

XO SIP Service

Customer Configuration Guide for Toshiba Strata
CIX IP-PBX



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1. Overview

About This Document

This document **describes interoperability between XO SIP Packages 1 and 2 and the Toshiba Strata hardware versions CIX40, CIX100, CIX200, CIX670 and CIX1200 and software version R5.20 MT018 or higher**, deployed with an XO-provided Cisco 2432 IAD as the router/demarcation device. This document assumes the audience has a general understanding of network provisioning and the connectivity requirements of XO Communications SIP service offering.

Known Issues

While XO certifies interoperability between XO SIP service and the IP PBX as outlined herein, the following known issues were identified during Interoperability testing. The customer should be aware that certain features and functions may not be fully supportable. In some cases, special configurations and/or PBX software patches may be available from the vendor:

- 1) **Caller ID on Calls Forwarded Off-Net** – When incoming PSTN calls are delivered to desk phone with Call Forwarding enabled to an off-net PSTN phone, the calls will be forwarded but the originating caller ID will not be passed. The off-net PSTN phone will see the caller ID of the Toshiba Strata CIX IP PBX DID which has enabled the call forwarding function.
- 2) **Feature Code *67 for Outgoing Calling Line ID Delivery Blocking Per Call is not supported**
- 3) **Call Forward to PSTN at end of Hunt Group sequence is not supported by the Toshiba Strata CIX IP PBX.**

Registration Method

Toshiba Strata CIX utilizes static registration between IP phones and the IP PBX.

XO SIP Service Packages Supported

Pkg	Codec	DTMF	Fax
1	G.711	RFC2833 (in-band RTP DTMF fall-back)	T.38; G.711 pass-through
2	G.729a	RFC2833	T.38; G.711 pass-through

2. Testing of Toshiba Strata CIX

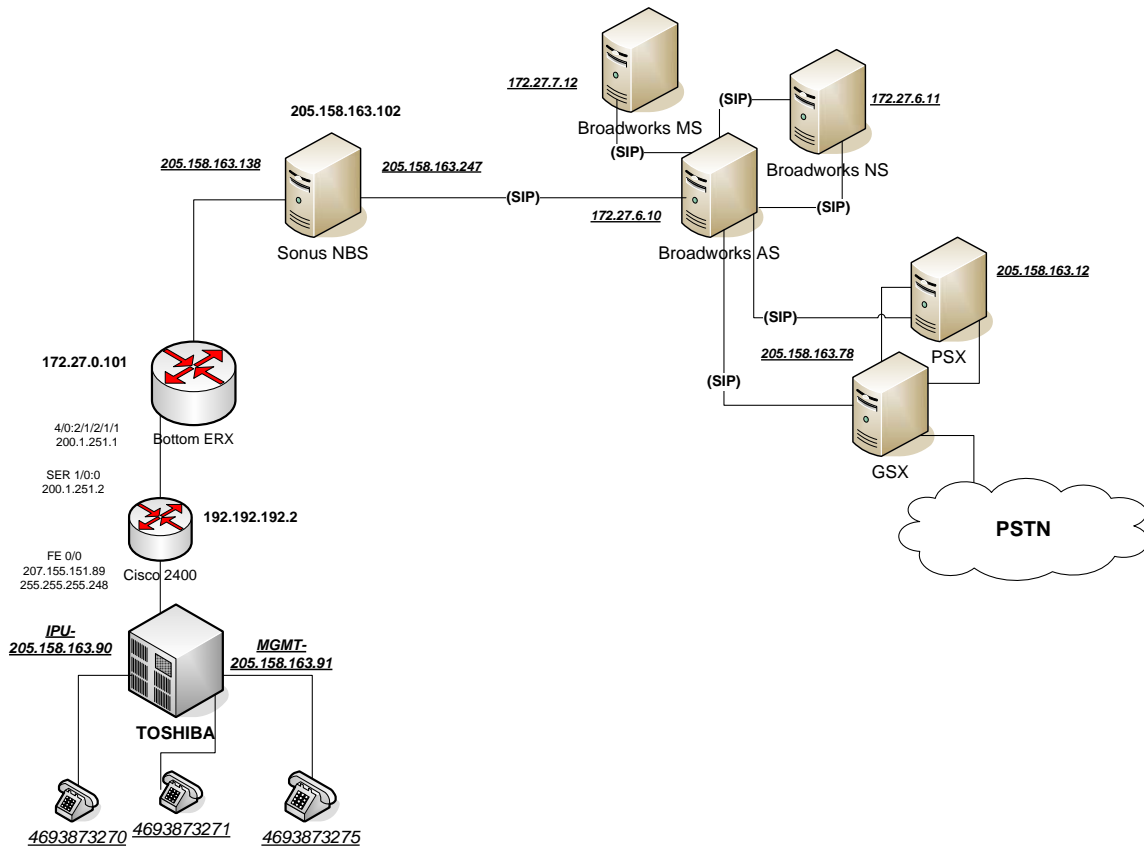
2.1. Software and Hardware Versions Tested

1. Cisco 2400 used as a router
Cisco IOS Software, 2400 Software (C2430-IS-M), Experimental Version
12.4(20060718:201451) [acphan-V124_4_T2_1 104]
System image file is "flash:c2430-is-mz.xo"
2. Juniper Networks ERX 1400
System Release: erx_7-3-6.rel
Version: 7.3.6 release-0.0 [BuildId 9060]
3. BroadSoft
System Release: AS version Rel_14.sp7_1.112
NS version Rel_14.sp4_1.165
Hardware Version: NETRA 4250 with Linux
4. Sonus NBS
Release: V06.04.06 S005
5. Sonus PSX and GSX
Release: V06.04.03R000
6. TOSHIBA
 - a. Software version TOSHIBA : AR5.20 MT022.00
 - b. Hardware version TOSHIBA: CIX40A2 : GCTU2
7. 1 - IP Phone & 1 Digital Phone
Version: IP Phone – IPT2010-SD
Digital Phone – DKT3020-SD

2.2. Diagram of XO Lab Test Set-Up of Toshiba Strata CIX

Figure 1, Lab Test LAN Topology

The following diagram is the configuration used during lab testing.



Note: Above lab setup only shows main lab network elements.

3. Toshiba Strata CIX Configuration

In This Section XO performed the minimum amount of configuration required to achieve successful completion of test calls over XO SIP. It is beyond the scope of this document and the testing efforts to show a complete configuration, therefore screenshots of the GUI interface are provided only for the details of the SIP trunk configuration that are relevant to interfacing with XO's SIP product.

This section contains screenshots which detail the SIP trunk configurations.

Specific configuration suggested on TOSHIBA for XO SIP Trunk:

1. Make 'User Agent' and 'Server header' enable.

Program 327:

- Set FK[13] = enable
- Set FK[14] = enable

2. Registration mode disabled. (for SIP Static trunk)

Program 327

- Set FK[01] = none

3. Make OPTION (keep alive) message disable

Program 327

- Set FK[34] = 0

4. Make REFER message disabled.

Program 327

- Set FK[12] = disable

Toshiba event manager home page:

The screenshot shows the Toshiba Strata CIX Network Emager interface. The top navigation bar includes: Home, Clients, Connected Equipment, Application Settings. The main header displays the Toshiba logo and 'Strata CIX NETWORK EMAGER TOSHIBA TELECOMMUNICATION SYSTEMS DIVISION'. The user is logged in as 'administrator'. A secondary navigation bar includes: Strategy ES, System, Station, Trunk, IP-Telephony, LCR/DR, Strata Net, Maintenance, Alarm/Traffic, Help. The page title is 'Connected Equipment - Connected Equipment Details'. On the left, there is a sidebar for 'XO Communications' with a CIX icon. The main content area shows a device image and a table of details:

Site (location):	XO Lab
Equipment Type:	CIX40A2 : GCTU2
Equipment Version:	AR5.20 MT022.00
Equipment Name:	CIX
IP Address:	207.155.151.91
MAC Address:	000e7b78d910
Country:	USA

Set the card type for the slot holding MPU:

The screenshot shows the 'System - Card Assignment' page in the Toshiba Strata CIX Network Emager. The top navigation and header are identical to the previous screenshot. The page title is 'System - Card Assignment'. On the left, there is a sidebar for 'XO Communications' with a CIX icon. The main content area shows a form for '100 CIX/CTX CABINET SLOT PCB ASSIGNMENTS' with fields for 'Cabinet' (01) and 'Slot' (01), and buttons for 'Assign' and 'Remove'. Below the form, a dropdown menu for 'PCB Type' is set to 'GMAU3A Base Card - 8 DKTs without Spkr OCA'. A table below lists the assignments for cabinet 01:


Cabinet	Slot	PCB Type
01	01	GMAU3A Base Card - 8 DKTs without Spkr OCA
01	02	GMAU3A Base Card - 4 analog loop start lines with built-in Caller ID interface
01	03	GVPH-1A - 8 voice mail ports
01	04	GMAU3A Base Card (1st), optional GSTU1A (2nd) - max. 2 standard telephone ports
01	05	MIPU16 - 16 IP channels
01	06	Not used
01	07	Empty Slot
01	08	Empty Slot
01	09	Not used

IPU IP configuration: (Maintenance >> CIX Processor IP address)

Strategy ES > System > Station > Trunk > IP-Telephony > LCR/DR > Strata Net > Maintenance > A

Maintenance - CIX Processor IP Address

XO Communications



CIX

916 IP Configuration


IP Address	207 . 155 . 151 . 91
Subnet Mask	255 . 255 . 255 . 248
Default Gateway	207 . 155 . 151 . 89

ILG (Incoming Line Group):

Strategy ES > System > Station > Trunk > IP-Telephony > LCR/DR > Strata Net > Maintenance > Alarm/Traffic > Help >

Trunk - ILG

XO Communications



CIX

304 INCOMING LINE GROUP ASSIGNMENT

Group Number	9		
01 Group Type	SIP	02 Line Type	CO
03 CO Service Type	DID	04 Private Service Type	Standard
05 GCO Key Number	0	06 Pool Key Number	0
07 COS Day1	1	COS Day2	1
08 DRL Day1	1	DRL Day2	1
09 FRL Day1	1	FRL Day2	1
10 QPL Day1	1	QPL Day2	1
11 DID Digits	4	12 Speech/3.1KHz	Audio
13 Delay1 Ringing Timer	12	14 Delay2 Ringing Timer	24
15 Interdigit 1 Timer	15	16 Interdigit 2 Timer	5
17 Auto Campon	Enable	18 Calling Number ID	User Provided
19 Intercept	Disable	20 Send Dial Tone	Disable
21 TGAC Override	Disable	22 Network COS	1
23 LCR Group	1	24 Change COS Override Code	Disable
25 Register Speed Dial Codes	Disable	26 Originator Invoke OCA	Disable
27 Senderized Tone Mode	Dial Tone	28 Emergency Call Group	1

1	ANALOG
7	ISDN
9	SIP

OLG (Outgoing Line Group):

Strategy ES > System > Station > Trunk > IP-Telephony > LCR/DR > Strata Net > Maintenance > Alarm/Traffic > Help

Trunk - OLG

XO Communications

306 OUTGOING LINE GROUPS

Group Number:

01 Group Type: 02 Trunk Type:

03 Service Type: 04 GCO Key1 Number:

06 Pool Key1 Number: 07 Pool Key2 Number:

08 COS Day1: COS Day2: COS Night:

09 FRL Day1: FRL Day2: FRL Night:

10 QPL Day1: QPL Day2: QPL Night:

11 Speech/3.1KHz: 12 MOH Source:

13 Account Code: Enable Disable

14 Destination Restriction: Enable Disable

15 Credit Card Calling: Enable Disable

16 Send CESID: Enable Disable

17 QSIG Sending Type: 18 Network COS:

19 Recall on AC15:

1 ANALOG

4 ISDN

9 SIP

Submit Print Refresh Get Default Create Copy Delete

Define channel group for SIP Trunk: (IP-Telephony >> SIP Trunking)

Strategy ES > System > Station > Trunk > IP-Telephony > LCR/DR > Strata Net > Maintenance > Alarm/Traffic > Help

IP-Telephony - SIP Trunking

XO Communications

Channel Group Setting Service Definition Service Assignment URI

326 SIP TRUNK ASSIGNMENT

00 SIP Trunk Channel Group:

01 Equipment: 02 LAN Interface Number:

03 SIP Trunk Channels: 04 RBT on Incoming Call:

Service Definition for SIP Trunk: (IP-Telephony >> SIP Trunking)

Strategy ES > System > Station > Trunk > IP-Telephony > LCR/DR > Strata Net > Maintenance > Alarm/Traffic > Help >

IP-Telephony - SIP Trunking

Channel Group Setting | **Service Definition** | **Service Assignment** | **URI**

XO Communications

327 SIP TRUNK SERVICE KIND ASSIGNMENT

00 SIP Trunk Service Kind Table Index: 9 [List]

01 Registration Mode: None

02 ILG: 9

03 OLG: 9

04 Effective Channel Number: 10

05 Domain Name: 205.158.163.138

06 SIP Server: []

07 Primary Voice Packet Configuration: 1

08 Secondary Voice Packet Configuration: 3

09 Registration Period: 3600

10 TimerB: 5

11 Recovery Timer: 60

12 Network Transfer: Disable

13 User Agent Header: Enable

14 Server Header: Enable

15 Protocol Option: Disable

16 Session Timer: 1800

17 Primary Audio Codec: G.711u

18 Secondary Audio Codec: G.729a

19 DTMF Transmission Method: RFC2833

20 RTCP Support: Enable

21 T.38 Support: Disable

22 SIP Server Caches: 10

23 Diffserv for Media: Disable

24 TOS Field Type for Media: TOS

25 TOS Precedence Type for Media: Critical/ESP

TOS Delay Type for Media: Normal

TOS Throughput Type for Media: Normal

[Submit] [Print] [Refresh] [Get Default] [Create] [Delete]

URI for SIP Trunk: (IP-Telephony >> SIP Trunking)

Strategy ES > System > Station > Trunk > IP-Telephony > LCR/DR > Strata Net > Maintenance > Alarm/Traffic > Help >

IP-Telephony - SIP Trunking

Channel Group Setting | **Service Definition** | **Service Assignment** | **URI**

XO Communications

329 SIP URI ASSIGNMENT

00 SIP URI Trunk Service Index: 9 [Add] [Modify] [Remove]

01 SIP URI Index: []

02 SIP URI: []

03 SIP URI User Name: []

04 SIP URI Password: []

05 SIP URI Channel Group: []

06 SIP URI Attribution: main


Index	URI	User Name	Password	Reg. Channel Group	Attribution
1	4693873270			9	main
2	4693873271			9	main
3	4693873272			9	main
4	4693873273			9	main
5	4693873274			9	main
6	4693873275			9	main
7					
8					
9					
10					
11					

DID mapping to extension: (Trunk >> DID)

Strategy ES > System > Station > Trunk > IP-Telephony > LCR/DR > Strata Net > Maintenance > Alarm/Traffic

Trunk - DID

XO Communications



ILG Group Number: 9

309 DIRECT INWARD DIALING

01 DID Number: 3270

02 MOH Source: 1 Processor MOH Jack

03 GCO Key Group: 0

04 Pooled Key Group: 0

05 Audio Day1 Dst Type: Dialing Digits

Audio Day1 Dst Digits: 211

06 Audio Day2 Dst Type: No Data

Audio Day2 Dst Digits:

07 Audio Night Dst Type: Dialing Digits

Audio Night Dst Digits: 250

08 Data Day1 Dst Type: No Data

Data Day1 Dst Digits:

09 Data Day2 Dst Type: No Data

Data Day2 Dst Digits:

10 Data Night Dst Type: No Data

Data Night Dst Digits:

11 DID/DNIS No. VMID:

12 DID/DNIS Name:

13 VM Application Digits:


16 Tenant Number: 1

Calling Party number configuration: (Trunk >> Calling number)

Strategy ES > System > Station > Trunk > IP-Telephony > LCR/DR > Strata Net > Maintenance > Alarm/Traffic > Help

Trunk - Calling Number

XO Communications



OLG Number: 9

321 CALLING NUMBER IDENTIFICATION

01 Default Number:

02 Number Prefix: 469

03 Number Verification: Disable

04 Default Number 2:

05 Default Name:

322 CNIS PRESENTATION AND SPECIAL NUMBER ASSIGNMENT

01 Source Type: Prime DN

02 Source Number: 211

03 Special Number Assignments: 3873270

04 Special Name Assignments: