



# Application Note for the Nortel SL-100 TIMG Integration

---

- [Introduction, on page 1](#)
- [Network Topology, on page 1](#)
- [Requirements, on page 2](#)
- [Programming Nortel SL-100 Phone System for TIMG Integration, on page 2](#)
- [Configuring the RS-232 Serial Cable, on page 11](#)

## Introduction

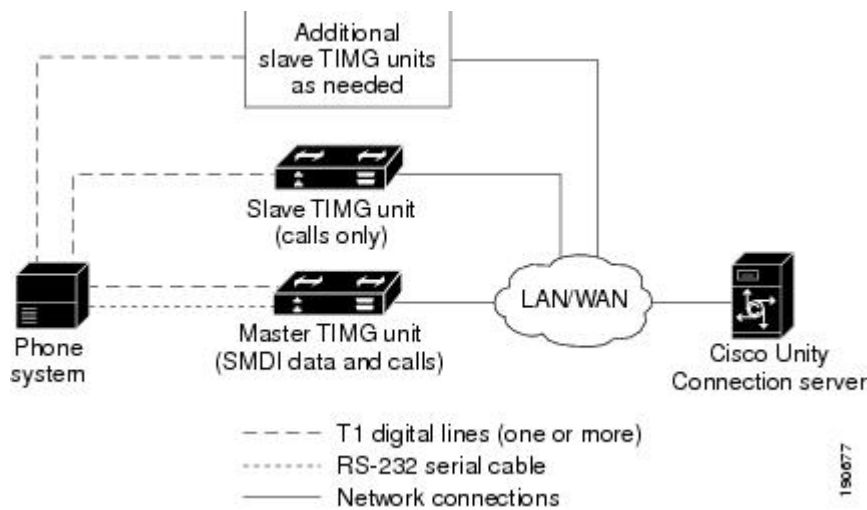
This is an application note for programming the Nortel SL-100 phone system for a serial SMDI integration with Cisco Unity Connection using TIMG units. For instructions on setting up the TIMG units (media gateways) and creating the integration in Unity Connection, see the [Setting Up a Serial \(SMDI, MCI, or MD-110\) TIMG Integration with Cisco Unity Connection](#) chapter.

## Network Topology

[Figure 10-1](#) shows the required connections for a serial SMDI integration using TIMG units.

**Figure 1: Connections for a Serial SMDI TIMG Integration**

For more information about this integration, see the [Integration Description](#) chapter.



## Requirements

The phone system met the following requirements:

- The Nortel SL-100 phone system.
- Software version SE-06 or later.
- Line Side T1 Card (NT5D11 or equivalent) to terminate the T1 line.

## Programming Nortel SL-100 Phone System for TIMG Integration

The following programming instructions are provided as an example. The specific programming for your phone system may vary depending on its configuration.



**Caution** In programming the phone system, do not send calls to voice messaging ports in Unity Connection that cannot answer calls (voice messaging ports that are not set to Answer Calls). For example, if a voice messaging port is set only to Perform Message Notification, do not send calls to it.

### Example of Programming for the Nortel SL-100 Phone System in a TIMG Integration

1. On the MAP terminal, enter **table mpc** and press **Enter**.
2. Enter **add** and press **Enter**.
3. On Table MPC, enter the following settings.

**Table 1: Settings for Table MPC**

Field	Setting
MPCNO	Enter the MPC number used for SMDI.
MPCIOC	Enter the number associated with the MPC (SMDI) card.
IOCCCT	Enter the slot position on the IOC shelf multiplied by 4, from 0 to 32.
EQ	Enter the NT product engineering code for the MPC card in the format 1X89zz or FX30zz, where zz are the two letters at the end of the product code.
DLDFILE	In the format MPCAxxyy, enter the name of the 8-character download file for SMDI and MPCA.

1. Enter **table mpclink** and press **Enter**.
2. Enter **add** and press **Enter**.
3. On Table MPCLINK, enter the following settings.

**Table 2: Settings for Table MPCLINK**

Field	Subfield	Setting
LINKKEY	MPCNO	Enter the MPC number used for SMDI (the same number entered in Table MPC).
	LINKNO	Enter the MPC link number for SMDI application with ASYNC protocol.
LINKALM		Enter <b>Y</b> to activate the MPCLINK alarm for system busy (SYSB) MPC links. Enter <b>N</b> if you do not want to activate the MPCLINK alarm for system busy (SYSB) MPC links.  <b>Note</b> If you enter N, the system does not generate MPC908 (MPC link state transition) logs.
PROTOCOL		Enter <b>ASYNC</b> .
LINKNABL		Enter <b>765</b> .
PARM		Enter <b>APLDEFN</b> .
ADEFN		Enter <b>SMDI</b> .
PARM		Enter <b>BAUDRATE</b> .
RATE		Enter <b>B9600</b> .
PARM		Enter <b>PARITY</b> .
PRTY		Enter <b>EVEN</b> .

Field	Subfield	Setting
PARM		<p>The following are among the optional parameters: L1IDLY, L2IDLY, LNKDOWN. If you enter a parameter, you are then prompted to enter a value for it.</p> <p>L1IDLY and L2IDLY timers can be used in offices with heavy SMDI/VMS traffic to shorten the amount of time the MPC can delay sending an MWI to the switch. (The default is 3 seconds.)</p> <p>The LNKDOWN timer adjusts the length of time the switch takes to recognize LINK failure and sets the LINK to SYSB. (The default is 2 seconds.)</p>
CHARBITS		Enter <b>BIT7</b> .

1. Enter **table sllnkdev** and press **Enter**.
2. Enter **add** and press **Enter**.
3. On Table SLLNKDEV, enter the following settings.

**Table 3: Settings for Table SLLNKDEV**

Field	Setting
DEVNAME	Enter a unique device name.
DEVICE	Enter <b>1X89</b> .
MPCNO	Enter the value MPC number that was specified in Table MPC.
LINKNO	Enter the value for the MPC link number that was specified in Table MPCLINK.
XLATION	Enter <b>NONE</b> .
PROTOCOL	Enter <b>NONE</b> .
DIRECTION	Enter <b>INOUTLK</b> .
XFER	Enter <b>SMDIDATA</b> .
OPTION	Enter <b>NUMOFDIGS</b> .
NUMDIGS	<p>The number of digits sent by the phone system to the voice messaging system through the SMDI link.</p> <p><b>Note</b> The entry value selected should match the dialing plan configured on the phone system.</p>
OPTION	Enter <b>CGNADDRDN</b> .
OPTION	Enter <b>\$</b> .

1. Enter **table ofrt** and press **Enter**.

You use Table OFRT to set up a treatment for unanswered calls. The following example shows settings for routing unanswered calls back to the voice messaging system.

1. Enter **add** and press **Enter**.
2. On Table OFRT, enter the following settings.

**Table 4: Settings for Table OFRT**

Field	Setting
RTE	If the record is the first in the route list, enter the route reference number assigned to the route list. Otherwise, leave this field blank.
RTESEL	Enter the route selector.
SNPA	Enter the serving NPA (area code) of the DN.
TYPCALL	Enter the type of call: <ul style="list-style-type: none"> <li>• DD</li> <li>• NP</li> <li>• OA</li> </ul>
ORIGSCRE	Enter <b>LCL</b> (for local) or <b>NLCL</b> (for non-local).
REPLDIGS	Enter up to 11 replace digits.
CANCNORC	Enter <b>Y</b> or <b>N</b> to indicate whether to cancel normal change.
BILLCODE	Enter the billing code. If there is no billing number, enter <b>N</b> .

1. Enter **table digcol** and press **Enter**.

You use Table DIGCOL to set up the action that the line module must take with the first digit that is dialed.

1. Enter **add** and press **Enter**.
2. On Table DIGCOL, enter the following settings.

**Table 5: Settings for Table DIGCOL**

Field	Subfield	Setting
DGKEY	DATNAME	Enter the character assigned to the block of data in Table DIGCOL.
	DIGIT	Enter a numeric value from 0–9, STAR (*), or OCT (#) to specify the digit that is applicable to the record.
DGDATA	DGCOLSEL	Enter <b>COL</b> for the collection of more digits.

Field	Subfield	Setting
COLDATA	TMODE	Enter <b>S</b> for short timing mode.
	NUMDIGS	Number of digits. If the TMODE value is <b>S</b> , specify the number of digits for which short timing is required after the receipt of each digit. The number of digits specified, which does not include the initial digit, must be no greater than three for short timing.

1. Enter **table ucdgroup** and press **Enter**.

You use Table UCDGRP to set up the UCD group.



**Note** The UCD group must have a unique primary DN.

1. Enter **add** and press **Enter**.
2. On Table UCDGRP, enter the following settings.

**Table 6: Settings for Table UCDGRP**

Field	Setting
UCDNAME	This is the name of the UCD group. It can be up to 16 characters in length. The first eight characters must be unique.
ACD	Enter <b>N</b> .
CUSTGRP	Name of the customer group to which the UCD group belongs.
UCDRNGTH	Ringing threshold, in one-second intervals, after which an unanswered call to a UCD agent is forwarded to the route specified in the THROUT field. The range is 0–63.
TABNAME	Enter <b>OFRT</b> .
INDEX	Enter the number assigned to the route list in Table OFRT (1–1023).
TABNAME	Enter <b>OFRT</b> for the table to which translations are routed.
INDEX	Enter the number assigned to the route list in Table OFRT (1–1023).
PRIOPRO	Enter Maximum time, in seconds, a call can wait in a UCD group (0–255).
MAXPOS	Enter the maximum number of UCD agent positions that can be active at one time. This number should be the number of ports on the all TIMG units that are connected to the phone system.
DBG	Delayed billing. Enter <b>Y</b> if billing starts when the call is answered by a UCD agent. Enter <b>N</b> if billing starts when the caller receives a recorded announcement.
DEFPRIO	Enter <b>0</b> .

Field	Setting
RLSCNT	Enter <b>0</b> .
MAXWAIT	Enter the maximum time, in seconds, that a call waits in the incoming call queue before being answered (0–1800).
MAXCQSIZ	Enter the maximum number of calls that can be in the incoming queue waiting for an idle channel (0–511).
OPTION	Enter <b>UCD_SMDI</b> .
SMDI_LINK	Enter the terminal designation defined in Table SLLNKDEV.
SMDI_DESK_NO	Enter the message desk number (1–63). If you have more than one UCD group, one of them must be set to 63. The first UCD group on a data link should be set to 63. The second is set to 62, and so on.  <b>Note</b> If CRR (Call Request Retrieval) is used, all requests are made to the UCD group with SMDI_DSK_NO = 63.

1. Enter **table dnroute** and press **Enter**.

You use Table DNROUTE to set up the UCD group.



**Note** The UCD group must have a unique primary DN.

1. Enter **add** and press **Enter**.
2. On Table DNROUTE, enter the following settings.

**Table 7: Settings for Table DNROUTE**

Field	Subfield	Setting
DNNM	AREACODE	Enter the DN for the UCD group specified as the UCDGRP.
	OFCCODE	<b>Note</b> The UCD DN must be a dialable number from an agent on the phone system so that dialing plans and translation tables do not conflict.
	STNCODE	
DN_SEL		Enter <b>FEAT</b> .
FEATURE		Enter <b>UCD</b> .
UCDGRP		Enter the value for the UCDNAME field that is defined in Table UCDGROUP.
DNTYPE		Enter <b>PRIM</b> .
TOLLPRIO		Enter <b>0</b> .

1. Enter **table lnlv** and press **Enter**.

You use Table LNINV to assign card slots on the line or remote line module.

1. Enter **add** and press **Enter**.
2. On Table LNINV, enter the following settings.

**Table 8: Settings for Table LNINV**

Field	Setting
LEN	Enter the line equipment number of the card slot.
CARDCODE	Enter <b>5d11ae</b> .
PADGRP	Enter the name of the appropriate pad group that appears in the PADDATA table.
STATUS	Enter <b>WORKING</b> .
GND	Enter <b>Y</b> .
BNV	Enter <b>NL</b> .
MNO	Enter <b>Y</b> .
CARDTYPE	Enter <b>NIL</b> .

1. Enter **servord** and press **Enter**.

You can add agents to the UCD group by entering the following inputs at the prompts.

**Table 9: Inputs for Adding Agents to the UCD Group**

Prompt	Input	Description
SO:	NEW	
SONUMBER:	Press <b>Enter</b> .	When to invoke this service. Pressing Enter starts the service at the current date and time.
DN:		The Directory Number of the line. Use ten-digit DNs.
LCC_ACC:	IBN	The line class code of service.
GROUP:		The name of the IBN customer group to which the line belongs. For example, covm.
SUBGRP:		The subgroup number. For example, 0.
NCOS:		The network class of service. For example, 1.
SNPA:		The serving NPA (area code) of the DN.
LEN_OR_LT D:		The line equipment number of the line. For example, 4 0 1 0 (separated by spaces).
OPTION:	COD	The cut-off on disconnect.



Prompt	Input	Description
OPTION:	UCD	Uniform call distribution.
OPTION:	DGT	Digitone.
OPTION:	3WC	Three-way calling.
OPTION:	CXR	Call Transfer.
CXFERTYP:	CTALL	Call Transfer Type. CTALL = transfer all calls.
CXRRCL:	N	Call Transfer Recall.
METHOD:	STD	Method of Call Transfer: Std = Std Call Transfer method.
OPTION:	SMDI	Simplified message desk interface.
LINENO:		The UCD terminal number. This is the line number associated with the SMDI channel. This parameter must be unique for each agent in the associated UCDGRP.
UCDGRP:		The UCDNAME from the UCDGRP table. This is the UCD group to which you are adding the agent.
AUTO_LOG:	Y	Autologon capability required.
OPTION:	\$	The data you have entered appears.
	Y	Enter <b>Y</b> .

**1. Enter `servord` and press `Enter`.**

You can add a pilot number (UCD group DN) for the ports on the TIMG units by entering the following inputs at the prompts.

**Table 10: Inputs for Adding Agents to the UCD Group**

Prompt	Input	Description
SO:	NEW	
SONUMBER:	Press <b>Enter</b> .	When to invoke this service. Pressing Enter starts the service at the current date and time.
DN:		The directory number of the line. This is the DN that you enter in the SDN table.
LCC:	IBN	The line class code of service.
GROUP:		The name of the IBN customer group to which the line belongs.
SUBGRP:		The subgroup number.
NCOS:		The network class of service.

Prompt	Input	Description
SNPA:		Serving NPA (area code) of the DN.
LEN:		Line equipment number of the line. For example, 4 0 1 0.
OPTION:	cfb	Call Forward Busy. <b>Note</b> This input is optional.
CFBCNTL:	N	Normal assignment for CFB. <b>Note</b> This input is optional.
CFBDN:		The primary UCD DN. <b>Note</b> This input is optional.
OPTION:	CFF	Call Forward Fixed.
CFFDN:		The Primary UCD DN.
OPTION:	CFU	Call Forward Universal.
OVRDACR:	N	Override Automatic Callback.
OPTION:	\$	The data you entered appears.
	Y	Enter <b>Y</b> to confirm the data.

1. Connect a phone to the line.
2. Pick up the handset.
3. Dial the call forward activation code followed by the pilot number (UCD DN). For example, dial \*80 5551234.




---

**Note** If you do not know this code, look it up in Table IBNXLA. The code is in the CFWP field.

---

4. Confirm that you hear the confirmation tone, which indicates that the line has been forwarded.




---

**Note** If the phone system is restarted, you must repeat Step 27. through Step 30. for each line DN that CFUs to the UCD group.

---

5. Enter **table ibnxla** and press **Enter**.

You use Table IBNXLA to set up and message waiting indicators (MWIs).

1. Enter **add** and press **Enter**.
2. On Table IBNXLA, enter the following settings.

Table 11: Settings for Table IBNXLA

Field	Subfield	Setting
KEY	XLANAME	Enter the name of the translator, 1–8 characters, for the MWI feature.
	DGLIDX	Enter the access code for the MWI feature.
RESULT	TRSEL	Enter <b>FEAT</b> .
	ACR	Enter N.
	SMDR	Enter N.
	FEATURE	Enter the following features: <b>CRA CRR CRDS CRDA UCDD UCDA CFWP CFWC</b>

## Configuring the RS-232 Serial Cable

This integration used a null modem cable. The pinout for a DB-9 terminal adaptor connector is below.

Table 12: Pinout for a DB-9 Connector

DB-9 Pin	Serial Port Pin Definition from the Phone System
1	Data Carrier Detect
2	Transmit Data (required)
3	Receive Data (required)
4	Data Terminal Ready
5	Signal Ground (required)
6	Data Set Ready
7	Clear to Send
8	Request to Send
9	Ring Indicator

The pinout for a 34-pin to DB-25 terminal adaptor connector is below.

Table 13: Pinout for a 35-Pin to DB-25 Connector

Pin for 34-Pin Connector	Pin for DB-25 Connector	Serial Port Pin Definition from the Phone System
14	2	Transmit Data (required)

Pin for 34-Pin Connector	Pin for DB-25 Connector	Serial Port Pin Definition from the Phone System
26	3	Receive Data (required)
23	4	Request to Send (required)
34	5	Clear to Send (required)
16	6	Data Set Ready (required)
11	7	Signal Ground (required)
31	8	Data Carrier Detect (required)
37	20	Data Terminal Ready (required)
16	17	Receive Clock
17	12	Secondary Data Carrier Detect
24	24	Secondary Clock Transmit External