Application Note

Cisco Unity 4.0(4) with Cisco Unified CallManager 4.1(2) Configured as Message Center PINX using Cisco WS-X6608-T1 using Q.SIG as MGCP Gateway

November 2, 2007 Revision 5

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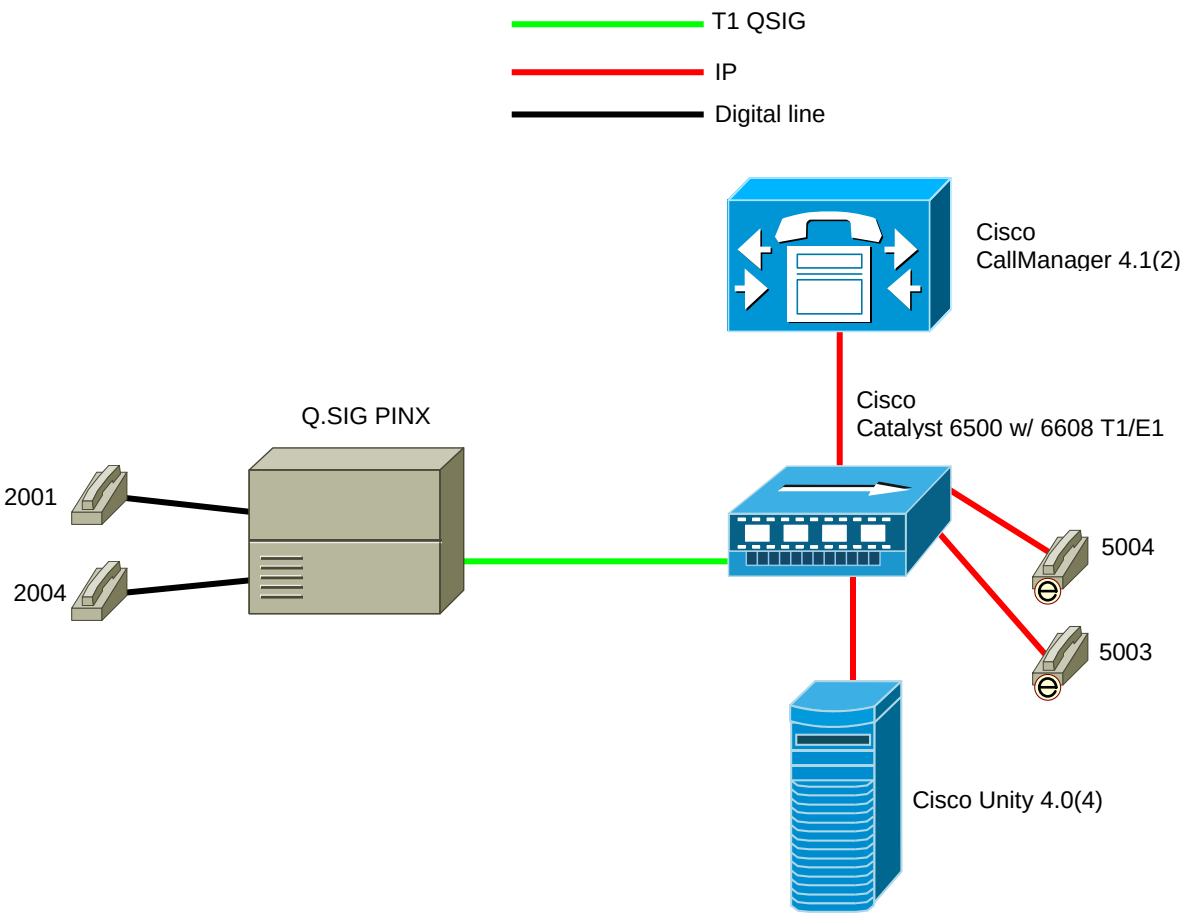
Introduction

- This Application Note uses the Cisco Catalyst 6608 T1/E1 voice gateway; however other Cisco voice gateways are also an option to use since Cisco Unified CallManager QSIG implementation does not depend on the physical interface. Centralized voicemail services rely heavily on the inter-PBX protocol used to connect remote PBXs to the "Message Center" PBX. In the scenario represented/tested by this document, QSIG protocol and the Additional Network Features (ANF) supported by each vendor's PBX will determine the actual features supported by this solution.
- This document contains lab performance criteria that describes the interoperability of Cisco Unified CallManager Release 4.1(2) when used as a Message Center PINX in a QSIG private network with a Centralized Cisco Unity voicemail server using SCCP integration.
- The network topology diagram (Figure 1) shows the test setup for end-to-end interoperability with the Cisco Unified CallManager connected to a remote PINX via Catalyst 6608 T1/E1 blade port used as MGCP gateways configured as T1 ISO QSIG trunk, and a Cisco Unity used as a Centralized voicemail system using SCCP integration to the Message Center Cisco Unified CallManager.

Network Topology

Figure 1. Network Topology



Limitations

There are no known limitations with this feature.

System Components

Hardware Requirements

The following hardware is required:

- Cisco Catalyst 6500 switch with Cisco WS-X6608-T1 Module
- Cisco Unified CallManager 4.1(2) MCS server
- Cisco Unity 4.0(4) MCS server

Software Requirements

The following software is required:

- Cisco Unified CallManager Release 4.1(2)
- Cisco Unity 4.0(4)

Features

This section lists new and changed features and features that are not supported.

Features Supported

- Station forward to personal greeting (busy/ring no answer/all calls)
- Reply to messages left in telephone answering mode
- Direct call
- Message Waiting Indication
- Support of Message Waiting indication on remote PINX stations is dependent on whether the PBX software used on the remote PINX supports QSIG MWI. Please refer to PBX manufacturer's technical documentation for further information. Also, refer to Cisco Interoperability Application Notes, found in the Cisco Interoperability portal, located at the following URL: www.cisco.com/go/interoperability

Features Not Supported

- None are known at this time.

Configuration

This section contains configuration menus and commands and describes configuration sequences and tasks. The configuration examples shown in this document is an example to typical settings only. Note: Prior to configuring the "central" Definity G3 and Cisco Unified CallManager, the following should be installed and tested for proper functionality:

- Cisco Unity - Test for proper functionality of Cisco Unity voicemail server for local Cisco Unified CallManager users.
- Cisco Unified CallManager – Test for proper Q.SIG features transparency between Cisco Unified CallManager and remote PINX.

Configuring the Cisco Unified CallManager

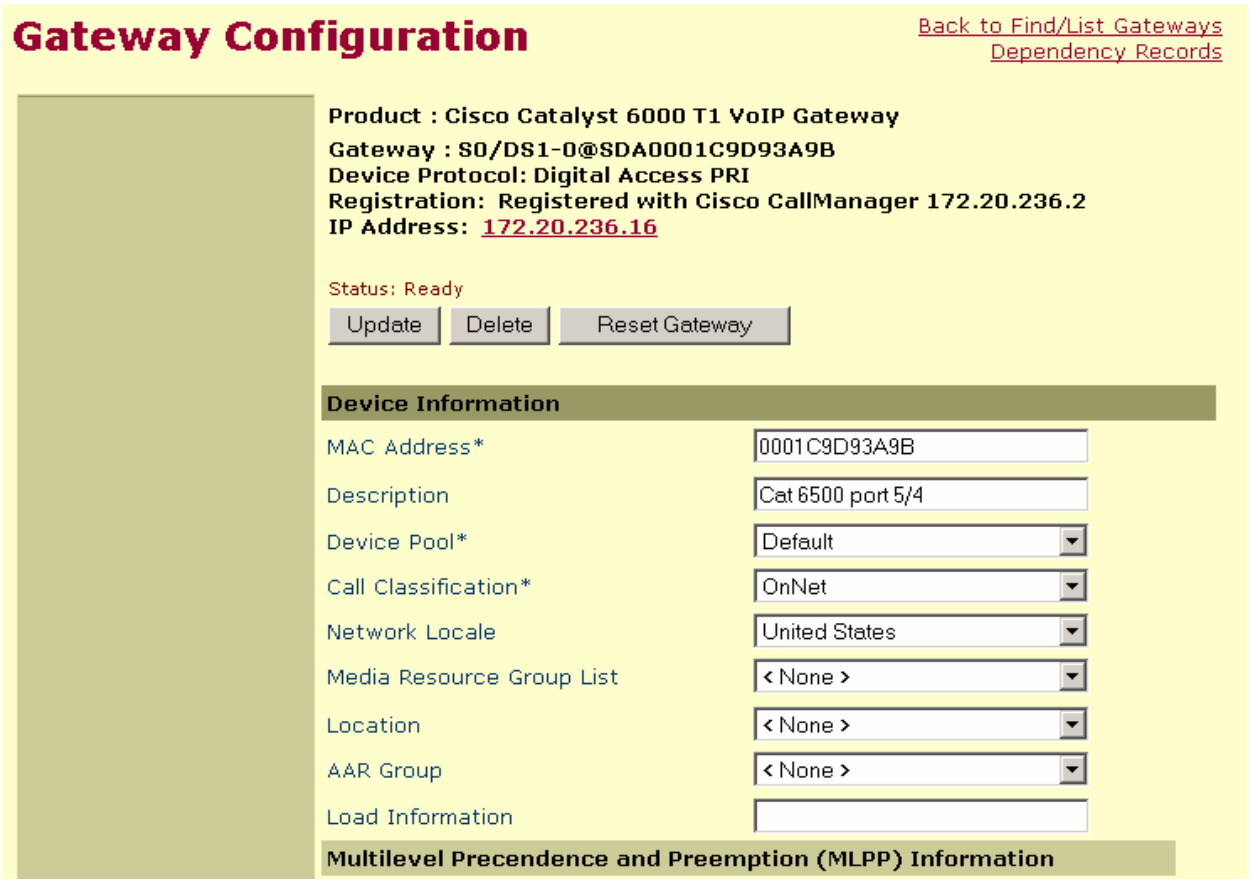
Configuring Cisco Unified CallManager for QSIG

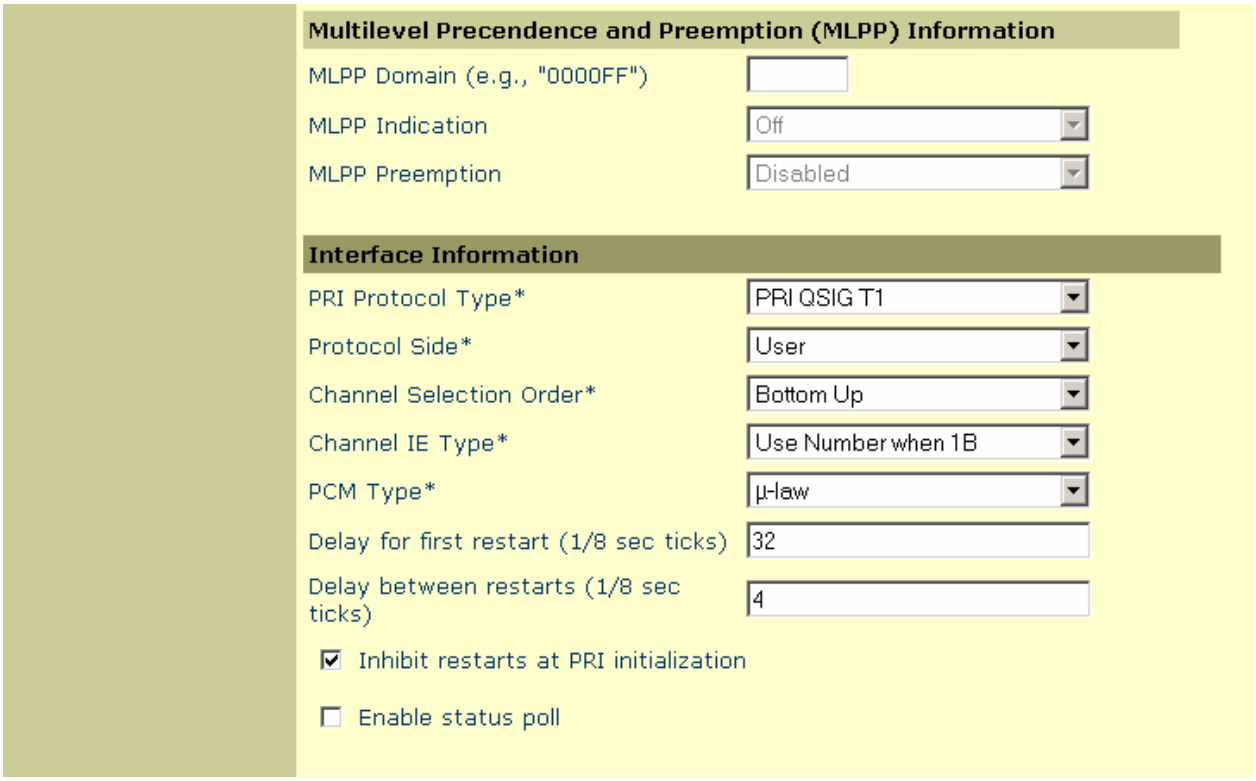
1. Configure the QSIG-related system parameters
2. Configure the MGCP gateway
3. Configure the MWI Off/On directory numbers
4. Configure the Cisco Unity ports

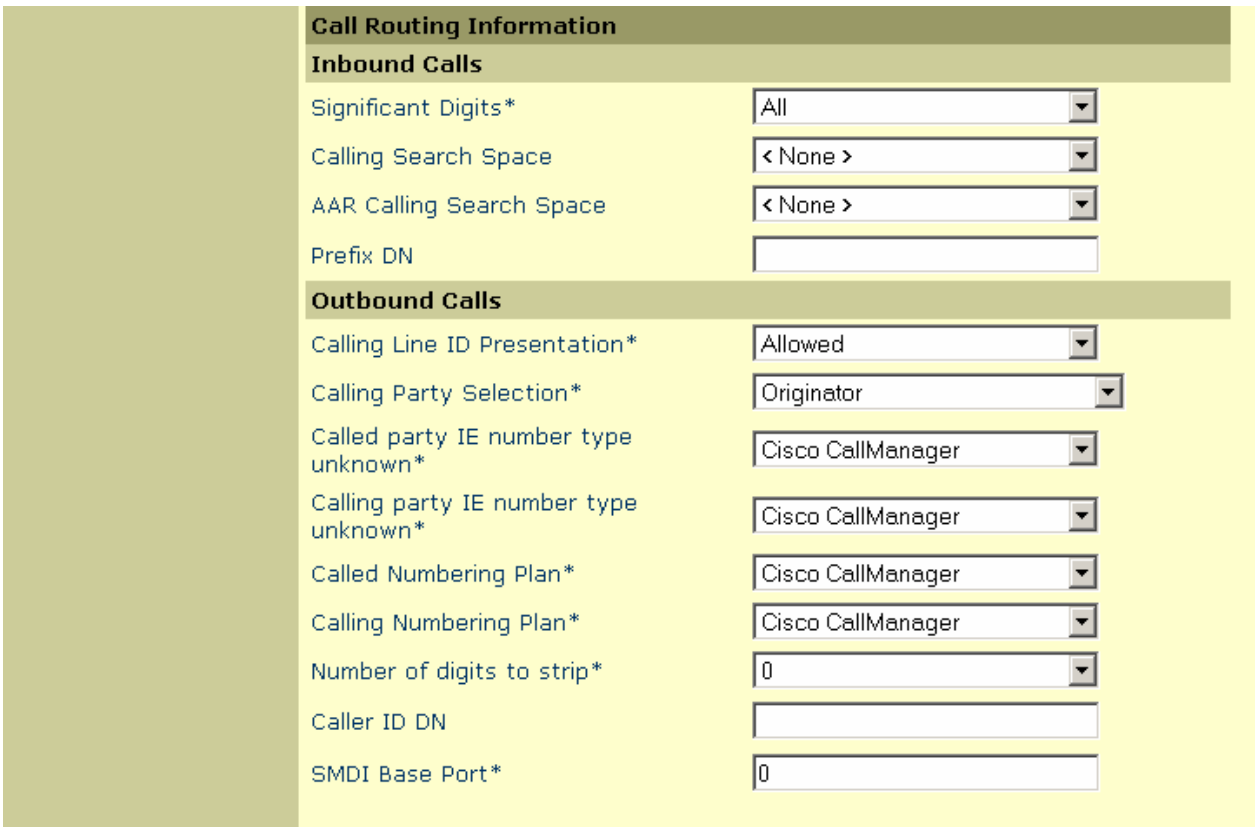
Note: For detailed information on how to configure MGCP gateways connecting to specific manufacturers' PBX, refer to the proper application notes located in the Cisco Interoperability website, found at the following URL: www.cisco.com/go/interoperability

Configuring the Cisco Catalyst 6608 T1/E1 Voice Gateway

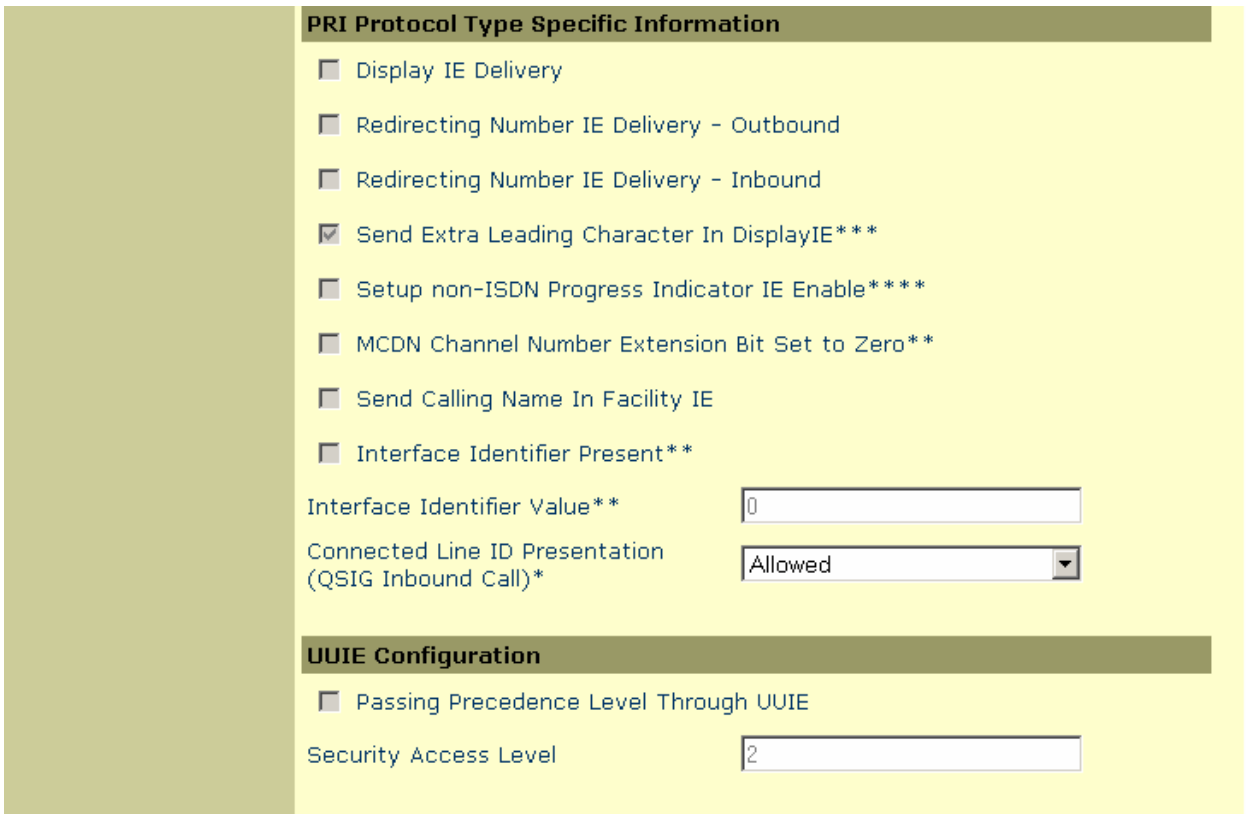
The following screen captures depict a typical configuration of a Cisco Catalyst 6608 T1 blade configured for QSIG functionality:

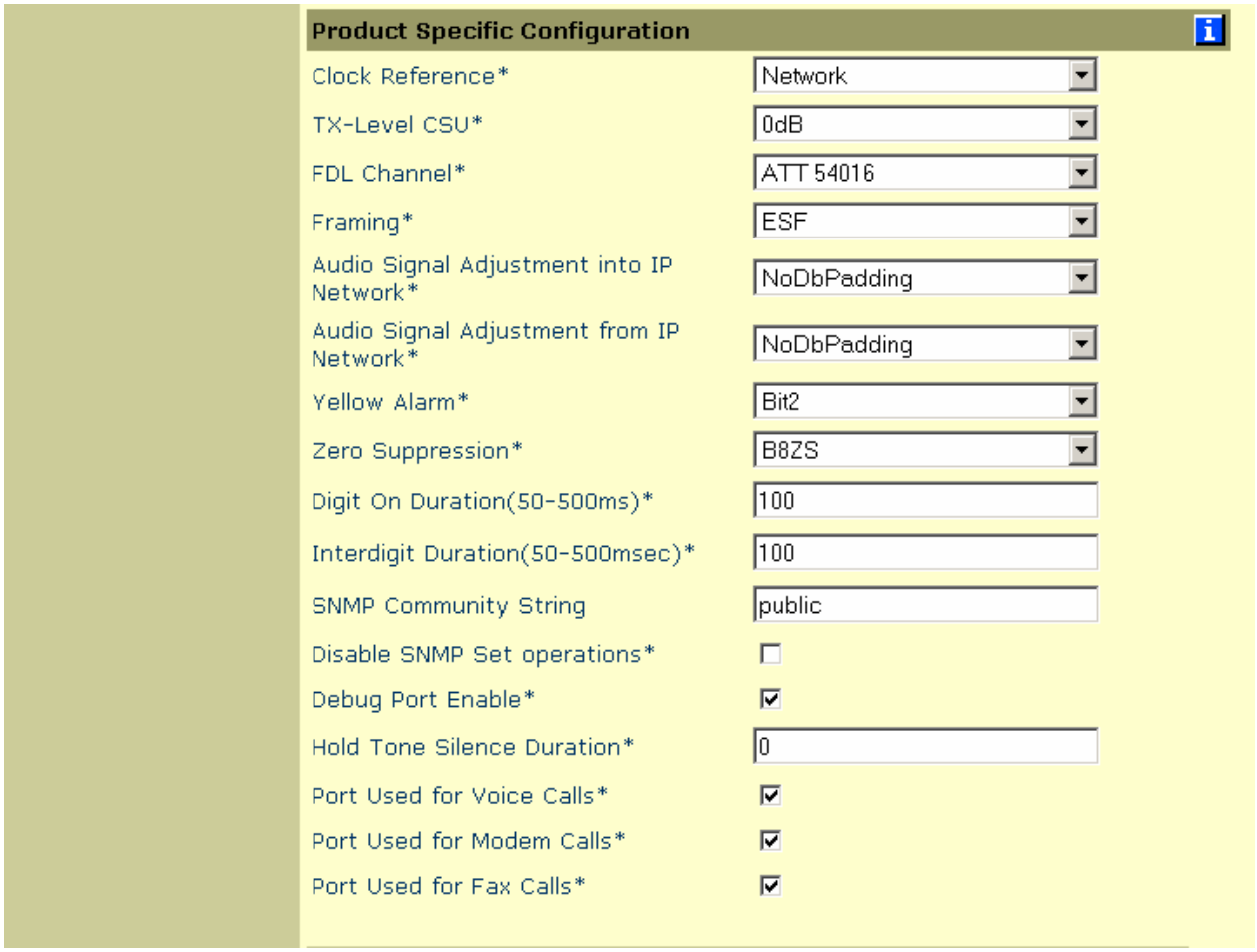


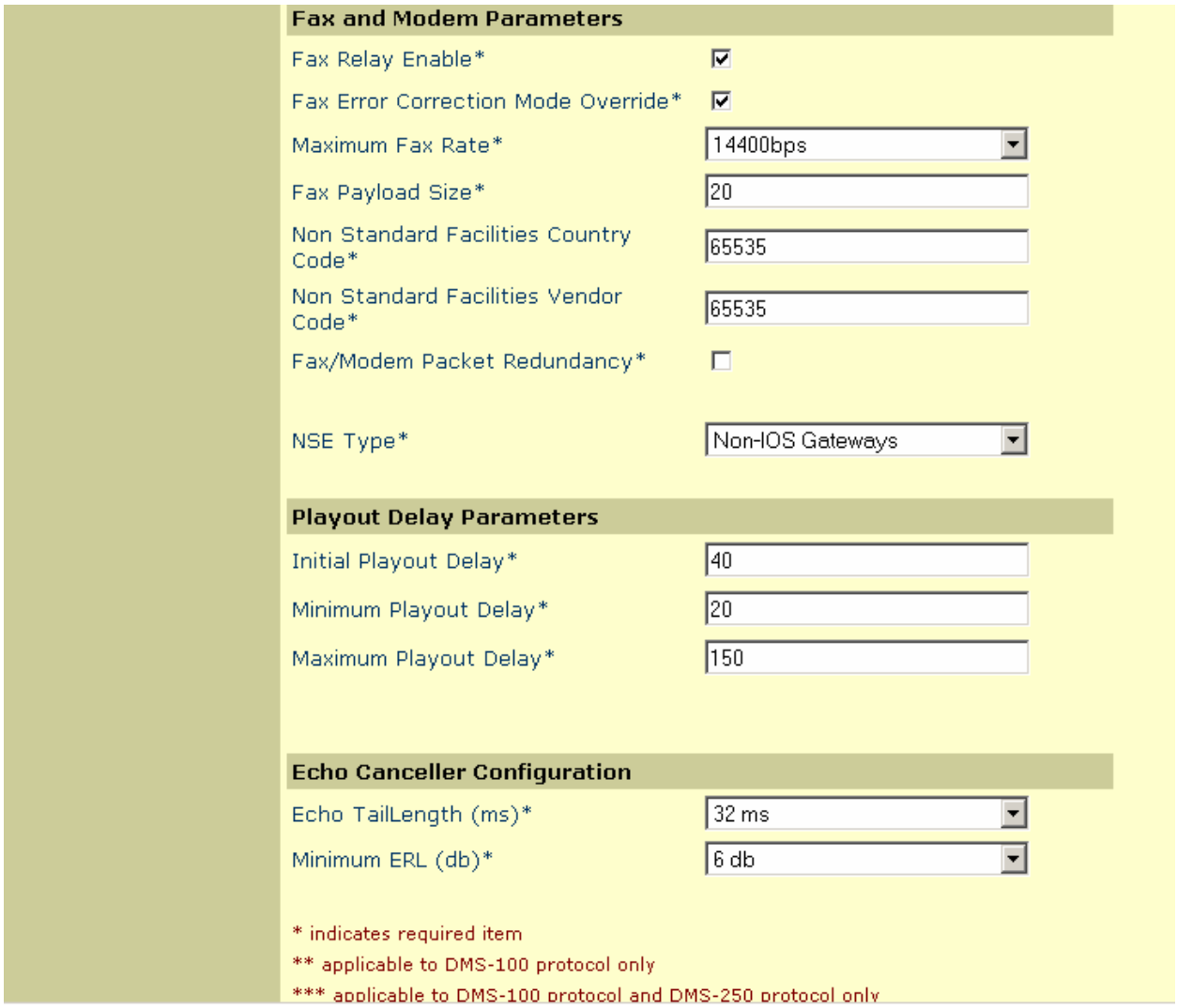




Call Routing Information	
Inbound Calls	
Significant Digits*	All
Calling Search Space	< None >
AAR Calling Search Space	< None >
Prefix DN	
Outbound Calls	
Calling Line ID Presentation*	Allowed
Calling Party Selection*	Originator
Called party IE number type unknown*	Cisco CallManager
Calling party IE number type unknown*	Cisco CallManager
Called Numbering Plan*	Cisco CallManager
Calling Numbering Plan*	Cisco CallManager
Number of digits to strip*	0
Caller ID DN	
SMDI Base Port*	0







Configuring Cisco Unified CallManager QSIG-related Service Parameters

The following screen captures show QSIG-related service parameters, as found on Cisco Unified CallManager 4.1(2) software:

Clusterwide Parameters (Feature - Forward)

Parameter Name	Parameter Value	Suggested Value
Forward Maximum Hop Count*	12	12
Forward No Answer Timer (sec)*	12	12
Max Forward Hops to DN*	12	12
Retain Forward Information*	False	False
Forward By Reroute Enabled*	True	False
Forward By Reroute T1 Timer (sec)*	10	10
Include Original Called Info for Q.SIG Call Diversions*	Always	Only after the first diversion

Clusterwide Parameters (Feature - Path Replacement)		
Parameter Name	**Parameter Value**	**Suggested Value**
Path Replacement Enabled*	True	False
Path Replacement on Tromboned Calls*	True	True
Start Path Replacement Minimum Delay Time (sec)*	0	0
Start Path Replacement Maximum Delay Time (sec)*	0	0
Path Replacement T1 Timer (sec) *	30	30
Path Replacement T2 Timer (sec) *	15	15
Path Replacement PINX ID	5555	

Configuring Cisco Unity for Centralized Voicemail Services

Whether using Cisco Unity as a centralized voicemail server in a Q.SIG private network or to provide voicemail services to Cisco Unified CallManager users only, configure the platform as per the Cisco Unified CallManager 4.1 Integration Guide for Unity 4.0, found at the following URL: http://www.cisco.com/en/US/products/sw/voicesw/ps2237/prod_configuration_guide09186a00802933d0.html

Acronyms

Acronym	Definitions
ANF-PR	Additional Network Feature Path Replacement
CUCM	Cisco Unified Communication Manager
CCBS	Call Completion to Busy Subscriber
CCNR	Call Completion on No Reply
CFB	Call Forwarding on Busy
CFNR	Call Forwarding No Reply
CFU	Call Forwarding Unconditional
CLIP	Calling Line (Number) Identification Presentation
CLIR	Calling Line (Number) Identification Restriction
CNIP	Calling Name Identification Presentation
CNIR	Calling Name Identification Restriction
COLP	Connected Line (Number) Identification Presentation
COLR	Connected Line (Number) Identification Restriction
CONP	Connected Name Identification Presentation
CONR	Connected Name Identification Restriction
CT	Call Transfer
MWI	Message Waiting Indicator
PSTN	Public Switched Telephone Network

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