

Inbound Faxing with Exchange 2010 Unified Messaging Open Text Fax Server, RightFax Edition

Customer Enablement Team January 2010

Abstract

Exchange 2010 Unified Messaging (UM) provides an option for referring fax traffic to a certified fax partner so that inbound faxes can be processed to UM-enabled users. This would allow for faxes to appear in users' Outlook® mailboxes. This document describes how to configure the Exchange 2010 UM server, the Open Text Fax Server, RightFax Edition, and a MP-114 media gateway to process inbound faxes through the Exchange 2010 UM subsystem.

Note: This whitepaper will show how to configure an MP-114 media gateway, but there are additional media gateways that could be used.

For more information about supported media gateways, see the <u>Telephony Advisor for</u> <u>Exchange 2010</u>.





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Introduction

Microsoft® Exchange started providing UM capabilities as of Exchange 2007. This allowed not only emails to be sent to user mailboxes but voicemail and faxes as well. With Exchange UM, you could set up an automated voice system that would be used to direct voice and fax calls that were received from a media gateway to a user's Outlook mailbox. This provides a central (unified) location for a user to check for the majority of office communications.



Figure 1: Fax Server creates centralization of office communications





How Has Faxing Changed in Exchange 2010 UM?

With Exchange 2007 UM, there was a built-in option to process faxes that were received through UM so that the faxes could be sent to UM-enabled users. With Exchange 2010, this built-in option was discontinued, but an option to refer the fax traffic to a certified fax partner was enabled. Fax Server is able to process these inbound faxes so that there is no notable change for users who are used to receiving faxes in Exchange 2007.



- 1. Fax call comes into the media gateway.
- 2. The media gateway then directs the SIP traffic to the Exchange server. If the extension matches a user account that is UM-enabled, the call is forwarded to the Exchange server. The Exchange UM server then detects the CNG tone and determines it is a fax call.
- 3. Exchange looks up the UM mailbox policy to determine the fax server information to refer to the fax traffic and then issues a referral back to the media gateway with the information needed to find and connect with the fax server.
- 4. The media gateway then sends the fax session INVITE (SIP) to Fax Server which in turn accepts the invitation and receives the fax.
- 5. Fax Server's DocTransport service saves the fax as a TIF and then sends the data via Simple Mail Transfer Protocol (SMTP) to Exchange so it can be sent





to the user. The Exchange server will need to have a receive connector set up so that the fax server is able to authenticate and send the SMTP messages.

6. Exchange then sends the fax to the Exchange user's Outlook mailbox. The user will then be able to quickly find their faxes.



Configuring Exchange 2010 UM for Inbound Faxing

Creating a UM dial plan for inbound faxing

The UM dial plan is used to specify information like the number of digits in a user's extension. Users may have seven-digit fax numbers but the media gateways are likely to strip off digits from the incoming fax number. You would then need to specify how many digits Exchange should be expecting.

How to set up a basic UM dial plan

1. Open the Exchange Management Console, expand Organization Configuration, and select Unified Messaging.



When you select this, you should see the **Unified Messaging** tabs.

Figure 4

Unified Messaging
 UM Dial Plans
 UM IP Gateways
 UM Mailbox Policies
 UM Auto Attendants
 Preate Filter

2. In upper right corner of the Exchange Management Console, click New UM Dial Plan to start the wizard.



Figure 3





 When the New UM Dial Plan wizard launches, you will need to specify the Name, Number of digits in the extension numbers, and the Country/Region code. Select New and then Finish.



Note: The number of digits specified was four (you can specify as many as appropriate). It is important to make sure that the gateway is configured to send the correct amount of digits to the Exchange UM server so that the digits received can match a user's extension.

Specifying a UM IP gateway for inbound faxing

This next step in the process would be to add a UM IP gateway. This would be used by Exchange to confirm that the media gateway is a trusted source for unified communications.





How to specify a UM IP gateway

 In upper right corner of the Exchange Management Console, click New UM IP Gateway to start the wizard.

jing
Plan
ateway
box Policy.
i

2. When the **New UM IP Gateway** wizard launches, you will need to specify the **Name**, the **IP address** of the media gateway, and **Dial Plan**. Browse for the **Dial Plan** you created. Select **New** and then **Finish**.

	New UM New UM IP Gateway Completion	IP Gateway New UM IP Gateway This wizard helps you create a UM IP gateway for use by N Messaging. UM IP gateways represent the connection bety PDX and Unified Messaging. Name: GW	flicrosoft Exchange Unified ween a physical gateway or IP
Figure 8	Specify the IP address of the gateway	 IP address: I0.10.10.5 Example: 192.168.10.10 Fully qualified domain name (FQDN): 	Browse and select the UM Dial Plan you just created Browse
	<u>H</u> elp	< <u>B</u> ack	<u>N</u> ew Cancel

Note: When you create the UM IP gateway, it will automatically create a default "Hunt Group" to allow for incoming calls to be received. If you need to lock it down so only recognized number ranges are permitted, you can create a new UM "Hunt Group" that would specify a pilot number.





9	UM Hunt Groups		
	Name 🔺	UM Dial Plans	
	🚟 Default Hunt Group	DP	

- C14

Creating a UM mailbox policy for inbound faxing

The UM mailbox policy will be used to determine rules for the user receiving a UM message. This is where you would enable inbound faxing and specify the fax server Uniform Resource Indicator (URI). The URI contains the server's information as well as how to connect.

How to set up the UM mailbox policy for inbound faxing

 In upper right corner of the Exchange Management Console, click New UM Mailbox Policy to start the wizard.



Figure 10

 When the New UM Mailbox Policy wizard launches, you will need to specify the Name and browse for Dial Plan you created. Select New and then Finish.





	New UI New UM Mailbox Policy Completion	M Mailbox Policy New UM Mailbox Policy This wizard helps you create a new UM mailbox policy Unified Messaging. You must enter a name for this UM policy with a UM dial plan. Name:	Browse and select the UM Dial Plan you created
	Specify a name	Select associated dial plan:	
Figure 11		DP	Browse
	Help	< <u>B</u> ack	<u>N</u> ew Cancel

3. To configure the fax referral settings, double-click **New UM Mailbox Policy**, and select the box for **Allow inbound faxes**.







4. Type the information in the **Partner fax server URI** field that the Exchange server will use when referring the fax traffic to Fax Server. Click **OK** when completed.



Associating the UM dial plan to the Exchange UM server

There could be several Exchange servers that have the UM role enabled, so you will need to configure the server to use the new UM dial plan.





How to associate a UM dial plan to the Exchange server

1. Open the Exchange Management Console, expand Server Configuration, and select Unified Messaging.



2. Find the Exchange server in the list and double-click it to open its properties dialog box.

🏣 Unified Messaging	
Y Create Filter	
Name 🔺	Role
EX 10TRAINING	Hub Transport, Clien

3. Select the **UM Settings** tab and click the **Add** button. Select the **UM Dial Plan** and click **OK** and **OK** again.

EX10TRAINING Properties	
General System Settings	UM Settings
Associated Dial Plans –	
🖧 A <u>d</u> d 🗙	
Name	



Figure 14

Figure 15

Figure 16



Configuring the Exchange 2010 UM server to listen for fax CNG tones

By default, the Exchange 2010 UM server is configured to rely on the IP gateway to listen for inband fax detection. You will need to edit the MSExchangeUM.config file so the Exchange 2010 UM server is enabled for inband fax detection.

Edit the MSExchangeUM.config to enable inband fax detection

 Browse to the Program Files > Microsoft > Exchange Server > V14 > Bin directory.



2. Open the **MSExchangeUM.config** file with Notepad.exe and edit the value for **EnableInbandFaxDetection** to reflect **value="true"**.



3. Save the changes and restart the server called **Microsoft Exchange Unified Messaging** for the settings to take effect.

Note: Restarting the Microsoft Exchange UM service will cause a drop in UM service while it is off and should be avoided during production hours.





Enabling a user for UM

If the environment is already configured for UM, you probably already have users UM-enabled, but you may need to enable UM on a new user account for testing.

How to enable UM for an Exchange user

- 1. Open the Exchange Management Console, expand Recipient Configuration, and select Mailbox.
- 2. Find the user you want to enable for UM, right-click, and select **Enable Unified Messaging**.



3. Click the **Browse** button and select the UM mailbox policy that you configured to enable inbound faxing and the fax server URI. Click **Next** to continue.

Enable	Enable Unified Messaging				
	Introduction				
Extension Configuration	The selected mailbox will be enabled for Unified Messaging. Upon completion, an e-mail message will be sent to the mailbox notifying the user that they have been enabled for Unified Messaging. The message will include the PIN and the number to dial to gain access				
Enable Unified Messaging	to their mailbox. By default, an extension number and PIN are automatically generated. You can also manually specify an extension number and PIN.				
Completion	Unified Messaging Mailbox Policy: MP Browse Browse				
	PIN Settings				
	<u>A</u> utomatically generate PIN to access Outlook Voice Access				
	C Manually specify PIN:				
	Require user to reset PIN at first telephone logon				
	Unified Messaging is a premium feature and requires an Exchange Enterprise Client Access License (CAL) to enable it for the mailbox.				





 Specify the extension for the user. You will need to make sure the number of digits specified matches what you specified in the UM dial plan. Click Next and Enable to complete the process.







Securing the Connection from Fax Server to Exchange

When Fax Server receives the fax, it will need to send the fax to the Exchange 2010 server as an SMTP message. In order for this to happen, the fax server will need to authenticate it as a trusted source to send the SMTP messages to the Exchange server.

Configuring a receive connector for Fax Server authentication

The method of secure connection employed by Fax Server is to use a dedicated receive connector that will specify the IP address of the fax server as well as permissions.

How to configure a receive connector

1. Open the Exchange Management Console, expand Server Configuration, and select Hub Transport.



2. In the right section of the Exchange Management Console, click New Receive Connector to start the wizard.



Figure 22



	Em Manage Diagnostic Logging Pr
	New Receive Connector
Figure 23	Properties
	🛿 Help

3. When the **New Receive Connector** launches, you will need to specify the **Name** and the intended use for the connector. Select **Custom** from the list and then click **Next** to continue.

	New I Introduction New Connector Completion	Receive Connector Introduction This wizard helps you create a new Receive connector on the selected server. Name: RF Select the intended use for this Receive connector:	
Figure 24		Select the intended use for this Receive connector.	
	Help	< Back Next > Cancel	

- The next dialog window will ask if you want to specify any local network settings. You do not need to specify anything here and can click Next to continue.
- 5. In the Remote Network Settings dialog, you will need to specify the fax server's IP address and remove settings for all IPs that exist by default. Click the Add button and type the IP address of the Fax Server and then click OK. Select the default IP range and click the X to delete the entry. Click Next and the New to create the connector.





	New Red	ceive Connector
		Remote Network settings
Figure 25	Local Network settings	Receive mail from servers that have these remote IP addresses:
	Remote Network settings	IP address(es)
	New Connector	10.10.10.12
	Completion	

6. Double-click the new connector to access the properties.

EX10TRAINING			
Receive Connectors			
Name 🔺	Status		
Client EX 10TRAINING	Enabled		
Default EX10TRAINING Enabled			
RF	Enabled		

7. Select the Authentication tab and check only the option for Externally Secured (for example, with IPsec).

	RF Properties
	General Network Authentication Permission Groups
	Specify which security mechanisms are available for incoming cont Transport Layer Security (TLS) Enable Domain Security (<u>M</u> utual Auth TLS)
Figure 27	 Basic Authentication Offer Basic authentication only after starting TLS
	Exchange Server authentication
	Integrated Windows authentication
	Externally Secured (for example, with IPsec).

8. Select the **Permission Groups** tab, check on the **Exchange servers** option, and click **OK** when completed (**Partners** does not refer to fax partners but rather partner domains, so this is for edge transport servers).



Figure 26







Configuring Fax Server to Connect to the Exchange Server

Once the Exchange 2010 UM server has been configured, you will need to configure Fax Server to pass the faxes to the Exchange server once they are received. This is done through the SR140 settings.

SR140 settings for UM

Feature pack 1 for version 9.4 of Fax Server adds new parameters to the SR140 configuration that can be set to work with Exchange 2010 UM.

	DocTransport Configuration - LOCAL		X
Figure 29	DocTransport Configuration - LOCAL Auto Billing Code Settings Global DocTransport Settings Clobal Transport Settings Advanced Settings SR140 Channel #0 Channel #1	Board module number: Number from the rotary switch on the board. ✓ Set Eax ID for all channels: Fax Server Set Capability for all channels: Both Configure Brooktrout Board Configure Brooktrout Number of SR140 channels: 2 ▼ SMTP Authentication to Exchange 2010 Unifi Exchange Server Name or IP Domain Utra User Account U	DID Settings Number of digits for routing: 4 • Exchange 2010 UM Fax Routing Route to SMTP Email Only Route to RightFax User Only Route to BightFax User Only Route to Both ed Messaging Server 10.10 intest.edu
		Password record Password record Password record Password record Password Pa	Database=RightFax;Trusted_Conr
	Delete Device Add Transp	ort Select Service Account	OK Cancel

Exchange 2010 UM fax routing options

There are three options for dealing with traffic that was referred from the Exchange 2010 UM environment:

Route to SMTP email only	Sends to Exchange via SMTP and requires authentication
Route to user only	Sends to users and not to SMTP
Route to both	Sends to both SMTP and the fax user





Configure the SR140 for routing to SMTP

This configuration assumes that you already have the SR140 licensed and configured for standard Fax over Internet Protocol (FoIP) usage.

- Launch the Enterprise Fax Manager and select the fax server's name in the upper right corner to show the services. Double-click DocTransport to access the configuration. Select the SR140 on the left pane.
- 2. Select the radio button for Route to SMTP Email Only.



 You will need to specify the Exchange Server's Name or IP address and a basic Exchange user account (Domain, User Account, and Password). Click OK once completed.

	SMTP Authentication to Exchange	2010 Unified Messaging Server
	Exchange Server Name or IP	10.10.10.10
Figure 31	Domain	OT traintest.edu
	User Account	rf
	Password	*****

Note: This only requires the user to be a regular Exchange user as the authentication is validated through the receive connector. The format of the fax received in Outlook will be a TIF.

Configuring the SR140 for routing to Fax Server users

- Launch the Enterprise Fax Manager and select the fax server's name in the upper right corner to show the services. Double-click DocTransport to access the configuration. Select the SR140 on the left pane.
- 2. Select the radio button for Route to Fax Server User Only and click OK.

Note: Selecting this option will not send the SMTP message back to Exchange, so the user will not receive the fax in Outlook like they may be used to if they



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were using inbound faxing in Exchange 2007 UM. You can still configure the fax; however, go to Outlook by use of the Exchange gateway.



Appendix: Quick Exchange 2010 UM Setup with Exchange Management Shell

You can use the Exchange management shell to quickly create the settings needed to enable inbound faxing for Exchange 2010 UM. Use the following steps as an alternative to the manual steps described in this document.

Set up a basic UM dial plan

```
new-UMDialPlan -Name 'DP' -NumberOfDigitsInExtension
'4' -URIType 'TelExtn' -VoIPSecurity 'Unsecured'
-CountryOrRegionCode '1'
```

Note: Modify the script to reflect the appropriate Name, NumberOfDigitsInExtension, and CountryOrRegionCode.

Specify a UM IP gateway

```
new-UMIPGateway -Name 'GW' -Address '10.10.10.5' -
UMDialPlan 'DP'
```

New-UMHuntGroup -Name HG -UMIPGateway GW -UMDialPlan DP -PilotIdentifier 2001

Note: Modify the script to reflect the appropriate Name and Address of your media gateway and PilotIndentifier to match a number in your hunt group.

Set up the UM mailbox policy for inbound faxing New-UMMailboxPolicy -Name MP -UMDIalPlan DP Set-UMMailboxPolicy MP -AllowFax \$true -FaxServerURI "sip:10.10.10.12:5060;transport=UDP"

Note: Modify the script to reflect the appropriate FaxServerURL.







Associate a UM dial plan to the Exchange server

Set-UMServer <ExchangeServer'sName> -Dialplans DP

Configuring a receive connector for Fax Server authentication

New-ReceiveConnector -Name RFconn -Custom -RemoteIPRanges 10.10.10.12 -Bindings 0.0.0.0:25

Set-ReceiveConnector -Identity RFconn -AuthMechanism ExternalAuthoritative -PermissionGroups ExchangeServers -RequireTLS \$False -EnableAuthGSSAPI \$False

Note: Modify the script to reflect the RemotelPRanges as the IP address of the fax server.





Appendix: Setting AudioCodes MP-114 Configuration Settings to Work with Exchange 2010 UM

The following configuration reflects the settings that were configured to get AudioCodes MP-114 to work with Exchange 2010 UM. This section assumes that you are familiar with the MP-114 settings and is intended only as a guide in case you are having trouble getting the integration to work. The firmware used for these settings was 5.60A. 030.001.

Configuring the coders

Protocol Configuration > Protocol Definitions > Coders

- Coder Name: G.711 U-law
- Coder Name: T.38



Configuring the routing table

Protocol Configuration > Routing Tables > Tel to IP Routing

- Dest. IP Address: 10.10.10.10 (IP address of the Exchange UM server)
- Transport Type: TCP
- IP Profile ID: 1 (Set to whatever profile you want)







Configuring the IP profile

Protocol Configuration > Profile Definitions > IP Profile Settings

- Profile ID: 1
- Fax Signaling Method: T.38 Relay
- Copy Destination Number to Redirect Number: Before Manipulation

Note: If this is not set, the media gateway will call the Exchange UM server and get stuck at the main menu. It will need to resend the number again to reach the user's UM mailbox.





		Profile ID t
		was specif
▼		in the Tel to
Profile ID	1	Routing ta
Profile Name		
Profile Preference	1	•
Fax Signaling Method	T.38 Relay	
Dynamic Jitter Buffer Minimum Delay [msec]	10	
Dynamic Jitter Buffer Optimization Factor	10	🕆 Fax Signalin
RTP IP DiffServ	46	set to T.38
Signaling DiffServ	40	Relay
Voice Volume (-32 to 31 dB)	0	
Input Gain (-32 to 31 dB)	0	
RTP Redundancy Depth	0	
Remote RTP Base UDP Port	0	
CNG Detector Mode	Disable	- ·
Modems Transport Type	Enable Bypass	•
NSE Mode	Disable	
Play Ringback Tone to IP	Don't Play	
Enable Early Media	Disable	
Progress Indicator to IP	Not Configured	
Echo Canceler	Enable	
Media Security Behavior	Preferable	I to resend
Number of Calls Limit	-1	io riumber of
Copy Destination Number to Redirect Number	Before Manipulation	
Disconnect on Broken Connection	Yes	
Enable Hold	Enable	
▼ Coder Group		
Coder Group	Default Coder Group	•



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