

Topic / Issue: Call Routing Between Quadro E1 Gateway Quadro PBX

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The suggested physical configuration is to connect the devices through the LAN. This will mean that the Quadro PBX does not need to proxy the RTP stream between the IP Phones and the E1 Gateway. In most cases it will not be necessary to connect the WAN port of the E1 Gateway.

Create routing rules to allow the E1 Gateway to terminate incoming E1 calls and pass them to the PBX using SIP.

The following example assumes the following:

- The range of phone numbers is (03)98763200 – (03)98763299.
- The Quadro PBX is using a 2 digit extension numbering scheme.
- The last 2 digits of the phone number match the extension number.
- LAN IP address of the PBX is 192.168.0.10 & LAN IP Address of E1 gateway is 192.168.0.15

The same logic can be applied to 3 or 4 digit schemes. In the Call Routing Table add a Call Route.

Call Routing Wizard

Routing Call Type - Add Entry

Pattern: (wildcard supported)

Number of Discarded Symbols:

Prefix:

Suffix:

Call Type: ▼

Metric:

Description:

Filter on Caller / Call Type / Modify Caller ID

Set Date/Time Period(s)

Configure the pattern as the Direct in Dial (DID) phone number, but replace the last 2 digits with question marks, which are single character wildcards.

Set the Number of Discarded Symbols (NDS) as 8. This is to strip off the leading 8 digits and send the remaining 2 digits to the corresponding extension on the PBX. Metric can be left at 10 and you may want to add a description. Ensure that the Filter in Caller setting is enabled.

Call Routing Wizard

Routing Call Settings - Add Entry

Use Extension Settings: Keep Original DID

Destination Host:

Destination Port:

Username:

Password:

Enable Activity Timeout

Activity Timeout:

Use RTP Proxy

Voice Transcoding

AAA Required:

Local Authentication

Fail Reason: Any

Transport Protocol for SIP messages

UDP

TCP

SIP Privacy

Default Privacy

Disable Privacy

Enable Privacy

Session Header

User ID

Require Privacy

Set the Destination Host as the LAN IP of the Quadro PBX. The Destination port is 5060. Fail Reason should be set to 'Any' so redundancy can be added.

Main System Users Telephony Internet Uplink LAN Services

Call Routing Wizard

Inbound Call Type - Add Entry

Inbound Caller Pattern: (wildcard supported)

Inbound Number of Discarded Symbols:

Inbound Prefix:

Inbound Call Type: E1/T1

Inbound Caller Pattern = *

Inbound Call type = E1/T1.

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Call Routing Wizard

Inbound Call Settings - Add Entry

Inbound Port ID:

If the E1 Gateway is a single interface model, it will only display Trunk 0. Click next.
 If there are multiple interfaces, select as required.

Call Routing Wizard

Summary - Add Entry

Routing Call Type		Routing Call Settings	
Pattern:	03987632??	Use Extension Settings:	
Number of Discarded Symbols:	8	Keep Original DID:	No
Prefix:		Destination Host:	192.168.0.10
Suffix:		Destination Port:	5060
Call Type:	SIP	Username:	
Metric:	10	Transport Protocol for SIP:	UDP
Description:	DID to PBX	SIP Privacy:	Default
		Use RTP Proxy:	No
		Activity Timeout:	Disabled
		AAA Required:	AAA disabled.
		Fail Reason:	Any
		Routing Call Source Information	
		Inbound Caller Pattern:	*
		Inbound Number of Discarded Symbols:	
		Inbound Prefix:	
		Inbound Call Type:	E1/T1
		Inbound Port ID:	E1/T1 Trunk0
		Inbound Timeslots:	

Check the settings on the Summary page and click Finish to complete the Call Route.

To add redundancy, Duplicate the route and change the Number of Discarded Symbols to 10 and prefix with a user extension. In the following picture of the routing table the prefix is 00. This means that if someone dials one of the DID's that doesn't have a corresponding extension to route to, the call will be redirected to the system AA(00). Without this second route, the caller would get a fail tone. Also change the Fail Reason to 'None'.

Call Routing Table

Enable Disable Add Edit Duplicate Delete Select all Inverse Selection Move Up Move Down Move To

	ID	State	Pattern	NDS	Prefix	Call Type	UES	Destination Address	ML	URP	AAA Required	Port ID	TS	Fail Reason	Inb Caller Pattern	Inb NDS	Inb Prefix	Inb Call Type	Inb Server	Inb Port ID
<input type="checkbox"/>	1	Enabled	03987632??	8		SIP		192.168.0.10:5060		No	No			Any	*			E1/T1		E1/T1 Trunk0
<input type="checkbox"/>	2	Enabled	03987632??	10	00	SIP		192.168.0.10:5060		No	No			None	*			E1/T1		E1/T1 Trunk0

NDS - Number of Discarded Symbols
UES - Use Extension Settings
ML - Multiple Logons
URP - Use RTP Proxy
AAA - Authentication, Authorization, Accounting
TS - Timeslots
Inb - Inbound
DT - Date/Time

The logic of this second call route would also be applied if the last 2 digits of the DID's do not match the corresponding extension number's on the PBX e.g. if 0398763211 was the DID for extension 50, the whole DID would be discarded and a prefix of 50 applied.

For Day/Night switch type routing, these call routes can have Date/Time rules applied. This is described in a separate document.

Configure a call route for outbound calls. Add another route and set the following parameters:

Call Routing Wizard

Routing Call Type - Add Entry

Pattern: * (wildcard supported)

Number of Discarded Symbols: 10

Prefix: 00

Suffix:

Call Type: E1/T1

Metric: 10

Description: Outbound Calls

Filter on Caller / Call Type / Modify Caller ID

Set Date/Time Period(s)

Previous Next

Pattern = *

Call Type = E1/T1

Filter on Caller = Enabled

Call Routing Wizard

Routing Call Type - Edit Entry

Port ID:

AAA Required:

- Local Authentication
- RADIUS Authentication and Authorization
- RADIUS Accounting
- Client Code Identification

Fail Reason:

Set Port ID as Trunk 0

Fail reason is not required as outbound E1 calls are usually already a failover route for the PBX if it cannot make outbound VoIP calls. Set Fail Reason to 'None'

If you have another device for failover from E1 then set the Fail Reason to 'Any'.

Configure the Inbound Call Type settings as shown:

Call Routing Wizard

Inbound Call Type - Add Entry

Inbound Caller Pattern: (wildcard supported)

Inbound Number of Discarded Symbols:

Inbound Prefix:

Inbound Call Type:

Inbound Caller Pattern = *

Inbound NDS = 6 (This will discard the first 6 digits of the 8 digit SIP address of the PBX extension initiating the call to the E1 Gateway)

Inbound Prefix = the first 8 digits of the DID (This will allow the extension to show its own DID). Alternatively by discarding 8 Digits and prefixing a full DID, the main phone number or a different DID number could be displayed.

Inbound Call Type = Any

Check the settings and click Finish to complete the call route.

Call Routing Wizard

Summary - Add Entry

Routing Call Type		Routing Call Settings	
Pattern:	*	Port ID:	E1/T1 Trunk0
Number of Discarded Symbols:		AAA Required:	AAA disabled.
Prefix:		Fail Reason:	None
Suffix:		Routing Call Source Information	
Call Type:	E1/T1	Inbound Caller Pattern:	*
Metric:	10	Inbound Number of Discarded Symbols:	6
Description:	Outbound Calls	Inbound Prefix:	03987632
		Inbound Call Type:	Any

Previous

Finish

Cancel

Help

The routing table now contains routes for inbound and outbound calls.

Call Routing Table

Enable Disable Add Edit Duplicate Delete Select all Inverse Selection Move Up Move Down Move To

	ID	State	Pattern	NDS	Prefix	Call Type	UES	Destination Address	ML	URP	AAA Required	Port ID	TS	Fail Reason	Inb Caller Pattern	Inb NDS	Inb Prefix	Inb Call Type	Inb Server	Inb Port ID
<input type="checkbox"/>	1	Enabled	03987632??	8		SIP		192.168.0.10:5060		No	No			Any	*			E1/T1		E1/T1 Trunk0
<input type="checkbox"/>	2	Enabled	03987632??	10	00	SIP		192.168.0.10:5060		No	No			None	*			E1/T1		E1/T1 Trunk0
<input type="checkbox"/>	3	Enabled	*			E1/T1					No	E1/T1 Trunk0		None	*	6	03987632			

The Quadro PBX will also need to have its own call routing table configured to send calls to the E1 Gateway. In the picture below, the PBX uses the E1 Gateway as a failover route when it can not make calls through the VoIP provider. If there is no outbound VoIP call path, the E1 should be set as the primary outbound call path.

Call Routing Table

Show Detailed View >>>

Enable Disable Add Edit Duplicate Delete Select all Inverse Selection Move Up Move Down Move To

	ID	State	Pattern	Pattern Modification	Call Settings	Fail Reason	Local Authentication	Inbound Pattern/Modification	Inbound Settings	DT	UES / URP	Metric	Description
	1	Enabled	000		FXO port: Any Port	None	No	*	PBX			10	Emergency Call
<input type="checkbox"/>	2	Enabled	0*	NDS: 1	IP-PSTN sip.phonenet.com:5060, ML: Yes	Any	No				URP: Yes	10	PhoneNet
<input type="checkbox"/>	3	Enabled	0*	NDS: 1	SIP 192.168.0.15:5060	None	No				URP: No	10	Fallover to E1

Finally, when the Quadro PBX and E1 gateway are connected via the LAN, you should enter the E1 gateway into the LAN Prioritisation Table of the PBX. This will make sure the PBX gives high priority to any traffic passing through the E1 gateway. If your Quadro PBX & E1 gateway are connected via the WAN this is not necessary as the Quadro devices always give high priority to WAN traffic.

In the PBX, go to the hidden page <QuadroLANIP>/lantable.cgi and Add an entry.

Main	System	Users	Telephony	Internet Uplink	Network
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LAN Prioritization Table

[Add](#) [Edit](#) [Delete](#) [Select all](#) [Inverse Selection](#)

	<u>IP Addresses</u>
<input type="checkbox"/>	192.168.0.15