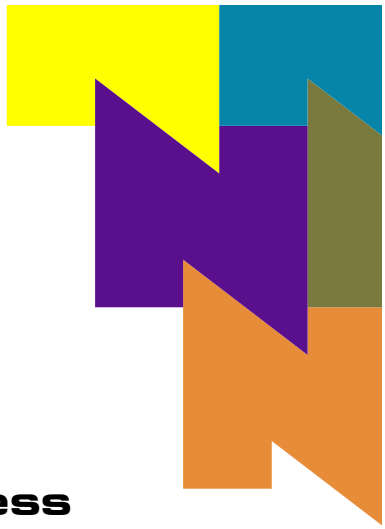
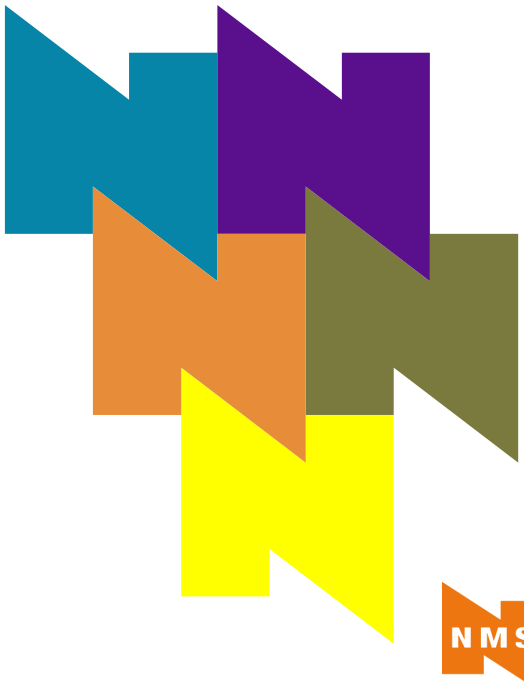


Natural Access

Installation

Release 2004-1

9000-62350-11



NMS COMMUNICATIONS

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Every effort has been made to ensure the accuracy of this manual. However, due to the ongoing improvements and revisions to our products, NMS Communications cannot guarantee the accuracy of the printed material after the date of publication or accept responsibility for errors or omissions. Revised manuals and update sheets may be published when deemed necessary by NMS Communications.

CONTENTS OF THIS PACKAGE

Natural Access 2004-1 contains the following products:

- **Natural Access 4.13**
- **NMS OAM 1.12**
- **QX 4.32** (Windows only)
- **CX 2000 1.05**
- **NMS ISDN 1.8**
- **NMS CAS 2.26**
- **NaturalFax 4.22**
- **NaturalConference 2.12**
- **DLCP 1.11**
- **Hot Swap Kit** (Windows only)
- **Cool Edit 96** sound editing software (Windows only)

All products are for:

- Windows 2000 Server and Windows 2000 Professional (Service Pack 4)
- Windows Server 2003, Standard edition and Windows Server 2003, Enterprise edition
- Intel Solaris 8
- SPARC Solaris 9 (32-bit mode)
  Run in either of these operating environments:
  - 32-bit applications, 32-bit libraries, 32-bit kernel, 32-bit drivers
  or
  - 32-bit applications, 32-bit libraries, 64-bit kernel, 64-bit drivers
- SPARC Solaris 9 (64-bit mode)
- Red Hat Linux 9

The Natural Access installation program installs the following components:

- Natural Access development and runtime software
- NMS hardware support including device drivers and runtime software
- Natural Access set of services depending on your installation

Refer to the NMS web site (*www.nmscommunications.com*) for product updates and for information about NMS support policies, warranty information, and service offerings.

From the NMS web site, you can download the Natural Access:

- Software
- Documentation

INSTALLING THE SOFTWARE - WINDOWS

1. Uninstall prior versions of NMS product software before beginning this installation.
2. Log on as a member of the Administrators group.
3. Download the Natural Access software from the NMS web site.
4. Double-click on the *.exe* file and unzip it.
5. Launch Windows Explorer and double-click on *install.bat* in the root directory of the unzipped image.

   The Welcome screen appears followed by the NMS license agreement.
6. Follow the prompts as they appear.

   The setup program asks you for the following information:

   - **The family of telephony boards that you use.**

     The following table shows what software is installed depending upon the telephony board family that is selected:

This option...	Installs these products:							
	CT Access	OAM	QX	CX	NMS ISDN	NMS CAS	NaturalFax	NaturalConference
AG and CG	•	•			•	•	•	•
CX	•	•		•		•		
QX	•	•	•				•	

   - **The countries where the application will run.**

     The setup program uses this information to determine which network protocol variants to install. To learn which protocols are installed for a specific country, refer to the Country/Protocol Table.
   - **The default country**, if more than one country is selected.

     Natural Access products are parameterized for the default country.
   - **The base directory in which to install the software.**

     The software for the individual products is installed in subdirectories in the base directory that you choose.
   - **The Windows program folder in which to create icons.**

     The default program folder is *NMS Communications Natural Access*.
   - **System environment variable setting options.**

     You can let the setup program modify settings, save the changes to a batch file, or not make any changes.

     If specified to do so, the installation program modifies the following enviornment variables:

```
PATH=C:\NMS\bin;%PATH%
AGLOAD=.;C:\NMS\CG\CFG;C:\NMS\CG\LOAD;C:\NMS\AG\CFG;C:\NMS\AG\LOAD;C:\NMS\ OAM\CFG
CTA_DPATH=.;C:\NMS\CTAccess\PROMPTS;C:\NMS\CTAccess\CFG
INCLUDE=C:\NMS\Include;%INCLUDE%
LIB=C:\NMS\Lib;%LIB%
```

     The examples use the default directory *c:\nms*. If you specified a different directory during software installation, the path will be different.

     If you selected the option of writing the modifications to a file during installation, the installation program creates a *ctaccess.bat* file, which you can run to modify the environment variables.

     If you selected the option of not modifying the environment variables during installation, you need to modify the variables yourself before running any Natural Access applications.

   When you have provided the required information, the installation program launches the setup programs for each of the products to be installed, one after the other.

Note: The setup program creates a log file summarizing the results of the installation process. The log file can be found in ***install_directory**\install.log*.

7. You are then asked if you want to install NMS Hot Swap support. Select **Yes** if you want to install it. NMS Hot Swap support consists of additional drivers and configuration software that allows NMS Hot Swap drivers to interact properly with Windows 2000 Plug and Play functionality. Hot Swap applies to CompactPCI chassis only.

   After installing NMS Hot Swap support and after completing the Natural Access installation, you must:

   a. Shut down the system.
   b. Remove NMS boards that are required by the HSK (Hot Swap Kit) Wizard.

      All NMS boards must be removed before running the HSK Wizard.
   c. Run the HSK Wizard. Refer to the *NMS OAM System User's Manual* for more information.
8. You are then asked if you want to install Cool Edit. Cool Edit provides sound editing software. To install Cool Edit, select **Yes**. Refer to the **Installing Cool Edit** section.
9. Review the Natural Access readme file.
10. Reboot your system to activate Natural Access environment variables.
11. If you installed any CG boards, use the *burnall* script (in ***install_directory***bin*) to update the flash memory on these boards the first time you install Natural Access.
12. For a complete list of the installed files and for important notices, refer to the *readme_(xxx).txt* that is installed in ***install_directory***doc* with each product.

Note: When the installation is complete, you can proceed with any additional configuration needed. For details, see the documentation for the product.

INSTALLING COOL EDIT

To install Cool Edit sound editing software:

1. Select **Yes** at the prompt.

   The Cool Edit product setup program starts up.
2. Follow the prompts as they appear.
3. Accept the default "Syntrillium" group name.

   You are asked whether to register your copy of Cool Edit.
4. Click **Register Now**.

   You are asked for a registered user's name.
5. Enter: `Natural MicroSystems`

   You are asked for a registration number.
6. Enter: `OATGPSDP`

INSTALLING THE SOFTWARE - SOLARIS

1. Uninstall prior versions of NMS product software before beginning this installation.
2. Log on as root.
3. Download the Natural Access software from the NMS web site.
4. Expand the *.tar* file by entering:
   `zcat <xxxx-#####>.tar.Z | tar xf -`

   where:

   xxxx-##### is the name of the file.
5. Start the installation script:
   - Launch your web browser, and open the file *index.htm* in the root directory. This is the contents page. On this page, click **Install Natural Access** to start the script.
   - If you do not have a JavaScript-enabled web browser, change to the mount point directory. Type `./install` to start the script.
6. Follow the prompts as they appear.

   The script asks you for the following information:
   - **The family of telephony boards that you use.**

     The following table shows what software is installed depending upon the telephony board family that is selected:

This option...	Installs these products:						
	CT Access	OAM	CX	NMS ISDN	NMS CAS	NaturalFax	NaturalConference
AG and CG	•	•		•	•	•	•
CX	•	•	•		•		

   - **The countries where the application will run.**

     The installation script uses this information to determine which network protocol variants to install. To learn which protocols are installed for a specific country, refer to the Country/Protocol Table.
   - **The default country**, if more than one country is selected.

     The Natural Access products are parameterized for the default country.

   When you have provided the required information, the script launches the installation script for each of the products to be installed, one after the other. The installation alters environment variables, as needed.

Note: The installation script creates a log file summarizing the results of the installation process. This log file can be found in */opt/nms/doc/install.log*.

7. For a complete list of the installed files and for important notices, refer to the *readme_(xxx).txt* that is installed in */opt/nms/doc* with each product.
8. If you installed any CG boards, use the *burnall* script (in */opt/nms/bin*) to update the flash memory on these boards the first time you install Natural Access.
9. Reboot your system to activate Natural Access environment variables.

Note: When the installation is complete, you can proceed with any additional configuration needed. For details, see the documentation for the product.

Modifications to environment variables (Bourne or Korn shell)

The installation program modifies the following environment variables in the */.profile* file:

```
CTA_DPATH=.:/opt/nms/ctaccess/prompts:/opt/nms/ctaccess/cfg
export CTA_DPATH
PATH=$PATH:/opt/nms/bin
export PATH
LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/opt/nms/lib
export LD_LIBRARY_PATH
AGLOAD=/opt/nms/ag/load:/opt/nms/ag/cfg:/opt/nms/cg/load:/opt/nms/cg/cfg:
/opt/nms/oam/cfg
export AGLOAD
```

Modifications to environment variables (C shell)

The installation program modifies the following environment variables in the */.login* file:

```
setenv CTA_DPATH
:/opt/nms/ctaccess/prompts:/opt/nms/ctaccess/cfg
setenv PATH "$PATH":/opt/nms/bin
setenv LD_LIBRARY_PATH "$LD_LIBRARY_PATH":/opt/nms/lib
setenv AGLOAD
/opt/nms/ag/load:/opt/nms/ag/cfg:/opt/nms/cg/load:/opt/nms/cg/cfg
```

Kernel tunable parameters

The installation program updates the appropriate tunable parameters on your system with the values listed in the following table:

Parameter	Default Value	Description
SHMMNI	1024	System wide number of shared memory identifiers.
SHMSEG	128	Per process number of shared memory identifiers.
RLIM_FD_MAX	4096	Soft limit number of file descriptors.
RLIM_FD_CUR	3072	Hard limit number of file descriptors.

Changing the number of ports

By default, the Natural Access installation configures the drivers for 250 ports. To change this default (for example, to reduce the memory consumed by the driver), follow this procedure:

1. Open the */usr/kernel/drv/agsw.conf* file. This file contains configuration information for the switching driver, *agsw*.
2. Modify the `number-ports` line to reflect the number of ports supported by your hardware. A value of 0 tells the driver to use the default of 250.

   `number-ports=`***num_ports***
3. Open the */usr/kernel/drv/agmx.conf* file. This file contains configuration information for the mux driver, *agmx*.
4. Modify the `ag-ports` line file to reflect the number of ports supported by your hardware. (A value of 0 tells the driver to use the default of 250.)

   `ag-ports=`***num_ports***
5. Reboot the system.

INSTALLING THE SOFTWARE - RED HAT LINUX

If you want to install Hot Swap support for CompactPCI boards on Red Hat Linux 9, refer to the Pigeon Point Systems web site (*http://www.pigeonpoint.com*) for information about the Pigeon Point Hot Swap Kit, HSK, and HSK kernel.

To install the software:

1. Log on as root.
2. Download the Natural Access software from the NMS web site.
3. Expand the *.tar* file by entering:
   `zcat <`***xxxx-#####***`>.tar.Z | tar xf -`

   where:

   xxxx-##### is the name of the file.
4. Access the mount point directory and navigate to the ***mountpoint****/linux* directory to access the *install* executable.
5. The Natural Access *install* executable has the following usage:
   `./install [`***options package-name default-country***`]`

Note: If the `install` command is invoked with none of the following command line parameters, it will install all packages and select USA protocol configurations.

Available ***options*** are:

`--remove`	Remove (uninstall) the specified package set.
`--nocountry`	Do not configure the country-specific protocol files.
`--nopackage`	Do not install a package (allows country selection only).
`--verify`	Show which packages are installed.
`--verbose`	Send status info to the console (*stdout*).
`--help`	A message that describes the usage of *install*.

The available ***package-name*** entries are:

```
ctaccess oam cas isdn nfx cnf cx2000
```

The available ***default-country*** entries are:

```
arg aus aut bel bhr bol bra can che chl chn col cr2 cze deu dnk esp fin fra gbr grc hkg
hnd idn ind irl isl ita jpn kor lux mex mys nld nor pan phl prt rus sgp swe tha twn usa
```

6. If you installed any CG boards, use the *burnall* script (in */opt/nms/bin*) to update the flash memory on these boards the first time you install Natural Access.
7. To activate Natural Access environment variables, log out and log in again. You do not need to reboot the system.

   The installation program modifies the following environment variables:

```
CTA_DPATH=.:/opt/nms/ctaccess/prompts:/opt/nms/ctaccess/cfg
PATH=$PATH:/opt/nms/bin:/opt/nms/ag/bin
AGLOAD=/opt/nms/ag/load:/opt/nms/ag/cfg:/opt/nms/cg/load:/opt/nms/cg/cfg: /opt/nms/oam/
cfg
```

   If you are installing Red Hat Linux software, the installation program modifies the */etc/profile* and */etc/rc.d/rc.local* files.

   If your Red Hat Linux software package has difficulty setting environment variables and loading device drivers after a system restart, invoke the following scripts:

Task	Script
Set environment variables	*/opt/nms/ctaccess/cfg/nms_profile.sh*
Load device drivers	*/opt/nms/ctaccess/cfg/nms_startup.sh*

COUNTRY/PROTOCOL TABLE

The following table shows the protocols that are installed with each country. Refer to the CAS and ISDN *readme* files or to the NMS web site (*www.nmscommunications.com*) for updates to this information.

Code	Country	CAS Protocols	ISDN PRI Protocol Variants	ISDN BRI Protocol Variants
ARG	Argentina	MFC-R2 Analog Loop Start		
AUS	Australia	Australian P2 Analog Loop Start NEC PBX	Australian Telecom 1 QSIG	
AUT	Austria	Analog Loop Start	ETSI QSIG DPNSS	ETSI DPNSS
BEL	Belgium	Analog Loop Start	ETSI QSIG DPNSS	ETSI DPNSS
BHR	Bahrain	MFC-R2		
BOL	Bolivia	MFC-R2		
BRA	Brazil	Pulsed E & M MFC-R2 Analog Loop Start		
CAN	Canada	Wink Start Analog Loop Start Off-Premises Station Ground Start Feature Group D		
CHE	Switzerland	Analog Loop Start	ETSI QSIG DPNSS	ETSI DPNSS
CHL	Chile	MFC-R2		
CHN	China	MFC-R2	ETSI QSIG DPNSS	ETSI DPNSS
COL	Colombia	MFC-R2		
CR2	CCITT Blue Book	MFC-R2		
CZE	Czech Republic	MFC-R2		
DEU	Germany	Analog Loop Start	ETSI QSIG DPNSS	ETSI DPNSS
DNK	Denmark	Analog Loop Start	ETSI QSIG DPNSS	ETSI DPNSS
ESP	Spain	MF-Socotel Analog Loop Start	ETSI QSIG DPNSS	ETSI DPNSS
FIN	Finland	Analog Loop Start	ETSI QSIG DPNSS	ETSI DPNSS
FRA	France	Analog Loop Start Off-Premises station EL7	QSIG France Telecom VN6	France Telecom VN6

Code	Country	CAS Protocols	ISDN PRI Protocol Variants	ISDN BRI Protocol Variants
GBR	Great Britain	Analog Loop Start MELCAS	ETSI QSIG DPNSS	ETSI DPNSS
GRC	Greece	Analog Loop Start	ETSI QSIG DPNSS	ETSI DPNSS
HKG	Hong Kong	Wink Start	Hong Kong Telephone QSIG	
HND	Honduras	MFC-R2		
IDN	Indonesia	Pulsed E & M MFC-R2		
IND	India	MFC-R2		
IRL	Ireland	Analog Loop Start	ETSI QSIG DPNSS	ETSI DPNSS
ISL	Iceland	Analog Loop Start		
ITA	Italy	European digital CAS Analog Loop Start	ETSI QSIG DPNSS	ETSI DPNSS
JPN	Japan	Analog Loop Start	NTT QSIG	NTT
KOR	Korea	MFC-R2 Analog Loop Start	Korea QSIG	
LUX	Luxembourg	Analog Loop Start	ETSI QSIG DPNSS	ETSI DPNSS
MEX	Mexico	MFC-R2 Analog Loop Start		
MYS	Malaysia	MFC-R2		
NLD	Netherlands	European digital CAS Analog Loop Start	ETSI QSIG DPNSS	ETSI DPNSS
NOR	Norway	Analog Loop Start	ETSI QSIG DPNSS	ETSI DPNSS
PAN	Panama	MFC-R2		
PHL	Philippines	MFC-R2		
POL	Poland	MFC-R2	ETSI DPNSS	ETSI DPNSS
PRT	Portugal	Analog Loop Start	ETSI QSIG DPNSS	ETSI DPNSS
RUS	Russia	System R1.5-IN System R1.5-OUT	ETSI QSIG DPNSS	ETSI DPNSS
SEL	ComSel (Colombia)	MFC-R2		
SGP	Singapore	MFC-R2	ETSI QSIG DPNSS	ETSI DPNSS
SWE	Sweden	European digital CAS Analog Loop Start	ETSI QSIG DPNSS	ETSI DPNSS

Code	Country	CAS Protocols	ISDN PRI Protocol Variants	ISDN BRI Protocol Variants
THA	Thailand	MFC-R2		
TWN	Taiwan	Wink Start	QSIG	
			Taiwan	
USA	USA	Digital/Analog Wink Start	AT&T 4ESS	
		Digital Loop Start	AT&T 5ESS10	
		Feature Group D	Northern Telecom DMS 100	
		Ground Start	US National ISDN 2	
		Analog Loop Start	QSIG	
		SS5		
		Station		

NATURAL ACCESS DOCUMENTATION

Natural Access documentation is available on the NMS Communications web site, *www.nmscommunications.com*. You can:

- Download all of the Natural Access manuals in HTML format for online viewing. To access a master list, view *Start_here_Natural_Access.htm* in the *doc*\ directory.
- Download or view individual manuals in HTML format for online viewing.
- Print individual manuals using the Adobe Acrobat Reader available from *www.adobe.com*.

DOCUMENTATION SUMMARY

The following table summarizes the Natural Access documents, grouped by subject:

Installing and configuring NMS hardware

For information about...	Refer to the...
AG and CG board and driver errors	*NMS Board and Driver Errors Manual*
Configuring and installing a board, connecting it to the network, and verifying its installation	*AG 2000 Installation and Developer's Manual* *AG 2000C Installation and Developer's Manua* *AG 2000-BRI Installation and Developer's Manual* *AG 4000 Installation and Developer's Manual* *AG 4000C Installation and Developer's Manual* *AG 4040 Installation and Developer's Manual* *AG 4040C Installation and Developer's Manual* *CG 6000 Installation and Developer's Manual* *CG 6000C Installation and Developer's Manual* *CG 6100C Installation and Developer's Manual* *CG 6500C Installation and Developer's Manual* *CX 2000 Installation and Developer's Manual* *CX 2000C Installation and Developer's Manual* *QX 2000 Installation and Developer's Manual* (Windows only)

Configuring and managing the system

For information about...	Refer to the...
The NMS OAM (Operations, Administration, and Maintenance) service, and a reference of functions, parameters, events, reason codes, and errors	*NMS OAM Service Developer's Reference Manual*
Loading, configuring, and monitoring boards in an NMS OAM system	*NMS OAM System User's Manual*
Configuring and installing SNMP for NMS products	*NMS SNMP Reference Manual*

DOCUMENTATION

Developing Natural Access applications

For information about...	Refer to the...
Natural Access and a reference of functions, parameters, events, reason codes, and errors	*Natural Access Developer's Reference Manual*
Developing a Natural Access service	*Natural Access Service Writer's Manual*
The service and a reference of functions, parameters, events, reason codes, and errors	*Natural Call Control Service Developer's Reference Manual* *ADI Service Developer's Reference Manual* *Switching Service Developer's Reference Manual* *Point-to-Point Switching Service Developer's Reference Manual* *Voice Message Service Developer's Reference Manual* *CDI Service Developer's Reference Manual* *Digital Trunk Monitor Service Developer's Reference Manual* *NMS GR303 and V5 Library Developer's Reference Manual*

Using NMS international protocol software

For information about...	Refer to the...
Installing and running CAS protocol software with the NCC service	*NMS CAS for Natural Call Control Developer's Manual*
Installing NMS ISDN	*NMS ISDN Installation Manual*
Building applications that interface with the NMS ISDN protocol stack at the Natural Access level	*NMS ISDN for Natural Call Control Developer's Manual*
Building applications that interface with the NMS ISDN protocol stack using the NMS ISDN Messaging API	*NMS ISDN Messaging API Developer's Reference Manual*
ISDN supplementary services accessible with NMS ISDN software	*NMS ISDN Supplementary Services Developer's Reference Manual*
Using the NMS ISDN Management service library to interact with the NMS ISDN protocol stack	*NMS ISDN Management API Developer's Reference Manual*

Developing media applications

For information about...	Refer to the...
Developing a media application and a reference of functions, parameters, events, reason codes, and errors	*NaturalConference Developer's Reference Manual* *NaturalFax Developer's Reference Manual*

DETERMINING SOFTWARE VERSIONS

To determine the version of Natural Access software installed on your system, run *naver*, which displays the versions of all Natural Access software products on your system.

Windows

To run *naver*, click **Start>Programs>NMS Communications Natural Access>Version Utility**.

Solaris and Red Hat Linux

naver can be found in */opt/nms/bin*.

REMOVING THE SOFTWARE

Windows

You must remove all Natural Access software from your system at the same time.

Note: Shut down console applications and other Natural Access applications before uninstalling Natural Access. Refer to the product documentation for specific instructions.

If *ctdaemon* is running as a Windows Service, stop the service using one of the following methods:

- Invoke `net stop ctdaemon`
- Select **Windows Control Panel/Services** applet. Select **NMS CTdaemon** from the Service list. Click **Stop**.

To remove Natural Access software:

1. Click **Start>Settings>Control Panel**.

   The Control Panel window appears.
2. Double-click on **Add/Remove Programs**.

   The Add/Remove Programs dialog box appears.
3. Remove all products associated with this Natural Access installation and click **OK**.

   The Natural Access software is removed from your system.

Note: Removing Natural Access does not remove Cool Edit or the NMS Hot Swap Support. Use **Add/Remove Programs** to remove either Cool Edit or the NMS Hot Swap Support separately.

Solaris and Red Hat Linux

You must remove all Natural Access software from your system at the same time.

Note: Shut down console applications and other Natural Access applications before uninstalling Natural Access. Refer to the product documentation for specific instructions.

To remove all Natural Access products at once:

1. Log on as root.
2. Start a new terminal session.
3. Start the Natural Access remove script by entering: `/opt/nms/bin/remove`

   The remove script removes the Natural Access products from your system.

Note: Removing Natural Access does not remove the Pigeon Point Hot Swap Kit on Red Hat Linux. Refer to the Pigeon Point Systems web site (*http://www.pigeonpoint.com*) for more information.