TOSHIBA

Strata® CIX™ Product Bulletin

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Businesses Save Money with Toshiba's New SIP Trunking Feature

For business trying to save money on telecommunications tariffs, conventional technology requires separate services for data and voice. This can be inefficient because data isn't carried over the un-used voice service, and voice isn't carried over the available data service. Session Initiation Protocol (SIP) Trunking allows the two services to be combined onto a single more efficient service. Unlike gateway based solutions, Toshiba's MIPU card with SIP trunking costs less and allows SIP Trunking to be supported natively in the phone system along with remote IP phones, softphones, WiFi phones, IP based voicemail and IP based ACD applications.

SIP Trunking allows the CIX to get PRI like services from an Internet Telephony Service Provider using Session Initiation Protocol.

SIP (Session Initiation Protocol) is an application layer protocol used for establishing sessions in an IP network. SIP is a very rich and extensible protocol and, similar to HTTP and SMTP, SIP is a text-based protocol. The power of SIP lies in the fact that it allows a user on a SIP enabled device to communicate with other users on SIP enabled devices (IP PBX, SIP phone, SIP Softphone) regardless of geography. SIP Trunking harnesses the power of the SIP protocol to route a VoIP call over the carrier's IP backbone to any IP address worldwide.

Toshiba implements SIP trunking using our new MIPU card. The MIPU is designed from the ground up as a VoIP card able to support IP stations, Strata Net IP, and now SIP trunking. With the SIP Trunking capability of the new MIPU card, companies are no longer committed to having to purchase different types trunk cards and the bundles of physical wires to host analog, PRI and BRI trunks. With the MIPU implementation of SIP Trunking, companies are able to leverage their existing Toshiba CIX R4.x (and later) PBX systems with just the purchase of MIPU cards, an update to R5.10 MS18 software, and corresponding license. SIP Trunking is meant to simplify IP PBX trunking capability by replacing all of these traditional PSTN lines with one SIP Trunking device hosted by SIP Trunking provider on the internet.

For companies that already have a networking infrastructure, there are no additional networking devices required to implement SIP Trunking.

In essence, SIP Trunking offers ISDN-like features over a data connection (i.e. T1 circuit). However, unlike a traditional T1 circuit, a SIP Trunking enabled circuit does not have to be physically provisioned and divided to separate the voice channels from the data channels.

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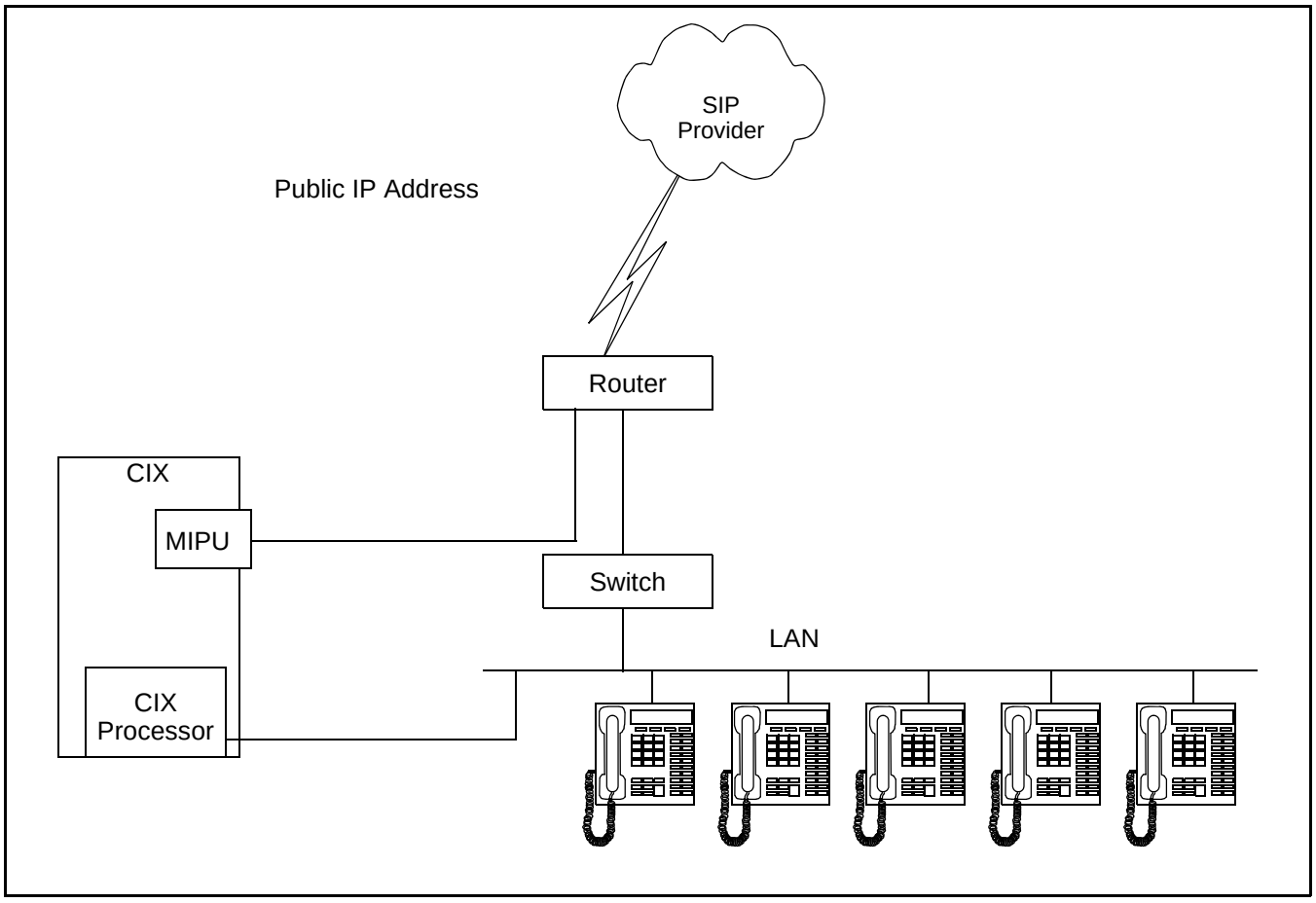
MIPU SIP Trunking implementation Benefits

- IP stations, Strata Net IP networking and SIP Trunking can all be hosted using the same MIPU card.
- The MIPU card comes in a 16 channel version and the new 24 channel version without having to use a daughter-board.
- SIP Trunking using the MIPU replaces having to purchase analog trunk cards, PRI, T1 and BRI cards.
- The MIPU SIP Trunk is scalable. Simply add additional MIPU cards as your needs grow.
- For companies with an existing network infrastructure, there is no additional networking hardware to purchase to implement SIP Trunking using the MIPU card.
- One MIPU card can be configured for multiple service providers simultaneously.

Requirements

- CIX Hardware: CIX40, CIX100, CIX200, CIX670
- CIX Software: R5.10 MS18 or higher
- MIPU: MIPU01_07 or higher
- eManager: V5.10 A07 or higher
- Service provider: Contact Toshiba Sales Applications Desk
- Soft Switch: Contact Toshiba Sales Applications Desk
- License: LIC-CIX-SIPT-CH

SIP Trunking Network Configuration Example

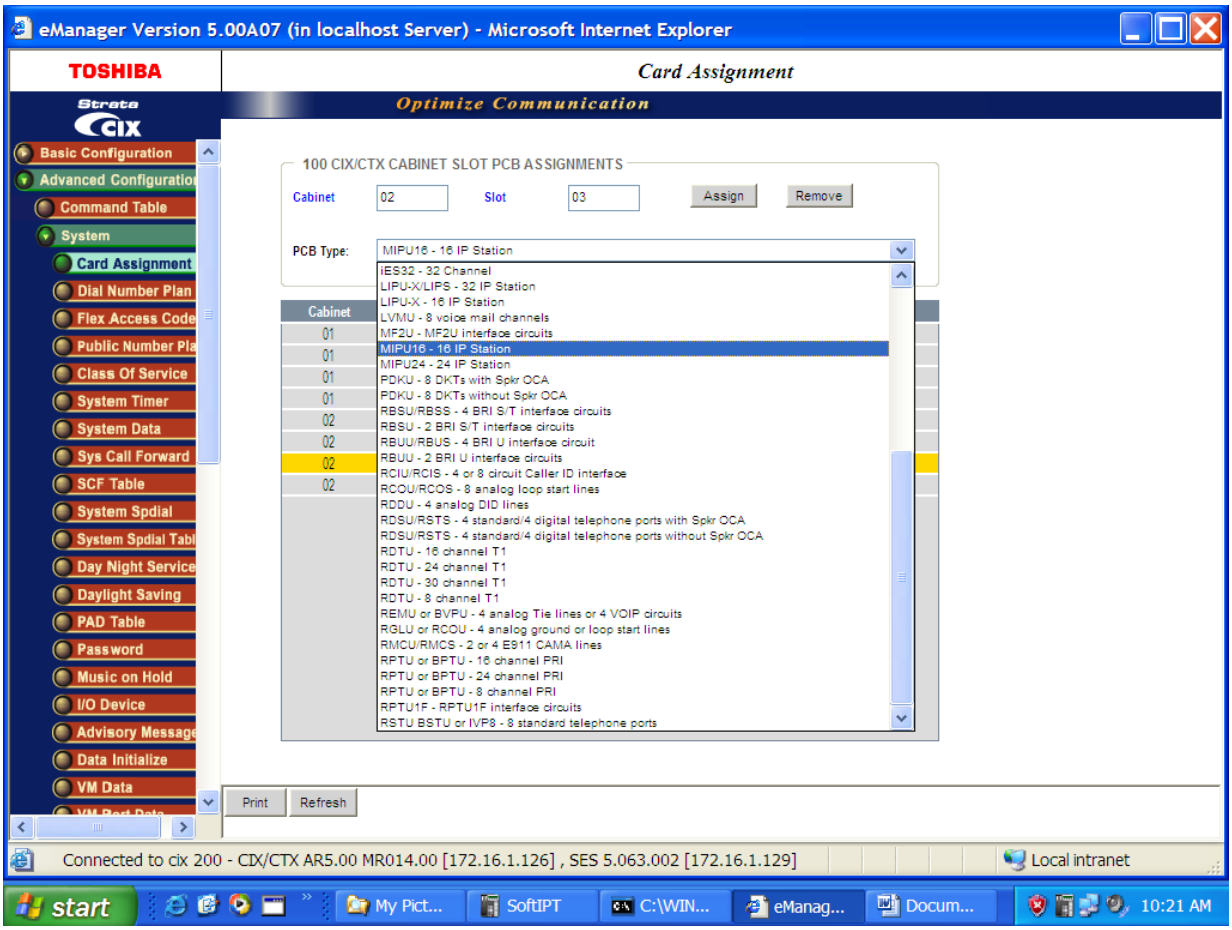


There are many ways to set up a public IP address for the MIPU. The most common way is to simply run an ethernet cable from one of the WAN interfaces on the router straight to the MIPU.

Programming

Programming the MIPU card

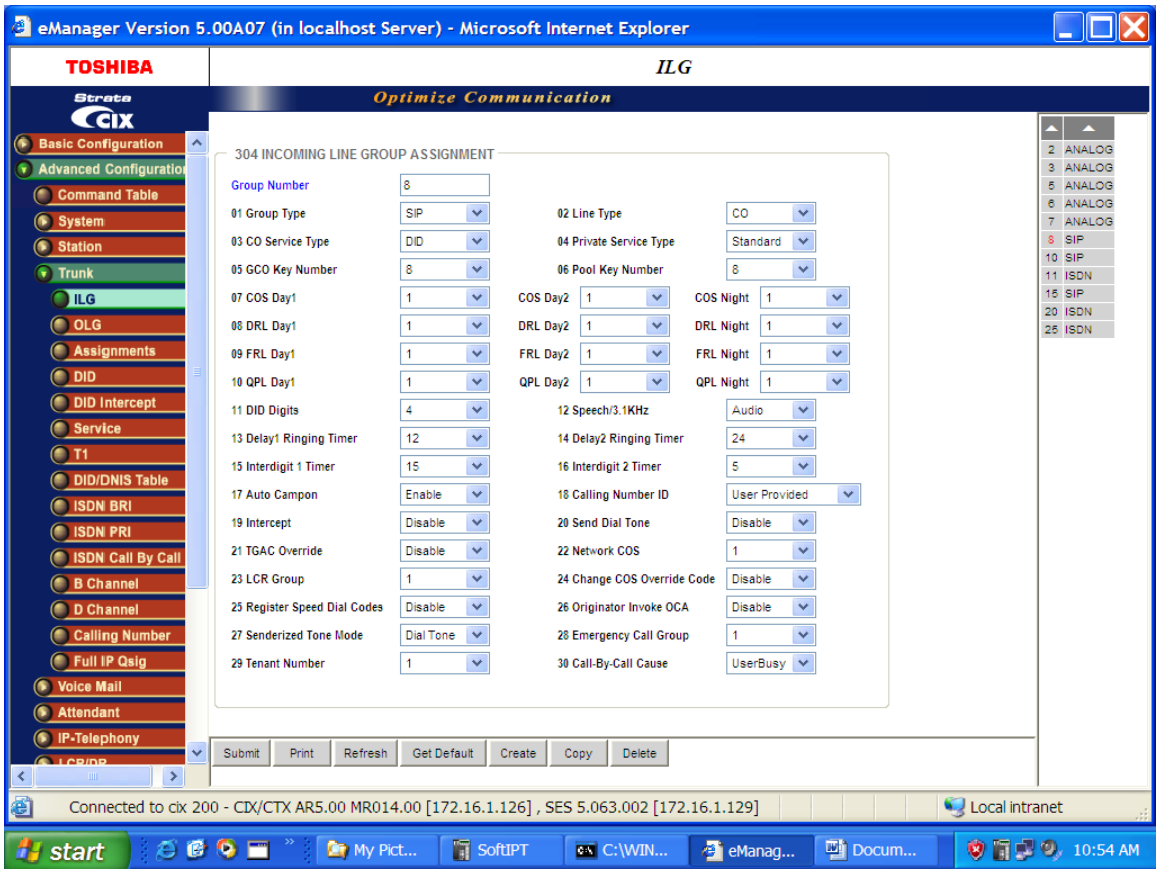
1. Set the card type for the slot holding the MIPU
2. Choose the type of MIPU for use in the system. The number of channels entered must match the number of channels on the card.



Programming the Incoming Line Group

1. For SIP trunk programming you start with an ILG and OLG assignment.
2. For ILG Programming create an ILG group (In this example Group Number 8).
3. FB01 - Trunk type- select SIP
4. FB03 - CO service type- DID
5. FB11 - Number of DID Digits- number of incoming digits to use from the dialed number to route the call.

DID routing must be set up to route incoming SIP calls to their desired destinations. That programming is the same as any other trunk group type. If that routing is not set up incoming INVITEs (calls) will fail.

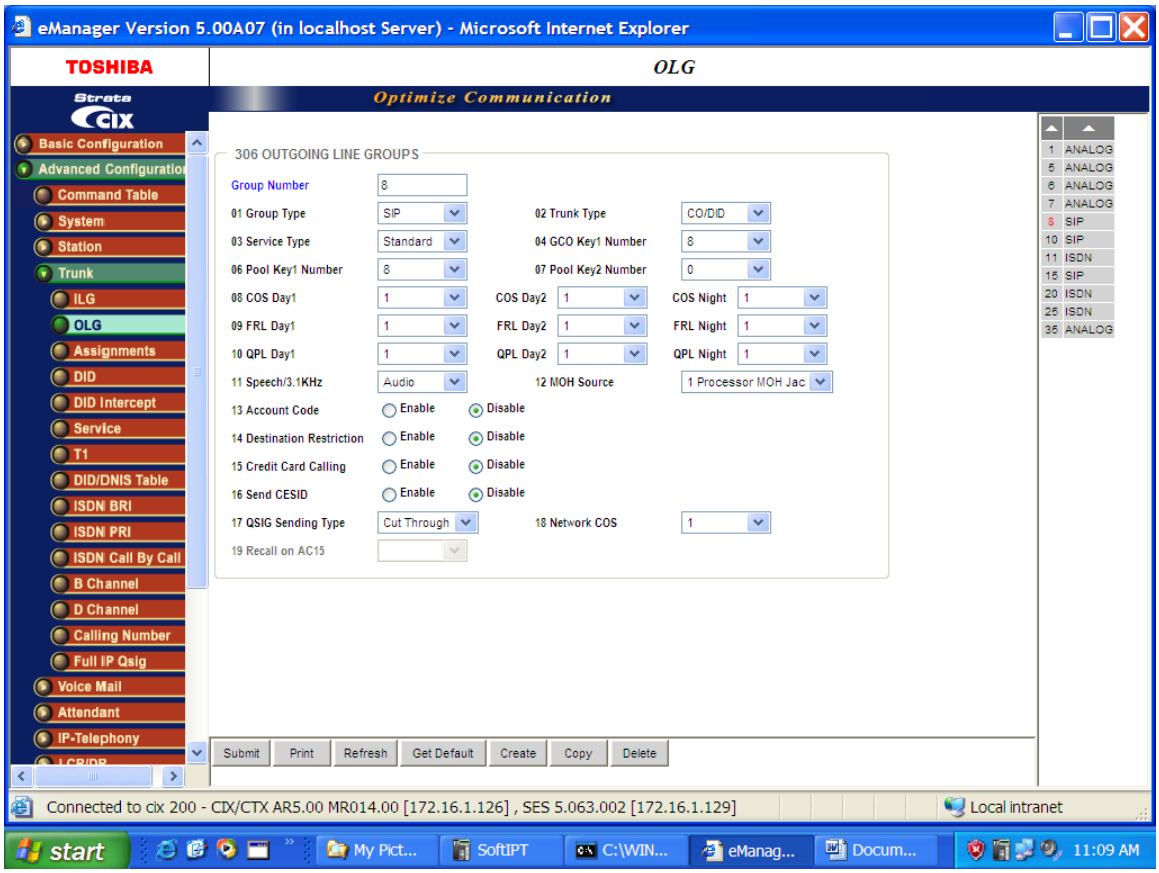


Note: SIP trunking requires a license for each trunk. No channel group can successfully be programmed without a license.

SIP trunking is supported by the MIPU card only. It can share connections of its ports between stations and IPTs and other IPU devices. The IPTs are the only devices that are can be assigned equipment number 0000. That is, SIP stations, VM ports, SIP trunks and attendant consoles are fixed resources. IPTs do not need to be fixed assignments (unless they are assigned a fixed equipment number, not 0000).

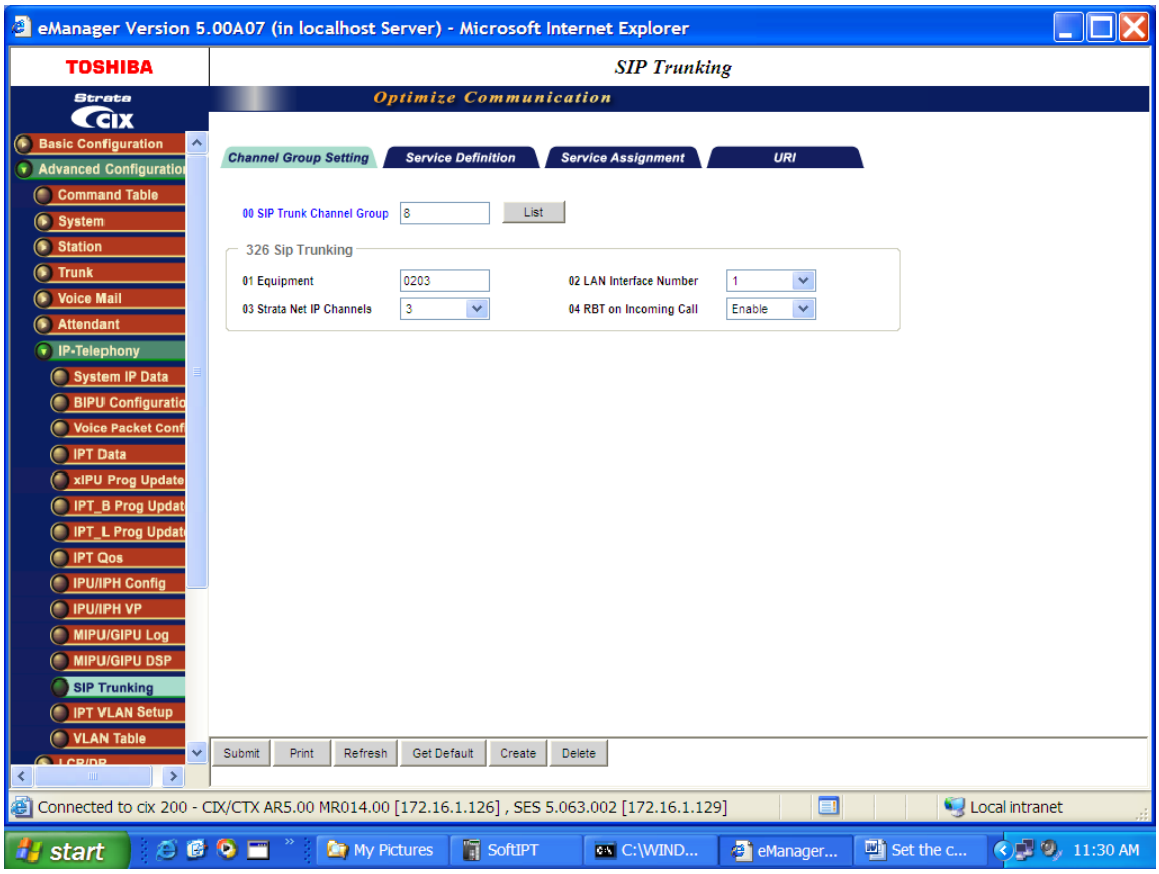
Programming the Outgoing Line Group

1. Create a new OLG and designate it as SIP.
2. FB01 - Group type: SIP
3. The rest are left at the default value.
4. An OLG access code must be created for this group.



Creating the Channel Group

1. Go to IP Telephony > SIP trunking. The first tab is Channel Group setting, Program 326.
2. Channel Group Setting - In this example SIP Trunk Channel Group 8 is created.
3. FB01 - Equipment Number - Enter the Cabinet number and slot number (four digits). In this example 0203.
4. FB02 - LAN interface number = 1 (MIPU only has one interface)
5. FB03 - Strata Net Channels – The TOTAL number of ports on this card that are going to be dedicated to SIP Trunking. On further tabs, each OLG or ILG can be for a different service provider and still be in the same channel group. This entry is the total number of trunks from ALL the service providers
6. FB04 - RBT tone on incoming call - Enable for the CIX to provide RBT (ring back tone). Coordinate this response with the Internet Service Provider (ISP) trunk provider



Service definition

The Service Definition tab is where the ISP providing the SIP trunk service is defined. There may be several ISPs per channel Group.

Required Entries:

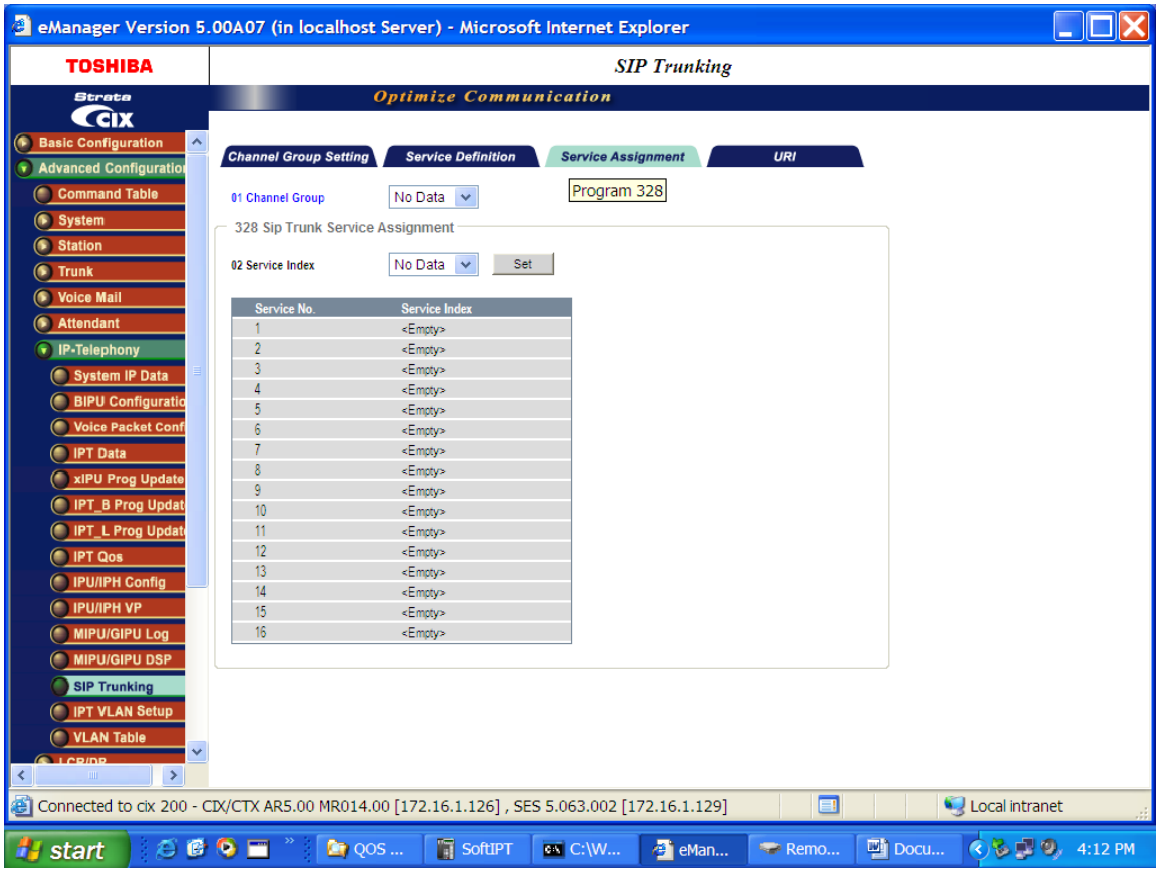
1. Create the Service Kind Table Index - start with index 1 if desired
2. FB01 – Registration Mode: Client (default)
3. FB02 – ILG: Use the previously created ILG number
4. FB03 – OLG: Use the previously created OLG Number
5. FB04 – Effective Channel Number: Number of SIP trunks provided by this ISP
6. FB05 – Domain Name: FQDN (fully qualified domain name) of this ISP.
7. FB06 – SIP Server: The IP address of the ISP. This can be found by doing a NSLOOKUP of the FB05 domain name. The entry can be the FQDN or IP address of the SBC (Session Border Controller) or ALG (Application Layer Gateway). If you are not using SBC or ALG leave this entry blank.
8. These are the only mandatory program entries. The rest can be default for now.

Service Assignment

The Service Assignment tab must be completed before entries are made on the next tab. If not completed, entries attempted in the URI tab will not save.

Important! After URI entries are made in URI tab changing this program will DELETE all the URIs programmed. Once this is set, do not change it.

1. FB01 – Channel Group (8 in this example)
2. FB02 – Select the “service number” by clicking on one of the table’s line entries. Use the drop down box to select the ISP to which the URIs belong. This is to match the “service kind table index” number of the desired ISP. On the next tab programming will begin to enter the URIs (directory numbers) that are associated with this ISP.

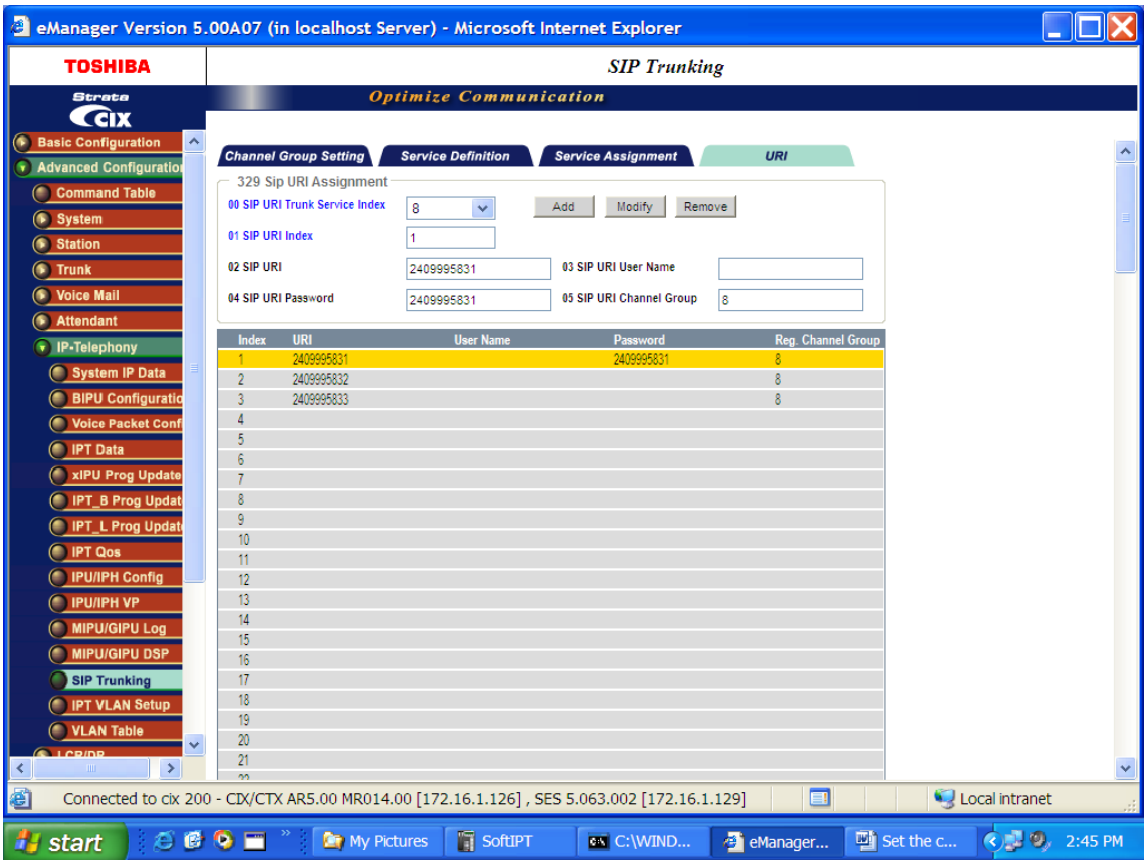


URI Programming

The SIP URI is effectively the DN that the ISP is going to provide. The MIPU is going to register each DN as a UA (User agent). Each UA will appear to the ISP like a SIP station. When the URI DN is dialed (from outside) the ISP will send a SIP INVITE, as if it were a call to a SIP station. But, an outbound call using one of the UAs does not busy-out the UA against an incoming call, that is a key difference of SIP trunks. Refer to the program screen on the next page.

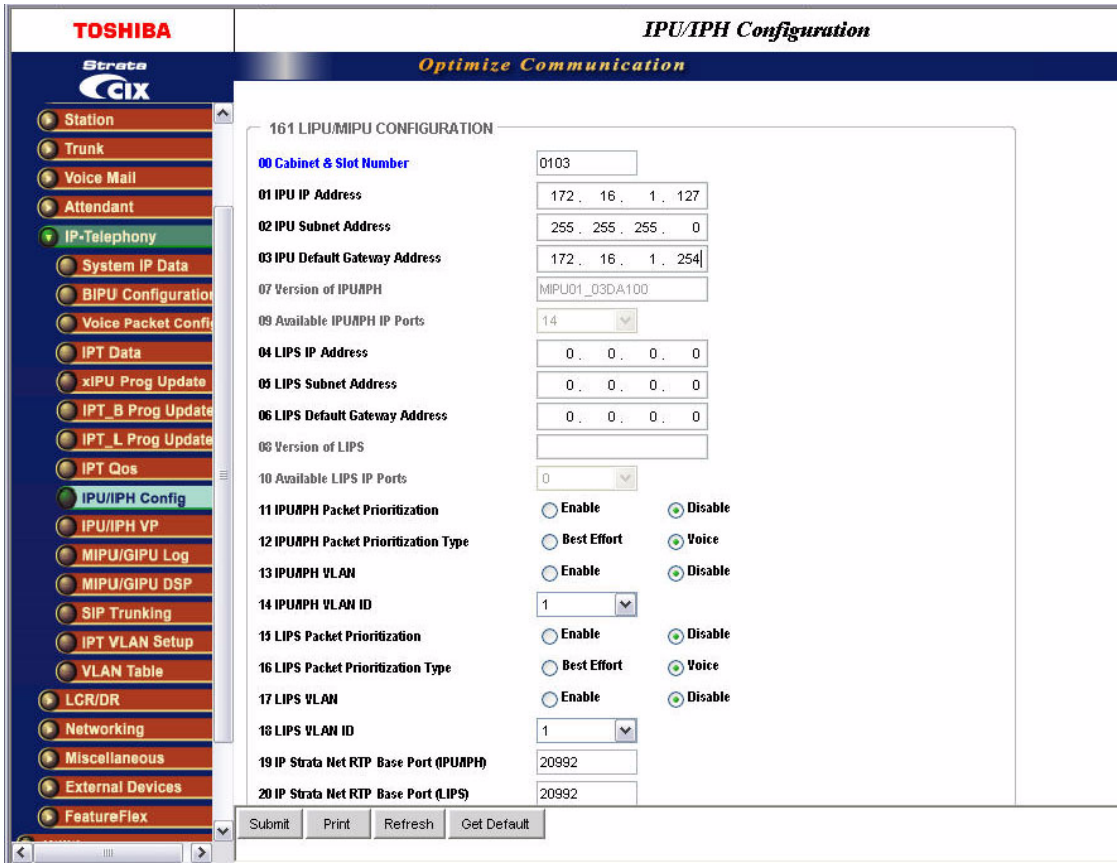
1. FB00 – SIP URI Trunk Service Index: The service Kind index that defines the ISP. If for instance, the service kind is Cbeyond, enter the DNs provided from Cbeyond.
2. FB01 – SIP URI Index: Click the “index” line in the table to select one of the indexes (1-160), for CIX100 select from 1 - 72.
3. FB02 – SIP URI: This will be the DN of the URI
4. FB03 – SIP URI User Name: Typically this is the DN but, could be a name provided by the ISP.
5. FB04 – SIP URI password, the same as the authentication password, if required. If the ISP is set for authentication when registering a URI the SIP registration is sent to the ISP (without password). Then the ISP will “challenge” the registration. The MIPU will send the registration again with the password encoded by the method indicated in the challenge. This registration is accepted based on the password entered here. When an outbound call is made the same challenge will occur.
6. FB05 – Channel Group Number- this will be filled in automatically when the ADD button is clicked. It cannot be entered manually.

Important! URIs will register as soon as they are ADDed or MODIFIed. Otherwise all the URI will register when the MIPU is reset. The UAs will re-register as required before the expiry time-out occurs.


eManager Version 5.00A07 (in localhost Server) - Microsoft Internet Explorer
TOSHIBA
SIP Trunking
Optimize Communication
Basic Configuration
Advanced Configuration
Command Table
System
Station
Trunk
Voice Mail
Attendant
IP-Telephony
System IP Data
IPT Data
IPT Qos
IPU/IPH Config
IPU/IPH VP
MIPU/GIPU Log
MIPU/GIPU DSP
SIP Trunking
IPT VLAN Setup
VLAN Table
Channel Group Setting
Service Definition
Service Assignment
URI
329 Sip URI Assignment
00 SIP URI Trunk Service Index
01 SIP URI Index
02 SIP URI
03 SIP URI User Name
04 SIP URI Password
05 SIP URI Channel Group
Add
Modify
Remove
Index
URI
User Name
Password
Reg. Channel Group
Connected to cix 200 - CIX/CTX AR5.00 MR014.00 [172.16.1.126] , SES 5.063.002 [172.16.1.129]
Local intranet
start
My Pictures
SoftIPT
C:\WIND...
eManager...
Set the c...
2:45 PM

Configuring the MIPU

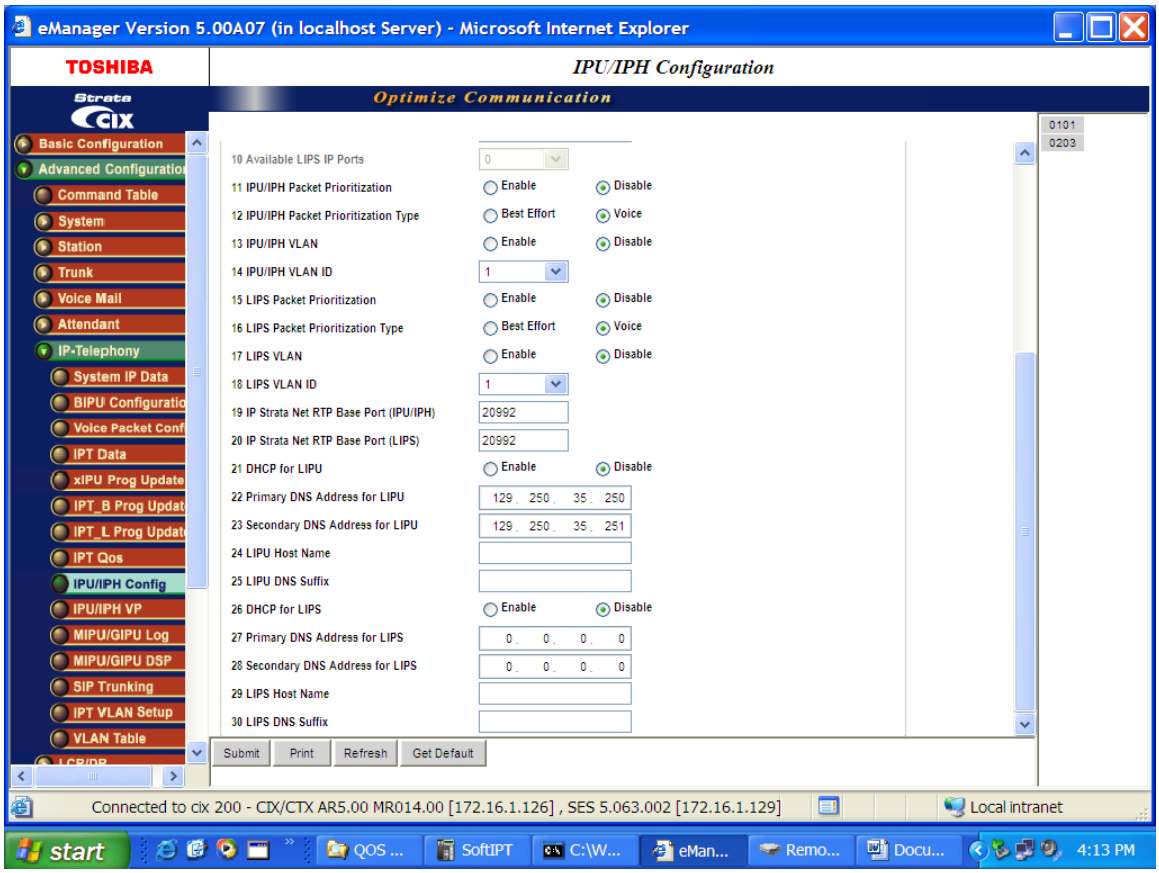
1. Go to IP Telephony > IPU Config. Enter the public IP address of the MIPU card provided by the SIP trunk provider.
2. FB01 – MIPU IP address. Must be a public IP address. The IP address can be static assignment or assigned by a DHCP server.
3. FB02 – Subnet Mask. As applicable.
4. FB03 – Default Gateway Address. From IT department.
5. There is only one interface on an MIPU, leave the second interface blank.



Configuring the MIPU continued

For a static IP enter the DNS server address. This is critical to SIP trunking. The DNS server is used every time a call is made as well as during the registration process. After making all these programming entries, press the reset button on the MIPU. The new data will be absorbed by the MIPU. The MIPU will begin registration to the ISP.

- FB 22 – Primary DNS IP address
- FB 23 – Secondary DNS IP address



Compatibility

- MIPU16 and MIPU24
- CIX670
- CIX200
- CIX100
- CIX40

Licensing

There is a new license associated with SIP Trunking.

- LIC-CIX-SIPT-CH