard	×	WIN-NRMM9HK6TQF
Before You Begin Installation Type Server Selection Server Roles	Add features that are required for HTTP Activation You cannot install HTTP Activation unless the following role ser or features are also installed.		tion tivation supports process in via HTTP, Applications
Server Roles Features Confirmation Results	<ul> <li>A.NET Framework 4.5 Features ASP.NET 4.5</li> <li>Web Server (IIS)</li> <li>Management Tools         <ul> <li>[Tools] IIS Management Console</li> <li>Web Server</li> <li>Application Development .NET Extensibility 3.5</li> <li>Security</li> </ul> </li> </ul>	<	HTTP Activation can start dynamically in response to ms that arrive over the via HTTP.
	✓ Include management tools (if applicable)           Add Features         Categories	ncel	



9. Select [Tools] IIS Management Console and click on Add Features option as highlighted below:

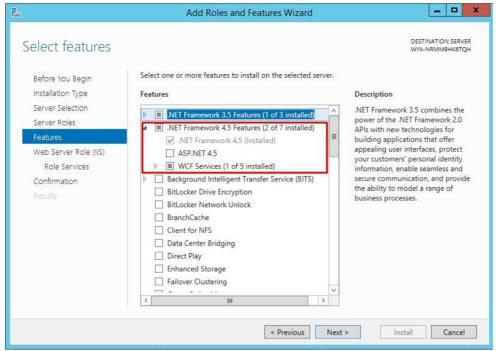


10. Both features will be activated in this manner as highlighted below:

<b>b</b>	Add Roles and Features Wizard	_ <b>_</b> X
Select features Before You Begin Installation Type Server Selection Server Roles Features Web Server Role (IIS) Role Services Confirmation Results	Select one or more features to install on the selected server.  Features  INET Framework 3.5 Features (1 of 3 installed) INET Framework 3.5 (includes .NET 2.0 and 3.0) INET Framework 3.5 (includes .NET 2.0 and 3.0) INET Framework 4.5 Features (2 of 7 installed) INET Framework 4.5 Features (2 of 7 installed	DESTINATION SERVER WIN-NRMM9HK6TQH Description Non-HTTP Activation supports process activation via Message Queuing, TCP and named pipes. Applications that use Non-HTTP Activation can start and stop dynamically in response to work items that arrive over the network via Message Queuing, TCP and named pipes.
	<pre></pre>	
	< Previous Next	> Install Cancel



11. Now expand .NET Framework 4.5 Features as displayed below and check the box next to the feature ASP .NET 4.5

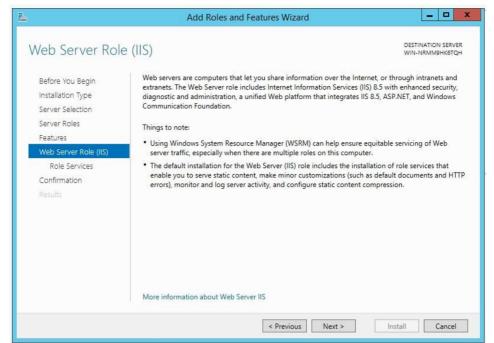


12. Expand **Windows Process Activation Service** and check all the features listed under this option as highlighted below

Select features Before You Begin Installation Type	Select one or more features to install on the selected server. Features	DESTINATION SERV WIN-NRMM9HK6TC Description
Server Selection Server Roles Features Web Server Role (IIS) Role Services Confirmation Results	Windows Identity Foundation 3.5         Windows Internal Database         ▶ I Windows Process Activation Service         ♥ Process Model         ♥ Process Model         ♥ Windows Search Service         Windows Server Backup         Windows Standards-Based Storage Management         Windows TIFF IFilter         Windows Server Migration Tools         Windows Server Wigration Vols         Windows Standards-Based Storage Management         Windows Server         Vindows Server	Configuration APIs enable applications that are built using the .NET Framework to configure Windows Process Activation Mode programmatically. This lets the application developer automatical configure Windows Process Activation Model settings when th application runs instead of requiri the administrator to manually configure these settings.

Press Next Button. Following screen of Web Server Roles (IIS) is displayed:



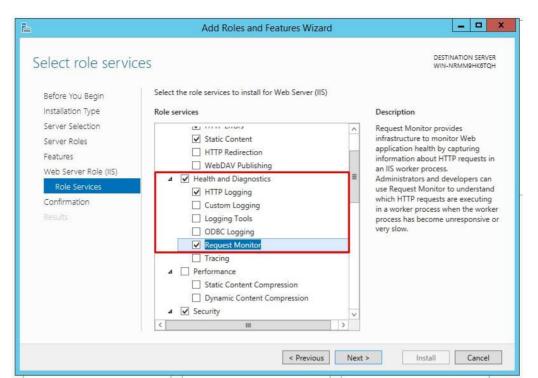


13. Click on Next and screen for Role Services is displayed. Check Boxes next to features Common HTTP Features, Default Document, Directory Browsing, HTTP Errors and Static Content as highlighted below:

<b>L</b>	Add Roles and Features Wizard	_ <b>_</b> X
Select role service Before You Begin Installation Type Server Selection Server Roles Features Web Server Role (IIS) Role Services Confirmation Results	Select the role services to install for Web Server (IIS) Role services	DESTINATION SERVER WIN-NRMM9HK6TQH Description Static Content allows the Web server to publish static Web file formats, such as HTML pages and image files. Use Static Content to publish files on your Web server that users can then view using a Web browser.
	< Previous Nex	t > Install Cancel

14. Now move to next option of **Health and Diagnostics** and check boxes next to features **HTTP Logging** and **Request Monitor** as highlighted below:

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15. Now move to next option of **Performance** and check box next to feature **Static Content Compression** as highlighted below:

A	Add Roles and Features Wizard	_ <b>D</b> X
Before You Begin Installation Type Server Selection Server Roles Features Web Server Role (IIS) Role Services Confirmation Results		DESTINATION SERVER WIN-NRMM9HK6TQH
	Centralized SSL Certificate Support     Centralized SSL Certificate Support     Client Certificate Mapping Authentication     Digest Authentication     IIS Client Certificate Mapping Authenticatio     IP and Domain Restrictions     URL Authorization     V     VRL Authorization     V	> Install Cancel

16. Now move to next option of **Security** and check boxes next to features **Request Filtering, Basic Authentication** and **Windows Authentication** as highlighted below:

elect role servio		DESTINATION SERVER WIN-NRMM9HK6TQH
Before You Begin	Select the role services to install for Web Server (IIS)	
Installation Type	Role services	Description
Server Selection	Static Content Compression	Windows authentication is a low
Server Roles	Dynamic Content Compression	cost authentication solution for internal Web sites. This
Features	⊿ 🗹 Security	authentication scheme allows
Web Server Role (IIS)	Request Filtering	administrators in a Windows domain
Role Services	✓ Basic Authentication	to take advantage of the domain infrastructure for authenticating
Confirmation	Centralized SSL Certificate Support	users. Do not use Windows
	Client Certificate Mapping Authentication	authentication if users who must be authenticated access your Web site
	Digest Authentication	from behind firewalls and proxy
	□ IIS Client Certificate Mapping Authenticatic	servers.
	IP and Domain Restrictions	
	URL Authorization	
	Application Development	
	Application Development     FTP Server	

17. Now move to next option of Management Tools and check boxes next to features IIS Management Console, IIS 6 Management Compatibility, IIS 6 Metabase Compatibility, IIS 6 Scripting Tools, IIS 6 WMI Compatibility, IIS Management Scripts and Tools and Management Service as highlighted below:

Select role servic Before You Begin Installation Type	CES Select the role services to install for Web Server (IIS) Role services	DESTINATION SERVER WIN-NRMM9HKSTQH Description
Server Selection Server Roles Features Web Server Role (IIS) Role Services		Management Tools provide infrastructure to manage a Web server that runs IIS 8. You can use the IIS user interface, command-line tools, and scripts to manage the Web server. You can also edit the configuration files directly.
Confirmation Results		

When you click on any of the box next to the highlighted features above, following screen is displayed:

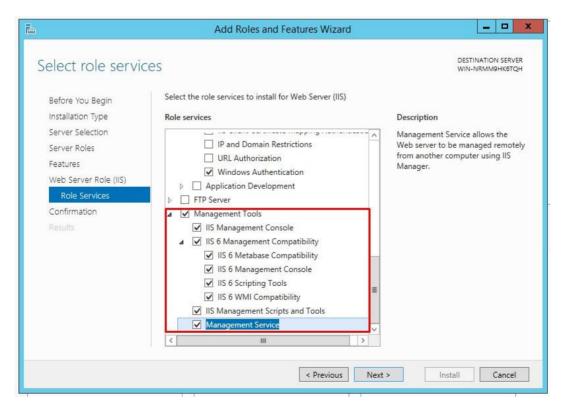
ALE International proprietary and confidential. Copyright © 2024. All rights reserved.



Click on Add Features button as displayed below:

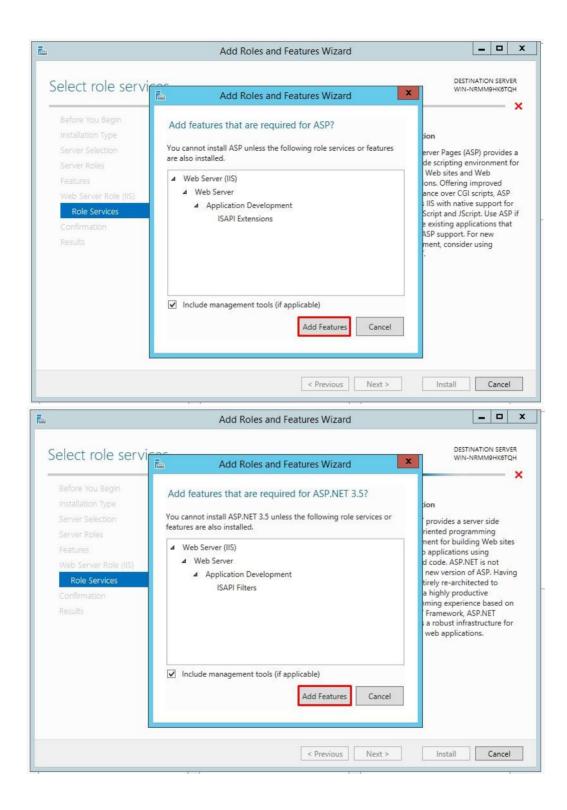
Add Roles and Features Wizard Add features that are required for IIS 6 Scripting Tools? You cannot install IIS 6 Scripting Tools unless the following role services or features are also installed.  Web Server (IIS) Management Tools IIS 6 Management Compatibility IIS 6 WMI Compatibility IIS 6 WMI Compatibility IIS 6 WMI Compatibility Cancel		
Tools? You cannot install IIS 6 Scripting Tools unless the following role services or features are also installed. Web Server (IIS) Management Tools IIS 6 Management Compatibility IIS 6 WMI Compatibility IIS 6 WMI Compatibility	a Add Roles and Features Wizard	×
services or features are also installed.		
<ul> <li>Management Tools</li> <li>IIS 6 Management Compatibility IIS 6 WMI Compatibility</li> <li>IIS 6 WMI Compatibility</li> <li>IIS 6 WMI Compatibility</li> </ul>		
	<ul> <li>Management Tools</li> <li>IIS 6 Management Compatibility</li> </ul>	
Add Features Cancel		
	Add Features Cance	I

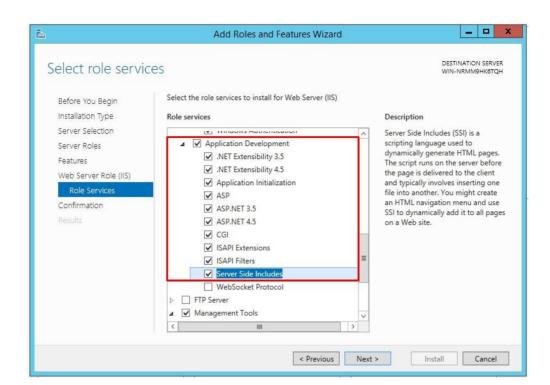
Once all the options are checked, following screen will be displayed:



18. Now expand option of Application Development and check all features in its expanded menu except for Web Socket Protocol as highlighted below. Also add features of ISAPI Extensions and ISAPI Filters as displayed below:



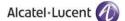




19. Click on **Next** button displayed at the bottom and confirmation screen will be displayed. Check the box next to **Restart the destination server** as highlighted below on confirmation screen. Following pop up will be displayed:

Confirm installat	ion selections	DESTINATION SERVI WIN-QEDREISMO
Before You Begin	To install the following roles, role services, or features of	on selected server, click Install.
Installation Type	Restart the destination server automatically if requ	sired
Server Selection Server Roles Features	Optional features (such as administration tools) might been selected automatically. If you do not want to inst their check boxes. Add Roles and Features Wizard	
Web Server Role (IIS) Role Services Confirmation	.NET Framework. HTTP Activat	his server restarts automatically, without Do you want to allow automatic restarts?
	ASP.NET 4.6 Web Server (IIS)	Yes No
	Management Tools IIS 6 Management Compatibility IIS 6 Management Console IIS 6 Scripting Tools	
	Export configuration settings Specify an alternate source path	

Click on **Yes** button as highlighted on the pop up window below:

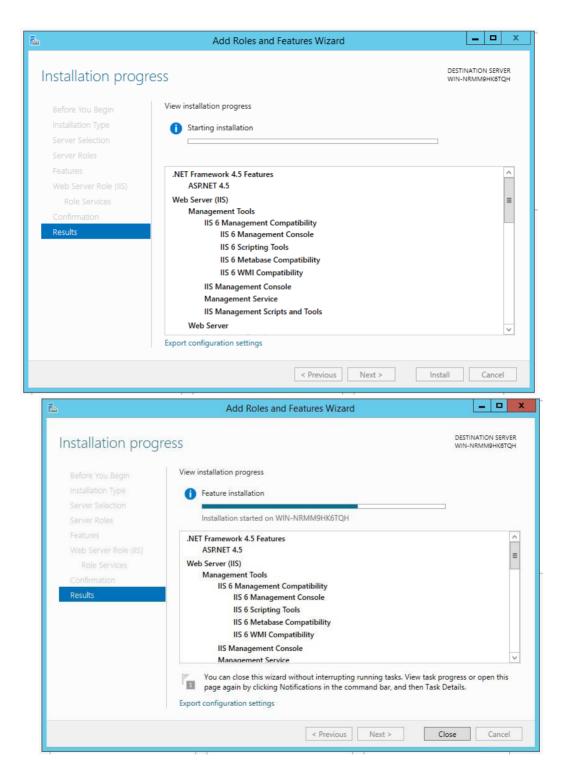


Confirm installat	on selections	5.752197	ATION SERVER Q3DREI9MDK5
Before You Begin Installation Type Server Selection Server Roles	To install the following roles, role services, or features on s Restart the destination server automatically if require Optional features (such as administration tools) might be been selected automatically. If you do not want to install t	d displayed on this page because tl	
Features Web Server Role (IIS) Role Services Confirmation Results		erver restarts automatically, with you want to allow automatic res Yes	
	Management Tools IIS 6 Management Compatibility IIS 6 Management Console IIS 6 Scripting Tools Export configuration settings Specify an alternate source path		

20. Now click on **Install** button available at the bottom of the window as highlighted below to install all the above selected features:

	Add Roles and Features Wizard		-		×
Confirm installat	ion selections		TINATIOI -NRMM		
Before You Begin	To install the following roles, role services, or features on selected serv	er, click Install.			
Installation Type	Restart the destination server automatically if required				
Server Selection	Uptional features (such as administration tools) might be displayed on				
Server Roles	been selected automatically. If you do not want to install these optionatheir check boxes.	al features, click P	revious	to cle	ear
Features					_
Web Server Role (IIS)	.NET Framework 4.5 Features				^
Role Services	ASP.NET 4.5				≡
Confirmation	Web Server (IIS)				
Results	Management Tools				
	IIS 6 Management Compatibility				
	IIS 6 Management Console				
	IIS 6 Scripting Tools				
	IIS 6 Metabase Compatibility				
	IIS 6 WMI Compatibility				
	IIS Management Console				v
	Export configuration settings				
	Specify an alternate source path				
	< Previous Next >	Install	1	Cance	
	< Previous INEXE >	Iristali		Jance	

21. Once you click on Install, screen with installation progress bar will be displayed:



If you are installing Rainbow CTI & Media Bridge on Windows Server 2019 and face an error while performing the above step, then following steps have to be performed to resolve this issue:

• Insert the Windows installation media in the form of either a CD or through a bootable disc format.

- Launch Command Prompt. You can employ multiple options to launch a command prompt, though the simplest ones would be to type in cmd in the Windows Search field.
- Type in the following command in Command Prompt interface: Dism /online /enable-feature /featurename:NetFX3 /All /Source:[CD DRIVE]:\sources\sxs /LimitAccess

**IMPORTANT!!** Make sure that in the highlighted portion, you enter the drive name that is associated with your CD-ROM/bootable device.

Once you have performed these actions, start performing the pre-requisite IIS & .NET framework configurations on Windows Server 2019 from step 1.

22. Once installation is completed, click on **Close** button as highlighted below:

<b>a</b>	Add Roles and Features Wizard	- <b>-</b> X
Installation prog	ress destina Win-NR	TION SERVER MM9HK6TQH
Before You Begin	View installation progress	
Installation Type	i Feature installation	
Server Selection	Installation succeeded on WIN-NRMM9HK6TOH.	
Server Roles	Installation succeeded on WIN-INKMM9HK01QH.	
Features	.NET Framework 4.5 Features	^
Web Server Role (IIS)	ASP.NET 4.5	=
Role Services	Web Server (IIS)	
Confirmation	Management Tools IIS 6 Management Compatibility	
Results	IIS 6 Management Console	
	IIS 6 Scripting Tools	
	IIS 6 Metabase Compatibility	
	IIS 6 WMI Compatibility	
	IIS Management Console	~
	Management Service	
	You can close this wizard without interrupting running tasks. View task progress or page again by clicking Notifications in the command bar, and then Task Details.	open this
	Export configuration settings	
	< Previous Next > Close	Cancel
L		

23. Now go back to the **Control Panel** and select **Administrative Tools** as highlighted below:



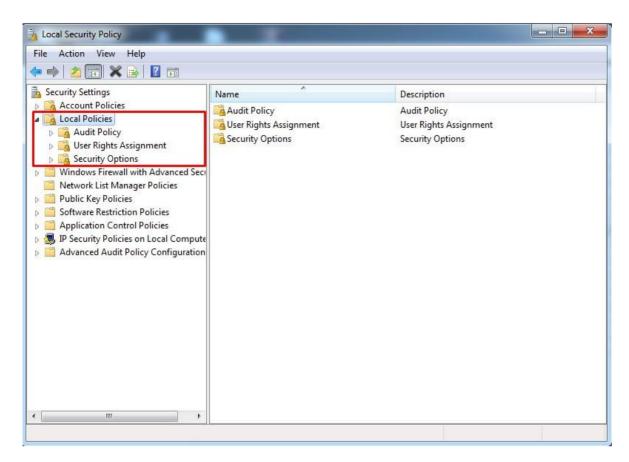
💭 - 📴 🕨 Control Panel 🕨 All Contro	ol Panel Items 🔸			<ul> <li>✓ ✓ Search Control Panel</li> </ul>
djust your computer's settings				View by: Large icons 🔻
2050 IP Softphone (32-bit)	Action Center	Administrative Tools	AutoPlay	Backup and Restore
Color Management	Credential Manager	Date and Time	Default Programs	Desktop Gadgets
Device Manager	Devices and Printers	Display	Ease of Access Center	Folder Options
Fonts	Getting Started	HomeGroup	IDT Audio Control Panel	Indexing Options
Intel(R) Graphics and Media	🐏 Internet Options	Java (32-bit)	🧼 Keyboard	Location and Other Sensors
Mail (32-bit)	💣 Mouse	Network and Sharing Center	Notification Area Icons	NVIDIA Control Panel
Performance Information and Tools	Personalization	Phone and Modem	Power Options	Programs and Features
Recovery	Region and Language	RemoteApp and Desktop Connections	Sound	Speech Recognition
Sync Center	System	Taskbar and Start Menu	Troubleshooting	User Accounts
Windows Anytime Upgrade	Windows CardSpace	Windows Defender	Windows Firewall	Windows Mobility Center
Windows Update				

## 24. Select Local Security Policy as highlighted below:

Terminal Services	8/22/2013 8:39 AM	File folder	
P Component Services	8/21/2013 11:57 PM	Shortcut	2 KI
🛃 Computer Management	8/21/2013 11:54 PM	Shortcut	2 KI
齄 Defragment and Optimize Drives	8/21/2013 11:47 PM	Shortcut	2 K
🚮 Disk Cleanup	8/21/2013 11:57 PM	Shortcut	2 K
👔 Event Viewer	8/21/2013 11:55 PM	Shortcut	2 K
🗿 Internet Information Services (IIS) 6.0 Ma	8/21/2013 11:50 PM	Shortcut	2 K
<table-of-contents> Internet Information Services (IIS) Manager</table-of-contents>	8/21/2013 11:50 PM	Shortcut	2 K
🗈 iSCSI Initiator	8/21/2013 11:57 PM	Shortcut	2 K
Local Security Policy	8/21/2013 11:54 PM	Shortcut	2 K
Microsoft Azure Services	11/21/2014 7:19 PM	Shortcut	2 K
🚯 ODBC Data Sources (32-bit)	8/21/2013 4:56 PM	Shortcut	2 K
🚯 ODBC Data Sources (64-bit)	8/21/2013 11:59 PM	Shortcut	2 K
Performance Monitor	8/21/2013 11:52 PM	Shortcut	2 K
Resource Monitor	8/21/2013 11:52 PM	Shortcut	2 K
Security Configuration Wizard	8/21/2013 11:45 PM	Shortcut	2 K
🖕 Server Manager	8/21/2013 11:55 PM	Shortcut	2 K
Services	8/21/2013 11:54 PM	Shortcut	2 K
🔁 System Configuration	8/21/2013 11:53 PM	Shortcut	2 K
System Information	8/21/2013 11:53 PM	Shortcut	2 K
🗿 Task Scheduler	8/21/2013 11:55 PM	Shortcut	2 K
穿 Windows Firewall with Advanced Security	8/21/2013 11:45 PM	Shortcut	2 K
Windows Memory Diagnostic	8/21/2013 11:52 PM	Shortcut	2 K
🗑 Windows PowerShell (x86)	8/22/2013 8:37 AM	Shortcut	3 K
🕷 Windows PowerShell ISE (x86)	8/21/2013 11:55 PM	Shortcut	2 K

Double Click on Local Policies option in the left menu and following options will be displayed:





25. Double click on **User Rights Assignment** option from the displayed menu as highlighted below and the right hand screen will display a list of rights as shown below:

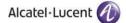
ile Action View Help			
• 🔿   🚈 📰 💥 😼   🔢 📷			
Security Settings	Policy	Security Setting	
<ul> <li>Account Policies</li> <li>Local Policies</li> <li>Audit Policy</li> <li>User Rights Assignment</li> </ul>	<ul> <li>Access Credential Manager as a trusted caller</li> <li>Access this computer from the network</li> <li>Act as part of the operating system</li> <li>Add workstations to domain</li> </ul>	Everyone,Administrators	
<ul> <li>Kecurity Options</li> <li>Windows Firewall with Advanced Sec</li> </ul>	Adjust memory quotas for a process	LOCAL SERVICE, NETWO	
Network List Manager Policies	Allow log on locally	Guest, Administrators, Us	
Public Key Policies	Allow log on through Remote Desktop Services	Administrators, Remote	
Software Restriction Policies	Back up files and directories	Administrators, Backup	
Application Control Policies	🚳 Bypass traverse checking	Everyone,LOCAL SERVIC	
IP Security Policies on Local Compute	🗒 Change the system time	LOCAL SERVICE, Admini	
Advanced Audit Policy Configuration	😳 Change the time zone	LOCAL SERVICE, Admini	
	📖 Create a pagefile	Administrators	
	📖 Create a token object		
	🖾 Create global objects	LOCAL SERVICE, NETWO	
	Create permanent shared objects		
	💹 Create symbolic links	Administrators	
	🔯 Debug programs	Administrators	
	Deny access to this computer from the network	Guest	
	🖾 Deny log on as a batch job		
	B Deny log on as a service		
	B Deny log on locally	Guest	
	B Deny log on through Remote Desktop Services		
4 III	Enable computer and user accounts to be trusted for delega		

26. Now go to the right hand side panel, double click on the command Log on as a service, as shown below:



• 🔿 🙍 📰 🗙 🗊 🔒 🛛 🖬		
Security Settings	Policy	Security Setting
<ul> <li>Account Policies</li> <li>Local Policies</li> <li>Audit Policy</li> <li>User Rights Assignment</li> <li>Security Options</li> <li>Windows Firewall with Advanced Seci</li> <li>Network List Manager Policies</li> <li>Public Key Policies</li> <li>Software Restriction Policies</li> <li>Application Control Policies</li> </ul>	<ul> <li>Enable computer and user accounts to be trusted for delega</li> <li>Force shutdown from a remote system</li> <li>Generate security audits</li> <li>Impersonate a client after authentication</li> <li>Increase a process working set</li> <li>Increase scheduling priority</li> <li>Load and unload device drivers</li> <li>Lock pages in memory</li> <li>Log on as a batch job</li> </ul>	Administrators LOCAL SERVICE, NETWO LOCAL SERVICE, NETWO Users Administrators Administrators Administrators
IP Security Policies on Local Compute Advanced Audit Policy Configuration	Log on as a service         Image auditing and security log	NETWORK SERVICE, SQL Administrators
	Modify firmware environment values  Perform volume maintenance tasks  Profile single process  Profile system performance	Administrators Administrators Administrators Administrators.NT SERVI
	Remove computer from docking station     Replace a process level token     Restore files and directories	Administrators, Will Servi Administrators, Users LOCAL SERVICE, NETWO Administrators, Backup
	Shut down the system	Administrators, Users, Ba
	Take ownership of files or other objects	Administrators

27. Click on Add User or Group, as shown below:



Log on as a service Properties	8	x
Local Security Setting Explain Log on as a service		
*S-1-5-21-3359668262-405374246-9145180 *S-1-5-21-3359668262-405374246-9145180 ASP.NET v4.0 DefaultAppPool IIS_IUSRS MyAppWorkerProcess NETWORK SERVICE NT SERVICEVALL SERVICES NT SERVICEVALL SERVICES NT SERVICEVALSQLESQLEXPRESS NT SERVICEVALSQLESQUEXPRESS NT SERVICEVALSQLESRVER SQLServer2005SQLBrowserUser\$LPT-009M-AQEE SQLServerSQLAgentUser\$LPT-009M-AQEE SQLServerSQLAgentUser\$LPT-009M-AQEE SQLServerSQLAgentUser\$LPT-009M-AQEE SQLServerSQLAgentUser\$LPT-009M-AQEE SQLServerSQLAgentUser\$LPT-009M-AQEE SQLServerSQLAgentUser\$LPT-009M-AQEE	M-AQEEL EL\$MSSQLSERVER	
ОК	Cancel App	ply

28. To add a New User, click on the highlighted button Advanced, as shown below:

U

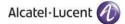


Select this object type:		
Users, Service Accounts, Groups, or Built-in security p	rincipals	Object Types
From this location:		
proto-from to d		Locations
inter the object names to select ( <u>examples</u> ):		
		Check Names

29. To display the **list of users**, click on the highlighted button **Find Now** as highlighted below:

	Accounts, Groups, or B	Built-in security princip	als	Object Types
From this location				
ghostsoftware.lo	ocal			Locations
Common Queri	es			
Name:	Starts with 💌			Columns
Description:				Find Now
Description.	Starts with 🔻			
Disabled a	accounts			Stop
Non expiri	ng password			
Days since la	ist logon: 🖉 🔻	·		<i>\$</i>
				OK Cancel
				OK Cancel
	E-Mail Address	Description	In Folder	OK Cancel
Search results: lame (RDN)	E-Mail Address	Description	In Folder	OK Cancel
	E-Mail Address	Description	In Folder	OK Cancel
	E-Mail Address	Description	In Folder	OK Cancel
	E-Mail Address	Description	In Folder	OK Cancel
	E-Mail Address	Description	In Folder	OK Cancel
	E-Mail Address	Description	In Folder	OK Cancel

30. A list of users is displayed in the lower section as displayed below. Select the **Administrator** and click **OK** as shown below:



Select Users or Grou	ips ×
Select this object type:	
Users or Built-in security principals	Object Types
From this location:	
WIN-NRMM9HK6TQH	Locations
Common Queries	
Name: Starts with V	Columns
Description: Starts with V	Find Now
Disabled accounts	Stop
Non expiring password	
Days since last logon:	<del>9</del> 70
Search results:	OK Cancel
Name In Folder	^
Administrator WIN-NRMM9H	
ALL APPLICA	=
Authenticated	
A BATCH	
CONSOLE L	
CREATOR G	
CREATOR O	
ProGuest WIN-NRMM9H	~

The User has now been selected so click OK to finish the process as shown below:

Select Users or Groups	x
Select this object type:	
Users or Built-in security principals	Object Types
From this location:	
WIN-NRMM9HK6TQH	Locations
Enter the object names to select ( <u>examples</u> ):	
WIN-NRMM9HK6TQH\Administrator	Check Names
Advanced	OK Cancel

31. The user is shown below, under Local Security Settings section. Now click OK, as shown below.

Log on as a service Properties	?	x
Local Security Setting Explain		
Log on as a service		
IIS APPPOOL\.NET v2.0 IIS APPPOOL\.NET v2.0 Classic IIS APPPOOL\.NET v4.5 IIS APPPOOL\.NET v4.5 Classic IIS APPPOOL\Classic .NET AppPool NT SERVICE\ALL SERVICES WIN-NRMM9HK6TQH\Administrator		
Add User or Group Remove		
OK Cancel	Ap	ply

- 32. Close the Local Security Policy window and also close the Administrative Tools window.
- 33. Go to the **Control Panel** select **Administrative Tools** and double click on the **Internet Information Services (IIS) Manager** window as shown below:



A .	Name	Date modified	Туре	Size	
😭 Favorites				12.022	
Desktop	Component Services	7/14/2009 10:57 AM	Shortcut	2 KB	
Downloads	Computer Management	7/14/2009 10:54 AM	Shortcut	2 KB	
🔛 Recent Places	Data Sources (ODBC)	7/14/2009 10:53 AM	Shortcut	2 KB	
	Event Viewer	7/14/2009 10:54 AM	Shortcut	2 KB	
Libraries	Manager	10/20/2016 6:03 PM	Shortcut	2 KB	
Documents	Thternet Information Services (IIS) Manager	10/20/2016 1:15 PM	Shortcut	2 KB	
J Music	🔝 iSCSI Initiator	7/14/2009 10:54 AM	Shortcut	2 KB	
E Pictures	Local Security Policy	10/19/2016 6:37 AM	Shortcut	2 KB	
Videos	Performance Monitor	7/14/2009 10:53 AM	Shortcut	2 KB	
	🕞 Print Management	10/19/2016 6:37 AM	Shortcut	2 KB	
Computer	Services	7/14/2009 10:54 AM	Shortcut	2 KB	
🕌 Local Disk (C:)	🛃 System Configuration	7/14/2009 10:53 AM	Shortcut	2 KB	
👝 Local Disk (E:)	🔝 Task Scheduler	7/14/2009 10:54 AM	Shortcut	2 KB	
🔮 CD Drive (G:)	🔗 Windows Firewall with Advanced Security	7/14/2009 10:54 AM	Shortcut	2 KB	
🚽 Share Data (\\172.20.0.2) (Z:)	Windows Memory Diagnostic	7/14/2009 10:53 AM	Shortcut	2 KB	
🙀 Network	😹 Windows PowerShell Modules	7/14/2009 11:32 AM	Shortcut	3 KB	

Following Window is displayed:

<b>6</b>	Internet Information Services (IIS) Manager	_ 🗆 🗙
WIN-NRMM9HK6TQH >		₩ ≈ 🕆 🔍 •
File View Help		
Connections  Connections  Start Page    Start Page	WIN-NRMM9HK6TQH Home Fitter: • • • • • • • • • • • • • • • • • • •	Actions Manage Server & Restart > Start Stop View Application Pools View Sites Change .NET Framework Version @ Get. New Web Platform Components @ Help
	IIS       Image: Configuret_L       I	
Ready	Extures View 💦 Content View	•1.:

34. Now expand **PC name** from the left hand panel and select **Application Pools**, in the left hand side panel, as shown below:



			Internet Infor	mation Service	s (IIS) Manager		
WIN-NRMM9HK6TQH      Application Pools							<u>∞</u> ≈ ∆
le View Help							
Inections	contain one or more a Filter: Name Dame	v and mar pplication	nage the list of ap is, and provide is g Go 🕞 🙀 Sho	oplication pools on olation among diff w All   Group by: Managed Pipel Integrated Classic	erent applications. No Grouping		Actions Add Application Pool Set Application Pool Defaults P Help
	INET v4.5     INET v4.5 Classic     Classic .NET A.5.     Classic .NET Ap     DefaultAppPool	Started	v4.0 v4.0 v2.0 v4.0	Integrated Classic Classic Integrated	ApplicationPoolld ApplicationPoolld ApplicationPoolld ApplicationPoolld	0 0	
	Features View	ontent Vie	ew				

35. The **Applications Pools** pane appears in the central pane. Click on **DefaultAppPool** as highlighted below. Now go to the **Actions** panel on the right hand side, and click on **Advanced Settings**:

ej		Int	ernet Inforr	mation Services	s (IIS) Manager				X
WIN-NRMM9HK6TQH      Application Pools									🚥 🗵 🏠 🔞 •
File View Help									
	contain one or more a Filter: Name ^ @.NET v2.0	v and manag pplications, a v v v Status Started Started Started Started Started Started	e the list of ap and provide isc co - NET CLR V v2.0 v2.0 v4.0 v4.0 v2.0 v4.0 v2.0	plication pools on olation among diff Managed Pipel Integrated Classic Classic Classic Integrated	erent applications. No Grouping	Applications 0 0 0 0 0	d with worker processes,	Actions Actions Set Application Pool D Application Pool Tasks Start Start Start Start Recycle Recycle Recycle Recycle Renove Renove Renove Renove Help	efaults
	Features View	ontent View							
Ready									6 <u>1</u> .:

Following screen is displayed when you click on **Advanced Settings**. Click on **Enable 32-Bit Applications** and set its value to **True**, as shown below:



			1
	NET Framework Version	v4.0	
E	Enable 32-Bit Applications	True 💌	
1	Managed Pipeline Mode	True	
1	Name	False	=
0	Queue Length	1000	1
5	Start Automatically	True	
Ξ (	CPU		
l	Limit	0	
L	Limit Action	NoAction	
l	Limit Interval (minutes)	5	
F	Processor Affinity Enabled	False	
F	Processor Affinity Mask	4294967295	
	Process Model		
I	Identity	ApplicationPoolIdentity	
I	Idle Time-out (minutes)	20	
L	Load User Profile	True	
1	Maximum Worker Processes	1	
F	Ping Enabled	True	-

36. Select Managed Pipeline Mode option using the dropdown menu and select Integrated option as shown below:

	(General)	
	.NET Framework Version	v4.0
	Enable 32-Bit Applications	True
	Managed Pipeline Mode	Integrated 💌
	Name	Integrated
	Queue Length	Classic
	Start Automatically	True
Ξ	CPU	
	Limit	0
	Limit Action	NoAction
	Limit Interval (minutes)	5
	Processor Affinity Enabled	False
	Processor Affinity Mask	4294967295
Ξ	Process Model	
	Identity	ApplicationPoolIdentity
	Idle Time-out (minutes)	20
	Load User Profile	True
	Maximum Worker Processes	1
	Ping Enabled	True
[n IS		res ASP.NET to run in Classic Mode as an lode where managed code is integrated ne.

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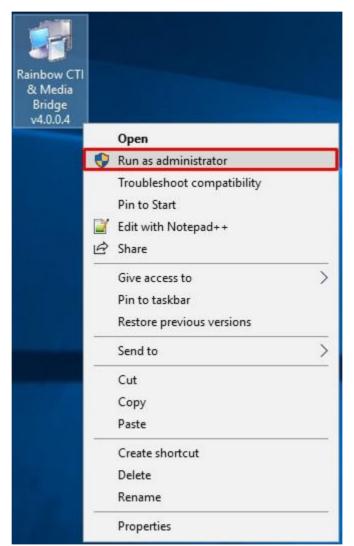


37. Press **OK** and close the **Internet Information Services (IIS) Manager** and **Administrative Tools** window.

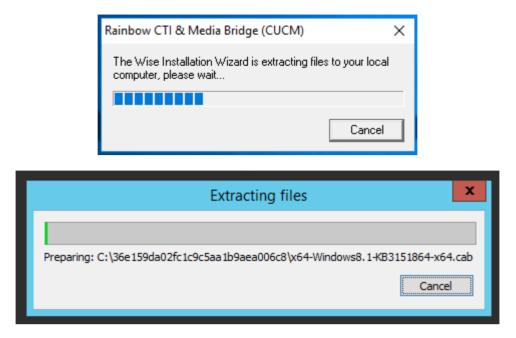
# 4 Rainbow CTI & Media Bridge Installation

### **IMPORTANT!!** Windows Defender must be turned off during installation.

1. All the above listed configurations must be made before you proceed to this section. Double click the Rainbow CTI & Media Bridge.exe to start the installation. It is important that you run the setup as administrator as highlighted below:



2. Your installation will begin by extraction of files as shown below:



3. You will be prompted to install Microsoft .NET Framework 4.6.2:

ġ.	Microsoft	.NET 2015	- • ×					
.NE	ET Framework 4.6.2 Setup Please accept the license terms to continue	2.	.NET					
	MICROSOFT SOFTWARE SUPPLEM	MENTAL LICENSE TERMS	^					
	.NET FRAMEWORK AND ASSOCIATED LANGUAGE PACKS FOR MICROSOFT WINDOWS OPERATING SYSTEM							
	Microsoft Corporation (or based on where you live, one of its affiliates) licenses this supplement to you. If you are licensed to use Microsoft Windows operating system software (the "software"), you may use this supplement. You may not use it if you do not have a							
	I have read and accept the license term	ns. [	e 🗎					
	Download size estimate:	0 MB						
	Download time estimates:	Dial-Up: 0 minutes Broadband: 0 minutes						
	For data collection information, read the <u>Microsoft Privacy Statement</u> .							
		Install	Cancel					

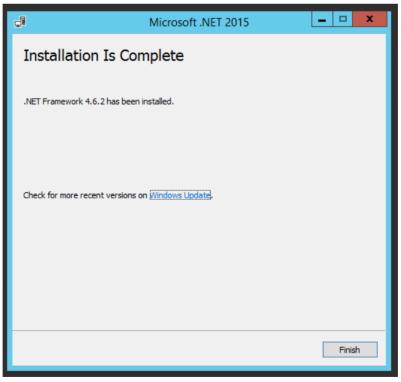
4. Check the option box next to I have read and accept the license terms and click on Install button that becomes enabled as soon as you click on the option next to I have read and accept the license terms.

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ġ.	Microsoft	.NET 2015	_ 🗆 🗙
.N	ET Framework 4.6.2 Setup Please accept the license terms to continue	2.	.NET
	MICROSOFT SOFTWARE SUPPLEN	IENTAL LICENSE TERMS	-
	.NET FRAMEWORK AND ASSOCIA MICROSOFT WINDOWS OPERATE		FOR
	Microsoft Corporation (or based on affiliates) licenses this supplement Microsoft Windows operating system may use this supplement. You may	to you. If you are licensed m software (the "softwar	d to use e"), you
	✓ I have read and accept the license term	ıs.	<b>e</b>
	Download size estimate:	0 MB	
	Download time estimates:	Dial-Up: 0 minutes Broadband: 0 minutes	
	For data collection information, read the $\underline{M}$	icrosoft Privacy Statement.	
		Install	Cancel

5. Installation will start off and following screen is displayed once Microsoft .NET Framework is successfully installed.



Once you click on **Finish** button, you might receive a pop up prompting you to restart your machine. Click on **Restart Later** option as highlighted below to continue with installation process.

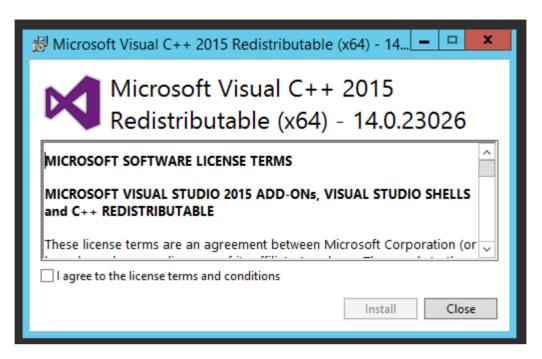
Microsoft .NET 2015
You must restart your computer to complete the installation. If you choose Restart Later, applications dependent on .NET Framework may stop working.
Restart Now Restart Later

If .NET Framework is already installed on your machine, then following Window will be displayed:

d Microsoft .NET 2015		×
Your installation will not occur. See below for reasons why.		
Details		
.NET Framework 4.6.2 or a later update is already installed on t	his computer.	
1		
More information about <u>blocked .NET Framework 4.6.2 installations</u>		
	Continue	Close

6. Now you will be prompted to install Microsoft Visual C++ 2015 as shown below:



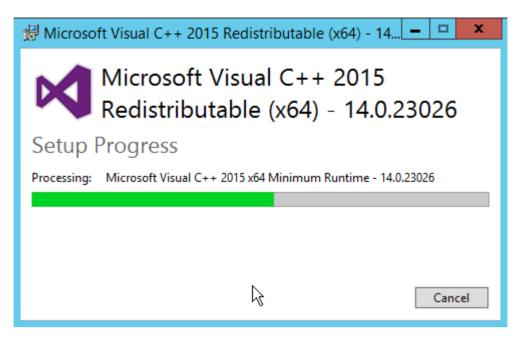


7. Tick the check box to accept the license agreement and then click **INSTALL** to begin the installation as shown below:

👷 Microsof	t Visual C++ 2015 Redistributable (x64) - 14.0.23026 Set 💷 💷 💌
×	Microsoft Visual C++ 2015 Redistributable (x64) - 14.0.23026
MICROS	OFT SOFTWARE LICENSE TERMS
	OFT VISUAL STUDIO 2015 ADD-ON₅, VISUAL STUDIO SHELLS REDISTRIBUTABLE
	to the license terms and conditions
	Install Close

Following screen will be presented.

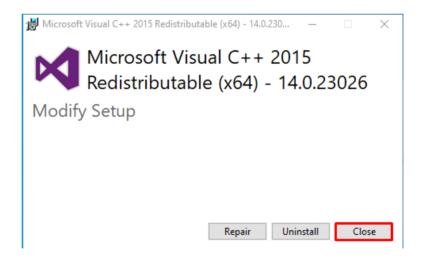




Wait, for the installation to be completed.

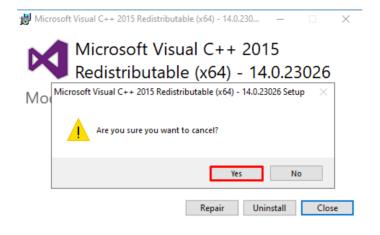
Installation successful. Click **CLOSE.** Once you click on **Close** button, you might receive a pop up prompting you to restart your machine. Click on **Restart Later** option to continue with installation process.

If Microsoft Visual C++ 2015 is already installed on your machine, then you will be asked to modify setup. Simply click on Close button as displayed below:



A pop up will be displayed to confirm cancellation of Microsoft Visual C++ 2015 setup. Click on Yes, as shown below:





8. Now you will be presented with the installation screen for Rainbow CTI & Media Bridge. Click on Next as shown below:

Rainbow C	CTI & Media Bridge (CUCM) Setup 🗕 🗖 🗙			
	Welcome to the Rainbow CTI & Media Bridge (CUCM) Installation Wizard			
	Media Bridge (CUCM)			
	programs you have running. Click Next to continue the			
	any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent			
Rainbow™				
	< Back Next > Cancel			

9. Please read the information on the screen carefully. Once read, select "I accept the license agreement" option and then click on the **Next** button, as shown below.



Rainbow CTI & Media Bridge (CUCM) Setup 💻 🗖	x
License Agreement You must agree with the license agreement below to proceed.	Riainbow
IMPORTANT - PLEASE READ CAREFULLY This Software License Agreement (hereinafter referred to as	
This Software License Agreement (hereinafter referred to as this "Agreement") is between (a) You, the end user (i.e. the legal person or entity that by its agents or representatives uses the Software and/or Documentation as defined in Section 1 below) (hereinafter referred to as "You" or the "Licensee"), and (b) the entity You contracted with to be supplied with the	>
I accept the license agreement     I do not accept the license agreement     Rainbow Connector Installation Wizard     Reset < Back Next > Car	ncel

Screenshot - Welcome Window

10. You are now asked to provide local machine account or domain **Username** and **Password** that will allow Rainbow CTI & Media Bridge for logging onto servers or to run application services.

🛱 🛛 Rainbow CTI & Media Bridge (CUCM) Setup 💻 🗖 🗙
Logon Information The following logon information is used by Rainbow CTI & Media Bridge (CUCM).
Local Machine Information Username :
Rainbow Connector Installation Wizard

11. The program is asking you to browse for a suitable directory for Rainbow CTI & Media Bridge. If you have no preference, accept the default and click **Next**, as shown below.



🔋 🛛 Rainbow CTI & Media Bridge (CUCM) Setup 💻 🗖	x
Destination Folder Select a folder where the application will be installed.	J w~
The Installation Wizard will install the files for Rainbow CTI & Media Bridge (CUCM) in the following folder.	
You can choose not to install Rainbow CTI & Media Bridge (CUCM) by clicking Cancel to exit the Installation Wizard.	
Destination Folder	
C:\Program Files (x86)\Alcatel-Lucent Enterprise\	
Rainbow Connector Installation Wizard	

Screenshot-Request for folder selection

- 12. Behind this screen is an install script ready to execute and configure the files of the Rainbow CTI & Media Bridge application
  - To begin the process, click the **Next** button, as shown below.

Rainbow CTI & Media Bridge (CUCM) Setup 💻	• x
Ready to Install the Application Click Next to begin installation.	Rainbow"
Click the Back button to reenter the installation information or click Cancel to exit the wizard.	:
Rainbow Connector Installation Wizard    	Cancel

Screenshot-Ready for Installation

- 13. All the choices and options you have made with regards to Rainbow CTI & Media Bridge are now being implemented.
  - A progress bar will appear while the application is being installed, as shown below.

뤙	Rainbow CTI & Media Bridge (CUCM) Setup 💻	
Updating Sy The feature	<b>ystem</b> es you selected are currently being installed.	Rainbow"
		1
-		_
Rainbow Conn	ector Installation Wizard	Cancel
	Screenshot-Updating System	Cancer

14. Your application has been successfully installed when you see this screen. Click **Finish** button, as shown below.



Screenshot - Installation Complete Window

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### Now Rainbow CTI & Media Bridge has been successfully installed in your system.

Once installation has been completed, you need to provide necessary permissions to the user for the installation path. So go to the default installation path as mentioned below:

#### C:\Program Files (x86)\Alcatel-Lucent Enterprise

If you have provided a different installation path at the time of installation then go that particular installation path.

Once you have accessed the above path, select the **Rainbow CTI and Media Bridge** folder and right click on it. Go to **Properties** option as highlighted below:

Carl Open	Include in library   Share with	<ul> <li>New folder</li> </ul>			
	Name	Date modified	Type		Size
5	🔒 Rainbow CTI and Media Bridge	Open		lder	
ices		Open in new window			
		Share with	•		
		Restore previous versions			
3		Include in library	•		
		Send to	•		
		Cut		-	
		Сору			
		Create shortcut			
		Delete			
		Rename			
		Properties		1	

Click on **Security** tab and click on **Edit** button to change permissions.

General	Sharing	Security	Previous Versi	ons Cus	tomize	
Object	name: (	:\Program	Files (x86)\Alca	itel-Lucen	t Enterprise	e\F
Group	or user nar	nes:				
82 S1	STEM					
SR Ac	Iministrator	s (usethis-l	PC\Administrato	rs)		
SR U	sers (useth	is-PC\User	\$]	30		
92 T.	uctadlacta	llor	111			
	ions for U	sions, clic		llow	Edit Denv	
		seis		aiow	Deny	
1 22703	control					ĥ
Modi	iy 1 & execut			1		=
	older conte			2		1
Read				1		٣
Write	P.2					+
click Ad	dvanced.		Ivanced setting:		dvanced	

Check all the permissions for logged in user as highlighted below and then press Ok.

Permissions for Rainbow CTI and Media Bridge 📃 🛛		
Security		
Object name: C:\Program Files (x86)\Alcatel-Lucent Enterprise\R		
Group or user names:		
SCREATOR OWNER		
SYSTEM		
Administrators (usethis-PC\Administrators)		
Users (usethis-PC\Users)		
🥵 TrustedInstaller		
	Add Remove	
Permissions for Users	Allow Deny	
Full control		
Modify		
Read & execute		
List folder contents		
Read	V	
Learn about access control and permissions		
OK Cancel Apply		



## 5 Verification Procedure

Once you have done with **Rainbow CTI & Media Bridge** installation, you will find a shortcut on your desktop. You can verify the installation by double clicking the icon.



Rainbow CTI & Media Bridge Shortcut



## 6 Rainbow CTI & Media Bridge Interface

The installation is now completed and after you click Rainbow CTI & Media Bridge Shortcut a login screen is displayed as shown below:

	EN 👻
R	Connect to CTI & Media Bridge Administration
Welcome to CTI & Media Bridge	Username *
CH & Media bridge	Password *
	Login
# ■ 🛛 🛱 🖏	By continuing, you agree to: the Terms of Service and the Privacy Policy

Please enter following credentials when you are logging into the Rainbow CTI & Media Bridge for the first time after installation:

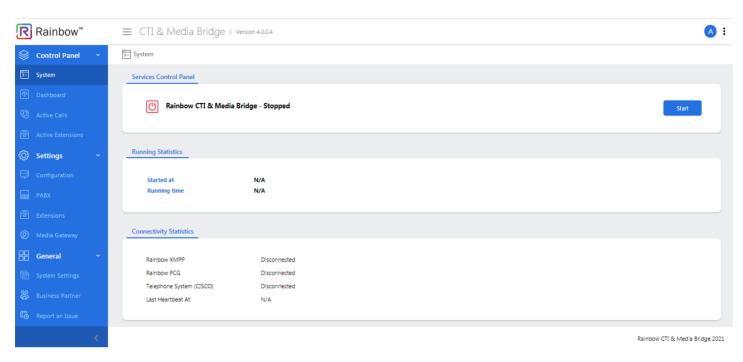
#### Username: admin

Password: admin

You should be able to view the main screen below.

### Rainbow CTI & Media Bridge (CISCO) – Installation Guide





Screenshot-Web Admin Control Panel

# enterprise.alcatel-lucent.com

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