Amanda Portal on Norstar Integration Notes

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1 Introduction

Intel/Dialogic make a pair of boards, D/42JCT-U (4 port) and D/82JCT-U (8 port), which provide digital integration with a variety of telephone switches using station set emulation. This line of boards is known as the PBX Integration series, and the following switches are supported:

Manufacturer	PBX Hardware	Telephone Emulations
Lucent	Definity System 75/85	7434 (4-wire)
	Definity System G3 Ver. 4	8434 (2-wire)
Siemens	ROLM 9005 and 9006	ROLMphone 400 (RP400)
	Hicom 150E and 300E	Optiset E
Mitel	SX-50	Superset 420 (DNIC)
	SX-200ML	Superset 430 (DNIC)
	SX-2000	
Nortel	Norstar	M7324
	Meridian 1	M2616

This document describes the particular integration and switch setting issues involved in connecting Amanda Portal with a Norstar switch.

2 Dialogic Driver Settings

Basically, you just follow the instructions in *Installing Amanda Portal* to install the boards and driver. On the Miscellaneous tab of the Dialogic Configuration Manager (DCM), for the firmware load, you will want to choose D82UCSP.fwl

for a D/82 board, or the equivalent D42UCSP.fwl for a D/42JCT-U board, if you wish to support Continuous Speech Processing (not yet supported by Amanda on this board). The default firmware load, on the other hand, does not support CSP but it does support 2 floating fax resources per board.

Next, on the same tab, set the PBX Switch setting to `Nortel_Norstar`. You can leave TSFFileSupport and DisconnectTone set to `No`, as these signals will be handled digitally.

3 Switch Settings

You may configure Amanda either as a backup attendant or as the primary auto-attendant for your phone switch.

3.1 Startup Templates

Upon Startup, your Norstar KSU has four templates available: Square, Centrex, Hybrid, and PBX. If you plan to have Amanda access outside lines for paging, notification, fax, or other applications, setup will be simpler if you choose the Hybrid or PBX template.

3.2 Ports

When you install Amanda you must select which Norstar station ports to connect to the ports on the voice processing boards in your Amanda system. You should not connect your Norstar systems Prime Telephone port (usually DN 221) to Amanda because Amanda will not know how to process calls sent to this telephone port by the Norstar system itself. As a standard practice, many installers choose the last group of n station ports on the Norstar for the Amanda system's n ports. Dialogic supports up to eight 8-port boards, for a maximum of 64 ports.

You must configure all of the incoming lines that are to be answered by Amanda to ring at the first of the Norstar station ports connected to Amanda. The remaining ports connected to Amanda must not have ringing enabled for any lines. Each Norstar port must forward busy calls to the next port, forming a hunt group. On ring-no-answer, calls should be forwarded to the operator.

Each port must have:

- One intercom key

- Intercom as its prime line

- No paging features enabled

Each Norstar port connected to Amanda may have a name (such as AMANDA1) which will allow station set users to recognize calls from Amanda. As discussed below, your installation will be much easier if you do NOT change the default names for the CO lines. Naming the user extensions will not affect Amanda's integration at all.

3.3   Hands Free

For integration between the Norstar system and the Amanda system to work properly, all of the station sets on the Norstar that are connected to Amanda must be configured with Hands Free Answerback set to No. On the other hand, Full handsfree and Auto handsfree should be set to Yes, again on all the lines connected to Amanda ports.

3.4   Set Relocation

The Set Relocation feature must be disabled. This seemingly harmless feature can cause unpredictable results for Amanda when it is enabled.

3.5   Dialing Filters

After Amanda is up and running, use the Norstar systems Dialing filters to restrict the station ports used by Amanda as tightly as possible. This restriction (consistent with your call processing applications) prevents possible long distance toll fraud.

3.6   DNs and the Hunt Group

Be aware that:

- All DNs connected to Amanda must be in consecutive order (for example, 41, 42, 43, and 44).

- The last port connected to Amanda should forward on busy to the first port connected to Amanda.

- With this set up, you may use as many Amanda ports as you like for performing notification and/or outbound calls.

3.7 Extensions

If Amanda is going to be the primary attendant, then the KSU extensions that are connected to the PBX Integration voice board should be set up to receive the rings and not to receive the indicator messages for external calls. This setting can be changed from the system configuration menu of the KSU.

For extensions that will receive calls from external lines, you should select Line Access and set Line Assignment to Ring Only. Each extension requires that this setup be done for all external lines. When this setup is not done, the voice mail application receives a loop drop event when the operator makes a supervised transfer to the voice mail system.

NOTE: Do not connect the first Norstar extension (usually extension 221 or 21, depending on your KSU) to voice mail. This extension is the control set and, by default, handles certain holds, parks, and so forth which may be more appropriately handled by a live attendant.

4 Specific Switch Programming

Here are the items that you must configure so that Amanda will integrate properly with the switch. Under Configuration, Trk/Line Data, set:

1. Trunk data: trunk mode property should be set to `Super`.

2. Trunk data: dial mode should be set to `Tone`.

3. Line data: line type should be set to `PoolA`.

4. Line data: Prime Set should be set to Amanda's first port's extension.

Also under Configuration, Line Access, each Amanda extension should be set:

1. Intercom keys: 1

2. Prime line: I/C

3. Line Pool Access: Line Pool A should be set to `N` for Amanda ports that will not be doing notifications or outbound calling, and `Y` for those that will need to dial outside lines.

Each Amanda extension should be set as follows under General admin: Capabilities: Set abilities:

1. Full handsfree should be set to Y.

2. Auto handsfree should be set to Y.

3. HF answerback should be set to N.

4. Paging should be set to N.

5. Paging zone should be set to NO.

6. Each Amanda extension except the last should be set to forward on busy to the next extension. The last should be set to busy forward to the first.

7. Each Amanda extension should be set to forward on no answer to the operator's extension.

If Amanda is to be the backup attendant, then make the following settings:

1. Set Configuration: Line data, Prime set to Amanda's first extension number.

2. Set Configuration: Call Handling: DRT to Prime to Y.

3. Set Configuration: Call Handling: DRT Delay as desired.

4. Set Configuration: Call Handling: Trnsfr callbk to a value one higher than DRT Delay.

5. Set each of Amanda's extensions' Line Access: Line Assignment should be set to Not assignd.

On the other hand, if Amanda is to be the primary attendant, then make the following settings:

1. Set Configuration, Line data, Prime set to the operator's extension number.

2. Set Configuration: Call Handling: DRT Delay to one higher than the maximum number of rings that Amanda waits while performing a supervised transfer.

3. Amanda's first port's extension should be set to Ring Only, with the remaining port extensions set to Not assignd, for all the CO lines.

Finally, be sure that under Miscellaneous, the parameter Set Relocation is set to N. The External Code setting should probably be 9. If it is set to another value, then Amanda dl_outbound parameter will have to be changed to match.

```
# Norstar-specific functions

# Change "46" to the pilot number for Amanda.
proc get_dnis {} {
    set result [get_callid]
    if {[scan $result {46_%s} cid] == 1} {
        return "_$cid"
    }

    if {[empty $result]} {
        if {[scan [lindex [get_display] 0] {Line%s} cid] == 1} {
            return "T$cid"
        }
    }

    return $result
}
```

Figure 1: Example `norstar.tcl` file contents

5 Amanda Settings

The PBX Integration board series is not supported by Dialogic's GlobalCall driver. Therefore, you must choose the Amanda Dialogic module during your initial configuration. As the telephone switch type, choose "Norstar/PBX Integration" from the drop-down list.

After completing the configuration wizard, run the Amanda Portal Setup program. Select the global parameter called `tcl_source_files`. On the end of this list, append the following filename: `norstar.tcl`. Save these changes by clicking the OK button.

Using a text editor such as Notepad, now edit the `norstar.tcl` file. It will be in the directory where Amanda was installed, usually `c:\amanda`. An example of the contents of this file is shown in Figure 1. You will need to make one or two changes in this file to configure it for your particular Norstar environment. This file contains only one small Tcl procedure, which determines what type of digital integration Amanda will receive when a call comes into the system.

First, as you know, you have configured the Amanda ports to busy-forward from the first to the second, second to the third, etc. If a user calls Amanda from a station, then Amanda will receive an integration pattern that looks like this: `46_76`, which means that extension 76 called Amanda's pilot number, 46, but 46 was busy and it forwarded to (for example) port 2. But when a station calls

another regular (non-Amanda) station, and that station forwards to voicemail, Amanda will receive the same integration pattern, such as `89_76`, in which case Amanda will take voicemail for the mailbox associated with station 89, with the From field of that message set to the mailbox associated with station 76. So, Amanda needs to be able to distinguish these two cases, even though superficially, the integration pattern looks identical.

The way Amanda does this is by knowing its own pilot number. Using 46 as an example, then when Amanda sees integration that starts with `46_`, Amanda knows this is a direct call from an extension even though a busy forward was involved. Amanda will then treat that call the same as if it had gotten the direct call integration pattern, such as `_76`.

When you look at the `norstar.tcl` file, you will see that it is only a few lines long. Change the "46" that appears on line 6 of the file to the actual pilot number of your Amanda system.

Next, there is another special case. When an outside line rings directly to Amanda, you may want trunk integration, so that Amanda can react differently depending on which trunk line the call came in on. If you do not care about trunk integration, then no further changes are needed—save the file and exit Notepad, and your configuration is complete.

If you do need trunk integration to work, then you may need to edit line 11 of the `norstar.tcl` file. On that line, Amanda compares the string that shows up in the (virtual) LCD display with the string beginning with `Line`. If it matches, then Amanda will receive integration data Txxx for the call, where xxx is the line number (zero padded) of the call. If you have named your lines other than the default Line*XXX,* then you will have to change this pattern to match your actual line names. For simplicity, we recommend that you leave your line names with their default values.

Once you have made the necessary changes, save the `norstar.tcl` file, and you have completed your integration.

6   Accessing Special Norstar Features

Amanda Portal defines a special `KF` token for accessing phone system features. However, the Portal `KF` token is somewhat different from the version in other Amanda Norstar products. The Portal version of this token simply passes its argument, after any expansion, through to the underlying `dial` command, so that the digits are passed to the Dialogic driver. The Dialogic driver supports a number of special dialstrings for accessing switch-specific features (see Dialogic's *PBX Integration Board User's Guide* for details). The special character `$` is used

to represent the Escape character, which activates Dialogic's special dialing features. The most important of these sequences for the Norstar switch are shown in the following table:

$KP	Press left soft key
$KQ	Press middle soft key
$KR	Press right soft key
KNn$	Access feature code n

So, for example, Amanda's `dl_dtwait` parameter is defined as `KF($KN70)`. This causes Amanda to dial the string `$KN70` which accesses the transfer feature of the switch. Similarly, the `dl_connect` parameter is defined as `KF($KR$KP)H`, which presses first the right soft key (which should "join" the caller and callee, followed by the left soft key, followed by a hang up. The reason for pressing the left soft key second is that under some circumstances, pressing the right key can fail, for instance if the callee answers and immediately hangs up again, then the join will fail, so we then press cancel to cancel the transfer before hanging up, since this is what the callee has done to the caller had the transfer been effected a millisecond earlier.