



Cisco Active Network Abstraction Shell User's Guide, 3.5

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1 Introduction

This chapter discusses the objectives, audience, organization and conventions of the Dynamic Network Abstraction (DNA) documentation.

1.1 Objectives

The DNA Shell interface is the Command Line Interface of the DNA Shell Manage system. It supports a subset of the capabilities supported by the system including management, surveillance and provisioning.

This document describes implementation guidelines of the DNA Shell interface, basic command's behavior and the various commands supported by the DNA.

1.2 Highlights

- IOS based Command Line Interface.
- Flat command hierarchy (a limited number of modes and unlimited number of nesting levels).
- Embedded inline help and command completion.
- Exports all commands supported by the system.
- Basis for a user's guide.

1.3 Audience

This User's Guide is intended for use by the following:

- Project Managers: In order to verify that the content of the product is consistent with the marketing vision and requirements.
- Implementers: In order to verify implementation against the requirements.
- QC: In order to gain perspective on the product's capabilities and as a basis for test plans.
- Technical Writers: In order to provide a basis for the product's User's Guide.

1.4 Document Conventions

The DNA Shell documentation uses the following conventions:

Convention	Description
^ or Ctrl	The ^ and Ctrl symbols represent the Control key. For example, the key combination ^D or Ctrl-D means hold down the Control key while you press the D key. Keys are indicated in capital letters but are not case sensitive.
<i>string</i>	A string is a set of characters shown in italics. You may use quotation marks for strings with spaces and other special characters

Command syntax descriptions use the following conventions:

Convention	Description
boldface	Boldface text indicates commands and keywords that you enter literally as shown.
<i>italics</i>	Italic text indicates arguments for which you supply values.
[x]	Square brackets enclose an optional element (keyword or argument).
	A vertical line indicates a choice within an optional or required set of keywords or arguments.
[x y]	Square brackets enclosing keywords or arguments separated by a vertical line indicate an optional choice.
{x y}	Braces enclosing keywords or arguments separated by a vertical line indicate a required choice.

Nested sets of square brackets or braces indicate optional or required choices within optional or required elements. For example:

Convention	Description
[x {y z}]	Braces and a vertical line within square brackets indicate a required choice within an optional element.

Examples use the following conventions:

Convention	Description
screen	Examples of information displayed on the screen are set in Courier New font.

Convention	Description
Boldface screen	Examples of text that you must enter are set in Courier New bold font.
< >	Angle brackets enclose text that is not printed to the screen, such as passwords.
[]	Square brackets enclose default responses to system prompts.
“x”	Quotation marks indicate (eg pg 7)

- Each DNA Shell command is described in a table with the following format:

Name			
Description			
Mode			
Usage			
General			
Example			
Output Format	Type		

2 General

This chapter provides a top-level view of the components, excluding the specific requirement issues.

2.1 Background

The system is comprised of the following main three components, which require command-line management:

- DNA Shell client

- Unit process/VNE

All of these components should support the same interface behavior.

2.2 Users

Two types of users are expected to use the DNA Shell interface:

- Network Operators: Responsible for network operation tasks like surveillance and provisioning.
- Sheer Technicians: Responsible for low-level system maintenance, debugging and fine-tuning.

2.3 Goals

- IOS based Command Line Interface for all aspects of the system.
- Enable multi-level management: Network, and VNE perspectives.

2.4 Role

The DNA Shell serves as the front-end of the system and therefore only provides services to the end-user. In view of the fact that it unifies the operations of all the system components, it requires the following services to be supported by the system components:

Component	Services Required from the Component
Gateway	All required surveillance and provisioning commands should be supported by Gateway
AVM	Should support management operations at AVM level like starting a new AVM.
VNE	Should support VNE management operations like starting and stopping VNEs.

2.5 Glossary

This section defines the different types of parameters that can be used as arguments to the DNA Shell commands. All the parameters of the commands are strings in one of the formats provided in this document.

Type	string
Description	List of characters. If the string is not quoted, it must not contain white spaces. If the string contains white spaces, it must be quoted. To use quotes inside a string, escape them with a backslash.
Format	
Example	user1 " the string \"string\""
Remark	How to deal with strings with white spaces?

Type	name
Description	The same as string. Used for clarity (for example as device name)
Format	
Example	user1

Type	integer
Description	A string representing an integer
Format	
Example	352

Type	vc
Description	Identifier of an ATM VC
Format	<Integer>["/"<Integer>] Both integers must be at the range specified by ATM.
Example	1/102

Type	Location
Description	Location identification of one of the following network entities: Port, VC, and Context.
Format	d <IPAddress> s <integer> m <integer> [sm <integer>] p <integer> [sp <integer>] [lp <integer>] [vc <integer>[/<integer>]] d <IPAddress> c <name>
Example	d 192.68.10.1 s 1 m 1 p 2 vc 0/101 d 192.68.10.1 s 1 p 2 sp 0 vc 0 d 192.168.10.1 c local

Type	ip (=IPAddress)
Description	IP address
Format	X.X.X.X
Example	192.168.1.2

Type	filename
Description	A valid filename on the operating system on which the client is running.
Format	String
Example	path1.snc /export/home/sheer1.3/Main/path2.snc

Type	Date
Description	String representing date and time
Format	<i>Unix “date” format in the default “C” locale</i>
Example	Mon Jul 22 16:56:25 IDT 2002

3 Functional Definition

This chapter describes the DNA Shell modes, errors and output format. In addition, it describes the basic commands, Unit node management, and surveillance commands.

3.1 Interface Behavior

The DNA Shell Command Line Interface follows similar guidelines to the Cisco IOS interface.

The interface should include the following:

Command completion: Pressing **TAB** will complete the currently partially typed command. If there is more than one valid completion, the DNA Shell should beep.

Fast help mechanism: Pressing “?” will list all valid completions.

Completion sound notification: Short alarm notice is given when completion is not available.

Error messages: Refer to *DNA Shell Errors*.

Interface is case insensitive.

Partial syntax recognition.

The DNA Shell should perform all validity tests of the input.

The connection to both the DNA Manage and the Unit machines will use DNA Shell syntax. This means that “Telnet” to a Unit machine should allow all management functions relevant to a single machine.

The DNA Shell should support “More” and terminal length.

3.2 DNA Shell Modes

This section describes the different DNA Shell modes, namely, exec, enable, configure and manage.

Mode Name	Description	Remark
exec	Entrance mode. It is designed to show general details to the simple user (operator). Activation of this mode is authenticated using a User Name and Password upon login to the DNA Shell.	

Mode Name	Description	Remark
enable	Enhanced user mode. Allows further details and configuration. Activation of this mode is authenticated using a Password.	
configure	Configuration mode. This mode is used to set different attributes. Activation of this mode is authenticated is and possible only from "enable" mode.	
manage	Management mode. This mode is used to perform management operations on the system. This mode requires authentication	

Each level includes all previous levels.

3.3 DNA Shell Errors

This section describes error handling and error messages in the DNA Shell.

3.3.1 Errors Style

1. Upon function termination with error the printout should be **ERROR (error code): error message**
For example:
`ERROR(10443): IP address already inuse`
2. In case of parsing error or type-check error (for example, string instead of integer), the command will be reprinted with an arrow pointing to the erroneous phrase. Otherwise, the command will not be reprinted.
Example: typing "show ip 192.168.1" will result with
`ERROR (203): Invalid Value`
`show ip 192.168.1`
 ^

3.3.2 Command Completion Errors

Error Example	Error Message
show momomo ^	Unknown command (a “^” character will mark the first letter that is unrecognized)
ip change <cr>	Incomplete command (when more arguments are needed)
s <TAB>	Beep if more then one command starts with “s”

3.4 Output Format

This section describes the format of the output that the DNA Shell may return.

3.4.1 Table

- Each table should have a header that lists the names of the columns.
- The header should appear only once at the beginning of the table (and not on each page).
- A vertical ruler should separate the header from the rows of the table.
- All table fields should be left aligned.

Example:

No.	IP	Name	Type	Uptime

1	192.168.2.3	asam1	ASAM1000	29.04.02 13:12
10	192.168.2.4	asam2	ASAM1000	1.05.02 9:43
11	192.168.2.45	RedBack2	SMS500	1.05.02 9:44
100	192.168.2.46	RedBack3	SMS500	1.05.02 9:44

3.4.2 Properties

Text paragraph with the following format:

```
<objectname>:
  <attribute name> = <value>
  ...
```

Example:

```
192.168.2.3:
    IP address = 192.168.2.3
    Name = asam1
    Type = ASAM1000
    Vendor = Alcatel
    Uptime = 1.05.02 13:13
    Status = OK
```

3.5 Output Redirection

Output redirection enables sending the output of a command to a file.

There are two options for output redirection:

"> <filename>" at the end of the command will create a new file and redirect the command output to it. If the file already exists, the new file will override the old one. In case of an error in creating the output file, the command will not be executed. For example: `show device > out.txt`

">> <filename>" at the end of the command will append the output to an existing file. The file should be created if not exists.

3.6 Background Processing

Each DNA Shell command may be executed at the background using the "&" symbol at the end of the command. For example "`show link > links.txt &`" will execute the command "`show link`" at the background, redirecting all output to the file "`links.txt`". By default, unless redirection is specified, the output of a background command is redirected to the DNA Shell terminal

3.7 Basic Commands

This section describes the basic commands.

3.7.1 Inline Help (“?”)

Name	Inline help
Description	Supply command completion while typing
Mode	All modes
Usage	?
General	That command executes with out typing <cr>.
Example	<pre>show ? path find path from source to destination blabla a command that generates a very long description that exceeds a single line and therefore should properly wraparound to the next line</pre>
Output Format	<p>List of valid options with a short description for each option.</p> <p>If the description exceeds a single line, the lines after the first one should be indented with the first description line</p>
Remarks	
Priority	High

3.7.2 Enable

Name	Enable
Description	Enter enable mode
Mode	exec
Usage	enable
General	<p>Demands authentication.</p> <p>After entering enable mode the interface prompt is suffixed with a hash (#) sign.</p>
Example	enable
Output Format	None
Remarks	
Priority	High

3.7.3 Configure

Name	Configure
Description	Enter configure mode
Mode	enable
Usage	configure <cr>
General	After entering configure mode, the interface prompt is suffixed with a "conf".
Example	configure <cr>
Output Format	None
Remarks	
Priority	High

3.7.4 Exit DNA Shell

Name	Exit DNA Shell
Description	Exit DNA Shell interface
Mode	exec
Usage	exit <cr>
General	
Example	exit
Output Format	None
Remarks	If the DNA Shell serves as the shell of the machine, it should return to the login window.
Priority	High

3.7.5 Exit current mode

Name	Exit current mode
Description	Exit current DNA Shell mode and return to the previous mode
Mode	enable, config, manage
Usage	exit <cr>
General	Executing <code>exit</code> in <code>enable</code> mode returns to <code>exec</code> mode. Executing <code>exit</code> in <code>config</code> mode returns to <code>enable</code> mode. Executing <code>exit</code> in <code>manage</code> mode will return to the mode from which the user entered it (could be <code>enable</code> or <code>configure</code>).
Example	exit
Output Format	None
Remarks	
Priority	

3.7.6 Help

Name	Help
Description	Prints general help. Lists all the commands with a short description line for each command.
Mode	All modes
Usage	help <cr>
General	
Example	help
Output Format	A fixed help message.
Remarks	
Priority	Medium

3.7.7 Terminal Length

Name	Terminal length
Description	Set terminal length
Mode	all modes
Usage	terminal length <integer> <cr>
General	Use length 0 for no pausing.
Example	terminal length 40
Output Format	None
Remarks	
Priority	Low

3.7.8 Show history

Name	Show history		
Description	Show previously executed command		
Mode	all modes		
Usage	history <cr>		
General	The history should contain the last 100 commands (currently not configurable)		
Example	history		
Output Format	Type	Table	
	Columns	Column	Description
		Index	The index of the command. Index 1 refers to the previous command.
		Command	The string of the command
Remarks			
Priority			

3.7.9 Clear history

Name	Clear history
Description	Clear the command list stored in the history buffer
Mode	all modes
Usage	history clear<cr>
General	
Example	history clear
Output Format	None
Remarks	
Priority	

3.7.10 Access history

Name	Access history
Description	Execute again a command in the history buffer
Mode	all modes
Usage	history <integer> <cr>
General	The index is the last command (not including the current history command) is 1, the command be before is 2 and so on.
Example	history 3
Output Format	None
Remarks	
Priority	

3.7.11 Execute script

Name	Execute script
Description	Execute a script file of DNA Shell commands
Mode	All modes
Usage	run <filename> [async] [silent] <cr>
General	<p>The scripts must reside on the Unix machine executing the DNA Shell on the directory /export/home/sheer/bos. The files should be transferred to this directory (or its subdirectories) by using FTP. The scripts may reside in subdirectories of the base directory /export/home/sheer/bos, in which case the name of the script should include the relative path of the script.</p> <p>“silent” indicates suppressing any output that the command sends to the terminal.</p> <p>Note that the script can be executed at the background using “&”.</p>
Example	<pre>run provision.cmd run scripts/provision.cmd</pre>
Output Format	None
Remarks	
Priority	

3.7.12 General Commands Tree

```
?
enable
exit
help
terminal
length
execute
show
unit
tasks
```

3.8 Node Management

This section describes the commands needed to manage a Unit node. Unit node management includes management of the AVM processes and VNEs within the AVMs.

3.8.1 AVM Management

3.8.1.1 Show AVM List

Name	Show AVM list		
Description	Show a list of AVMs with their minimal set of properties		
Mode	manage		
Usage	show [unit [<IPAddress>]] avm <cr>		
General	<p>If an IP address is given, show only AVMs on the specified machine. Otherwise, show AVMs on all machines.</p> <p>If no <code>unit</code> is given, then the command refers to the current machine.</p>		
Example	show unit avm <cr>		
Output Format	Type	Table	
	Columns	Column	Description
		Machine	IP address of the machine where the AVM resides
		ID	AVM ID
		PID	Process ID
		Port	Management port
		Uptime	Process uptime (date format)
		Version	AVM version
Remarks			
Priority	High		

3.8.1.2 Show AVM VNEs

Name	Show AVM VNEs		
Description	List all the VNEs of a specific AVM		
Mode	manage		
Usage	show [unit <IPAddress>] avm <integer> all agent [detailed] <cr>		
General	<p>Lists all the VNEs in the AVM.</p> <p>If no <code>unit</code> is given, then the command refers to the current machine.</p> <p>If “detailed” is not given, only DAs are displayed. Otherwise, all VNE types (DA, CA, IA) are displayed.</p> <p>“all” refers to all AVMs in the current machine.</p> <p>The command should display also configured VNEs, which are configured in the XML but are not loaded. In this case, all the non-relevant fields should be empty.</p>		
Example	show unit 192.168.2.10 avm 32 agent		
Output Format	Type	Table	
	Columns	Column	Description
		IP address	VNE leading IP
		Type	VNE Type (DA, IA, CA)
		State	VNE state (idle, wait, block, running, configured)
		Runtime	The total time spent by the VNE processing messages.
		Wait time	The total time spent by the VNE waiting to process messages.
		Last run	The last time the VNE visited the scheduler. Units are milliseconds relative to now
		Transport address	The VNE's transport address in hexadecimal format.
Parent	Parent VNE. Transport address of the parent VNE		
Remarks			

Priority	
----------	--

3.8.2 VNE Management

3.8.2.1 Show All VNEs

Name	Show all VNEs in the Unit
Description	Show the basic information about all the VNEs in the system (all AVMs)
Mode	manage
Usage	<code>show agent [detailed] <cr></code>
General	If “detailed” is not given, only DAs are displayed. Otherwise, all VNE types (DA, CA, IA) are displayed.
Example	<code>show agent <cr></code>
Output Format	Refer to <i>Show AVM VNEs</i> .
Remarks	
Priority	

3.8.2.2 Show VNE Information (-)

Name	Show VNE information
Description	Show the information for a specific VNE
Mode	manage
Usage	<code>show agent <IPAddress name> <cr></code>
General	The parameter can be the leading IP of the VNE, or the device name
Example	<code>show agent <cr></code>

Output Format	Type	Properties	
	Fields	Field	Description
		IP Address	VNE leading IP
		Type	VNE Type (DA, IA, CA)
		Machine	IP address of the machine where the VNE is installed
		AVM	AVM number where the VNE is installed
		Transport address	The VNE's transport address in hexadecimal format.
		State	VNE state (idle, wait, block, running, configured)
		Runtime	The total time spent by the VNE processing messages.
		Wait time	The total time spent by the VNE waiting to process messages.
		Last run	The last time the VNE visited the scheduler. Units are milliseconds relative to now
		Parent	Parent VNE. Transport address of the parent VNE
Remarks			
Priority			

3.8.2.3 Add AVM

Name	Add AVM
Description	Add a new AVM to a Unit.
Mode	manage
Usage	unit <IPAddress> avm <integer> add <cr>
General	The parameter represents the id of the AVM that is to be added
Example	unit 192.168.2.10 avm 32 add
Output Format	None
Remarks	
Priority	

3.8.2.4 Remove AVM

Name	Remove AVM
Description	Remove an AVM from a Unit machine
Mode	manage
Usage	unit <IPAddress> avm <integer> remove<cr>
General	The parameter represents the id of the AVM to be deleted
Example	unit 192.168.2.10 avm 32 remove
Output Format	None
Remarks	
Priority	

3.8.2.5 Load AVM

Name	Load AVM
Description	Add a configured AVM to the Unit bootstrap list.
Mode	manage
Usage	unit <IPAddress> avm <integer> load <cr>
General	The parameter represents the id of the AVM to be loaded. The newly loaded AVM starts immediately, and in addition, it will be started in all consecutive restarts of the system.
Example	unit 192.168.2.10 avm 32 load
Output Format	None
Remarks	To immediately start the new AVM, refer to <i>Error! Reference source not found.</i>
Priority	

3.8.2.6 Unload AVM

Name	Unload AVM
Description	Remove an AVM from the bootstrap list.
Mode	manage
Usage	unit <IPAddress> avm <integer> unload <cr>
General	The AVM will be automatically stopped, if currently executing. The parameter represents the id of the AVM to be unloaded.
Example	unit 192.168.2.10 avm 32 unload
Output Format	None
Remarks	
Priority	

3.8.2.7 Add VNE

Name	Add VNE
Description	Add an VNE to the configuration database of a given AVM.
Mode	manage
Usage	agent <IPAddress> add unit <IPAddress> avm <integer> name <name> vendor <string> type <string> <cr>
General	If no name is given, the IP address will be used as the device name. See “ Error! Reference source not found. ” for supported vendors and types.
Example	agent 192.168.2.3 add unit 192.168.2.10 avm 32 vendor alcatel type asam1000
Output Format	None
Remarks	It would be easier to use the command if the user won't have to supply vendor and type. However, currently it is difficult to implement this requirement and therefore it will be postponed to future versions.
Priority	

3.8.2.8 Remove VNE

Name	Remove VNE
Description	Remove a VNE from a given AVM
Mode	manage
Usage	agent <IPAddress> remove <cr>
General	
Example	agent 192.168.2.3 remove
Output Format	None
Remarks	If the VNE is currently running it will stop. If the VNE is loaded it should be unloaded from the bootstrap list.
Priority	

3.8.2.9 Load VNE

Name	Load VNE
Description	The newly loaded VNE starts immediately. In addition, it will be loaded every time the system restarts.
Mode	manage
Usage	agent <IPAddress> load <cr>
General	
Example	agent 192.168.2.3 load
Output Format	None
Remarks	
Priority	

3.8.2.10 Unload VNE

Name	Unload VNE
Description	Unload an VNE from the AVM bootstrap list. If the VNE is currently running, it is stopped before unloading from the bootstrap list.
Mode	manage
Usage	agent <IPAddress> unload <cr>
General	
Example	agent 192.168.2.3 unload
Output Format	None
Remarks	
Priority	

3.8.2.11 Add Static Topology Link

Name	Add static topology link
Description	Add a static link between two devices in the network
Mode	manage
Usage	<pre>topology link source <IPAddress> [shelf <integer>] module <integer> [submodule <integer>] port <integer> destination <IPAddress> [shelf <integer>] module <integer> [submodule <integer>] port <integer> add [unidirectional] <cr></pre>
General	<p>By default, the link is bidirectional.</p> <p>Unidirectional represents a unidirectional link.</p> <p>The created link is disabled and should be manually enabled.</p>
Example	<pre>topology link source 192.168.2.3 module 1 port 1 destination 192.168.2.4 module 2 port 1 add</pre>
Output Format	None
Remarks	
Priority	

3.8.2.12 Remove Static Topology Link

Name	Remove static topology link
Description	Remove an existing static topology link
Mode	manage
Usage	<pre>topology link source <IPAddress> [shelf <integer>] module <integer> [submodule <integer>] port <integer> destination <IPAddress> [shelf <integer>] module <integer> [submodule <integer>] port <integer> remove [unidirectional] <cr></pre>
General	
Example	<pre>topology link source 192.168.2.3 module 1 port 1 destination 192.168.2.4 module 2 port 1 remove</pre>
Output Format	None
Remarks	
Priority	

3.8.3 Node Management Commands Tree

```

passwd
ping
rlogin
telnet
traceroute
prompt
show
    unit
        ip
            route
            dns
            interface
                <cr>
                <name>
            system
                disk
                versions
                performance
                process
sheer
    avm
        agent
        services
        watchdog
        logger
    agent
        <cr>
        <name>
        watchdog
transport
uplink
    unit
        addhost
        restart
        shutdown
        upgrade
        ip
            route
                default
                net
                    add
                    delete
        avm
add
delete

```

```
load
unload

                                shutdown
                                start
                                restart
                                watchdog
                                    enable
                                    disable
                                logger
                                    level
                                    save
                                    reload
                                    reset
                                agent

add
delete
load
unload

                                suspend
                                resume
                                restart
                                shutdown
                                start
                                watchdog
                                    enable
                                    disable

transport
uplinks
add
delete
enable
disable
topology
link
add
delete
enable
disable
```

3.9 Surveillance

This section describes the surveillance commands that should be supported by the DNA Shell interface.

3.9.1 Show Links

Name	Show links		
Description	Show the topological links managed by the Unit.		
Mode	enable		
Usage	show link <cr>		
General			
Example	show link		
Output Format	Type	Table	
	Columns	Column	Description
		Index	Unique running index
		From	A-side location
		To	Z-side location
State	Automatic, Static, Configured		
Priority			

3.9.2 Drools Rules Management

3.9.2.1 Show rules

Name	Show rules
Description	Show all rules
Mode	enable
Usage	show rule
General	
Example	show rule
Output Format	contextID, ruleName, isValid
Remarks	
Priority	

3.9.2.2 Show rules

Name	Show rules
Description	Show rules of a specific context
Mode	enable
Usage	show rule <contextID>
General	
Example	show rule aaa
Output Format	contextID, ruleName, isValid
Remarks	
Priority	

3.9.2.3 Reload rules

Name	Reload rules
Description	Reloads all rules of a specific context
Mode	config
Usage	rule <contextID> reload
General	
Example	rule aaa reload
Output Format	
Remarks	
Priority	

3.9.2.4 Validate rule

Name	Validate rule
Description	Validate a specific rule
Mode	
Usage	rule <contextID> <ruleName> validate
General	
Example	rule aaa bbb validate

Output Format	
Remarks	
Priority	

3.9.3 Surveillance Commands Tree

```
show
device
list
<name>
module
port
circuits
alarm
alarm
circuits
context
properties
interface
ip
route
pool
ip
route
pool

bridge
info
table
profile
<cr>
<name>
ip
route
alarm

link
<cr>
location
alarm
path
subscriber
alarm
device
module
```

port
acknowledge
clear
remove
affected
subscriber
attach
detach
set
remove

Regular Expressions

Wildcard	Meaning
<code>%</code>	Matches any string of zero or more characters.
<code>-</code>	Matches any one character.
<code>[toekn]</code>	<p>Brackets enclose ranges or set, like <code>[1-9]</code> or <code>[klmnopq]</code>.</p> <p>There are two ways of formatting token:</p> <p>Range</p> <p>Start-stop:</p> <p>Start is the beginning of the character range.</p> <p>"-" is a special character indicating a range.</p> <p>Stop is the end of the character range.</p> <p>Set</p> <p>Comprises discrete character values in any order.</p> <p>Examples - <code>[a4Bc]</code>, <code>[abcdefg]</code></p>
<code>[^token]</code>	<p>The caret "^" before a token indicates non-inclusion.</p> <p>Examples - <code>[^c-g]</code> means any character that is not a 'c', 'd', 'e' or 'g'.</p>

A DNA Shell Potential Errors

All error codes and messages are described below.

Code	Error Constant	Description
0	NO_ERROR	Operation completed successfully
1000	GENERAL_ERROR	General error. This is the most generic error and should be reported only when a more concrete error code does not exist.
2000	EXECUTION_FAILED	General error caused by an execution error while trying to execute a command. This can be, for example, because the VNE does not exist, a wrong parameter, etc'.
3000	CONNECTION_FAILED	General connection failures. Use more concrete subtypes when possible
3100	CONNECTION_WITH_MM_FAILED	DNA could not connect to the MM server.
3101	CONNECTION_WITH_MC_FAILED	DNA could not connect to a Unit server.
4000	COMMAND_NOT_SUPPORTED	The command is not supported by the MM or the Unit
5000	INVALID_VALUE	General error for invalid parameter value

