



Installing the Dialogic® NaturalAccess™ Development Environment R9.0

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Revision history

Revision	Release date	Notes
9000-62709-10	June 2008	SRG/LBZ, Natural Access R8
9000-62709-11	February 2009	DEH, Natural Access R8.1
64-0469-01	October 2009	LBG, NaturalAccess R9.0
Last modified: September 28, 2009		

Refer to www.dialogic.com for product updates and for information about support policies, warranty information, and service offerings.

NaturalAccess components

The NaturalAccess installation program installs the following components:

- NaturalAccess development and runtime software
- NaturalAccess hardware support including device drivers and runtime software
- NaturalAccess services depending on your installation

For specific information about software versions and products installed, refer to the *readme.txt* file.

Terminology

Note: The product to which this document pertains is part of the NMS Communications Platforms business that was sold by NMS Communications Corporation ("NMS") to Dialogic Corporation ("Dialogic") on December 8, 2008. Accordingly, certain terminology relating to the product has been changed. Below is a table indicating both terminology that was formerly associated with the product, as well as the new terminology by which the product is now known. This document is being published during a transition period; therefore, it may be that some of the former terminology will appear within the document, in which case the former terminology should be equated to the new terminology, and vice versa.

Former terminology	Dialogic terminology
CG 6060 Board	Dialogic® CG 6060 PCI Media Board
CG 6060C Board	Dialogic® CG 6060C CompactPCI Media Board
CG 6565 Board	Dialogic® CG 6565 PCI Media Board
CG 6565C Board	Dialogic® CG 6565C CompactPCI Media Board
CG 6565e Board	Dialogic® CG 6565E PCI Express Media Board
CX 2000 Board	Dialogic® CX 2000 PCI Station Interface Board
CX 2000C Board	Dialogic® CX 2000C CompactPCI Station Interface Board
AG 2000 Board	Dialogic® AG 2000 PCI Media Board
AG 2000C Board	Dialogic® AG 2000C CompactPCI Media Board
AG 2000-BRI Board	Dialogic® AG 2000-BRI Media Board
NMS OAM Service	Dialogic® NaturalAccess™ OAM API
NMS OAM System	Dialogic® NaturalAccess™ OAM System
NMS SNMP	Dialogic® NaturalAccess™ SNMP API
Natural Access	Dialogic® NaturalAccess™ Software
Natural Access Service	Dialogic® NaturalAccess™ Service
Fusion	Dialogic® NaturalAccess™ Fusion™ VoIP API
ADI Service	Dialogic® NaturalAccess™ Alliance Device Interface API
CDI Service	Dialogic® NaturalAccess™ CX Device Interface API

Former terminology	Dialogic terminology
Digital Trunk Monitor Service	Dialogic® NaturalAccess™ Digital Trunk Monitoring API
MSPP Service	Dialogic® NaturalAccess™ Media Stream Protocol Processing API
Natural Call Control Service	Dialogic® NaturalAccess™ NaturalCallControl™ API
NMS GR303 and V5 Libraries	Dialogic® NaturalAccess™ GR303 and V5 Libraries
Point-to-Point Switching Service	Dialogic® NaturalAccess™ Point-to-Point Switching API
Switching Service	Dialogic® NaturalAccess™ Switching Interface API
Voice Message Service	Dialogic® NaturalAccess™ Voice Control Element API
NMS CAS for Natural Call Control	Dialogic® NaturalAccess™ CAS API
NMS ISDN	Dialogic® NaturalAccess™ ISDN API
NMS ISDN for Natural Call Control	Dialogic® NaturalAccess™ ISDN API
NMS ISDN Messaging API	Dialogic® NaturalAccess™ ISDN Messaging API
NMS ISDN Supplementary Services	Dialogic® NaturalAccess™ ISDN API Supplementary Services
NMS ISDN Management API	Dialogic® NaturalAccess™ ISDN Management API
NaturalConference Service	Dialogic® NaturalAccess™ NaturalConference™ API
NaturalFax	Dialogic® NaturalAccess™ NaturalFax™ API
SAI Service	Dialogic® NaturalAccess™ Universal Speech Access API
NMS SIP for Natural Call Control	Dialogic® NaturalAccess™ SIP API
NMS RJ-45 interface	Dialogic® MD1 RJ-45 interface
NMS RJ-21 interface	Dialogic® MD1 RJ-21 interface
NMS Mini RJ-21 interface	Dialogic® MD1 Mini RJ-21 interface
NMS Mini RJ-21 to NMS RJ-21 cable	Dialogic® MD1 Mini RJ-21 to MD1 RJ-21 cable
NMS RJ-45 to two 75 ohm BNC splitter cable	Dialogic® MD1 RJ-45 to two BNC pairs splitter cable
NMS signal entry panel	Dialogic® Signal Entry Panel

Installing the software under Windows

To install the software:

1. Uninstall prior versions of NaturalAccess product software before beginning this installation.
2. Log on as a member of the Administrators group.
3. Download the NaturalAccess software from the Dialogic 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 Dialogic 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 you select:

Software	AG and CG boards	CX boards
CX		•
NaturalAccess	•	•
NaturalConference	•	
NaturalFax	•	
CAS API	•	•
Fusion API	•	
Universal Speech Access API	•	
SIP for NCC API	•	
ISDN Software	•	
OAM API	•	•
NMSLM	NA	NA

- 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 default country, as specified in the *Country protocol table* on page 12. NaturalAccess products are parameterized for the default country.
- 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 environment 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, modify the variables yourself before running any NaturalAccess applications.

After you provide the required information, the installation program launches the setup programs for each of the products to be installed, one after the other. It installs the programs in the *x:\nms* directory.

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. Review the NaturalAccess readme file.
8. Reboot the system to activate NaturalAccess environment variables.

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 the software under Solaris

To install the software:

1. Uninstall prior versions of NaturalAccess product software before beginning this installation.
2. Log on as root.
3. Download the NaturalAccess software from the Dialogic web site.
4. Expand the *.tar* file by entering the following command:

```
zcat xxxx-#####.tar.Z | tar xf -
```

where **xxxx-#####** is the name of the file.

5. Launch a web browser, and open the file *index.htm* in the root directory. This is the contents page. On this page, click **Install** NaturalAccess to start the script.

If you do not have a JavaScript-enabled web browser, change to the mount point directory. Type the following command to start the script:

```
./install
```

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:

Software	AG and CG boards	CX boards
CX		•
Fusion API	•	
NaturalAccess	•	•
NaturalConference API	•	
NaturalFax API	•	
CAS API	•	•
Universal Speech Access API	•	
SIP for NCC API	•	
ISDN Software	•	
OAM API	•	•
NMSLM	NA	NA

- The countries in which 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* on page 12.

- The default country, if more than one country is selected.

The NaturalAccess products are parameterized for the default country.

After you provide 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. Reboot the system to activate NaturalAccess environment variables.

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.

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

Step	Action
1	Open the <code>/usr/kernel/drv/agsw.conf</code> file. This file contains configuration information for the switching driver, <code>agsw</code> .
2	Modify the <code>number-ports</code> line to reflect the number of ports that the hardware supports. A value of 0 specifies that the driver uses the default of 250. <code>number-ports=num_ports</code>
3	Open the <code>/usr/kernel/drv/agmx.conf</code> file. This file contains configuration information for the mux driver, <code>agmx</code> .
4	Modify the <code>ag-ports</code> line to reflect the number of ports that the hardware supports. A value of 0 specifies that the driver uses the default of 250. <code>ag-ports=num_ports</code>
5	Reboot the system.

Installing the software under Red Hat Linux

To run NaturalAccess on a symmetric multiprocessing (SMP) machine, you must install NaturalAccess on an SMP machine in multiprocessor mode.

For more information about configuring Hot Swap under Linux, refer to the *Dialogic® NaturalAccess™ OAM System Developer's Manual*.

To install the software:

1. Log on as root.
2. Download the NaturalAccess software from the Dialogic web site.
3. Expand the .tar file by entering the following command:

```
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 program.
5. Type the following command to start the *install* executable program:

```
./install [options package-name default-country]
```

Available **options** are:

Option	Description
--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 information to the console (stdout).
--help	Display a message that describes the usage of the <i>install</i> executable program.

If you run the install command without any options, it installs all packages and selects USA protocol configurations.

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

cas cnf ctaccess cx2000 dlcp-cg fusion isdn nfx nmslm oam

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 twa usa

To learn which protocols are installed for a specific country, refer to the *Country protocol table* on page 12.

6. To activate NaturalAccess 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 the Red Hat Linux software package has difficulty setting environment variables and loading device drivers after a system restart, run the following scripts:

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

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 www.dialogic.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

Code	Country	CAS protocols	ISDN PRI protocol variants	ISDN BRI protocol variants
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
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

Code	Country	CAS protocols	ISDN PRI protocol variants	ISDN BRI protocol variants
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
THA	Thailand	MFC-R2		
TWN	Taiwan	Wink Start	QSIG Taiwan	
USA	USA	Digital/Analog Wink Start Digital Loop Start Feature Group D Ground Start Analog Loop Start SS5 Station	AT&T 4ESS AT&T 5ESS10 Northern Telecom DMS 100 US National ISDN 2 QSIG ANSI T1.607	

Using NaturalAccess documentation

NaturalAccess documentation is available on www.dialogic.com. You can:

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

The following tables summarize the NaturalAccess documents, grouped by subject.

Installing and configuring NaturalAccess hardware

For information about...	Refer to the...
Examining AG and CG board and driver errors	<i>Dialogic® NaturalAccess™ Board and Driver Error Reference</i>
Configuring and installing a board, connecting it to the network, and verifying the installation	<i>Dialogic® AG 2000 PCI Media Board Installation and Developer's Manual</i> <i>Dialogic® AG 2000C CompactPCI Media Board Installation and Developer's Manual</i> <i>Dialogic® AG 2000-BRI Media Board Installation and Developer's Manual</i> <i>Dialogic® CG 6565 PCI Media Board Installation and Developer's Manual</i> <i>Dialogic® CG 6565C CompactPCI Media Board Installation and Developer's Manual</i> <i>Dialogic® CG 6565E PCI Express Media Board Installation and Developer's Manual</i> <i>Dialogic® CG 6060 PCI Media Board Installation and Developer's Manual</i> <i>Dialogic® CG 6060C CompactPCI Media Board Installation and Developer's Manual</i> <i>Dialogic® CX 2000 PCI Station Interface Board Installation and Developer's Manual</i> <i>Dialogic® CX 2000C CompactPCI Station Interface Board Installation and Developer's Manual</i> <i>Dialogic® Hardware Connectivity Manual</i>

Configuring and managing the system

For information about...	Refer to the...
Using the NaturalAccess OAM (Operations, Administration, and Maintenance) API, and a reference of functions, parameters, events, reason codes, and errors	<i>Dialogic® NaturalAccess™ OAM API Developer's Manual</i>
Loading, configuring, and monitoring boards in an NaturalAccess OAM system	<i>Dialogic® NaturalAccess™ OAM System Developer's Manual</i>
Configuring and installing the SNMP API for NaturalAccess products	<i>Dialogic® NaturalAccess™ SNMP API Developer's Manual</i>

Developing NaturalAccess applications

For information about...	Refer to the...
Using NaturalAccess, and a reference of functions, parameters, events, reason codes, and errors	<i>Dialogic® NaturalAccess™ Software Developer's Manual</i>
Using Fusion components, capabilities, and programming models	<i>Dialogic® NaturalAccess™ Fusion™ VoIP API Developer's Manual</i>
Developing a NaturalAccess API	<i>Dialogic® NaturalAccess™ Service Writer's Manual</i>
Using the service, and a reference of functions, parameters, events, reason codes, and errors	<i>Dialogic® NaturalAccess™ Alliance Device Interface API Developer's Manual</i> <i>Dialogic® NaturalAccess™ CX Device Interface API Developer's Manual</i> <i>Dialogic® NaturalAccess™ Digital Trunk Monitoring API Developer's Manual</i> <i>Dialogic® NaturalAccess™ Media Stream Protocol Processing API Developer's Manual</i> <i>Dialogic® NaturalAccess™ NaturalCallControl™ API Developer's Manual</i> <i>Dialogic® NaturalAccess™ GR303 and V5 Libraries Developer's Manual</i> <i>Dialogic® NaturalAccess™ Point-to-Point Switching API Developer's Manual</i> <i>Dialogic® NaturalAccess™ Switching Interface API Developer's Manual</i> <i>Dialogic® NaturalAccess™ Voice Control Element API Developer's Manual</i> <i>Dialogic® NaturalAccess™ Universal Speech Access API Developer's Manual</i> <i>Dialogic® NaturalAccess™ SIP API Developer's Manual</i>

Using NaturalAccess international protocol software

For information about...	Refer to the...
Installing and running CAS protocol software with the NaturalCallControl API	<i>Dialogic® NaturalAccess™ CAS API Developer's Manual</i>
Installing NaturalAccess ISDN Software	<i>Dialogic® NaturalAccess™ ISDN Software Installation Manual</i>
Building applications that interface with the NaturalAccess ISDN protocol stack at the NaturalAccess level	<i>Dialogic® NaturalAccess™ ISDN Software Developer's Manual</i>
Building applications that interface with the NaturalAccess ISDN protocol stack using the NaturalAccess ISDN Messaging API	<i>Dialogic® NaturalAccess™ ISDN Messaging API Developer's Manual</i>
Using ISDN supplementary services accessible with ISDN Software	<i>Dialogic® NaturalAccess™ ISDN Software Supplementary Services Developer's Manual</i>
Using the NaturalAccess ISDN Management API library to interact with the NaturalAccess ISDN protocol stack	<i>Dialogic® NaturalAccess™ ISDN Management API Developer's Manual</i>

Developing media applications

For information about...	Refer to the...
Developing a media application, and a reference of functions, parameters, events, reason codes, and errors	<i>Dialogic® NaturalAccess™ NaturalConference™ API Developer's Manual</i> <i>Dialogic® NaturalAccess™ NaturalFax™ API Developer's Manual</i>

Determining software versions

To determine the version of NaturalAccess software installed on the system, run *naver*. This utility displays the versions of all NaturalAccess software products on your system.

Windows

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

Solaris and Red Hat Linux

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

Note: You can also run *ctavers* to display the version information of NaturalAccess and its components. Refer to the *Dialogic® NaturalAccess™ Software Developer's Manual* for more information.

Removing the software

You must remove all NaturalAccess software from the system at the same time.

Shut down console applications and other NaturalAccess applications before uninstalling NaturalAccess. Refer to the product documentation for specific instructions.

Windows

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

- Enter the following command at the prompt:

```
net stop ctdaemon
```

- Select **Windows Control Panel/Services** applet. Select **NMS CTdaemon** from the Service list. Click **Stop**.

To remove NaturalAccess software:

Step	Action
1	Click Start > Settings > Control Panel . The Control Panel window appears.
2	Double-click Add/Remove Programs . The Add/Remove Programs dialog box appears.
3	Select NaturalAccess 9.0 , and click Remove to remove all NaturalAccess9.0 products. The NaturalAccess software is removed from the system.

Solaris and Red Hat Linux

To remove NaturalAccess software:

Step	Action
1	Log on as root.
2	Start a new terminal session.
3	Start the NaturalAccess remove script by entering the following command: <pre>/opt/nms/bin/remove</pre> The script removes the NaturalAccess products from the system.