

# Rainbow CTI & Media Bridge

Rainbow CTI & Media Bridge (ASTERISK) - INSTALLATION

ТМ

# Legal Notice

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### 1 Document History

Edition	Date	Changes / Comments / Details
01	23/09/2020	Initial Installation Guide created
02	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 about Rainbow CTI & Media bridge installation have been removed. Section 6 Screenshot has been updated.
03	05/05/2021	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 (PBXs). This document describes the installation of Rainbow CTI and Media Bridge Asterisk.

Rainbow CTI & Media Bridge is installed on a local machine in customer premises. It connects with Rainbow Server to retrieve the list extensions and interacts with third-party telephone systems to monitor those extensions. The activity and VOIP of those telephone extensions is sent to Rainbow PCG for further usage in Rainbow User application.

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.

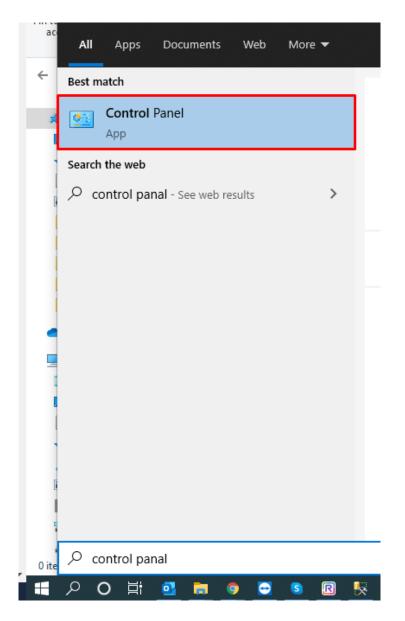
Following configurations have to be done for all applicable version of Windows i.e. Windows 10 and Windows Server 2012, 2016 & 2019.

**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 Connector on it.

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



2. Select Programs and Features as highlighted below:

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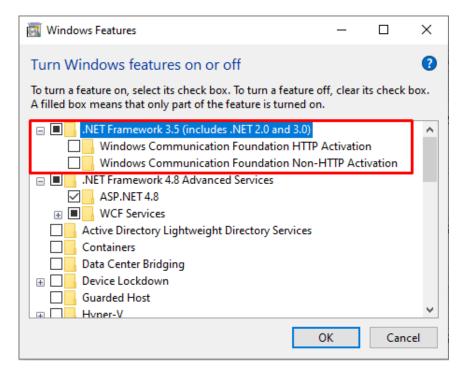
→ ✓ ↑ 🖾 > Control Panel >	All Control Panel Items >			5 V
djust your computer's settings				View by: Large icons
Administrative Tools	AutoPlay	Backup and Restore (Windows 7)	ItLocker Drive Encryption	🛐 Color Management
Credential Manager	Date and Time	Default Programs	Device Manager	Devices and Printers
Ease of Access Center	File Explorer Options		Flash Player (32-bit)	Fonts
lndexing 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	Y Security and Maintenance	Sound
Speech Recognition	Storage Spaces	Sync Center	System	Taskbar and Navigation
Iroubleshooting	용 User Accounts	Windows Defender Firewall	iindows Mobility Center	Work Folders

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

0	Programs and Features		
÷	> -> 🛧 🖬 > Control 🛛	Panel > All Control Panel Items > Programs and Feature	25
	Control Panel Home	Uninstall or change a program	
_	View installed updates	To uninstall a program, select it from the list and th	nen cli
ę	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:

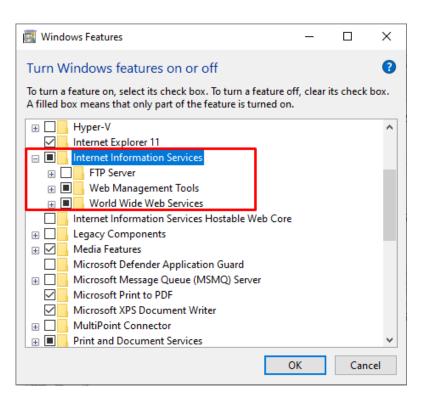




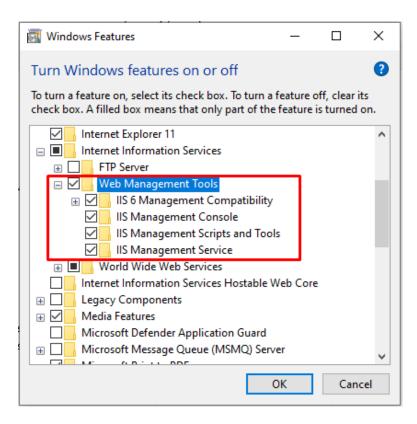
5. Check the boxes next to both options displayed below .NET Framework 3.5 (includes .NET 2.0 and 3.0) as shown:

🔄 Windows Features —	o x	
Turn Windows features on or off	?	
To turn a feature on, select its check box. To turn a feature off, clear its chec filled box means that only part of the feature is turned on.	ck box. A	
<ul> <li>.NET Framework 3.5 (includes .NET 2.0 and 3.0)</li> <li>Windows Communication Foundation HTTP Activation</li> </ul>	^	
Windows Communication Foundation Non-HTTP Activation  Multiple Internation Services  Active Directory Lightweight Directory Services		
Containers		
Device Lockdown     Guarded Host		
Internet Information Services      Internet Information Services Hostable Web Core	~	
ОК	Cancel	

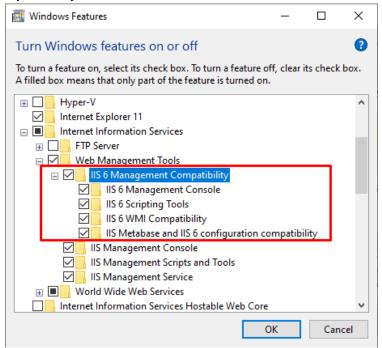
6. Expand Internet Information Services (IIS) as displayed below:



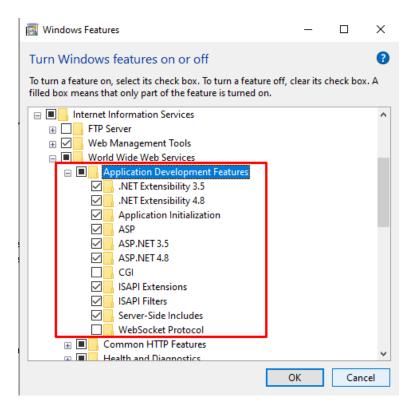
7. From the expanded options displayed expand **Web Management Tools.** Now check the boxes next to **IIS Management Console, IIS Management Scripts and Tools** and **IIS Management Service** options as shown below:



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

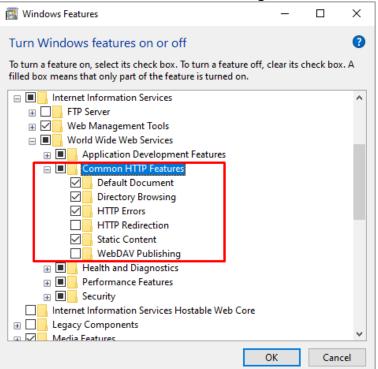


9. Close expanded menu of **Web Management Tools** by clicking on the  $\Box$  icon displayed next to it and expand **Application Development Features** option. Check all the boxes next to the features listed in the menu except for **CGI** and **WebSocket Protocol** as shown below:

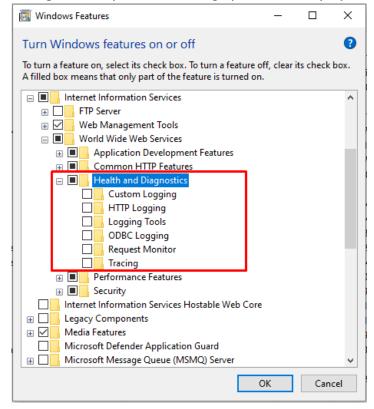




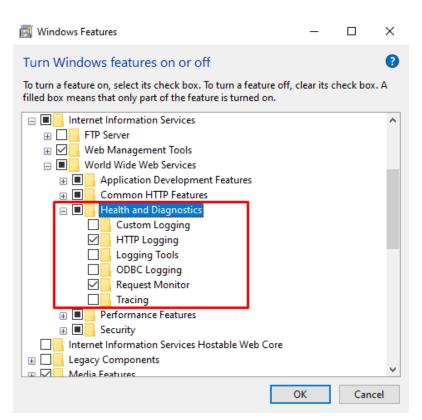
10. Now expand **Common HTTP Features** option. Check all the boxes next to the features listed in the menu except for **HTTP Redirection** and **WebDAV Publishing** as shown below:



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



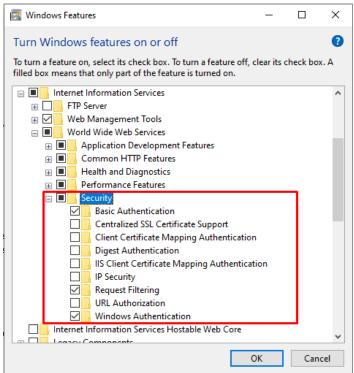
Check the boxes next to HTTP Logging and Request Monitor options as shown below:



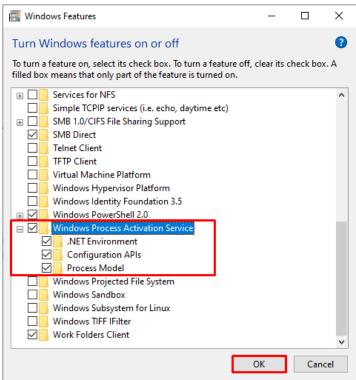
12. Now expand **Performance Features** option. Check the box next to **Static Content Compression** option as shown below:

🕎 Windows Features	_		×
Turn Windows features on or off			?
To turn a feature on, select its check box. To turn a feature off, filled box means that only part of the feature is turned on.	clear its (	check bo	x. A
<ul> <li>Internet Information Services</li> <li>FTP Server</li> <li>Web Management Tools</li> <li>World Wide Web Services</li> <li>Morld Wide The Services</li> <li>Common HTTP Features</li> <li>Health and Diagnostics</li> </ul>			^
Performance Features      Dynamic Content Compression      Static Content Compression      Security			
<ul> <li>☐ Internet Information Services Hostable Web Core</li> <li>☐ Legacy Components</li> <li>④ Media Features</li> <li>☐ Microsoft Defender Application Guard</li> <li>④ Microsoft Message Queue (MSMQ) Server</li> <li>☑ Microsoft Print to PDF</li> </ul>			
Microsoft XPS Document Writer	ОК	Can	∀ cel

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:





 $\times$ ~ 🛐 Windows Features Searching for required files Cancel  $\times$  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:



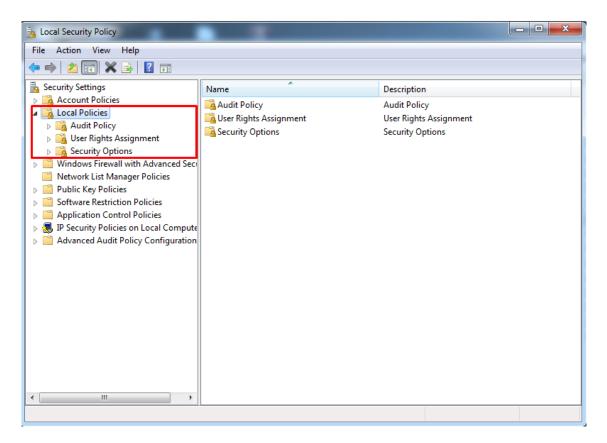
ust your computer's settings				View by: Large icons 🔻
2050 IP Softphone (32-bit)	Y Action Center	Administrative Tools	AutoPlay	Backup and Restore
Color Management	Credential Manager	Date and Time	Default Programs	Desktop Gadgets
Device Manager	Devices and Printers	🦉 Display	Ease of Access Center	Folder Options
Fonts	Getting Started	🦓 HomeGroup	IDT Audio Control Panel	lndexing Options
Intel(R) Graphics and Media	nternet 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	Versonalization	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				

16. Select Local Security Policy as highlighted below:

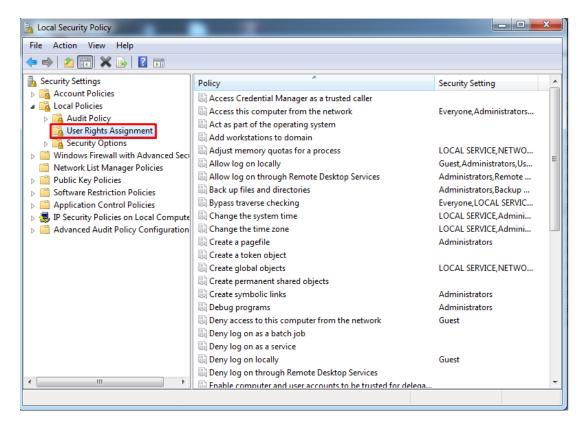
Name	Date modified	Туре	Size
🏇 Component Services	07/12/2019 2:09 pm	Shortcut	2 KB
🎥 Computer Management	07/12/2019 2:09 pm	Shortcut	2 KB
🗯 Defragment and Optimize Drives	07/12/2019 2:09 pm	Shortcut	2 KB
🔚 Disk Cleanup	07/12/2019 2:09 pm	Shortcut	2 KB
🎦 Event Viewer	07/12/2019 2:09 pm	Shortcut	2 KB
Internet 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 International I	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:





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

🚡 Local Security Policy			x
File Action View Help			
🗢 🔿 📶 🗶 🗐 😹 🚺 🖬			
<ul> <li>Security Settings</li> <li>Account Policies</li> <li>Cocal Policies</li> <li>Cocal Policies</li> <li>Cocal Policy</li> <li>User Rights Assignment</li> <li>Security Options</li> <li>Windows Firewall with Advanced Security Opticies</li> <li>Public Key Policies</li> <li>Software Restriction Policies</li> <li>Software Restriction Policies</li> <li>Software Restriction Policies</li> <li>Software Audit Policy Configuration</li> </ul>		Security Setting Administrators LOCAL SERVICE,NETWO LOCAL SERVICE,NETWO Users Administrators Administrators Administrators,Backup NETWORK SERVICE,SQL Administrators Administrators Administrators Administrators Administrators Administrators LOCAL SERVICE,NETWO Administrators,Backup	•
۰ III ۲	<ul> <li>Synchronize directory service data</li> <li>Take ownership of files or other objects</li> </ul>	Administrators	

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

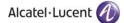


Log on as a service Properties	?	×
Local Security Setting Explain		
Log on as a service		
*S-1-5-21-701814442-4272699955-3851783055-500 ASPNET IIS APPPOOL\.NET v2.0 IIS APPPOOL\.NET v2.0 Classic IIS APPPOOL\.NET v4.5 Classic IIS APPPOOL\.NET v4.5 Classic IIS APPPOOL\Classic .NET AppPool IIS APPPOOL\Classic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

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:		
distanting in the		Locations
		Locations
Inter the object names to select (	examples):	Locations
Enter the object names to select (	examples):	Check Names
Enter the object names to select (	examples):	

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



Select Users or (	Groups			×
Select this object				
Users or Built-in	security principals		 Object	Types
From this location			 	
AQEEL-TESTIN	G		 Loca	tions
Common Querie	es			
Name:	Starts with $\ \ \lor$			Columns
Description:	Starts with $~\sim~$			Find Now
Disabled a	ccounts			Stop
Non expirir	ng password			
Days since la:	st logon:	$\sim$		<del>/</del>
Search results:			 OK	Cancel
Name	In Folder			

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



Select Users, Computers, Servi	ce Accounts, or Gr	oups	8	X
Select this object type:				
Users, Service Accounts, Group	ps, or Built-in security	principals	Object Types	]
From this location:				
ghostsoftware.local			Locations	]
Common Queries				
Name: Starts with •			Colum	
Description: Starts with v			Find	Now
Disabled accounts			Sto	p
Non expiring password				
Days since last logon:	Y		8	>
Search results:			OK Can	cel
Name (RDN)	E-Mail Address	Description	In Folder	*
Administrators			presidents.	
Aberligenceres			possible and	
Color alla			property and a	
Company and			production in	
Arrest Table			postadores in	
a demail success				
			productions in	
A later			Protections 1	

- 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.

Log on as a service Properties	?	×
Local Security Setting Explain		
Log on as a service		
*S-1-5-21-701814442-4272699955-3851783055-500         AQEEL-TESTING\Administrator         ASFNET         IIS APPPOOL\.NET v2.0         IIS APPPOOL\.NET v2.0 Classic         IIS APPPOOL\.NET v4.5         IIS APPPOOL\.NET v4.5         IIS APPPOOL\.NET v4.5         IIS APPPOOL\.NET v4.5 Classic         IIS APPPOOL\DefaultAppPool         IIS APPPOOL\DefaultAppPool         IIS APPPOOL\DefaultAppPool         NETWORK SERVICE         NT SERVICE\ALL SERVICES         NT SERVICE\SQL AccestESQL         NT SERVICE\SQL AccestESQL	~	
Add User or Group Remove		
OK Cancel	Ap	ply



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:

Name	Date modified	Туре	Size
🌮 Component Services	07/12/2019 2:09 pm	Shortcut	2 KE
🎥 Computer Management	07/12/2019 2:09 pm	Shortcut	2 KE
🎦 Defragment and Optimize Drives	07/12/2019 2:09 pm	Shortcut	2 KE
🚟 Disk Cleanup	07/12/2019 2:09 pm	Shortcut	2 KE
🔢 Event Viewer	07/12/2019 2:09 pm	Shortcut	2 KE
🗊 Internet Information Services (IIS) 6.0 Manager	07/12/2019 2:10 pm	Shortcut	2 KI
📔 Internet Information Services (IIS) Manager	07/12/2019 2:10 pm	Shortcut	2 KI
🚴 iSCSI Initiator	07/12/2019 2:09 pm	Shortcut	2 KI
http://www.com/action/a	07/12/2019 2:10 pm	Shortcut	2 KI
Nicrosoft .NET Framework 1.1 Configuration	28/07/2020 2:21 pm	Shortcut	2 KI
Nicrosoft .NET Framework 1.1 Wizards	28/07/2020 2:21 pm	Shortcut	2 KI
📆 ODBC Data Sources (32-bit)	07/12/2019 2:10 pm	Shortcut	2 KI
🚡 ODBC Data Sources (64-bit)	07/12/2019 2:09 pm	Shortcut	2 KI
🔊 Performance Monitor	07/12/2019 2:09 pm	Shortcut	2 KI
🔚 Print Management	07/12/2019 2:46 am	Shortcut	2 KI
📷 Recovery Drive	07/12/2019 2:09 pm	Shortcut	2 KI
🚏 Registry Editor	07/12/2019 2:09 pm	Shortcut	2 KI
🔊 Resource Monitor	07/12/2019 2:09 pm	Shortcut	2 KI
👫 Services	07/12/2019 2:09 pm	Shortcut	2 KI
🔁 System Configuration	07/12/2019 2:09 pm	Shortcut	2 KI
🕺 System Information	07/12/2019 2:09 pm	Shortcut	2 KI
Ð Task Scheduler	07/12/2019 2:09 pm	Shortcut	2 KE

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

← →	ls						🐱 🖂 🙆
File View Help							
onnections		Kan Daala					Actions
AQEEL-TESTING (AQEEL-TESTING\Administrator)	11 P	tion Pools	application pools or	the server. Application	n pools are associate	d with worker processes, contain one or	Add Application Pool Set Application Pool Default
Application Pools	more applications, an	d provide isolation amo	ig different applicati	ons.			Help
	Filter:	👻 🐨 Go 🕞 😽 S	how All Group by:	No Grouping	-		
	INET v2.0     NET v2.0 Classic     INET v4.5     INET v4.5     Classic     INET v4.5 Classic     Classic .NET A4.5     Classic .NET Ap     DefaultAppPool	Started v4.0 Started v4.0 Started v2.0	Integrated Classic Integrated Classic Classic Integrated	ApplicationPoold ApplicationPoold ApplicationPoold ApplicationPoold ApplicationPoold ApplicationPoold	0 0 0		
ady	Features View	Content View					

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



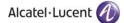
← → I AQEEL-TESTING ► Application Pool	ols							🖬 🔤 🔂 🔞
File View Help								
Connections	Applicat	ion Po	ols					Actions
AQEEL-TESTING (AQEEL-TESTING\Administrator)	42							Add Application Pool Set Application Pool Default
Application Pools	This page lets you view more applications, and	v and man d provide i	age the list of a solation among	oplication pools on different application	the server. Application	pools are associated	d with worker processes, contain one or	Application Pool Tasks
> 🔞 Sites	Filter:		-	w All Group by:				Start
	Name	Status		Managed Pipel		Applications		Stop
	INAME INAME	Started	v2.0	2 1	ApplicationPoolld			🗢 Recycle
	.NET v2.0 Classic		v2.0 v2.0	Integrated Classic	ApplicationPoolid			Edit Application Pool
	.NET v4.5	Started	v4.0	Integrated	ApplicationPoolld			Basic Settings
	.NET v4.5 Classic		v4.0	Classic	ApplicationPoolld			Recycling
	Classic .NET Ap		v2.0	Classic	ApplicationPoolld			Advanced Settings
		Started	v4.0	Integrated	ApplicationPoolld	16	]	Rename
								X Remove
								View Applications
								Help
	Features View							

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

← → AQEEL-TESTING ► Application Pool	ls							😰 🖂 🙆 🔞
File View Help								
onnections AQEEL-TESTING (AQEEL-TESTING\Administrator) Definition Pools	Applicati	/ and mana	ge the list of ap			pools are associate	ed with worker processes, contain one or	Actions Add Application Pool Set Application Pool Default Application Pool Tasks
> 🖸 Sites	Filter:		Go 🕞 🖵 Sho	w All Group by:	No Grouping			▶ Start
	Name	Started Started	v2.0 v4.0 v4.0 v4.0 v2.0 v4.0	Managed Pipel Integrated Classic Classic Classic Classic Integrated	ldentity ApplicationPoolld ApplicationPoolld ApplicationPoolld ApplicationPoolld ApplicationPoolld	0 0 0		<ul> <li>Stop</li> <li>Bstop</li> <li>Recycle</li> <li>Edit Application Pool</li> <li>Basic Settings</li> <li>Recycling</li> <li>Advanced Settings</li> <li>Rename</li> <li>Remove</li> <li>View Applications</li> <li>Help</li> </ul>

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:



_	(General)		-1
	.NET Framework Version	v4.0	•
	Enable 32-Bit Applications	v4.0	
	Managed Pipeline Mode	v2.0	Ľ.
	Name	No Managed Code	=
	Queue Length	1000	
_	Start Automatically	True	-11
-	CPU		1
	Limit	0	
	Limit Action	NoAction	
	Limit Interval (minutes)	5	
	Processor Affinity Enabled	False	
	Processor Affinity Mask	4294967295	
-	Process Model		
	Identity	ApplicationPoolIdentity	
	Idle Time-out (minutes)	20	
	Load User Profile	True	
	Maximum Worker Processes	1	
	Ping Enabled	True	-
[  sp		gures the application pool to load a work. Selecting "No Managed Code"	will

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

INET Framework Version     v4.0       Enable 32-Bit Applications     True       Managed Pipeline Mode     True       Name     False       Queue Length     1000       Start Automatically     True       CPU     Initiant Constraints       Limit Action     NoAction       Limit Interval (minutes)     5       Processor Affinity Enabled     False       Process Model     Identity       Identity     ApplicationPoolIdentity       Idel Time-out (minutes)     20	-
Managed Pipeline Mode       True         Name       False         Queue Length       1000         Start Automatically       True         CPU       Limit         Limit Action       NoAction         Limit Interval (minutes)       5         Processor Affinity Enabled       False         Process Model       Identity         ApplicationPoolIdentity	mework Version v4.0
Name     False       Queue Length     1000       Start Automatically     True       CPU     Limit       Limit Action     NoAction       Limit Interval (minutes)     5       Processor Affinity Enabled     False       Process Model     Identity	2-Bit Applications True
Queue Length     1000       Start Automatically     True       CPU     Limit       Limit Action     NoAction       Limit Interval (minutes)     5       Processor Affinity Enabled     False       Process Model     Identity	l Pipeline Mode True
Start Automatically     True       Start Automatically     True       CPU     Limit       Limit     0       Limit Action     NoAction       Limit Interval (minutes)     5       Processor Affinity Enabled     False       Processor Affinity Mask     4294967295       Process Model     Identity	False
CPU         Limit       0         Limit Action       NoAction         Limit Interval (minutes)       5         Processor Affinity Enabled       False         Process or Affinity Mask       4294967295         Process Model       Identity	ength 1000
Limit     0       Limit Action     NoAction       Limit Interval (minutes)     5       Processor Affinity Enabled     False       Processor Affinity Mask     4294967295       Process Model     Identity	omatically True
Limit Action     NoAction       Limit Action     NoAction       Limit Interval (minutes)     5       Processor Affinity Enabled     False       Processor Affinity Mask     4294967295       Process Model     Identity	
Limit Interval (minutes)     5       Processor Affinity Enabled     False       Processor Affinity Mask     4294967295       Process Model     Identity	0
Processor Affinity Enabled     False       Processor Affinity Mask     4294967295       Process Model     Identity	tion NoAction
Processor Affinity Mask     4294967295       Process Model     Identity       Identity     ApplicationPoolIdentity	erval (minutes) 5
Process Model      Identity     ApplicationPoolIdentity	r Affinity Enabled False
Identity ApplicationPoolIdentity	r Affinity Mask 4294967295
	Model
Idle Time-out (minutes) 20	ApplicationPoolIdentity
	e-out (minutes) 20
Load User Profile True	er Profile True
Maximum Worker Processes 1	n Worker Processes 1
Ping Enabled True	bled True



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

E	NET Framework Version inable 32-Bit Applications	v4.0 True	
_		True	
Ν			
	Managed Pipeline Mode	Integrated 🔹	
N	Vame	Integrated	
Q	Queue Length	Classic	
St	itart Automatically	True	1
	PU		L
Li	imit	0	
Li	imit Action	NoAction	
Li	imit Interval (minutes)	5	
Ρ	Processor Affinity Enabled	False	
Ρ	Processor Affinity Mask	4294967295	
🗆 P	Process Model		
Ic	dentity	ApplicationPoolIdentity	
Ic	dle Time-out (minutes)	20	
L	.oad User Profile	True	
N	Maximum Worker Processes	1	
Ρ	Ping Enabled	True	

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

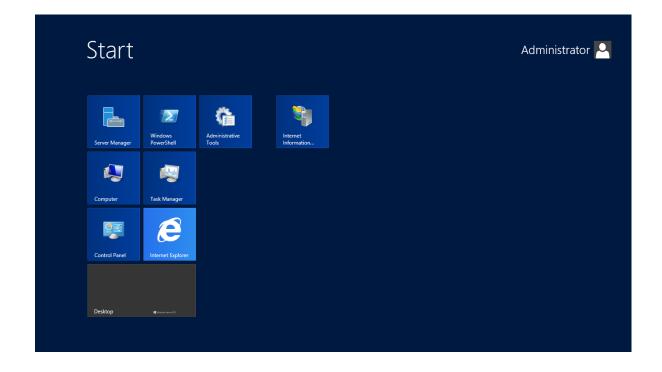
Please restart your computer after you have made the above mentioned configurations so that the changes can be applied.

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

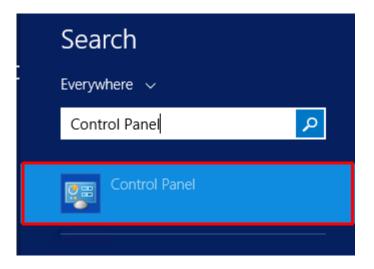
Please perform following configurations of IIS & .NET Framework on a machine that is operating on Windows Server 2012, 2016 or 2019 OS prior to installation of Rainbow Connector on it.

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



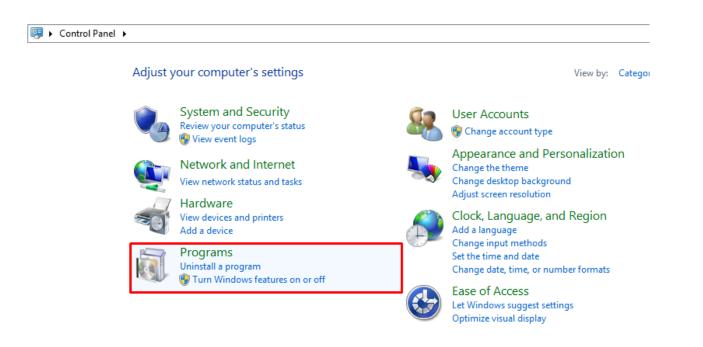


2. Go to search bar and type **Control Panel** as displayed below:

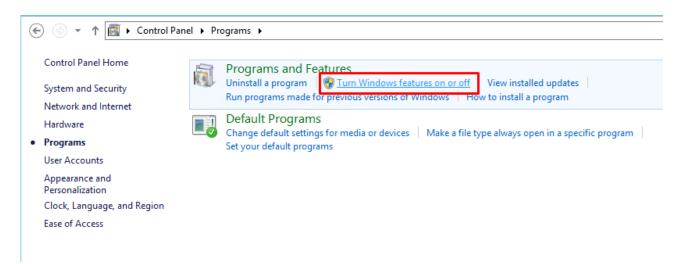


3. Click on **Programs** option that is highlighted below:

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 Ma	anager • Dashboard		
Dashboard     Local Server     All Servers     File and Storage Services ▷	WELCOME TO SERVER MANAGER	nfigure this local server	
	WHAT'S NEW 4 C	Add roles and features Add other servers to manage Create a server group Connect this server to cloud service	S
	ILEARN MORE         ROLES AND SERVER GROUPS         Roles: 1   Server groups: 1   Servers to         File and Storage         Services	atal: 1 Local Server 1	All Servers 1
	<ul> <li>Manageability</li> <li>Events</li> <li>Performance</li> <li>BPA results</li> </ul>	Manageability     Events     Services     Performance     BPA results     11/6/2020 4:00 AM	Manageability     Events     Services     Performance     BPA results     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:



A	Add Roles and Features Wizard
Before you begin	DESTINATION SERVER WIN-NRMM9HK6TQH
Before You Begin Installation Type Server Selection	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.
Server Roles	To remove roles, role services, or features: Start the Remove Roles and Features Wizard
Features Confirmation Results	<ul> <li>Before you continue, verify that the following tasks have been completed:</li> <li>The Administrator account has a strong password</li> <li>Network settings, such as static IP addresses, are configured</li> <li>The most current security updates from Windows Update are installed</li> <li>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.</li> <li>To continue, click Next.</li> </ul>
	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:

à	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</li> <li>Install required role services for Virtual Desktop Infrastructure (VDI) to cr or session-based desktop deployment.</li> </ul>	eate a virtual machine-based
	< <u>P</u> revious <u>N</u> ext >	Install Cancel

ALE International proprietary and confidential. Copyright © 2021. All rights reserved. 6. This is the server selection screen, select your desired **Server** and then Click **Next** as highlighted below:

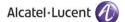
🚡 Add Roles and Features Wizard 💶 🗖 🗙					x	
Select destination	on server			DESTINATIO WIN-NRMM		
Before You Begin Installation Type Server Selection	<ul> <li>Select a server or a virtual hard disk on which to install roles and features.</li> <li>Select a server from the server pool</li> <li>Select a virtual hard disk</li> </ul>					
Server Roles Features Confirmation	Server Pool					
Results	Name WIN-NRMM9HK6TQH	IP Address 172.20.22.108	Operating System Microsoft Windows Server 201	2 R2 Standard		
		erver Manager. Off	dows Server 2012, and that have b line servers and newly-added serv			
		< Pre	vious Next >	nstall	Cancel	1

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

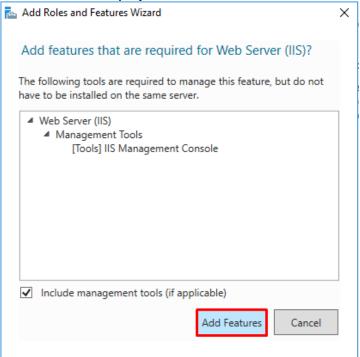
When you click on the **Web Server (IIS)** option. Once open, click on the box next to **Include Management tools (if applicable)** as shown below:

Add features	that are requ	ired for Web Serv	er (IIS)?
-	ols are required t led on the same	to manage this feature server.	e, but do no
<ul> <li>Web Server</li> <li>Manager</li> </ul>			
-	s] IIS Manageme	nt Console	
[	-,		
✓ Include mar	agement tools (	if applicable)	
		Add Features	Cance

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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.

Add Roles and Features Wizard		- 🗆 X
Select server roles		DESTINATION SERVER WIN-Q3DREI9MDK5
Before You Begin Installation Type Server Selection		cription
Server Roles Features Web Server Role (IIS) Role Services Confirmation Results	Active Directory Rights Management Services mar	b Server (IIS) provides a reliable, nageable, and scalable Web lication infrastructure.
	< Previous Next >	Install



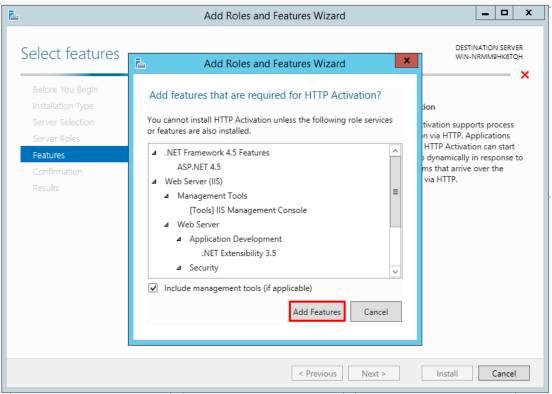
7. Expand the option of **NET Framework 3.5 Features** on the next screen by clicking on the ▷ icon. Following menu of features will be displayed:

<b>B</b>	Add Roles and Features Wizard	_ <b>D</b> X
Select features Before You Begin Installation Type	Select one or more features to install on the selected server.	DESTINATION SERVER WIN-NRMM9HK6TQH Description
Server Selection Server Roles Features Confirmation Results	Image: Sector State Sta	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.
	< Previous Next	> Install Cancel

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



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



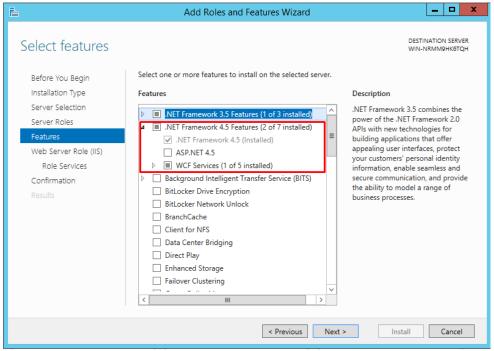
10. Both features will be activated in this manner as highlighted below:

A	Add Roles and Features Wizard	
Before You Begin Installation Type Server Selection Server Roles Features Web Server Role (IIS) Role Services Confirmation Results	Add Roles and Features Wizard         Select one or more features to install on the selected server.         Features         Image: Installed in the selected server installed in the selected server.         Image: Installed instal	DESTINATION SERVER WIN-NRMM9HKGTQH
	Data Center Bridging     Direct Play     Enhanced Storage     Failover Clustering <ul> <li>✓</li> <li>✓</li> <li>✓</li> </ul> <li>✓ Previous Next</li>	> Install Cancel

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

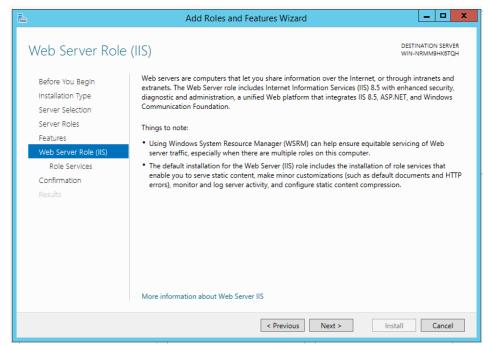


12. Expand **Windows Process Activation Service** and check all the features listed under this option as highlighted below

<b>b</b>	Add Roles and Features Wizard	_ <b>D</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           Windows Identity Foundation 3.5       \(\ncolor \ncolor \nco	DESTINATION SERVER WIN-NRMM9HK6TQH Description Configuration APIs enable applications that are built using the .NET Framework to configure Windows Process Activation Model programmatically. This lets the application developer automatically configure Windows Process Activation Model settings when the application runs instead of requiring the administrator to manually configure these settings.
	< Previous Next >	Install Cancel

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>b</b>	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	S 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.
	ODBC Logging  Request Monitor  C  C  III  C  III  C  III  C  C  III  C  C	2
	< Previous No	ext > 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:

la l	Add Roles and Features Wizard	_ <b>D</b> X
Select role service Before You Begin Installation Type Server Selection Server Roles Features Web Server Role (IIS) Role Services Confirmation Results		DESTINATION SERVER WIN-NRMM9HK6TQH Description Request Monitor provides infrastructure to monitor Web application health by capturing information about HTTP requests in an IIS worker process. Administrators and developers can use Request Monitor to understand which HTTP requests are executing in a worker process when the worker process has become unresponsive or very slow.
	Dynamic Content Compression  Dynamic Content Compression  V  C  III  V	
	< Previous Next	: > Install Cancel

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
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  Request Monitor  Request Monitor  Static Content Compression  Dynamic Content Compression  Security  Request Filtering Basic Authentication Centralized SSL Certificate Support Client Certificate Mapping Authentication Digest Authentication	DESTINATION SERVER WIN-NRMM9HK6TQH Description Static Content Compression provides infrastructure to configure HTTP compression of static content. This allows more efficient use of bandwidth. Unlike dynamic responses, compressed static responses can be cached without degrading CPU resources.
	IIS Client Certificate Mapping Authenticatio IP and Domain Restrictions URL Authorization	> 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:

<b>b</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	Select the role services to install for Web Server (IIS) Role services  Static Content Compression  Dynamic Content Compression  Security Request Filtering Request Filtering Request Authentication	DESTINATION SERVER WIN-NRMM9HK6TQH Description Windows authentication is a low cost authentication solution for internal Web sites. This authentication scheme allows administrators in a Windows domain to take advantage of the domain infrastructure for authenticating
Confirmation Results	Centralized SSL Certificate Support     Client Certificate Mapping Authentication     Digest Authentication     IIS Client Certificate Mapping Authentication     IIS Client Certificate Mapping Authentication     IP and Domain Restrictions     URL Authorization     ✓ Windows Authentication     Application Development     FTP Server     ✓     III >>	users. Do not use Windows authentication if users who must be authenticated access your Web site from behind firewalls and proxy servers.

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:

2	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		DESTINATION SERVER WIN-NRMM9HKGTQH Description Management Tools provide infrastructure to manage a Web server that runs IIS & 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.
	< III >	
	< Previous Next	t > Install Cancel

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



Click on Add Features button as displayed below:

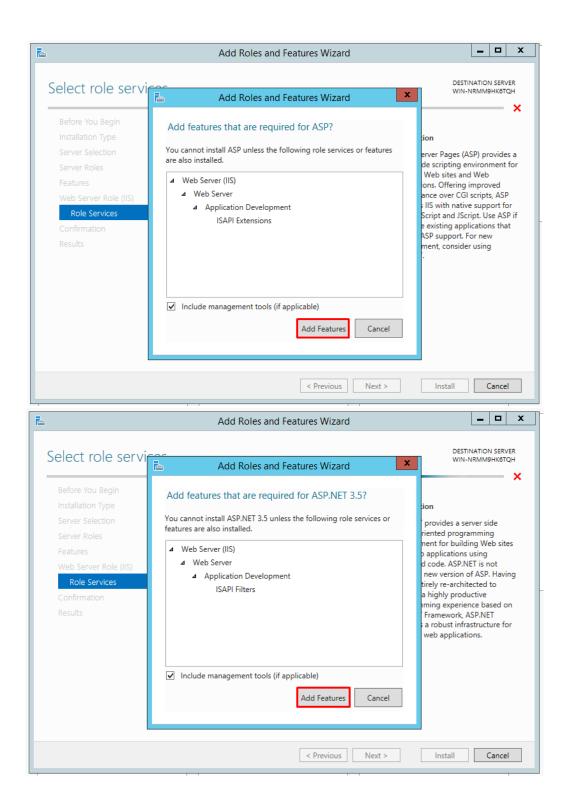
🚵 Add Roles and Features Wizard	×
Add features that are required for IIS 6 Scripting Tools?	
You cannot install IIS 6 Scripting Tools unless the following role services or features are also installed.	
<ul> <li>Web Server (IIS)</li> <li>Management Tools</li> <li>IIS 6 Management Compatibility IIS 6 WMI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

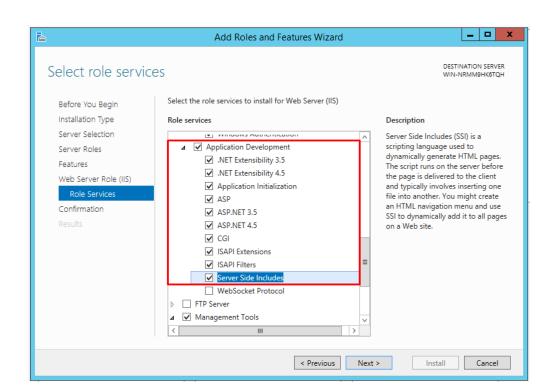
Once all the options are checked, following screen will be displayed:

A	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		DESTINATION SERVER WIN-NRMM9HK6TQH Description Management Service allows the Web server to be managed remotely from another computer using IIS Manager.
	< III >	
	< Previous Nex	t > Install Cancel

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:

	ation selections	DESTINATION SERVE
-ormitti mistane	Nort Sciections	WIN-Q3DREI9MOX
Before You Begin	To install the following roles, role services, or features on se	elected server, click Install.
Installation Type	Restart the destination server automatically if required	1
Server Selection	Optional features (such as administration tools) might be d	
Server Roles	been selected automatically. If you do not want to install th their check boxes.	hese optional features, click Previous to cle
Features	Add Roles and Features Wizard	×
Web Server Role (#5)	.NET Framework	
Role Services		erver restarts automatically, without
Confirmation		you want to allow automatic restarts?
Results	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	

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

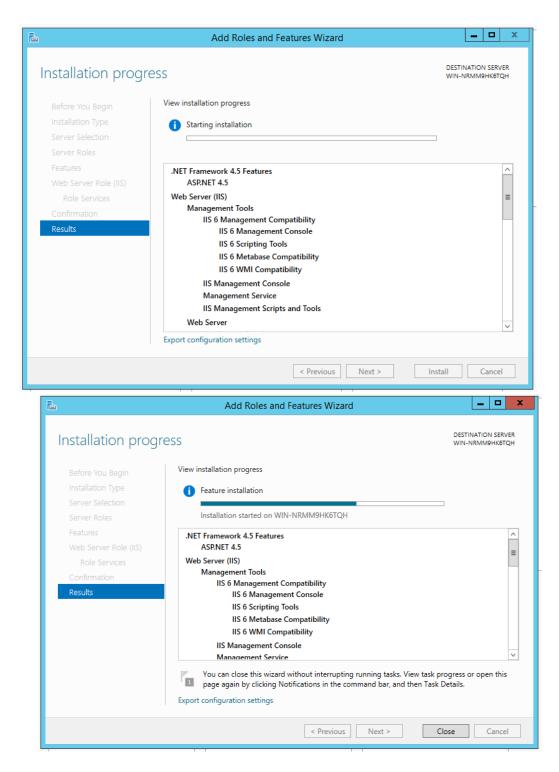


Destination selections         Before You Begin         Installation Type         Server Selection         Server Roles         Peatures         Web Server Role (IIS)         Role Services         Onfirmation         Results         NET Framework         Mon-HTTP A         NET Framework         ASP.NET 4.6         Web Server (IIS)         Net Framework         Server (IIS)         Management Tools         IIS 6 Management Compatibility         IIS 6 Management Console         IIS 6 Scrupting Tools         IIS 6 Management Console         IIS 6 Managem	Add Roles and Features Wizard	1			×
Define rou begin         Installation Type         Server Selection         Server Roles         Features         Web Server Role (IIS)         Role Services         Confirmation         Net Framework         Add Roles and Features Wizard         Net Framework         HTTP Activat         Non-HTTP A         INET Framework         ASP.NET 4.6         Web Server (IIS)         Management Tools         IIS 6 Management Console         IIS 6 Scripting Tools         Web Market Compatibility         IIS 6 Scripting Tools	Confirm installati	on selections			
Features       Features         Web Server Role (IIS)       NET Framework:         Role Services       Mon-HTTP Activat         Non-HTTP A       If a restart is required, this server restarts automatically, without         Net Framework:       Add Roles and Features Wizard         Net Framework:       Mon-HTTP A         Net Framework:       Add Roles and Features Wizard         Net Framework:       Net Framework:         ASP.NET 4.6       Yes         Web Server (IIS)       Management Tools         IIS 6 Management Compatibility       IS 6 Management Console         IIS 6 Scripting Tools       IS 6 Scripting Tools	Installation Type Server Selection	Restart the destination server automatically if required Optional features (such as administration tools) might be displayed on this pa	age because t		
Management Tools IIS 6 Management Compatibility IIS 6 Management Console IIS 6 Scripting Tools	Features Web Server Role (IIS) Role Services Confirmation	Add Roles and Features Wizard          .NET Framework         HTTP Activat         Non-HTTP A         .NET Framework         ASP.NET 4.6	automatic res	starts?	×
Export configuration settings Specify an alternate source path		Management Tools IIS 6 Management Compatibility IIS 6 Management Console IIS 6 Scripting Tools IIS 6 Management Console IIS 6 Scripting Tools IIS 6 Management Console III Export configuration settings			~

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

<b>E</b>	Add Roles and Features Wizard	- 🗆 X
Confirm installation Before You Begin Installation Type Server Selection Server Roles Features Web Server Role (IIS) Role Services Confirmation Results	DEST WIN- To install the following roles, role services, or features on selected server, click Install. ✓ Restart the destination server automatically if required Optional reatures (such as administration tools) might be displayed on this page becausibeen selected automatically. If you do not want to install these optional features, click Pritheir check boxes. NET Framework 4.5 Features ASP.NET 4.5 Web Server (IIS) Management Tools IIS 6 Management Compatibility IIS 6 Management Console IIS 6 Scripting Tools IIS 6 Metabase Compatibility	INATION SERVER NRMM9HK6TQH e they have
	IIS 6 WMI Compatibility IIS Management Console	~
	Export configuration settings Specify an alternate source path	
	< Previous Next > Install	Cancel

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>_ D</b> X
Installation progre	ess	DESTINATION SERVER WIN-NRMM9HK6TQH
Before You Begin	View installation progress	
Installation Type	1 Feature installation	
Server Selection		
Server Roles	Installation succeeded on WIN-NRMM9HK6TQH.	
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 Compatibility	
	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 pr page again by clicking Notifications in the command bar, and then Task ( Export configuration settings	
	< Previous Next > C	lose Cancel

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



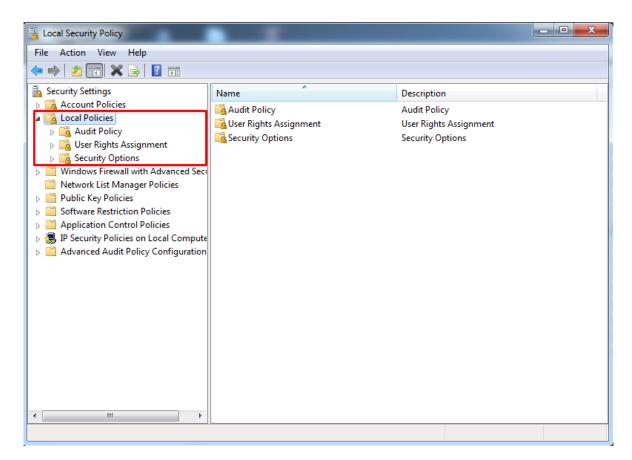
just your computer's settings								View by: Large icons 🔻
2050 IP Softphone (32-bit)	🌾 Act	tion Center		Administrative Tools		AutoPlay	٠	Backup and Restore
Color Management	🗿 Cre	edential Manager	P	Date and Time	۲	Default Programs		Desktop Gadgets
Device Manager	e Dev	vices and Printers	2	Display	٩	Ease of Access Center	F	Folder Options
Fonts	📄 Get	tting Started	•	HomeGroup	J	IDT Audio Control Panel	æ	Indexing Options
Intel(R) Graphics and Media	🐏 Inte	ernet Options	<b>S</b>	Java (32-bit)	۹	Keyboard		Location and Other Sensors
Mail (32-bit)	J Mo	ouse		Network and Sharing Center		Notification Area Icons	<u>@</u>	NVIDIA Control Panel
Performance Information and Tools	💐 Per	rsonalization	(	Phone and Modem	٦	Power Options	ā	Programs and Features
Recovery	🔗 Reg	gion and Language	-	RemoteApp and Desktop Connections	9	Sound	Ģ	Speech Recognition
Sync Center	🛃 Sys	stem		Taskbar and Start Menu		Troubleshooting	<u>8</u>	User Accounts
Windows Anytime Upgrade	🚺 Wi	ndows CardSpace		Windows Defender	1	Windows Firewall	1	Windows Mobility Center
Windows Update								

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

📙 Terminal Services	8/22/2013 8:39 AM	File folder	
🚯 Component Services	8/21/2013 11:57 PM	Shortcut	2 K
🛃 Computer Management	8/21/2013 11:54 PM	Shortcut	2 K
눩 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
🖥 Internet Information Services (IIS) Manager	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	21
🚯 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
🖗 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:

Local Security Policy			×
File Action View Help			
듣 🔿 🔀 📊 🗙 🗟 🛛 🖬			
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> </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>Windows Firewall with Advanced Sec</li> <li>Network List Manager Policies</li> <li>Public Key Policies</li> </ul>	Allow log on locally     Allow log on through Remote Desktop Services	LOCAL SERVICE, NETWO Guest, Administrators, Us Administrators, Remote	Е
<ul> <li>Software Restriction Policies</li> <li>Application Control Policies</li> <li>IP Security Policies on Local Comput</li> <li>Advanced Audit Policy Configuration</li> </ul>		Administrators, Backup Everyone, LOCAL SERVIC LOCAL SERVICE, Admini LOCAL SERVICE, Admini	
Advanced Audit Policy Configuration	Create a pagefile Create a token object	Administrators	
	Greate global objects     Greate permanent shared objects     Greate symbolic links	LOCAL SERVICE, NETWO	
	By Debug programs     Deny access to this computer from the network     Deny log on as a batch job     Deny log on as a service	Administrators Guest	
< •	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	Ŧ

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

Local Security Policy		
File Action View Help		
🗢 🔿 🖄 📰 💥 🗐 🔁 🖬		
<ul> <li>Security Settings</li> <li>Account Policies</li> <li>Local Policies</li> <li>Multi Policy</li> <li>User Rights Assignment</li> <li>Security Options</li> <li>Windows Firewall with Advanced Security Network List Manager Policies</li> <li>Public Key Policies</li> </ul>	Policy  Enable computer and user accounts to be trusted for delega  Force shutdown from a remote system  Generate security audits Impersonate a client after authentication Increase a process working set Increase scheduling priority Load and unload device drivers	Administrators LOCAL SERVICE,NETWO LOCAL SERVICE,NETWO Users Administrators Administrators
<ul> <li>Software Restriction Policies</li> <li>Application Control Policies</li> <li>R Security Policies on Local Compute</li> <li>Advanced Audit Policy Configuration</li> </ul>	<ul> <li>Lock pages in memory</li> <li>Log on as a batch job</li> <li>Log on as a service</li> <li>Manage auditing and security log</li> <li>Modify an object label</li> <li>Modify firmware environment values</li> <li>Perform volume maintenance tasks</li> <li>Profile single process</li> </ul>	Administrators,Backup NETWORK SERVICE,SQL Administrators Administrators Administrators Administrators Administrators
	<ul> <li>Profile system performance</li> <li>Remove computer from docking station</li> <li>Replace a process level token</li> <li>Restore files and directories</li> <li>Shut down the system</li> <li>Synchronize directory service data</li> <li>Take ownership of files or other objects</li> </ul>	Administrators,NT SERVI Administrators,Users LOCAL SERVICE,NETWO Administrators,Backup Administrators,Users,Ba Administrators

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

Log on as a service Properties	? x
Local Security Setting Explain	
Log on as a service	
*S-1-5-21-3359668262-405374246-914518071-1794 *S-1-5-21-3359668262-405374246-914518071-500 ASP.NET v4.0 DefaultAppPool IIS_IUSRS MyAppWorkerProcess NETWORK SERVICE NT SERVICEVALL SERVICES NT SERVICEVALL SERVICES NT SERVICEVMSSQLSSQLEXPRESS NT SERVICEVMSSQLSSQLEXPRESS NT SERVICEVMSQLSERVER SQLServer2005SQLBrowserUser\$LPT-009M-AQEEL SQLServerSQLAgentUser\$LPT-009M-AQEEL SQLServerSQLSERVER SQLServerSQLSERVER	
OK Cancel	Apply

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

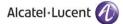


Select this object type:		
Users, Service Accounts, Groups, or Built-in	security principals	Object Types
From this location:		
production and		Locations
Enter the object names to select (examples):		
		Check Names

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

From this locatio ghostsoftware.lo			ipals Object Types
Common Queri			Locations
Name: Description: Disabled a Non expir Days since la	ing password		Columns Find Nov Stop
Search results:			OK
	E-Mail Address	Description	In Folder
lame (RDN)	2 Mail / Jaarooo	Coonption	

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 Groups	X
Select this object type:	
Users or Built-in security principals Ot	bject 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: V	<del>9</del> 7
Search results:	Cancel
Name In Folder	^
Administrator WIN-NRMM9H	
ALL APPLICA ANONYMOU	=
Authenticated	
BATCH	
CONSOLE L	
CREATOR G	
ACREATOR O ADIALUP	
Everyone	
Ranguest WIN-NRMM9H	~

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

	Object Types
	Locations
	Check Names
ОК	Cancel
	OK

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 Apply

- 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:



Organize 🔻 🔳 Open Burn	*			• ==	
🔆 Favorites	Name	Date modified	Туре	Size	
🧮 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	뉡 Internet Information Services (IIS) 6.0 Manager	10/20/2016 6:03 PM	Shortcut	2 KB	
Documents	矝 Internet 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	
雬 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>e</b> j	Internet Information Services (IIS) Manager	_ <b>D</b> X
€ S WIN-NRMM9HK6TQH →		🖬 🛛 🗟 🔞 -
File View Help		
Connections   Set Page  Set Vinter Page  Set Vinter	WIN-NRMM9HK6TQH Home           Filter:         • 🐨 60 • 🕞 Show All   Group by: Area         • 📰 •           ASP.NET         • 🙀         • 🙀         • 📰 •	Actions Manage Server Restart Start Start View Application Pools
	NET     NET Inust     Application     Connection     Machine Key     Pages and       Authorizat     Compilation     Pages     Globalization     Levels     Settings     Strings       Providers     Session State     SMTP E-mail	View Sites Change .NET Framework Version Get New Web Platform Components Help
	ASP Authentic CGI Compression Default Directory Error Pages FastCGI Handler Settings Mappings	
	Image: SAP and SAP and SAP Filters     Image: SAP and SAP an	
	Management Configurat  Feature IIS Manager IIS Manager Management Shared Editor Delegation Permissions Users Service Configurat  Features View Content View	
Ready		• <u>1</u> .:

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		_ 0
WIN-NRMM9HK6TQH      Application Pools						🚥 🛛 🗿
ile View Help						
onnections 	Application This page lets you view and contain one or more applic	d manage the list of a	oplication pools on olation among diff	the server. Application erent applications.	pools are associated with worker processes,	Actions Add Application Pool Set Application Pool Defaults Help
Application Pools     Sites	Filter:	🕶 🛒 Go 👒 🕁 Sha	w All Group by:	No Grouping		
	.NET v2.0 Classic Sta	rited v2.0 rited v2.0 rited v4.0 rited v4.0 rited v2.0 rited v4.0	Managed Pipel Integrated Classic Classic Classic Classic Integrated	Identity AppicationPoold AppicationPoold AppicationPoold AppicationPoold AppicationPoold	0 0 0 0	
eady	reatures view tag Conte	CITE VIEW				

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**:

8 <u>1</u>	Internet Information Services (IIS) Manager	_ <b>D</b> X
WIN-NRMM9HK6TQH      Application Pools		👜 🖂 🟠 I 🕢 🔹
File View Help		
Connections	Poplication Pools  This page lets you view and manage he list of application pools on the server. Application pools are associated we  return on or more applications, and provide isolation among different applications.  Filter:  Filter: Filter:  Filter: Filter: Filter: Filter: Filter: Filter: Filter: Filter: Filter: Filter: Filter: Filter: Filter:	Actions       Actions       Add Application Pool       Set Application Pool Faults       Application Pool Tasks       Start       Start       Start       Start       Recycle       Edit Application Pool       Maiss Settings       Rearence       Yearner       Yearner       Help
neody		1.

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:



E	NET Framework Version nable 32-Bit Applications	v4.0 True	
		True 🔹	
N	A 100 0 AA 1		
	/lanaged Pipeline Mode	True	
N	lame	False	1
Q	Jueue Length	1000	
S	tart Automatically	True	
Ξ C	PU		
Ľ	imit	0	
L	imit Action	NoAction	
L	imit Interval (minutes)	5	
Ρ	rocessor Affinity Enabled	False	
Ρ	rocessor Affinity Mask	4294967295	
ΞP	rocess Model		
Ic	dentity	ApplicationPoolIdentity	
Ic	dle Time-out (minutes)	20	
L	oad User Profile	True	
N	Aaximum Worker Processes	1	
P	ing Enabled	True	•

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

Ξ	(General)		1
	.NET Framework Version	v4.0	
	Enable 32-Bit Applications	True	
	Managed Pipeline Mode	Integrated 🔹	
	Name	Integrated	E
	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 a lode where managed code is integrated re.	



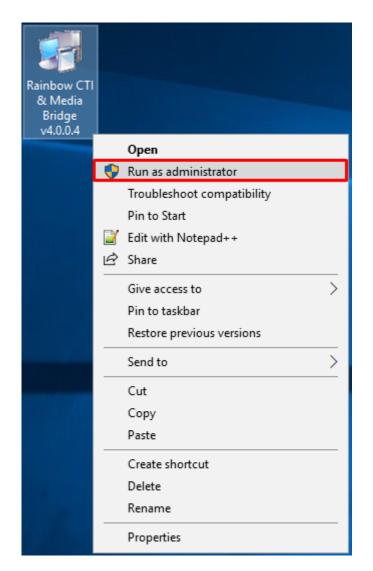
37. Press OK and close the Internet Information Services (IIS) Manager and Administrative Tools window.



## 4 Rainbow CTI & Media Bridge Installation

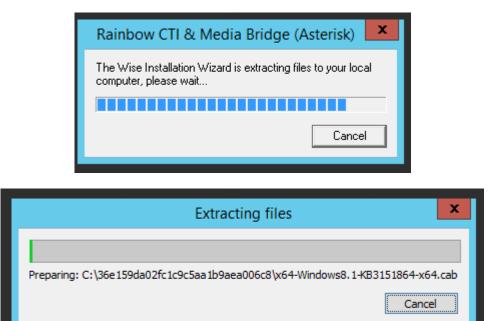
### **IMPORTANT!!** Windows Defender must be turned off during installation.

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:

<b>,</b>	Microsoft	.NET 2015	_ 🗆 X
	NET Framework 4.6.2 Setup Please accept the license terms to continu	е.	.NET
	MICROSOFT SOFTWARE SUPPLE	MENTAL LICENSE TERMS	s ^
	.NET FRAMEWORK AND ASSOCIA		S FOR
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 terr	ns.	🖶 🔛
	Download size estimate:	0 MB	
	Download time estimates:	Dial-Up: 0 minutes Broadband: 0 minutes	
	For data collection information, read the №	licrosoft Privacy Statement.	
		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.

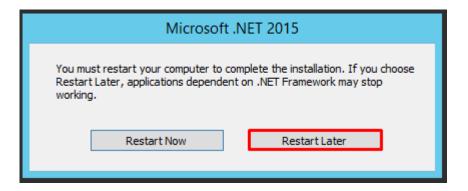


ļ.	Microsoft	.NET 2015	_ 🗆 X
	.NET Framework 4.6.2 Setup Please accept the license terms to continue	2.	.NET
	MICROSOFT SOFTWARE SUPPLEN	MENTAL LICENSE TERMS	^
	.NET FRAMEWORK AND ASSOCIA MICROSOFT WINDOWS OPERATI		FOR
	Microsoft Corporation (or based on affiliates) licenses this supplement Microsoft Windows operating system may use this supplement. You may	to you. If you are licensed m software (the ``software	to use e''), you
	☑ I have read and accept the license term	ns.	a 🗉 🔹
	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.

Ģ	Microsoft .NET 2015	_ <b>D</b> X
Installation I	s Complete	
.NET Framework 4.6.2	nas been installed.	
Check for more recent v	versions on Windows Update.	
		Finish

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.

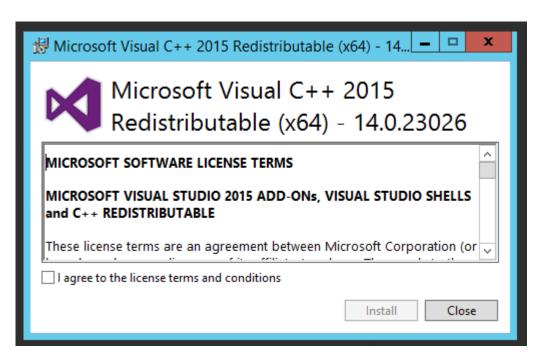


If .NET Framework is already installed on your machine, then following Window will be displayed:

📮 Microsoft .NET 2015	×
	^
Your installation will not occur. See below for reasons why.	
<u>Details</u>	
.NET Framework 4.6.2 or a later update is already installed on this computer.	
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:



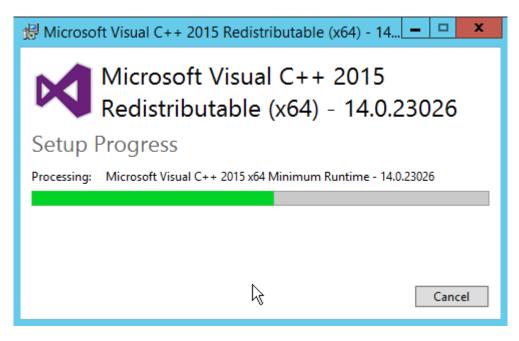


7. Tick the check box to accept the license agreement and then click **INSTALL** to begin the installation as shown below:

🖟 Microsoft Visual C++ 2015 Redistributable (x64) - 14.0.23026 Set 💷 💷 💌			
Microsoft Visual C++ 2015 Redistributable (x64) - 14.0.23026			
MICROSOFT SOFTWARE LICENSE TERMS			
MICROSOFT VISUAL STUDIO 2015 ADD-ONs, VISUAL STUDIO SHELLS and C++ REDISTRIBUTABLE			
These license terms are an agreement between Microsoft Corporation (or			
Install Close			

Following screen will be presented.

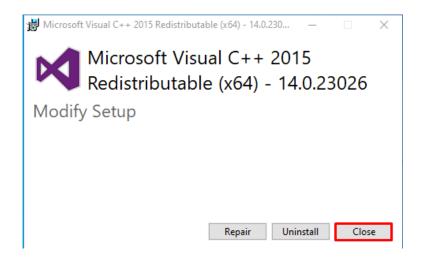




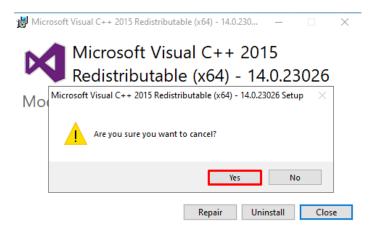
Wait, for the installation to be completed.

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:



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 (Asterisk) Setup —	×
License Agreement You must agree with the license agreement below to proceed.	Rainbow"
IMPORTANT - PLEASE READ CAREFULLY	^
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 use the Software and/or Documentation as defined in Section 1 below) (hereinafter referred to as "You" or the "Licensee"), an (b) the entity You contracted with to be supplied with the	
I <u>a</u> ccept the license agreement     I <u>d</u> o not accept the license agreement     Rainbow Connector Installation Wizard <u>R</u> eset < <u>Back</u> <u>Next</u> >	Cancel

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 (Asterisk) Setup	—		×
Logon Information The following logon information is used by Rainbow CTI & Media Bridge (Asterisk).		Ri	R
Local Machine Information			
Username : admin			
Password :			
Rainbow Connector Installation Wizard < <u>B</u> ack <u>N</u> ext	>	Can	cel

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 (Asterisk) Setup	_		×
Destination Folder Select a folder where the application will be installed.		Ra	R inbow <sup>-</sup>
The Installation Wizard will install the files for Rainbow CTI & Media E the following folder.	Bridge (As	sterisk) in	
You can choose not to install Rainbow CTI & Media Bridge (Asterisk) to exit the Installation Wizard.	by dickin	g Cancel	
Destination Folder			
C:\Program Files (x86)\Alcatel-Lucent Enterprise\			
Rainbow Connector Installation Wizard <u>Sack Next</u>	:>	Cano	el

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 (Asterisk) Setup	_		×
Ready to Install the Application Click Next to begin installation.			Rainbow
Click the Back button to reenter the installation information or click C the wizard.	ancel t	o exit	
Rainbow Connector Installation Wizard < <u>B</u> ack <u>N</u> ext	>	Ca	ncel

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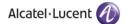
#### Screenshot-Ready for Installation

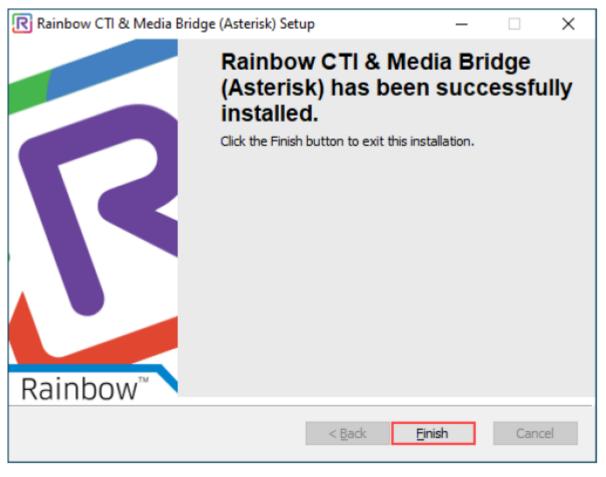
- 13. All the choices and options you have made with regards to Rainbow CTI & Media Bridge are now being implemented.
  - A progress bar will appear while the application is being installed, as shown below.

Rainbow CTI & Media Bridge (Asterisk) Setup	—		×
Updating System The features you selected are currently being installed.		F	Rainbow"
Updating component registration			
Rainbow Connector Installation Wizard		Car	ncel

Screenshot-Updating System

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





Screenshot - Installation Complete Window

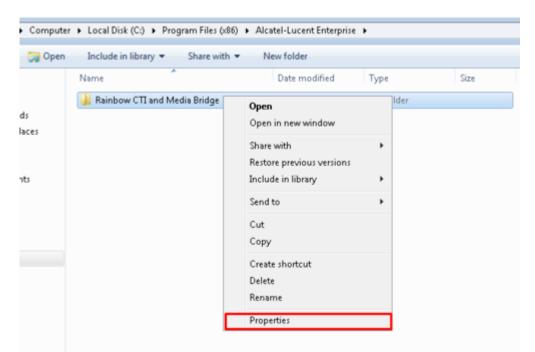
#### Now Rainbow CTI & Media Bridge has been successfully installed in your system.

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:



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

:

🐌 Rainbow CTI and Media Bridge Pro	perties		x
General Sharing Security Previous	/ersions Cu	ustomize	
Object name: C:\Program Files (x86)	Alcatel-Luce	nt Enterpris	se\R
Group or user names:			
SYSTEM			*
& Administrators (usethis-PC\Adminis	trators)		
& Users (usethis-PC\Users)			
			-
•		•	
To change permissions, click Edit.		E dit	
Permissions for Users	Allow	Deny	
Full control			*
Modify			
Read & execute	$\checkmark$		=
List folder contents	$\checkmark$		
Read	~		
Write			-
For special permissions or advanced se click Advanced.	ttings,	Advanced	
Learn about access control and permiss	ions		
ОК	Cancel	Ap	ply



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

Permissions for Rainbow CTI	and Media Bridge	e <b>X</b>			
Security					
Object name: C:\Program Files (x86)\Alcatel-Lucent Enterprise\R					
Group or user names:					
& CREATOR OWNER					
SYSTEM	desire in the state of the				
Administrators (usethis-PC\A Users (usethis-PC\Users)	laministratorsj				
	Add	Remove			
Permissions for Users	Allow	Deny			
Full control					
Modify					
Read & execute	$\checkmark$				
List folder contents	1				
Read	$\checkmark$				
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 on Rainbow CTI & Media Bridge Shortcut a login screen is displayed as shown below:

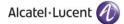
	Connect to CTI & Media Bridge Administration	
R	Please enter the username Username *	
Welcome to CTI & Media Bridge	Enter your password Password *	
	Login	
∅ 📮 🕑 🔲 🏨	By continuing, you agree to: the Terms of Service and the Privacy Policy	

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.



R	Rainbow™		≡ CTI & Media Bridge + versi	on 4.0.0.3	A :		
	Control Panel	~	∑ System				
5-	System		Services Control Panel				
<u>_</u>			Distance Clinitation Channel		Start		
B			O Rainbow CTI & Media Bridge - Stopped				
8							
Ø	Settings	~	Running Statistics				
₽			Started at	N/A			
			Running time	N/A			
6							
Ø			Connectivity Statistics				
88	General	~	Rainbow XMPP	Disconnected			
Ē			Rainbow PCG	Disconnected			
8			Telephone System (ASTERISKAMI) Last Heartbeat At	Disconnected N/A			
to.							
		<			Rainbow CTI & Media Bridge 2021		

Screenshot-Web Admin Control Panel

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