ALLOY

TECH ARTICLE

Date: 04/04/08

Topic / Issue:	**Inbound Call Routing- Day/Night Switch**
Written By:	Chris Pulsford

Automatic & Manual Call Routing for Inbound Calls

Additional call routing logic can be applied to incoming calls by processing them in the Call Routing Table (CRT). This allows call routes being in active or disabled states based on the time/day/date of the call (automatic), or user input (manual). Automatic and manual modes can be used independently or in combination. This document discusses configuration of both modes with examples of FXO and SIP calls (the configuration logic also applies to ISDN Quadro PBX's). The most common application for this configuration is for a Day/Night switch. All types of incoming calls (FXO/ISDN/SIP) can be processed through the CRT to allow this functionality.

Configuration of Day and Night Call Routes

Select Call Routing from the Telephony menu and open the CRT.
Click on Add to open the Call Routing Wizard and add a call route which will be the Day route. Set the parameters as follows:

Pattern: Enter a Pattern. This can be whatever numeric digits you choose (1234 in this example).
Number of Discarded Symbols: Number of digits in the pattern (4 in this example).
Prefix: The extension or Auto Attendant (AA) where the call will be sent.
Call Type: PBX
Metric: Leave at default (10).
Description: This setting is optional.
Set Date/Time Period(s): Tick the box to enable.

You can set an **Enabler Key** and **Disabler Key** which will enable users of the system to manually switch between day/night modes by enabling and disabling calls routes as required. This will over-ride the automatic switching.

Call Routing Wizard

Date/Time Rules - Add Entry

- ● Typical
  - ○ Daily
  - ● Weekly
    - ☐ Sunday ☑ Monday ☑ Tuesday
    - ☑ Wednesday ☑ Thursday ☑ Friday
    - ☐ Saturday
  - ○ Monthly — Available days 1 ▾ - 31 ▾
  - ○ Annually — Available months Jan ▾ - Dec ▾
    - Available days 1 ▾ - 31 ▾

  Available Time Period (hh : mm - hh : mm)
  08 ▾ : 00 ▾ - 18 ▾ : 30 ▾

- ○ Custom — Available Periods [_____]

  [Month,Month-Month,...][Day-Day,Day,...][hh:mm-hh:mm,...]; ...

Specify the time/day/date rules that will apply to the route. In the example below, the call route will be valid from 8am – 6.30pm on weekdays. During these times, incoming calls to will be sent to the AA at extension 00 as directed by the prefix set in the previous picture.

You will be presented with a summary page displaying all settings. Review the settings and click Finish to save the route to the CRT.

Call Routing Wizard

Summary - Edit Entry

Routing Call Type		Routing Call Settings	
Pattern:	1234	AAA Required:	AAA disabled.
Number of Discarded Symbols:	4	Fail Reason:	None
Prefix:	00		
Suffix:		**Routing Call Available Period(s)**	
Call Type:	PBX	Available Days of Week:	Mon-Fri
Metric:	10	Available Hours:	08:00-18:30
Description:	Business Hours		
Enabler Key:	1		
Disabler Key:	2		
Require Authorization for Enabling/Disabling:	No		

[Previous]   [Finish]   [Cancel]

PAdd a second route which will be the Night route. The settings will be the same as the Day route with the following exceptions:

Prefix: This will be the extension where you want the incoming call to be routed outside the time/day/date rules specified in the Day route configured in the previous example. Set the description as After Hours.
Date/Time Rules: Not required in the After Hours example as this call route will be used at any time outside the times specified in the Business Hours example. Untick the Set Date/Time Periods box.
Enabler/Disabler Keys: Not required for Night mode in this scenario as we are only tuning the Day mode on or off (Night mode enabled when Day mode. Leave these fields empty.

Call Routing Wizard

Summary - Edit Entry

	Routing Call Type		Routing Call Settings	
Pattern:	1234	**AAA Required:**	AAA disabled.
Number of Discarded Symbols:	4	**Fail Reason:**	None
Prefix:	50		
Suffix:			
Call Type:	PBX		
Metric:	10		
Description:	After Hours		

Previous	Cancel	Help

On the confirmation page for this route, you can see that incoming calls are routed to extension 50, which may be configured as a different AA menu or an After Hours extension.

Both Call routes are now in the CRT. For the Day/Night switch scenario described, the route with the time/day/date rules and Enabler/Disabler Key should be higher in the CRT. This is because the routes are processed from the highest down. With CRT configuration completed, incoming calls must be directed to the CRT.

☐	16	**Enabled**	1234	NDS: 4 Prefix: 00	PBX	None	No	[Mon-Fri][08:30-18:30]	Enabler Key: 1 Disabler Key:2 Authorization: Disabled	Business Hours
☐	17	**Enabled**	1234	NDS: 4 Prefix: 50	PBX	None	No			After Hours

Directing Incoming Calls to the CRT - FXO Calls

Select FXO settings from the Telephony menu. Select an FXO port to open the settings page for that port.

Select Route incoming FXO Call to Routing. This will send the call to the CRT where the previously configured rules can be applied. Add a routing pattern that matches the one set in the Day & Night call routes. This is how the incoming call will be matched to those routes in the CRT.

Directing Incoming Calls to the CRT - SIP Calls

If your ITSP has provided you with a DID (Direct In Dial) phone number, you can configure inbound calls to that number to be routed to the CRT. There is a different configuration for this than for FXO ports.

When you configure your ITSP account on the Quadro using the VoIP Carrier Wizard, an entry will be created in the CRT and a Virtual Extension (VE) will also be created. This VE will be used by the Quadro to register the account with the SIP server of the ITSP.

Extensions Management

Add   Edit   Delete   Select all   Inverse Selection

	Extension	Display Name	Attached Line	SIP Address	Percentage of System Memory	Call Relay	Codecs
	00	Attendant		76893500@sip.epygi.com:5060	3% (5 min 33 sec)		PCMU, ...
☐	50			50	1% (1 min 51 sec)		PCMU, ...
☐	11		Line 1	76893511@sip.epygi.com:5060	20% (37 min 5 sec)	No	PCMU, ...
☐	12		Line 2	76893512@sip.epygi.com:5060	20% (37 min 5 sec)	No	PCMU, ...
☐	31		IP Line 1	76893531@sip.epygi.com:5060	20% (37 min 5 sec)	No	PCMU, ...
☐	32		IP Line 2	76893532@sip.epygi.com:5060	20% (37 min 5 sec)	No	PCMU, ...
☐	79	MyITSP	None	09503234@sip.myitsp.com.au:5060	0% (0 sec)	No	PCMU, ...

Upload Universal Extension Recordings

In the example VE 79 has been created. By default, all incoming calls to the DID of the MyITSP account in the example are sent to this VE. From here they are forwarded to the extension selected for incoming calls during configuration of the account using the VoIP Carrier Wizard.

Click on the virtual extension (79) in the Extensions Management page. This will open the Extension Settings page for the extension. From the Supplementary Services page, select Caller ID Based Services.

| | | Main | Voice Mail | Your Extension | Supplementary Services | | | | | | |

Caller ID Based Services

Extension: 79

Add Edit Delete Select all Inverse Selection

Description	Addresses	Hiding Caller Information	Incoming Call Blocking	Outgoing Call Blocking	Distinctive Ringing	Many Extension Ringing	Unconditional Call Forwarding	Busy Call Forwarding	No Answer Call Forwarding
	Any Address	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF

Back   Help

Click on the Any Addresses link in the Addresses column. This opens the Caller ID Based Services page for the Any Address caller ID pattern. Click the link for Unconditional Call Forwarding from the list of available services. By default the forwarding rule is set to forward all incoming calls to the extension you selected in the VoIP Carrier Wizard. In the example below, it is the AA (extension 00).

Main   Voice Mail   Your Extension   Supplementary Services

Caller ID Based Services for Any Address

Extension: 79

Hiding Caller Information
Incoming Call Blocking
Outgoing Call Blocking
Distinctive Ringing
Many Extension Ringing
Unconditional Call Forwarding
Busy Call Forwarding
No Answer Call Forwarding

☑ Enable Service

Add Delete Select all Inverse Selection

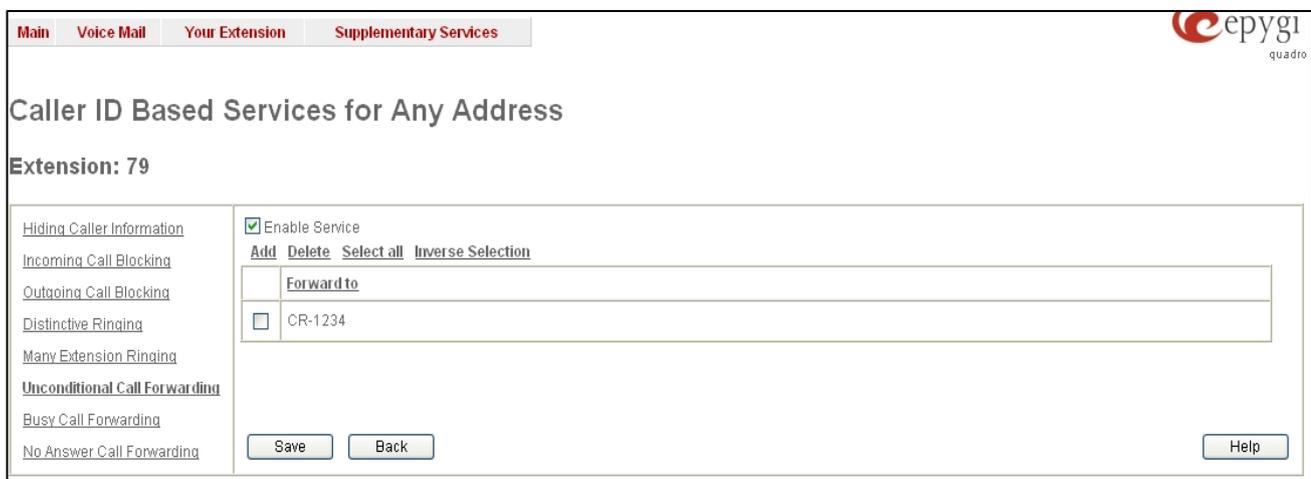|	Forward to
☐	PBX-00

Save   Back   Help

Delete the PBX-00 entry and Add another entry with the following settings:

Call Type: Auto - This will send the incoming call to the CRT.

Forward To: Set this to match the pattern of the entries that you created in the CRT earlier in this configuration (1234)

Forwarding List - Add Entry

Extension: 79

Call Type	Auto
Forward To	1234

Save   Back

Caller ID Based Services for Any Address

Extension: 79

Hiding Caller Information
Incoming Call Blocking
Outgoing Call Blocking
Distinctive Ringing
Many Extension Ringing
Unconditional Call Forwarding
Busy Call Forwarding
No Answer Call Forwarding

☑ Enable Service

Add Delete Select all Inverse Selection

	Forward to
☐	CR-1234

Save   Back   Help

Tick the Enable Service box to activate the call forward.

Once you have completed this configuration, all incoming calls via the ITSP account will be sent to the CRT. From here they will be directed to the appropriate AA or extension based on the rules applied to the routes in the CRT.

If you want to have additional routes for incoming calls to direct them to other extensions or AA's during different days/times, you can Add more routes with alternate time/day/date rules and different enabler/disabler keys into the CRT. The majority of the settings will be the same as in the above example with the following exceptions:

NOTE: You can use multiple additional call routes for other scenario's like public holiday's etc. configure them as in these examples, with their own time/day/date rules & different enabler/disabler keys. These routes should be ordered in the CRT with those with the most restrictive time/day/date rules (highest) to least restrictive rules (lowest).

Outgoing Calls
Time/Day/Date rules and Enabler/Disabler Keys can also be set on call routes for outgoing calls. Calls can only be made through call routes that are enabled according to these rules. A typical application for this would be of least cost routing using different carriers for different times of the day. For example, using one ITSP during business hours and another ITSP after-hours (off-peak).
To configure this, Edit any call route in the CRT used for outbound calls and apply the rules described previously in this document.