Avaya S8500 Communications Manager 5.2.1 using Cisco IOS Voice Gateways to Tunnel T1 QSIG over SIP (with CUBE 8.8)

November 23, 2011 Rev. 1

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Introduction

- This application note provides interoperability information and documented configurations for a toll bypass solution using Cisco IOS Voice Gateways tunneling QSIG over SIP between two Avaya PBXs. The integration consists of two Cisco IOS Voice Gateways connecting to the Avaya PBXs using T1 QSIG trunks. The IOS gateways establish the QSIG connection between the two PBXs via SIP. Since QSIG is not dependant of the physical layer interface, this app note applies to both T1 and E1. This integration also demonstrates use of the Cisco Unified Border Element (CUBE) in the SIP connection between the two Cisco IOS Voice Gateways. Figure 1 shows the integration topology.

- In a production deployment, two CUBEs will be required: one at either side of the toll bypass network. Each CUBE is acting as a point of demarcation between the service provider network and the privately managed networks. The topology in Figure 1 reflects this deployment. This application note includes sample CUBEs and Voice Gateways configurations used in verification testing. They can be used as a guide; however, modifications to CUBE and/or IOS Voice Gateway configurations are necessary to point VoIP dial-peers to the proper session target IP addresses, based upon the implemented dial plan.

- The following basic call and supplementary services features were verified: proper establishing and disconnecting of calls, calling name and number presentation and restriction, alerting name, call transfer (consult and blind), call forwarding (all, busy, and no reply), callback functionality, and voicemail access with MWI de/activation. All of the above features are tested with join or reroute schema in both internal (local) and external network. Please note that this document does not address performance and scalability, which are part of a broader criteria for a deployment-ready solution.

- This application note uses the C2921 and C3925 Integrated Services Routers. Other Cisco voice gateways are also an option, since the voice gateway implementation does not depend on the platform. Below is a list of other Cisco platforms capable of voice gateway functionality and CUBE functionality: Care must be taken when selecting a voice gateway platform depending on the capacity and capability required for the intended deployment.

  - Cisco 1861 Integrated Services Router
  - Cisco IAD2400 Series Integrated Access Device
  - Cisco 2800 Series Integrated Services Routers
  - Cisco 3700 Series Multi-service Access Routers
  - Cisco 3800 Series Integrated Services Routers
  - Cisco AS5350XM Universal Gateway
  - Cisco AS5400XM Universal Gateway

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Network Topology

Figure 1. Basic Call Setup

Limitations

The following section lists known limitations, caveats, or integration issues.

- Call Forwarding by Join, Local and Network/External: The Forwarding called numbers are not displayed on Final Destination phones and the Final Destination Connected numbers are not updated at the Original side. These are the normal behavior on Avaya digital display telephones.

- Call Forwarding by Reroute, Network/External: The Original Calling number and the Forwarding Called Name and Number are not displayed on Final Destination phone. Also, The Final Destination Connected Name and number are not updated at the Original side. This is the normal behavior on Avaya digital display telephones.

- SIP over UDP: whenever QSIG tunneling over SIP is enabled, and UDP is used as the transport method, there may be instances where packet size exceeds the maximum allowed MTU size on the Ethernet interface. This limitation was mainly seen whenever Calling Line Identification Restriction was used. Configuring the TCP as the session transport on the voice gateways and CUBEis will prevent this issue. Refer to CSCtt32466 for further information.
**System Components**

**Hardware Requirements**

The following hardware is required:

The following hardware components were used:

- (2) Cisco C2921 Integrated Services Router (TDM Gateways)
- (2) Cisco C3925 Integrated Services Router (CUBEs)
- (2) Avaya S8500 PBXs with TN464F DS1 circuit packs
- (1) Avaya Octel 200 Voice Mail System (software version S4.1)
- (4) Avaya digital station telephones

**Software Requirements**

The following software is required:

- Cisco IOS C2900 Version 15.2(1)T1 (Voice Gateways)
- Cisco IOS C3900 Version 15.2(1)T1 (CUBE 8.8)
- Avaya Aura Communication Manager 5.2.1

**Features**

This section lists supported and unsupported features.

**Features Supported**

- Basic Calls (Enbloc Sending)
- Calling Line (Number) Identification Presentation (CLIP)
- Calling Name Identification Presentation (CNIP)
- Calling Line (Number) Identification Restriction (CLIR)
- Calling Name Identification Restriction (CNIR)
- Connected Line (Number) Identification Presentation (COLP)
- Connected Line (Number) Identification Restriction (COLR)
- Connected Name Identification Presentation (CONP)
- Connected Name Identification Restriction (CONR)
- Alerting name
- Call Transfer blind
- Call Transfer Consultation
- Call Forward Unconditional by join (See Limitations)
- Call Forward Busy by join (See Limitations)
- Call Forward No Reply by join (See Limitations)
- Call Forward Unconditional by Reroute (See Limitations)
• Call Forward Busy by Reroute (See Limitations)
• Call Forward No Reply by Reroute (See Limitations)
• Call Completion to Busy Subscriber (Call Back)
• Call Completion on No Answer (Call Back)
• Path Replacement for trombone Call Transfer
• Voice Mail Access, leave a message and QSIG MWI Activate/Deactivate

Features Not Supported
• None found during testing

Configuration

This section contains configuration menus and commands and describes configuration sequences and tasks.

Configuring the Avaya S8500 PBXs

Avaya S8500 Communications Manager 5.2.1: PBX 1 configuration

Figure 2. System Software Version
Figure 3. System Parameters – Customer Options, QSIG Optional Features

```
display system-parameters customer-options

QSIG OPTIONAL FEATURES

Basic Call Setup? y
Basic Supplementary Services? y
Centralized Attendant? y
Interworking with DCS? y
Supplementary Services with Rerouting? y
Transfer into QSIG Voice Mail? y
Value-Added (VALU)? y

(NOTE: You must logoff & login to effect the permission changes.)
```

Figure 4. PBX Circuit Packs listing – Carrier 1A (1 of 2)

```
list configuration carrier 1a

SYSTEM CONFIGURATION

Board Number  Board Type            Code    Vintage  Assigned Ports
            u=unassigned t=ttl p=psa
01A00        POWER SUPPLY           655A     -          
01A01        IP SERVER INTFC         TN23126P HW06 FW050 01 02 03 04 05 06 07 08
01A02        CONTROL-LAN           TN799DP HW01 FW039     u u u u u u u u
01A03        IP MEDIA PROCESSOR     TN23026P HW20 FW121 01 03 05 07
01A04        DIGITAL LINE           TN22248 000012 01 02 03 04 05 06 07 08
            09 10 11 12 13 u u u u u u u u u u
01A07        ANALOG LINE            TN7458 000002 01 02 03 04 05 06 07 08
            u u u u u u u u u u

press CANCEL to quit -- press NEXT PAGE to continue
```

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Figure 5. PBX Circuit Packs listing – Carrier 1A (2 of 2)

Figure 6. Uniform Dial Plan Table configuration (1 of 2)
### Figure 7. Uniform Dial Plan Table configuration (2 of 2)

<table>
<thead>
<tr>
<th>Matching Pattern</th>
<th>Len</th>
<th>Del</th>
<th>Insert Digits</th>
<th>Net Conv</th>
<th>Node</th>
</tr>
</thead>
<tbody>
<tr>
<td>5050</td>
<td>4</td>
<td>0</td>
<td>213</td>
<td>aar</td>
<td>n</td>
</tr>
<tr>
<td>5051</td>
<td>4</td>
<td>0</td>
<td>225</td>
<td>aar</td>
<td>n</td>
</tr>
<tr>
<td>506</td>
<td>4</td>
<td>0</td>
<td>211</td>
<td>aar</td>
<td>n</td>
</tr>
<tr>
<td>5060</td>
<td>4</td>
<td>0</td>
<td>211</td>
<td>aar</td>
<td>n</td>
</tr>
<tr>
<td>5061</td>
<td>4</td>
<td>0</td>
<td>211</td>
<td>aar</td>
<td>n</td>
</tr>
<tr>
<td>5082</td>
<td>4</td>
<td>0</td>
<td>211</td>
<td>aar</td>
<td>n</td>
</tr>
<tr>
<td>5085</td>
<td>4</td>
<td>0</td>
<td>211</td>
<td>aar</td>
<td>n</td>
</tr>
<tr>
<td>5088</td>
<td>4</td>
<td>0</td>
<td>211</td>
<td>aar</td>
<td>n</td>
</tr>
<tr>
<td>5090</td>
<td>4</td>
<td>0</td>
<td>224</td>
<td>aar</td>
<td>n</td>
</tr>
<tr>
<td>5099</td>
<td>4</td>
<td>0</td>
<td>211</td>
<td>aar</td>
<td>n</td>
</tr>
<tr>
<td>5110</td>
<td>4</td>
<td>0</td>
<td>255</td>
<td>aar</td>
<td>n</td>
</tr>
<tr>
<td>52</td>
<td>4</td>
<td>0</td>
<td>285</td>
<td>aar</td>
<td>n</td>
</tr>
<tr>
<td>5210</td>
<td>4</td>
<td>0</td>
<td>211</td>
<td>aar</td>
<td>n</td>
</tr>
<tr>
<td>53</td>
<td>4</td>
<td>0</td>
<td>207</td>
<td>aar</td>
<td>n</td>
</tr>
</tbody>
</table>

### Figure 8. AAR Analysis Table configuration (1 of 1)

<table>
<thead>
<tr>
<th>Dialed String</th>
<th>Total Min</th>
<th>Total Max</th>
<th>Route Pattern</th>
<th>Call Type</th>
<th>Node</th>
<th>ANI Reqd</th>
</tr>
</thead>
<tbody>
<tr>
<td>211</td>
<td>7</td>
<td>7</td>
<td>16</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>212</td>
<td>7</td>
<td>7</td>
<td>13</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>213</td>
<td>7</td>
<td>7</td>
<td>14</td>
<td>aar</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>214</td>
<td>7</td>
<td>7</td>
<td>9</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>215</td>
<td>7</td>
<td>7</td>
<td>16</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>216</td>
<td>7</td>
<td>7</td>
<td>18</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>217</td>
<td>7</td>
<td>7</td>
<td>15</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>218</td>
<td>7</td>
<td>7</td>
<td>11</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>219</td>
<td>7</td>
<td>7</td>
<td>17</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>220</td>
<td>7</td>
<td>7</td>
<td>13</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>221</td>
<td>7</td>
<td>7</td>
<td>14</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>222</td>
<td>7</td>
<td>7</td>
<td>21</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>223</td>
<td>7</td>
<td>7</td>
<td>14</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>224</td>
<td>7</td>
<td>7</td>
<td>13</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
</tbody>
</table>
Figure 9.  Route Pattern (11) configuration (1 of 1)

Figure 10.  Signaling Group (11) configuration (1 of 1)
Figure 11.  DS1 Circuit Pack configuration (1 of 1)

Figure 12.  Trunk Group (11) configuration (1 of 6)
Figure 13. Trunk Group (11) configuration (2 of 6)

Figure 14. Trunk Group (11) configuration (3 of 6)
Figure 15.  Trunk Group  (11) configuration (4 of 6)

Note: to ensure proper call processing by the Cisco Voice Gateways and CUBEs, parameter “QSIG Values-Added” must be set to “n”.

Figure 16.  Trunk Group  (11) configuration (5 of 6)
Figure 17.  Trunk Group (11) configuration (6 of 6)

<table>
<thead>
<tr>
<th>Port</th>
<th>Code Sfx Name</th>
<th>Night</th>
<th>Sig Grp</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>01A1116</td>
<td>N</td>
<td>11</td>
</tr>
<tr>
<td>17</td>
<td>01A1117</td>
<td>N</td>
<td>11</td>
</tr>
<tr>
<td>18</td>
<td>01A1118</td>
<td>N</td>
<td>11</td>
</tr>
<tr>
<td>19</td>
<td>01A1119</td>
<td>N</td>
<td>11</td>
</tr>
<tr>
<td>20</td>
<td>01A1120</td>
<td>N</td>
<td>11</td>
</tr>
<tr>
<td>21</td>
<td>01A1121</td>
<td>N</td>
<td>11</td>
</tr>
<tr>
<td>22</td>
<td>01A1122</td>
<td>N</td>
<td>11</td>
</tr>
<tr>
<td>23</td>
<td>01A1123</td>
<td>N</td>
<td>11</td>
</tr>
</tbody>
</table>

Figure 18.  Avaya Station 4151 configuration (1 of 5)

<table>
<thead>
<tr>
<th>Extension: 4151</th>
<th>Lock Messages? n</th>
<th>BCC: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type: 6480D+</td>
<td>Security Code: *</td>
<td>TN: 1</td>
</tr>
<tr>
<td>Port: 01A0481</td>
<td>Coverage Path 1: 9</td>
<td>COR: 1</td>
</tr>
<tr>
<td>Name: SIP1-R3</td>
<td>Coverage Path 2:</td>
<td>COS: 1</td>
</tr>
<tr>
<td></td>
<td>Hunt-to Station:</td>
<td></td>
</tr>
</tbody>
</table>

STATION OPTIONS

- Loss Group: 2
- Data Module? n
- Speakerphone: 2-way
- Display Language: english
- Survivable COR: internal
- Survivable Trunk Dest? y
- Media Complex Ext: 
- IP SoftPhone? n
- Remote Office Phone? n
Figure 19. Avaya Station 4151 configuration (2 of 5)

<table>
<thead>
<tr>
<th>FEATURE OPTIONS</th>
<th>STATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNC Reception: spe</td>
<td>Auto Select Any Idle Appearance? n</td>
</tr>
<tr>
<td>LNC Activation? y</td>
<td>Coverage Meg Retrieval? y</td>
</tr>
<tr>
<td>LNC Log External Calls? n</td>
<td>Auto Answer: none</td>
</tr>
<tr>
<td>CDR Privacy? n</td>
<td>Data Restriction? n</td>
</tr>
<tr>
<td>Redirect Notification? y</td>
<td>Idle Appearance Preference? n</td>
</tr>
<tr>
<td>Per Button Ring Control? n</td>
<td>Bridged Idle Line Preference? y</td>
</tr>
<tr>
<td>Bridged Call Alerting? n</td>
<td>Restrict Last Appearance? y</td>
</tr>
<tr>
<td>Active Station Ringing: single</td>
<td></td>
</tr>
<tr>
<td>H.323 Conversion? n</td>
<td>Per Station CPN - Send Calling Number?</td>
</tr>
<tr>
<td>Service Link Mode: as-needed</td>
<td>EC500 State: disabled</td>
</tr>
<tr>
<td>Multimedia Mode: basic</td>
<td>Audible Message Waiting? n</td>
</tr>
<tr>
<td>MHW Served/User Type:</td>
<td>Display Client Redirection? n</td>
</tr>
<tr>
<td>AUDIX Name:</td>
<td>Select Last Used Appearance? n</td>
</tr>
<tr>
<td></td>
<td>Coverage After Forwarding? n</td>
</tr>
<tr>
<td></td>
<td>Multimedia Early Answer? n</td>
</tr>
<tr>
<td>Emergency Location Ext: 4151</td>
<td>Direct IP-IP Audio Connections? y</td>
</tr>
<tr>
<td></td>
<td>IP Audio Hairpinning? y</td>
</tr>
</tbody>
</table>

Figure 20. Avaya Station 4151 configuration (3 of 5)

<table>
<thead>
<tr>
<th>Display station 4151</th>
<th>Page 3 of 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ENHANCED CALL FORWARDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

| Unconditional For Internal Calls To: n |
| External Calls To: n |
| Busy For Internal Calls To: n |
| No Reply For Internal Calls To: n |
| External Calls To: n |
|                      |

| SAC/CF Override: n |

<table>
<thead>
<tr>
<th>CANCEL</th>
<th>REFRESH</th>
<th>HELP</th>
<th>GO TO PAGE</th>
<th>NEXT PAGE</th>
<th>PREV PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 21.  Avaya Station 4151 configuration (4 of 5)

```
<table>
<thead>
<tr>
<th>Button Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: call-appr</td>
</tr>
<tr>
<td>2: call-appr</td>
</tr>
<tr>
<td>3: ec500</td>
</tr>
<tr>
<td>4: auto-cback</td>
</tr>
<tr>
<td>5:</td>
</tr>
<tr>
<td>6: call-park</td>
</tr>
<tr>
<td>7: call-fwd Ext:</td>
</tr>
<tr>
<td>8: cfwd-beyda Ext:</td>
</tr>
</tbody>
</table>
```

Figure 22.  Avaya Station 4151 configuration (5 of 5)

```
<table>
<thead>
<tr>
<th>Softkey Button Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: directory</td>
</tr>
<tr>
<td>2: drop</td>
</tr>
<tr>
<td>3: int-aut-an</td>
</tr>
<tr>
<td>4: timer</td>
</tr>
<tr>
<td>5: priority</td>
</tr>
<tr>
<td>6: auto-cback</td>
</tr>
<tr>
<td>7: abr-prog</td>
</tr>
<tr>
<td>8: abr-spcchar Char: &quot;p&quot;</td>
</tr>
<tr>
<td>9: luc-store</td>
</tr>
<tr>
<td>10: ringer off</td>
</tr>
<tr>
<td>11: bin-view</td>
</tr>
<tr>
<td>12: admin</td>
</tr>
</tbody>
</table>
```
Figure 23.  Call Coverage Path configuration (1 of 1)

```
display coverage path 9

COVERAGE PATH

Coverage Path Number: 9
Cvg Enabled for VDN Route-To Party? n  Hunt after Coverage? n
Next Path Number: Linkage

COVERAGE CRITERIA

Station/Group Status   Inside Call   Outside Call
Active?                y             y
Busy?                  y             y
Don’t Answer?          y             y
All?                   n             n
DND/SAC/Goto Cover?    y             y
Holiday Coverage?      n             n

Number of Rings: 2

COVERAGE POINTS

Terminate to Coverage Pts. with Bridged Appearances? n
Point1:             Point2:             Point3:             Point4:             Point5:             Point6:

Command:

CANCEL       REFRESH       HELP
```

Figure 24.  Hunt Group configuration – Octel 200 Voicemail (1 of 3)

```
display hunt-group 11

HUNT GROUP

Group Number: 11  ACO? n
Group Name: Octel 200  Queue? n
Group Extension: 4181  Vector? n
Group Type: ucd-mia
Coverage Path:
TN: 1  Night Service Destination:
COR: 1  VM Early Answer? n
Security Code:  Local Agent Preference? n
ISDN/SIP Caller Display: grp-name

Command:

CANCEL       REFRESH       HELP
```

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Figure 25. Hunt Group configuration – Octel 200 Voicemail (2 of 3)

<table>
<thead>
<tr>
<th>Display hunt-group 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUNT GROUP</td>
</tr>
<tr>
<td>LHC Reception: none</td>
</tr>
<tr>
<td>AUDIX Name:</td>
</tr>
<tr>
<td>Message Center: qsig-mui</td>
</tr>
<tr>
<td>Send Reroute Request: y</td>
</tr>
<tr>
<td>Voice Mail Number: 2139850</td>
</tr>
<tr>
<td>Routing Digits (e.g. AAR/ANS Access Code): 809</td>
</tr>
<tr>
<td>Provide Ringback? n</td>
</tr>
<tr>
<td>TSC per MMI Interrogation? n</td>
</tr>
</tbody>
</table>

**Note:** This hunt group is used by Avaya PBX1 stations’ Call Coverage Path as its Call Coverage Point. In this example, parameter “Routing Digits” contains the AAR feature access code, while parameter “Voice Mail Number” contains the AAR code pointing to the Route Pattern containing the E1 QSIG trunk group connecting the PBX to the Octel 200 voicemail system plus the voicemail destination number.
**Figure 26.** Hunt Group configuration – Octel 200 Voicemail (3 of 3)

![Hunt Group Configuration](image)

<table>
<thead>
<tr>
<th>Ext</th>
<th>Name (19 characters)</th>
<th>Ext</th>
<th>Name (19 characters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>26</td>
<td></td>
</tr>
</tbody>
</table>

At End of Member List
Avaya S8500 Communications Manager 5.2.1: PBX 2 configuration

Figure 27. System Software Version

```
<table>
<thead>
<tr>
<th>Command successfully completed</th>
</tr>
</thead>
</table>

Command: 

<table>
<thead>
<tr>
<th>CANCEL</th>
<th>HELP</th>
</tr>
</thead>
</table>
```

List configuration software-versions

SOFTWARE VERSION
- Memory Resident: R015x.02.1.016.4
- Disk Resident: R015x.02.1.016.4

TRANSLATION DATE
- Memory Resident: 10:00 pm  THU SEP 29. 2011
- Disk Resident: 10:00 pm  THU SEP 29. 2011
- Disk Second Copy: good

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Figure 28.  System Parameters – Customer Options, QSIG Optional Features

display system-parameters customer-options

**QSIG OPTIONAL FEATURES**

- Basic Call Setup? y
- Basic Supplementary Services? y
- Centralized Attendant? y
- Interworking with DCS? y
- Supplementary Services with Routing? y
- Transfer into QSIG Voice Mail? y
- Value-Added (VALU)? y

*(NOTE: You must logoff & login to effect the permission changes.)*

Figure 29.  PBX Circuit Packs listing – Carrier 1A (1 of 2)
**Figure 30.** PBX Circuit Packs listing – Carrier 1A (2 of 2)

<table>
<thead>
<tr>
<th>Board Number</th>
<th>Board Type</th>
<th>Code</th>
<th>Vintage</th>
<th>Assigned Ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>01A11</td>
<td>DSI INTERFACE</td>
<td>TN464F</td>
<td>000021</td>
<td>01 02 03 04 05 06 07 08 u u u u u u u</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24</td>
</tr>
<tr>
<td>01A12</td>
<td>MAINTENANCE/TEST</td>
<td>TN771DP</td>
<td>HW03 FW019</td>
<td>01 02 03 04 05 06 07 08 u u u u u u u u</td>
</tr>
<tr>
<td>01A13</td>
<td>DSI INTERFACE</td>
<td>TN464F</td>
<td>000018</td>
<td>u u u u u u u u</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24</td>
</tr>
<tr>
<td>01A14</td>
<td>DSI INTERFACE</td>
<td>TN464P</td>
<td>HW06 FW019</td>
<td>01 02 03 04 05 06 07 08 u u u u u u u u</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>u u u u u u u u</td>
</tr>
</tbody>
</table>

Command successfully completed
Command:

CANCEL REFRESH HELP GO TO NEXT PREV PAGE

**Figure 31.** Uniform Dial Plan Table configuration (1 of 1)

<table>
<thead>
<tr>
<th>Matching Pattern</th>
<th>Len</th>
<th>Del</th>
<th>Insert Digits</th>
<th>Net Conv Num</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>4</td>
<td>0</td>
<td>206</td>
<td>aar n</td>
</tr>
<tr>
<td>4114</td>
<td>4</td>
<td>0</td>
<td>213</td>
<td>aar n</td>
</tr>
<tr>
<td>4116</td>
<td>4</td>
<td>0</td>
<td>214</td>
<td>aar n</td>
</tr>
<tr>
<td>4123</td>
<td>4</td>
<td>0</td>
<td>206</td>
<td>aar n</td>
</tr>
<tr>
<td>4124</td>
<td>4</td>
<td>0</td>
<td>206</td>
<td>aar n</td>
</tr>
<tr>
<td>4131</td>
<td>4</td>
<td>0</td>
<td>201</td>
<td>aar n</td>
</tr>
<tr>
<td>4132</td>
<td>4</td>
<td>0</td>
<td>213</td>
<td>aar n</td>
</tr>
<tr>
<td>4149</td>
<td>4</td>
<td>0</td>
<td>217</td>
<td>aar n</td>
</tr>
<tr>
<td>4156</td>
<td>4</td>
<td>0</td>
<td>206</td>
<td>aar n</td>
</tr>
<tr>
<td>4151</td>
<td>4</td>
<td>0</td>
<td>206</td>
<td>aar n</td>
</tr>
<tr>
<td>4152</td>
<td>4</td>
<td>0</td>
<td>206</td>
<td>aar n</td>
</tr>
<tr>
<td>4153</td>
<td>4</td>
<td>0</td>
<td>214</td>
<td>aar n</td>
</tr>
<tr>
<td>4154</td>
<td>4</td>
<td>0</td>
<td>201</td>
<td>aar n</td>
</tr>
<tr>
<td>4155</td>
<td>4</td>
<td>0</td>
<td>201</td>
<td>aar n</td>
</tr>
<tr>
<td>4156</td>
<td>4</td>
<td>0</td>
<td>201</td>
<td>aar n</td>
</tr>
<tr>
<td>4158</td>
<td>4</td>
<td>0</td>
<td>214</td>
<td>aar n</td>
</tr>
</tbody>
</table>
### Figure 32. AAR Analysis Table configuration (1 of 2)

```plaintext
<table>
<thead>
<tr>
<th>Dialed String</th>
<th>Total Min</th>
<th>Total Max</th>
<th>Route Pattern</th>
<th>Call Type</th>
<th>Node Num</th>
<th>ANI Req</th>
</tr>
</thead>
<tbody>
<tr>
<td>206</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>207</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>208</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>209</td>
<td>7</td>
<td>7</td>
<td>9</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>210</td>
<td>7</td>
<td>7</td>
<td>10</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>211</td>
<td>7</td>
<td>7</td>
<td>11</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>212</td>
<td>7</td>
<td>7</td>
<td>10</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>213</td>
<td>7</td>
<td>7</td>
<td>13</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>214</td>
<td>7</td>
<td>7</td>
<td>14</td>
<td>aar</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>215</td>
<td>7</td>
<td>7</td>
<td>15</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>216</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>217</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>218</td>
<td>7</td>
<td>7</td>
<td>115</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>224</td>
<td>7</td>
<td>7</td>
<td>224</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>208</td>
<td>7</td>
<td>7</td>
<td>88</td>
<td>aar</td>
<td>n</td>
<td></td>
</tr>
</tbody>
</table>
```

### Figure 33. AAR Analysis Table configuration (2 of 2)

```plaintext
<table>
<thead>
<tr>
<th>Matching Pattern</th>
<th>Len Del</th>
<th>Insert Digits</th>
<th>Hot Conv Num</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>508</td>
<td>4</td>
<td>0</td>
<td>286</td>
<td>aar</td>
</tr>
<tr>
<td>509</td>
<td>4</td>
<td>0</td>
<td>286</td>
<td>aar</td>
</tr>
<tr>
<td>5090</td>
<td>4</td>
<td>0</td>
<td>286</td>
<td>aar</td>
</tr>
<tr>
<td>5100</td>
<td>4</td>
<td>0</td>
<td>281</td>
<td>aar</td>
</tr>
<tr>
<td>52</td>
<td>4</td>
<td>0</td>
<td>287</td>
<td>aar</td>
</tr>
<tr>
<td>59</td>
<td>4</td>
<td>0</td>
<td>286</td>
<td>aar</td>
</tr>
<tr>
<td>80</td>
<td>4</td>
<td>0</td>
<td>214</td>
<td>aar</td>
</tr>
<tr>
<td>810</td>
<td>4</td>
<td>0</td>
<td>214</td>
<td>aar</td>
</tr>
<tr>
<td>82</td>
<td>4</td>
<td>0</td>
<td>268</td>
<td>aar</td>
</tr>
<tr>
<td>67</td>
<td>4</td>
<td>0</td>
<td>204</td>
<td>aar</td>
</tr>
<tr>
<td>70</td>
<td>4</td>
<td>0</td>
<td>214</td>
<td>aar</td>
</tr>
<tr>
<td>72</td>
<td>4</td>
<td>0</td>
<td>214</td>
<td>aar</td>
</tr>
</tbody>
</table>
```

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Figure 34. Route Pattern (6) configuration (1 of 1)

![Route Pattern Configuration](image)

Figure 35. Signaling Group (6) configuration (1 of 1)

![Signaling Group Configuration](image)
Figure 36. DS1 Circuit Pack configuration (1 of 1)

Figure 37. Trunk Group (6) configuration (1 of 6)
Figure 38.  Trunk Group (6) configuration (2 of 6)

```
display trunk-group 6
Group type: isdn

TRUNK PARAMETERS
  Codec to Send Display: 0
  Codec to Send National IEs: 8
  Max Message Size to Send: 260
  Charge Advice: none
  Supplementary Service Protocol: b
  Digit Handling (in/out): embloc/embloc
  Trunk Hunt: descand
  Digital Loss Group: 13
  Incoming Calling Number - Delete: n
  Bit Rate: 1200
  Insert: Format: unk-unk
  Synchronization: async
  Duplex: full
  Disconnect Supervision - In? y
  Out? y
  Answer Supervision Timeout: 0
  Administer Timers? n
  CONNECT Reliable When Call Leaves ISDN? n
```

Figure 39.  Trunk Group (6) configuration (3 of 6)

```
display trunk-group 6

TRUNK FEATURES
  ACA Assignment? n
  Measured: none
  Wideband Support? n
  Internal Alert? y
  Maintenance Tests? y
  Data Restriction? n
  NCA-TSC Trunk Number: 10
  Send Name: y
  Send Calling Number: y
  Hop Dgt? y
  Send EMU Visitor CPN? n
  Used for DCs? n
  Suppress # Outpulsing? n
  Format: unknown
  Outgoing Channel ID Encoding: preferred
  UUI IE Treatment: service-provider
    Replace Restricted Numbers? y
    Replace Unavailable Numbers? n
    Send Connected Number? y
    Hold/Unhold Notifications? y
    Modify Tandem Calling Number? y
    Send UUI IE? y
    Send UCID? n
    Send Codec Set 6/7 LRI IE? y
    Del Echo Cancellation? n
    Apply Local Ringback? n
    Show ANSWERED BY on Display? y
    Network (Japan) Needs Connect Before Disconnect? n
```

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Figure 40.  Trunk Group (6) configuration (4 of 6)

Note: to ensure proper call processing by the Cisco Voice Gateways and CUBEs, parameter “QSIG Values-Added” must be set to “n”.

Figure 41.  Trunk Group (6) configuration (5 of 6)
Figure 42.  Trunk Group (6) configuration (6 of 6)

<table>
<thead>
<tr>
<th>Port</th>
<th>Code</th>
<th>Sfx</th>
<th>Name</th>
<th>Night</th>
<th>Sig Grp</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>01A1116</td>
<td>TN6</td>
<td>F</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>17</td>
<td>01A1117</td>
<td>TN6</td>
<td>F</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>18</td>
<td>01A1116</td>
<td>TN6</td>
<td>F</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>19</td>
<td>01A1119</td>
<td>TN6</td>
<td>F</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>20</td>
<td>01A1120</td>
<td>TN6</td>
<td>F</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>21</td>
<td>01A1121</td>
<td>TN6</td>
<td>F</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>22</td>
<td>01A1122</td>
<td>TN6</td>
<td>F</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>23</td>
<td>01A1123</td>
<td>TN6</td>
<td>F</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 43.  Avaya Station 2151 configuration (1 of 5)

<table>
<thead>
<tr>
<th>Extension: 2151</th>
<th>Lock Messages?</th>
<th>n</th>
<th>BCC:</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type: 6000+</td>
<td>Security Code:</td>
<td>TN:</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Port: 01A6481</td>
<td>Coverage Path 1:</td>
<td>4</td>
<td>COR:</td>
<td>1</td>
</tr>
<tr>
<td>Name: S1P2-63</td>
<td>Coverage Path 2:</td>
<td></td>
<td>COS:</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Hunt-to Station:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STATION OPTIONS</th>
<th>Time of Day Lock Table:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss Group: 2</td>
<td>Personalized Ringing Pattern: 1</td>
</tr>
<tr>
<td>Data Module? n</td>
<td>Message Lamp Ext: 2151</td>
</tr>
<tr>
<td>Speakerphone: 2-way</td>
<td>Mute Button Enabled? y</td>
</tr>
<tr>
<td>Display Language: english</td>
<td></td>
</tr>
<tr>
<td>Survivable COR: internal</td>
<td>Media Complex Ext:</td>
</tr>
<tr>
<td>Survivable Trunk Dest? y</td>
<td>IP SoftPhone? n</td>
</tr>
<tr>
<td>Remote Office Phone? n</td>
<td></td>
</tr>
</tbody>
</table>

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### Figure 44. Avaya Station 2151 configuration (2 of 5)

<table>
<thead>
<tr>
<th>Feature Option</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>H.320 Conversion?</td>
<td>n</td>
</tr>
<tr>
<td>Service Link Mode:</td>
<td>as-needed</td>
</tr>
<tr>
<td>Multimedia Mode:</td>
<td>basic</td>
</tr>
<tr>
<td>WKI Served User Type:</td>
<td></td>
</tr>
<tr>
<td>AUDIX Name:</td>
<td></td>
</tr>
<tr>
<td>Auto Select Any Idle Appearance?</td>
<td>n</td>
</tr>
<tr>
<td>Coverage Mag Retrieval?</td>
<td>y</td>
</tr>
<tr>
<td>Auto Answer:</td>
<td>none</td>
</tr>
<tr>
<td>Data Restriction?</td>
<td>n</td>
</tr>
<tr>
<td>Idle Appearance Preference?</td>
<td>n</td>
</tr>
<tr>
<td>Bridged Idle Line Preference?</td>
<td>n</td>
</tr>
<tr>
<td>Restrict Last Appearance?</td>
<td>y</td>
</tr>
<tr>
<td>Active Station Ringing: single</td>
<td></td>
</tr>
<tr>
<td>Per Station CPN - Send Calling Number?</td>
<td></td>
</tr>
<tr>
<td>EC500 State:</td>
<td>disabled</td>
</tr>
<tr>
<td>Audible Message Waiting?</td>
<td>n</td>
</tr>
<tr>
<td>Display Client Reallocation?</td>
<td>n</td>
</tr>
<tr>
<td>Select Last Used Appearance?</td>
<td>n</td>
</tr>
<tr>
<td>Coverage After Forwarding?</td>
<td>n</td>
</tr>
<tr>
<td>Multimedia Early Answer?</td>
<td>n</td>
</tr>
<tr>
<td>Direct IP-IP Audio Connections?</td>
<td>y</td>
</tr>
<tr>
<td>IP Audio Hairpinning?</td>
<td>y</td>
</tr>
<tr>
<td>Emergency Location Ext: 2151</td>
<td></td>
</tr>
</tbody>
</table>

### Figure 45. Avaya Station 2151 configuration (3 of 5)

<table>
<thead>
<tr>
<th>Feature Option</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conf/Trans on Primary Appearance?</td>
<td>n</td>
</tr>
<tr>
<td>Bridged Appearance Origination Restriction?</td>
<td>n</td>
</tr>
</tbody>
</table>

### Enhanced Call Forwarding

- **Forwarded Destination**: 
  - Unconditional For Internal Calls To: 6014, n
  - External Calls To: 6014, n
  - Busy For Internal Calls To: 6014, n
  - External Calls To: 6014, n
  - No Reply For Internal Calls To: 6014, n
  - External Calls To: 6014, n

- **SAC/CF Override**: n
Figure 46. Avaya Station 2151 configuration (4 of 5)

display station 2151

SITE DATA
  Room: Headset? n
  Jack: Speaker? n
  Cable: Mounting: d
  Floor: Cord Length: 0
  Building: Set Color:

ABBREVIATED DIALING
  List1: List2: List3:

BUTTON ASSIGNMENTS
  1: call-appr  5: call-pkup
  2: call-appr  6: call-park
  3: cpn-blk  7: call-fwd Ext:
  4: auto-cbback  8: cfwd-replya Ext:

Figure 47. Avaya Station 2151 configuration (5 of 5)

display station 2151

SOFTKEY BUTTON ASSIGNMENTS
  1: directory
  2: drop
  3: int-aut-an
  4: timer
  5: priority
  6: auto-cbback
  7: conf-dep
  8: abr-spch Char: “p
  9: lwc-store
  10: ringer-off
  11: bin-view
  12: admin
## Figure 48. Call Coverage Path configuration (1 of 1)

```plaintext
display coverage path 4

<table>
<thead>
<tr>
<th>Coverage Path Number: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cvg Enabled for VDN Route-To Party? n</td>
</tr>
<tr>
<td>Hunt after Coverage? n</td>
</tr>
<tr>
<td>Next Path Number:</td>
</tr>
<tr>
<td>Linkage</td>
</tr>
</tbody>
</table>

### COVERAGE CRITERIA

<table>
<thead>
<tr>
<th>Station/Group Status</th>
<th>Inside Call</th>
<th>Outside Call</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active?</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>Busy?</td>
<td>y</td>
<td>y</td>
</tr>
<tr>
<td>Don’t Answer?</td>
<td>y</td>
<td>y</td>
</tr>
<tr>
<td>All?</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>DND/SAC/Goto Cover?</td>
<td>y</td>
<td>y</td>
</tr>
<tr>
<td>Holiday Coverage?</td>
<td>n</td>
<td>n</td>
</tr>
</tbody>
</table>

**Number of Rings: 2**

### COVERAGE POINTS

- Terminate to Coverage Pts. with Bridged Appearances? n
- Point1: h3
- Rng: Point2:
- Point3: Point4:
- Point5: Point6:

Command:

CANCEL [ ] [ ] [ ] HELP [ ] [ ] [ ]

## Figure 49. Hunt Group configuration – Octel 200 Voicemail (1 of 3)

```plaintext
display hunt-group 3

<table>
<thead>
<tr>
<th>Group Number: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACD? n</td>
</tr>
<tr>
<td>Group Name: Octel 200 voicemail</td>
</tr>
<tr>
<td>Queue? n</td>
</tr>
<tr>
<td>Group Extension: 2177</td>
</tr>
<tr>
<td>Vector? n</td>
</tr>
<tr>
<td>Group Type: ucd-mia</td>
</tr>
<tr>
<td>Coverage Path:</td>
</tr>
<tr>
<td>TU: 1</td>
</tr>
<tr>
<td>Night Service Destination:</td>
</tr>
<tr>
<td>COR: 1</td>
</tr>
<tr>
<td>MH Early Answer? n</td>
</tr>
<tr>
<td>Security Code:</td>
</tr>
<tr>
<td>Local Agent Preference? n</td>
</tr>
<tr>
<td>ISDN/SIP Caller Display: grp-name</td>
</tr>
</tbody>
</table>

CANCEL [ ] [ ] [ ] HELP [ ] [ ] [ ]

GO TO PAGE [ ] NEXT PAGE [ ] PREV PAGE [ ]
Note: This hunt group is used by Avaya PBX2 stations’ Call Coverage Path as its Call Coverage Point. In this example, parameter “Routing Digits” contains the AAR feature access code, while parameter “Voice Mail Number” contains the AAR code pointing to the Route Pattern containing the T1 QSIG trunk group connecting the PBX to the Cisco Voice gateway plus the voicemail destination number.
Configuring the IOS Voice Gateways (C2921 IOS Voice Gateways and C3925 CUBEs)

Cisco IOS Voice Gateway #1 Configuration

C2921_Avaya1#show
Cisco IOS Software, C2900 Software (C2900-UNIVERSALK9-M), Version 15.2(1)T1, REL
EASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2011 by Cisco Systems, Inc.
Compiled Mon 19-Sep-11 17:41 by prod_rel_team

ROM: System Bootstrap, Version 15.0(1r)M9, RELEASE SOFTWARE (fc1)

C2921_Avaya1 uptime is 3 days, 16 hours, 10 minutes
System returned to ROM by reload at 23:37:36 UTC Thu Sep 29 2011
System restarted at 23:38:51 UTC Thu Sep 29 2011
System image file is "flash0:c2900-universalk9-mz.SPA.152-1.T1.bin"
Last reload type: Normal Reload
Last reload reason: Reload Command

This product contains cryptographic features and is subject to United
States and local country laws governing import, export, transfer and
use. Delivery of Cisco cryptographic products does not imply
third-party authority to import, export, distribute or use encryption.
Importers, exporters, distributors and users are responsible for
compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are unable
to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:

If you require further assistance please contact us by sending email to export@cisco.com.

Cisco CISCO2921/K9 (revision 1.0) with 1003488K/45056K bytes of memory.
Processor board ID FTX1448AH5P
3 Gigabit Ethernet interfaces
24 Serial interfaces
1 terminal line
2 Channelized T1/PRI ports
DRAM configuration is 64 bits wide with parity enabled.
255K bytes of non-volatile configuration memory.
25464K bytes of ATA System CompactFlash 0 (Read/Write)

License Info:
License UDI:

<table>
<thead>
<tr>
<th>Device#</th>
<th>PID</th>
<th>SN</th>
</tr>
</thead>
<tbody>
<tr>
<td>*0</td>
<td>CISCO2921/K9</td>
<td>FTX1448AH5P</td>
</tr>
</tbody>
</table>

Technology Package License Information for Module:'c2900'

<table>
<thead>
<tr>
<th>Technology</th>
<th>Technology-package</th>
<th>Type</th>
<th>Technology-package Type</th>
<th>Ne xt reboot</th>
</tr>
</thead>
<tbody>
<tr>
<td>ipbase</td>
<td>ipbasek9</td>
<td>Permanent</td>
<td>ipbasek9</td>
<td></td>
</tr>
<tr>
<td>security</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>uc</td>
<td>uck9</td>
<td>Permanent</td>
<td>uck9</td>
<td></td>
</tr>
<tr>
<td>data</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Configuration register is 0x2102

C2921_Avaya1#sho run
Building configuration...
Current configuration : 4496 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname C2921_Avaya1
!
boot-start-marker
boot-end-marker
!
!
!
card type t1 1 1
logging buffered 20000000
enable password cisco
!
no aaa new-model
no network-clock-participate slot 1
no ipv6 cef
!
ip cef
multilink bundle-name authenticated
!
isdh switch-type primary-qsig
!
crypto pki token default removal timeout 0
!
crypto pki trustpoint TP-self-signed-1097888518

enrollment selfsigned
subject-name cn=IOS-Self-Signed-Certificate-1097888518
revocation-check none
rsakeypair TP-self-signed-1097888518
!
crypto pki certificate chain TP-self-signed-1097888518

certificate self-signed 01
3082024F 308201B8 A0030201 02020101 300D0609 2A864886 F70D0101 04050030
31312F30 2D060355 04031326 494F532D 5365C66 2D536967 6E65642D 43657274
69666966 6174652D 31303937 38383835 3138301E 170D3130 31313232 31373334
32365A17 0D323030 31303130 30303030 305A3031 312F302D 06035504 03132649
4F532D53 656C662D 5369676E 65642D43 65727465 6D666966 74657374 38383531 38383835 300D0609 2A864886 F70D0101 01000003 81BD0300 81BD0281
8100ACC4 B5674390 26455079 BBD2FDE3 41F865CE C89793A9 AA6307C D243042D
1C6C3F4F 414B013C C98AEC93 E60078F4 CO270619 C59F1B69 94F4C0F2 D90CDE13
DD5D7629 9E6410BD 96ACD11B D6CE7075 35517CA2 5DCBFDF3 A4FB14E7 46873EEF
7B528C 4A538DE2 81ADBD4E 235DCC7 A985D8B3 71F5F421 89814698 256FF63A
F5E0203 010001A3 77307350 0F060355 1D130101 FF040530 030101FF 30220603
551D1104 1B3019B2 17796F75 726E616D 652E796F 7572646F 6D61696E 2E636F6D
301F0603 551D2304 18301680 14E18DEA 280FD862 096E9F24 EE35537F B7B0CD50
6D301D06 03551DOE 04160A44 E18DEA28 0FD86209 6E9F24EE 35537FB7 B0CD506D
300D0609 2A864886 F70D0101 04050030 81610006 21D2154C F63F9252 BC75B8B
23D3AC75 1432222C A4015C51 35A3FE93 248108D4 96E70DB4 E81C780E 39FAF343
41BA6187 D2838CE8 2E630172 722C28CD 5229D2FA 21E8C204 CFE8B77 CE5F9857
16C42E6E 0FC73E9E DACE1AO4 9462F1B4 661A18A 846B8172 8521684F 025D5743
383AC40E 1DA0FB60 0A28D4A1 FF4DA0CD 520047
quit
voice-card 0
!
voice-card 1
!
!
voice service voip
allow-connections sip to sip
signaling forward rawmsg

tip
asserted-id pai
privacy-policy passthru
!
license udi pid CISCO2921/K9 sn FTX1448AH5P

hw-module pvdm 0/0

1 Use this command to enable tunneling of QSIG messages over SIP (application-qsig).
! hw-module sm 1
!
!
username administrator privilege 15 password 0 cisco
!
redundancy
!
controller T1 1/0
   pri-group timeslots 1-24
!
controller T1 1/1
!
interface Embedded-Service-Engine0/0
   no ip address
   shutdown
!
interface GigabitEthernet0/0
   description $ETH-LAN$$ETH-SW-LAUNCH$$INTF-INFO-GE 0/0$
   ip address 172.20.236.190 255.255.255.0
   duplex full
   speed 100
!
interface GigabitEthernet0/1
   no ip address
   shutdown
duplex auto
速度 auto
!
interface GigabitEthernet0/2
   no ip address
   shutdown
duplex auto
速度 auto
!
interface Serial1/0:23
   description T1 ISDN PRI QSIG trunk to Avaya1
   no ip address
   encapsulation hdlc
   isdn switch-type primary-qsig
   isdn incoming-voice voice
   isdn global-disconnect
   no cdp enable
!
ip forward-protocol nd
!
ip http server
ip http access-class 23
ip http authentication local
ip http secure-server
ip http timeout-policy idle 60 life 86400 requests 10000
!

^2 Use this command to allow passage of "release" and "release complete" messages end-to-end across the network
ip route 0.0.0.0 0.0.0.0 172.20.236.1
!
control-plane
!
!
voice-port 1/0:23
!
!
!
mgcp profile default
!
!
dial-peer voice 2000 voip
   description Outbound to Avaya2 via C3925_CUBE1
   destination-pattern 2...
   session protocol sipv2
   session target ipv4:172.20.236.191
   session transport tcp
!
dial-peer voice 4000 pots
   description Inbound to Avaya1
   destination-pattern 4...
   direct-inward-dial
   port 1/0:23
   forward-digits all
!
dial-peer voice 5050 pots
   description To Octel200 voicemail on Avaya1
   destination-pattern 5050
   direct-inward-dial
   port 1/0:23
   forward-digits all
!
!
!
!
!
!
gatekeeper
   shutdown
!
!
!
!
!
!
!
!
!
!
line con 0
   login local
line aux 0
line 2
   no activation-character
   no exec
   transport preferred none
   transport input all
   transport output pad telnet rlogin lapb-ta mop udptn v120 ssh
   stopbits 1
   line vty 0 4
   access-class 23 in
   privilege level 15
   login local

3 Use this command to enable TCP as the session transport method for SIP packets
transport input telnet ssh
line vty 5 15
access-class 23 in
privilege level 15
login local
transport input telnet ssh
!
scheduler allocate 20000 1000
end

Cisco IOS Voice Gateway # 2 configuration
C2921_Avaya2#show ver
Cisco IOS Software, C2900 Software (C2900-UNIVERSALK9-M), Version 15.2(1)T1, REL
EASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (C) 1986-2011 by Cisco Systems, Inc.
Compiled Mon 19-Sep-11 17:41 by prod_rel_team

ROM: System Bootstrap, Version 15.0(1r)M9, RELEASE SOFTWARE (fc1)

C2921_Avaya2 uptime is 3 days, 16 hours, 12 minutes
System returned to ROM by reload at 23:35:51 UTC Thu Sep 29 2011
System restarted at 23:37:07 UTC Thu Sep 29 2011
System image file is "flash0:c2900-universalk9-mz.SPA.152-1.T1.bin"
Last reload type: Normal Reload
Last reload reason: Reload Command

This product contains cryptographic features and is subject to United
States and local country laws governing import, export, transfer and
use. Delivery of Cisco cryptographic products does not imply
third-party authority to import, export, distribute or use encryption.
Importers, exporters, distributors and users are responsible for
compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are unable
to comply with U.S. and local laws, return this product immediately.

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If you require further assistance please contact us by sending email to
export@cisco.com.

Cisco CISCO2921/K9 (revision 1.0) with 1003488K/45056K bytes of memory.
Processor board ID FTX1448AH5M
3 Gigabit Ethernet interfaces
24 Serial interfaces
1 terminal line
2 Channelized T1/PRI ports
DRAM configuration is 64 bits wide with parity enabled.
255K bytes of non-volatile configuration memory.
254464K bytes of ATA System CompactFlash 0 (Read/Write)

License Info:
License UDI:

-------------------------------------------------
Device# PID SN
*0 CISCO2921/K9 FTX1448AH5M

Technology Package License Information for Module:'c2900'

--------------------------------------------------- ---------------
Technology Technology-package Type Next reboot
--------------------------------------------------- ---------------
ipbase ipbasek9 Permanent ipbasek9
security None None None
uc uc99 Permanent uc99
data None None None
--------------------------------------------------- ---------------

Configuration register is 0x2102

C2921_Avaya2#sho run
Building configuration...

Current configuration : 4511 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname C2921_Avaya2
!
boot-start-marker
boot-end-marker
!
!
card type t1 1 1
logging buffered 51200 warnings
enable password cisco
!
no aaa new-model
no network-clock-participate slot 1
!
no ipv6 cef
!
!
ip cef
multilink bundle-name authenticated
!
isdh switch-type primary-qsig
!
crypto pki token default removal timeout 0
!
crypto pki trustpoint TP-self-signed-2316612909
enrollment selfsigned
subject-name cn=IOS-Self-Signed-Certificate-2316612909
revocation-check none
rsakeypair TP-self-signed-2316612909
!
!
crypto pki certificate chain TP-self-signed-2316612909
certificate self-signed 01
3082024F 308201B8 A0030201 02020101 300D0609 2A864886 F70D0101 04050030
31312F30 2D060355 04031326 494F532D 53656C66 2D536967 6E65642D 43657274
6966696E 6F2D656E 642D30 300D3133 36333329 30393901 170D3130 31333232 31373332
35325A17 0D323030 31303130 30303030 305A3031 312F302D 60355004 03132649
4F532D53 656C662D 5369676E 65642D43 65727469 66696631 74652D32 33333636
31323930 3930819F 300D0609 2A864886 F70D0101 01050003 818D0030 81890281
8100ACFE 8B36E006 D9B9D30F 68A190AB 7CC4E7DC 20BEF934 7CB05264 011558BB
F095B881 4BBEEF397 92279269 AB81E74B 8F97A1F1 8879FC74 1B4BA1F2 6A4A79F6
A49BF874 EF3B6462 82FFCA7C 8276462C 6AC0EBC8 39E7A8E4 0BE8468C 0BBFEFE0
4759350F 7512E08A F2D6F314 DE9554E8 5C3CE0C2E 89D96340 0A3A5E97 B271C535
AA4A9020 3010001A 3 77307530 0F060355 1D130101 FF040530 030100FF 30220603
5511D104 1B301982 17796F75 726E16DF 652E796F 7572646F 6D61696E 2E636F6D
301F0603 551D2304 18301680 14BF5294 D52614D2 813E352F C0538564 62D7472C
2C301D06 03551D0E 04160414 BF5294D5 2614D281 3E352FC0 53856462 D7472C2C
300D0609 2A864886 F70D0101 04050003 81800004 EE45A60C 69271AB4 EC64074F
5E34A235 7C75287F 0957DF2F EFC0759D 113CC6D1 F9253F99 311FE201 3CC8FE09
7DA0252D 4508AD8 2E826BC1 B050C0FBE F81AF3C4 84FBBBD31 2B210FAB 3BF0E6A2
62244229 CA93205A C15A36FF 9365C5AC C3263925 35B79F62 961FF28C B6DCC0AE
40F5A4B5 617BEDA7 A71608AF 1E74ED67 7639DE
quit
voice-card 0
!
voice-card 1
!
!
voice service voip
allow-connections sip to sip
signaling forward rawmsg
sip
asserted-id pai
privacy-policy passthru
!
!
license udi pid CISCO2921/K9 sn FTX1448AH5M
hw-module pvdm 0/0
!
hw-module sm 1
!
!
username administrator privilege 15 password 0 cisco
!
redundancy
!
!
controller T1 1/0
pri-group timeslots 1-24
!
controller T1 1/1
!
!
interface Embedded-Service-Engine0/0
  no ip address
  shutdown
!
interface GigabitEthernet0/0
  description $ETH-LAN$$ETH-SW-LAUNCH$$INTF-INFO-GE 0/0$
  ip address 172.20.32.190 255.255.255.0
  duplex full
  speed 100
!
interface GigabitEthernet0/1
  no ip address
  shutdown
duplex auto
  speed auto
!
interface GigabitEthernet0/2
  no ip address
  shutdown
duplex auto
  speed auto
!
interface Serial1/0:23
  description T1 ISDN PRI QSIG trunk to Avaya2
  no ip address
  encapsulation hdlc
  isdn switch-type primary-qsig
  isdn incoming-voice voice
  isdn global-disconnect
  no cdp enable
!
  ip forward-protocol nd
!
  ip http server
  ip http access-class 23
  ip http authentication local
  ip http secure-server
  ip http timeout-policy idle 60 life 86400 requests 10000
!
  ip route 0.0.0.0 0.0.0.0 172.20.32.1
!
!
control-plane
!
!
voice-port 1/0:23
!
!
mgcp profile default
!
!
dial-peer voice 4000 voip
description Outbound to Avaya1 via C3925_CUBE2
destination-pattern 4...
session protocol sipv2
session target ipv4:172.20.32.191
session transport tcp
!
dial-peer voice 2000 pots
description Inbound to Avaya2
destination-pattern 2...
direct-inward-dial
port 1/0:23
forward-digits all
!
dial-peer voice 5050 voip
description To Octel200 on Avaya1 via C3925_CUBE2
destination-pattern 5050
session protocol sipv2
session target ipv4:172.20.32.191
session transport tcp
!
!
!
gatekeeper
shutdown
!
!
!
line con 0
login local
line aux 0
line 2
no activation-character
no exec
transport preferred none
transport input all
transport output pad telnet rlogin lapb-ta mop udptn v120 ssh
stopbits 1
line vty 0 4
access-class 23 in
privilege level 15
login local
transport input telnet ssh
line vty 5 15
access-class 23 in
privilege level 15
login local
transport input telnet ssh
!
scheduler allocate 20000 1000
end

Cisco Unified Border Element (CUBE) #1 configuration
C3925_CUBE1#sho ver
Cisco IOS Software, C3900 Software (C3900-UNIVERSALK9-M), Version 15.2(1)T1, REL
EASE SOFTWARE (fc1)
This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

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If you require further assistance please contact us by sending email to export@cisco.com.

Cisco CISCO3925-CHASSIS (revision 1.0) with C3900-SPE100/K9 with 997376K/51200K bytes of memory.
Processor board ID FTX1447AJGY
3 Gigabit Ethernet interfaces
1 terminal line
2 Channelized (E1 or T1)/PRI ports
DRAM configuration is 72 bits wide with parity enabled.
255K bytes of non-volatile configuration memory.
254464K bytes of ATA System CompactFlash 0 (Read/Write)

License Info:

License UDI:

--------------------------------------------
Device# PID SN
--------------------------------------------
*0 C3900-SPE100/K9 FOC14443V1A

Technology Package License Information for Module:'c3900'

--------------------------------------------
Technology Technology-package Technology-package
Current Type Next reboot
--------------------------------------------
||ipbase| ipbasek9| Permanent| ipbasek9|
|---|---|---|---|
|security| None| None| None|
|uc| uck9| Permanent| uck9|
|data| None| None| None|

Configuration register is 0x2102

C3925_CUBE1#sho run
Building configuration...

Current configuration : 4375 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname C3925_CUBE1
!
boot-start-marker
boot-end-marker
!
logging buffered 20000000
enable secret 5 $1$MEvt$s1Nq55IzdhqV5ghGsxawQ/!
no aaa new-model
no network-clock-participate slot 1
!
no ipv6 cef
!
!
!
!
!
ip cef
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
crypto pki token default removal timeout 0
!
crypto pki trustpoint TP-self-signed-3229708257
enrollment selfsigned
subject-name cn=IOS-Self-Signed-Certificate-3229708257
revocation-check none
rsakeypair TP-self-signed-3229708257
!
!
crypto pki certificate chain TP-self-signed-3229708257
certificate self-signed 01
3082022B 30820194 A0030201 02020101 300D0609 2A864886 F70D0101 05050030
31312F30 2D060355 04031326 494F532D 53656C66 2D536976 6E65642D 43657274
69666966 6174652D 33323239 37303832 3537301E 170D3131 30393239 32303537
35305A17 0D323030 31303130 30303030 305A3031 312F 302D 06035504 03132649
4F532D53 656C662D 696C696E672D 436F6D657373696F6E2D 3332393730819F 300D0609 2A864886 F70D0101 05050003 818D0030 81890281 81B38189B3 B79DE767 39E79746 93A30AAB 18911E9A 368D7E3E 38569B0A 35A0B2CB 36CA5A0B 77DC24E3 4EA98EAC B4310766 6E4BAD32 FD33366A 06918AC7 96337D7E FC7C6914 54DF5C93 D1268577 EF30D55A 3B51D72A 63C7A2F5 C22091F0 5A6ACF32 4D200A4D 875B06C7 7C5526DA 6F6EEFDE 23733465 7674A74C B9D5BBA4 4451F3E3 8CA30A203 010001A3 53305130 0F060355 1D130101 FF04 0530 030101FF 301F0603 551D2304 18301680 14A1EE82 A103D63B 9CD1A173 949E32E1 6FDB02DA 56301D06 03551D0E 04160414 A1EE82A1 03D63B9C D1A17394 9E32E16F DB02DA56 30D0609 2A864886 F70D0101 05050003 81810045 EA640281 78810595 5B7CC98C 4B4D3769 A9E13C8C 23A9DB7E FD5CD162 971D326C 5D1F7BAA 2702BF26 D31B0FF1 6BBA83D3 88ED5924 C911F95B D31072E2 8837104A 16B60A48 913F024B 9D6F93E8 DBE6092D 5984D802 7BEC7224 1BEECD82 625026FB FD6E6028 62CF36BD 5D9677F9 E93298B5 FD5B3EDC F146603D 7887EEA5 0CF660 quit voice-card 0 ! voice-card 1 ! ! ! ! voice service voip ip address trusted list ipv4 172.20.236.190 ipv4 172.32.191 mode border-element allow-connections sip to sip signaling forward rawmsg sip asserted-id pai privacy-policy passhtru session transport tcp4 ! ! license udi pid C3900-SPE100/K9 sn FOC14443V1A hw-module pvdm 0/0 ! hw-module sm 1 ! ! ! ! username administrator privilege 15 secret 5 $1$wjmW$zHOjjq3ikNj5YrHgLFBs0 ! redundancy ! ! ! ! interface Embedded-Service-Engine0/0 no ip address shutdown

4 Use this command to enable TCP as the session transport method for SIP packets. Alternatively, this command can be applied to each VOIP dial-peer, as required.
interface GigabitEthernet0/0
description $ETH-LAN$$ETH-SW-LAUNCH$$INTF-INFO-GE 0/0$
ip address 172.20.236.191 255.255.255.0
duplex full
speed 100
!
interface GigabitEthernet0/1
no ip address
shutdown
duplex auto
speed auto
!
interface GigabitEthernet0/2
no ip address
shutdown
duplex auto
speed auto
!
ip forward-protocol nd
!
ip http server
ip http access-class 23
ip http authentication local
ip http secure-server
ip http timeout-policy idle 60 life 86400 requests 10000
!
ip route 0.0.0.0 0.0.0.0 172.20.236.1
!
!
nls resp-timeout 1
cpd cr-id 1
!
control-plane
!

mgcp profile default
!
!
dial-peer voice 4000 voip
description To Avaya1 via C2921_Avaya1
destination-pattern 4...
session protocol sipv2
session target ipv4:172.20.236.190
incoming called-number 4...
!
dial-peer voice 2000 voip
description To Avaya2 via C3925_CUBE2
destination-pattern 2...
session protocol sipv2
session target ipv4:172.20.32.191
incoming called-number 2...
!
dial-peer voice 5050 voip
description To Octel200 on Avaya1 via C2921_Avaya1
destination-pattern 5050
session protocol sipv2
session target ipv4:172.20.236.190
incoming called-number 5050
!
!
!
gatekeeper
shutdown
!
!
!
line con 0
 login local
line aux 0
line 2
 no activation-character
no exec
transport preferred none
transport input all
transport output pad telnet rlogin lapb-ta mop udptn v120 ssh
stopbits 1
line vty 0 4
 access-class 23 in
privilege level 15
 login local
transport input telnet ssh
line vty 5 15
 access-class 23 in
privilege level 15
 login local
transport input telnet ssh
!
scheduler allocate 20000 1000
end

Cisco Unified Border Element (CUBE) #2 configuration
C3925_CUBE2#sho ver
Cisco IOS Software, C3900 Software (C3900-UNIVERSALK9-M), Version 15.2(1)T1, REL
EASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2011 by Cisco Systems, Inc.
Compiled Mon 19-Sep-11 20:16 by prod_rel_team

ROM: System Bootstrap, Version 15.0(1r)M8, RELEASE SOFTWARE (fc1)

C3925_CUBE2 uptime is 3 days, 16 hours, 15 minutes
System returned to ROM by reload at 23:38:02 UTC Thu Sep 29 2011
System restarted at 23:39:33 UTC Thu Sep 29 2011
System image file is "flash0:c3900-universalk9-mz.SPA.152-1.1.T1.bin"
Last reload type: Normal Reload
Last reload reason: Reload Command

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This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at: http://www.cisco.com/wl/export/crypto/tool/stqrg.html

If you require further assistance please contact us by sending email to export@cisco.com.

Cisco CISCO3925-CHASSIS (revision 1.0) with C3900-SPE100/K9 with 997376K/51200K bytes of memory.
Processor board ID FTX1447AJFW
3 Gigabit Ethernet interfaces
1 terminal line
2 Channelized (E1 or T1)/PRI ports
DRAM configuration is 72 bits wide with parity enabled.
255K bytes of non-volatile configuration memory.
254464K bytes of ATA System CompactFlash 0 (Read/Write)

License Info:
License UDI:

<table>
<thead>
<tr>
<th>Device#</th>
<th>PID</th>
<th>SN</th>
</tr>
</thead>
</table>
*0       | C3900-SPE100/K9         | FOC1442464Y|

Technology Package License Information for Module: 'c3900'

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<th>Technology</th>
<th>Technology-package</th>
<th>Current</th>
<th>Type</th>
<th>Technology-package</th>
<th>Next reboot</th>
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<td>Permanent</td>
<td>ipbasek9</td>
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<td>security</td>
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<td>None</td>
<td>None</td>
<td></td>
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<tr>
<td>data</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td></td>
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</table>

Configuration register is 0x2102

C3925_CUBE2#sho run
Building configuration...

Current configuration : 4460 bytes
!
! Last configuration change at 16:36:54 UTC Fri Sep 30 2011 by administrator
! NVRAM config last updated at 16:36:56 UTC Fri Sep 30 2011 by administrator
! NVRAM config last updated at 16:36:56 UTC Fri Sep 30 2011 by administrator
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption

! hostname C3925_CUBE2

! boot-start-marker
boot-end-marker
!
! card type command needed for slot/vwic-slot 1/1
logging buffered 51200 warnings
enable secret 5 $1$.552$TnSrn1qhTtcguaxoXLZfm.
!
no aaa new-model
no network-clock-participate slot 1
!
no ipv6 cef
!
!
ip cef
multilink bundle-name authenticated
!
!
crypto pki token default removal timeout 0
!
crypto pki trustpoint TP-self-signed-807864859
enrollment selfsigned
subject-name cn=IOS-Self-Signed-Certificate-807864859
revocation-check none
rsakeypair TP-self-signed-807864859
!
!
crypto pki certificate chain TP-self-signed-807864859
certificate self-signed 01
30820250 308201B9 A0030201 02020101 300D0609 2A864886 F70D0101 04050030
30312E30 2C060355 04031325 494F532D 53656C66 2D536967 6E656465 46356724
69666966 6174652D 38303738 36343835 90301E17 0D313130 39323932 32353831
385A170D 32303031 30313030 30303030 5A303031 2E302C06 03550403 1325494F
532D5365 6C662D53 69676E65 642D4365 72746966 69636174 652D3830 37383634
38353930 819F300D 06092A86 4886F70D 01010105 0003811D 00308189 02811000
492B55B9 FE3FCE92 64292372 F6AADC52 FE67C61D 04611C38 848F17CE BB77F50
917BA0AE B6FA83BB 5D721580 78DC3C32 B44EC7D3 997BB69E 21AEEF433 FE89D814
SSF95CB6 AE28F0B2 47D1779A 9CFB59D6 83EA228B D0DBBB6F BE914BA2 D2352218
E58647E8 D278C35D 88E570BF EA339617 024BE9EE E124FC91 26488678 8811C657
02030100 01A37A30 7830F0F6 03551D13 0101FF04 05300301 01FF3025 0603551D
11041E30 1C821A33 33933235 5F435542 45322E79 6F757264 6F6D6169 6E2E636F
6D301F60 03551D23 04183016 801499ED 988A12C3 4ADA49DB 816B35CC 239BD6D6E
D869301D 0603551D 0E041604 1499ED98 8A12C34A DA49DB81 6B35CC23 D9BD6E8
69300D00 092A8648 86F70D01 01040500 03818100 435AE843 20CE02C4 A8974A84
56E4BC6A 080B1D3F 47DCE9F5 7ECA2635 2AF8DCA6 A0D0838E B0E2781B C6BCDCB7
11D52723 19FCF4F2 81BE6C88 3CFBB9A6 1FEEDF0D 05489EDC 1B2B14D1 C7ACF8F9
BAA5B9C3 1772EC9C 6C68F050 A0D87EC9 00CC6E3 E06913F F5DD7B0D FEE192DB
A3159B8E 3DE95DE E82AA767 59FBD569 C7141126

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quit
voice-card 0
!
voice-card 1
!
voice service voip
ip address trusted list
ipv4 172.20.236.191
ipv4 172.20.32.190
mode border-element
allow-connections sip to sip
signaling forward rawmsg
  sip
  asserted-id pai
  privacy-policy passthru
  session transport tcp
  !
license udi pid C3900-SPE100/K9 sn FOC1442464Y
hw-module pvdm 0/0
!
hw-module sm 1
!
username administrator privilege 15 secret 5 $1$PuzAVqv1aVtWkGvzKyi2T2SWC30
!
redundancy
!
interface Embedded-Service-Engine0/0
  no ip address
  shutdown
!
interface GigabitEthernet0/0
  description $ETH-LAN$$ETH-SW-LAUNCH$$INTF-INFO-GE 0/0$
  ip address 172.20.32.191 255.255.255.0
  duplex full
  speed 100
!
interface GigabitEthernet0/1
  no ip address
  shutdown
duplex auto
  speed auto
!
interface GigabitEthernet0/2
  no ip address
  shutdown
duplex auto
  speed auto
!
ip forward-protocol nd
!
ip http server
ip http access-class 23
ip http authentication local
ip http secure-server
ip http timeout-policy idle 60 life 86400 requests 10000
!
ip route 0.0.0.0 0.0.0.0 172.20.32.1
!
!
nls resp-timeout 1
cpd cr-id 1
!
control-plane
!
mgcp profile default
!
!
dial-peer voice 2000 voip
description To Avaya2 via C2921_Avaya2
destination-pattern 2...
session protocol sipv2
session target ipv4:172.20.32.190
incoming called-number 2...
!
dial-peer voice 4000 voip
description To Avaya1 via C3925_CUBE1
destination-pattern 4...
session protocol sipv2
session target ipv4:172.20.236.191
incoming called-number 4...
!
dial-peer voice 5050 voip
description To Octel200 on Avaya1 via C3925_CUBE1
destination-pattern 5050
session protocol sipv2
session target ipv4:172.20.236.191
incoming called-number 5050
!
gatekeeper
shutdown
!
line con 0
login local
line aux 0
line 2
no activation-character
no exec
transport preferred none
transport input all
transport output pad telnet rlogin lapb-ta mop udptn v120 ssh
stopbits 1
line vty 0 4
access-class 23 in
privilege level 15
login local
transport input telnet ssh
line vty 5 15
access-class 23 in
privilege level 15
login local
transport input telnet ssh
!
scheduler allocate 20000 1000
### Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definitions</th>
</tr>
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<tbody>
<tr>
<td>Cisco IOS</td>
<td>Cisco Inter-network Operating System</td>
</tr>
<tr>
<td>PSTN</td>
<td>Public switched Telephone Network</td>
</tr>
<tr>
<td>CCBS</td>
<td>Call Completion to Busy Subscriber</td>
</tr>
<tr>
<td>CCNR</td>
<td>Call Completion on No Reply</td>
</tr>
<tr>
<td>CFB</td>
<td>Call Forwarding on Busy</td>
</tr>
<tr>
<td>CFNR</td>
<td>Call Forwarding No Reply</td>
</tr>
<tr>
<td>CFU</td>
<td>Call Forwarding Unconditional</td>
</tr>
<tr>
<td>CLIP</td>
<td>Calling Line (Number) Identification Presentation</td>
</tr>
<tr>
<td>CLIR</td>
<td>Calling Line (Number) Identification Restriction</td>
</tr>
<tr>
<td>CNIP</td>
<td>Calling Name Identification Presentation</td>
</tr>
<tr>
<td>CNIR</td>
<td>Calling Name Identification Restriction</td>
</tr>
<tr>
<td>COLP</td>
<td>Connected Line (Number) Identification Presentation</td>
</tr>
<tr>
<td>CUBE</td>
<td>Cisco Unified Border Element (formerly Multi-Service IP-to-IP gateway, or Session Border Controller)</td>
</tr>
<tr>
<td>PBX</td>
<td>Private Branch Exchange</td>
</tr>
<tr>
<td>RTP</td>
<td>Real-Time Protocol</td>
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<tr>
<td>SIP</td>
<td>Session Initiation Protocol</td>
</tr>
<tr>
<td>ITSP</td>
<td>Internet Telephony Service Provider</td>
</tr>
<tr>
<td>WAN</td>
<td>Wide Area Network</td>
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