

# NR500 Series Industrial Cellular VPN Router

# **Application Note 055**

TR069

Version:V1.0.0Date:Jul 2020Status:Confidential





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# 1. Introduction

### 1.1 Overview

This document contains information regarding the configuration and use of TR069.

This guide has been written for use by technically competent personnel with a good understanding of the communications technologies used in the product, and of the requirements for their specific application.

### 1.2 Compatibility

This application note applies to: **Models Shown:** NR500 series. **Firmware Version:** V1.1.4(0c0c9fa) or newer **Other Compatible Models:** None

#### 1.3 Version

Updates between document versions are cumulative. Therefore, the latest document will include all the content of previous versions.

Release Date	Doc. Version	Firmware Version	Change Description
2020/07/17	V1.0.0	V1.1.4(0c0c9fa)	First released

### 1.4 Corrections

Appreciate for corrections or rectifications to this application note, and if any request for new application notes please email to: **support@navigateworx.com** 



# 2. Topology



- 1. NR500 router connect to the TR069 management platform.
- 2. TR069 management platform can do the monitoring or control the router. For example control the router restart, reset the router to factory default setting, upgrade the firmware/APPs/configuration, syslog upload, NTP configured, check the cellular, active link and NTP status.

Note: This Application Note is tested with "**XACS**" TR069 management platform.



## 3. Configuration

#### 3.1 Configuration on NR500

1. Go to **Applications>TR069**, specify the settings to make the router connect to TR069 management platform:

Overview	TR069	
Link Management	Local Settings	
Industrial Interface	Enable	۲
Network	Local Port	7547
Applications	Authentication	Digest
DDNS	Username	
SMS Schodula Dahaat	Password	
<ul> <li>TR069</li> </ul>	Log Level	Info •
VPN	ACS Settings	
Maintenance	URL	http://192.168.111.19/acs
	Username	
	Password	
	Enable Periodic	
	Periodic Interval	1800
	Http 100 Continue Enable	
	Manufacturer Info	
	Manufacturer	Navigateworx
	Manufacturer OUI	FFFFE
		Save Apply

Note: During the test without the authentication both on NR500(CPE) and TR069 Management Platform (XACS), so not need to set the username and password.

2. Login to the XACS, on the homepage we can see the router had connected to the platform successfully:

	- WELCOME -	Res	ource Configuration	Upgrade Security	System Al	out					Welcome:admin Role:Super Admin Logout
C	Resource		IP	SN	Manaufactor	Model	First Contact	Last Contact	Soft Version	Hard Version	Operation
2	Global View		192.168.111.199	19125124330003	Navigateworx	NR500-S4G	2012-07-20 14:02:19	2012-07-20 14:36:44	1.1.4 (0c0c9fa)	1.0.0	Detail DataModel Delete Test
	AILCPE	Tota	h 1								<< <1>>>
	Category View						Delete Appl	y Template In Batch			



## 4. Control and Monitor NR500

#### 4.1 Reboot

Login to the platform and go to **Resource>Test>Reboot**, the router will reboot when click the "Reboot" button:

	- WELCOME -	Resource	Configuration	Upgrade Security	System /	Voout					Welcome:adm	n Role:Super	Admin Logout
0	Resource	•	IP	SN	Manaufactor	Model	First Contact	Last Contact	Soft Version	Hard Version	0	peration	
•	Global View	192	.168.111.199	19125124330003	Navigateworx	NR500-S4G	2012-07-20 14:02:19	2012-07-20 15:06:44	1.1.4 (0c0c9fa)	1.0.0	Detail DataMode	Delete	Test
	AILCPE	Total 1											<< <1>>>>
•	Category View						Delete App	y Template In Batch					
	- WELCOME -	Resource	Configuration	Upgrade Security	System	About					Melcome:adm	in Role:Super	Admin Logout
•	Resource	- Naviga	teworx CPE SN:19	125124330003, URL:http:,	/192.168.111.199:7	547/							
<b>•</b>	Global View	ACSIR	·翻IP: 192.168.2	247.1	*								
	AILCPE	当前A	CS IP GetRPCM	ethods Reboot Fac	toryReset 报文跟	83.							
-	Category View	一日志上	传										
		Unloa	dlog										
		Copica	d bog										
		一配置上	传										
		Uploa	d Config										
		- 配置核	复										
		Choos	e One ▼ 重载列	表 恢复到当前配置									
		一 固件升	銀										
		固件文	Choose File	No file chosen	升级								

### 4.2 Factory Reset

Login to the platform and go to **Resource>Test>FactoryReset**, the router will reset when click the "FactoryReset" button:

Kosserce     IP     SN     Manaufactor     Mo     Global View     102 169 111 100     1012E134220002     Nucleastance     NDE00	First Contact           I-S4G         2012-07-20 14:02:19	Last Contact 2012-07-20 15:06:44	Soft Version	Hard Version	Operation
▼ Global View 103 169 111 100 10135134220002 Neudanbeurone NDE00	+S4G 2012-07-20 14:02:19	2012-07-20 15:06:44	1.1.4 (0-0-0(-)		
192.108.111.199 19125124550005 Navigatework NK500			1.1.4 (OCOC9fa)	1.0.0	Detail DataModel Delete Test
All CPE Total 1					<< <1>>>>
Category View	Delete Ap	ply Template In Batch			
NHLCOME         Resource         Configuration         Upgrade         Security         System         About            Resource         Configuration         Upgrade         Security         System         About            Global View         All CPE         All System         All CPE         All System         All CPE           Category View         日志上台         Upbad Log         日志上台         Upbad Log         All System         All System					Wekone.admin Role.Super Admin Logoot



### 4.3 Syslog Upload

Login to the platform and go to **Resource>Test>Upload Log**, the router's syslog will display on the TR069 management platform:

- WELCOME -	Resource Configuration	Upgrade Security	System /	bout					🖨 Welcome:admin Role:Super Admin	Logout
O Resource O	IP IP	SN	Manaufactor	Model	First Contact	Last Contact	Soft Version	Hard Version	Operation	
▼ Global View	192.168.111.199	19125124330003	Navigateworx	NR500-S4G	2012-07-20 14:02:19	2012-07-20 15:06:44	1.1.4 (0c0c9fa)	1.0.0	Detail DataModel Delete Test	
All CPE	Totali 1								<< <	1>>>
Category View					Delete App	y Template In Batch				
+ WELCOME +	Resource Configuration	Upgrade Security	System	About					📾 Welcome:admin Role:Super Admi	in Logo
Resource	Navigateworx CPE SN:1	9125124330003, URL:http	://192.168.111.199:	7547/						
Global View	ACS服务器IP: 192.168	3.111.19								
AILCPE	当前ACS IP GetRPC	Methods Reboot Fa	ctoryReset 报文】	12						
Category View	日志上传									
	Lisland Log									
	2d 20 15:41:27 em inste	in the second	021]	160 111 70/200						
	Jul 20 15:41:27 navigate Jul 20 15:41:27 navigate	worx user.debug cwmp[5	021]: un: http://192 021]: ssl_verify: SSL	certificate validat	ion disabled.					
	Jul 20 15:41:27 navigate Jul 20 15:41:27 navigate	worx user.debug cwmp[5 worx user.notice cwmp[5	021]: HTTP CLIEN 021]: configured acs	IT CONFIGURATION url http://192.168	ON 8.111.70/acs					
	Jul 20 15:41:27 navigate Jul 20 15:41:27 navigate	worx user.debug cwmp[5	021]: external script	init te inform parame	ter					
	Jul 20 15:41:29 navigate	worx user.notice cwmp[5	021]: send Inform		. Contractor 14.01 and 1	- lute of second loss in the				
	xmlns:soap_enc="http://	schemas.xmlsoap.org/sol	p/encoding/" xmln	IP REQUEST ++-	+ < rxmi version= 1.0 encodi	ng= UTF-8 standaione= no r	<soap_env:cnvelope< p=""></soap_env:cnvelope<>	e xmins:soap_env= ni	tp://schemas.xmisoap.org/soap/envelope/	
	Jul 20 15:41:29 navigate Jul 20 15:41:29 navigate	worx user.debug cwmp[5 worx user.debug cwmp[5	021]: SEND HTTP 021]: +++ RECEIVE	REQUEST HTTP RESPONS	E +++ <soap-env:envelope< th=""><td>xmlns:SOAP-ENV="http://sch</td><td>emas.xmlsoap.org/soar</td><td>/envelope/" xmlns:S0</td><th>JAP-</th><td></td></soap-env:envelope<>	xmlns:SOAP-ENV="http://sch	emas.xmlsoap.org/soar	/envelope/" xmlns:S0	JAP-	
	ENC="http://schemas.xn	nlsoap.org/soap/encoding	" xmlns:cwmp="urn	dslforum-org:cw	mp-1-0" xmlns:xsd="http:					
	Jul 20 15:41:29 navigate	worx user.notice cwmp[5	021]: receive Inform	Response from th	e ACS					
	Jul 20 15:41:29 navigate Jul 20 15:41:29 navigate	worx user.notice cwmp[5 worx user.debug cwmp[5	021]: send empty me 021]: +++ SEND EM	ssage to the ACS PTY HTTP REQUE	ST +++					
	Jul 20 15:41:29 navigate ENC="http://schemas.xm	worx user.debug cwmp[5 nlsoap.org/soap/encoding	021]: +++ RECEIVE /" xmlns:cwmp="urn	O HTTP RESPONS dslforum-org:cw	E +++ <soap-env:envelope mp-1-0" xmlns:xsd="http:</soap-env:envelope 	xmlns:SOAP-ENV="http://sch	emas.xmlsoap.org/soap	/envelope/" xmlns:S0	JAP-	

### 4.4 Config Upload

Login to the platform and go to **Resource>Test>Upload Config**, the router's config will display on the TR069 management platform:

	- WELGOME -	Resource Config	guration Upgrade	e Security	System A	bout					Welcome:admin Role:Super Admin Logout
0	Resource	I IP	•	SN	Manaufactor	Model	First Contact	Last Contact	Soft Version	Hard Version	Operation
•	Global View	□ 192.168.11	1.199 19125	124330003	Navigateworx	NR500-S4G	2012-07-20 14:02:19	2012-07-20 15:06:44	1.1.4 (0c0c9fa)	1.0.0	Detail DataModel Delete Test
_	AILCPE	Total: 1									<< <1>>>
•	Category View						Delete App	ly Template In Batch			
_											
	- WELCOME -	Resource Confi	iguration Upgrad	de Security	System	About					Welcome:admin Role:Super Admin Log
0	Resource	- Navigateworx (	CPE SN:191251243	130003, URL:http	p://192.168.111.199:	7547/					
•	Global View	ACS服务器IP:	192.168.111.19		*						
	AILCPE	当前ACS IP	GetRPCMethods	Reboot	actoryReset 报文】	民踪					
-	Category View	一日志上依									
		Unlead Los									
		Opioad Log									
		お果上体									
		Hold Liv									
		Upload Config									
		{ "ad":{									
		"default_policy" },	":"accept"								
		"dmz":{ "enable":"false"									
		"remote":"0.0.0 "host":""	0.0∨0",								
		},	h":{								
		"enable":"false" "host_mac":""									
		"https_access":	"true",								
		"ssh_access":"fa	alse"								
		11									



#### 4.5 Config Update

From the TR069 management platform, we can do the config update to the router. Follow step4.4 we can upload a config to the platform, or we can put the config file to the "uploads" installation folder, then go to **Resource>Test>Config Reset**, to apply the config to the router:

- WELCOME -	Resource Configuration	Upgrade Security	System	About					🕒 Welcome:admin R	Role:Super Admin Logout
C Resource O	IP IP	SN	Manaufactor	Model	First Contact	Last Contact	Soft Version	Hard Version	Ope	ration
▼ Global View	192.168.111.199	19125124330003	Navigateworx	NR500-S4G	2012-07-20 14:02:19	2012-07-20 15:06:44	1.1.4 (0c0c9fa)	1.0.0	Detail DataModel	Delete
All CPE	Total 1									<< <1>>>>
Category View					Delete App	ly Template In Batch				
- WELCOME -	Resource Configuration	Upgrade Security	System	About					Welcome:adm	in Role:Super Admin Logo
Resource     O	Navigateworx CPE SN:1	9125124330003, URL:http	o://192.168.111.199:	7547/						
▼ Global View	ACS服务器IP: 192.168	8.111.19	*							
	(当前ACS IP ) GetRPC	Methods (Reboot ) Fi	actoryReset ) 报文】	視踪						
Category view	日志上传									
	Upload Log									
	配置上传									
	Upload Config									
	- 配置恢复									
	2012-07-20 16:07:11 •	<ul> <li>重載列表 ( 恢复到当</li> </ul>	前配置							
	{									
	"acl":{ "default_policy":"accept"									
	}, "dmz":{									
	"enable":"false", "remote":"0.0.0.0\/0",									

#### 4.6 Firmware/APP Upgrade

Login to the platform and go to **Resource>Test>Firmware Upgrade**, choose the firmware or APP file and upgrade to the router:

	- WELCOME -	Resource Configuration	Upgrade Security	System	About					Welcome:admin Role:Super Admin Logout
0	Resource	IP IP	SN	Manaufactor	Model	First Contact	Last Contact	Soft Version	Hard Version	Operation
•	Global View	192.168.111.199	19125124330003	Navigateworx	NR500-S4G	2012-07-20 14:02:19	2012-07-20 15:06:44	1.1.4 (0c0c9fa)	1.0.0	Detail DataModel Delete Test
	AILCPE	Totali 1								<< <1>>>>
•	Category View					Delete App	ply Template In Batch			
	- WELCOME -		Hands II carries	1.0.000						C Webserstein Deb Const Main Locat
		Resource Configuration	Upgrade Security	System	ADOUT					B Welcome:admin Kole:Super Admin Cogouc
-	Global View	Navigateworx CPE SN:19	125124330003, URL:http	//192.168.111.199:7	547/					
· ·	ALCRE	ACS服务器IP: 192.168.	111.19	•	20					
•	Category View	E BRIACS IP GetRPCM	tethods Reboot Fa	toryReset 11.X III	85.					
		- 日志上传								
		Upload Log								
		- 配置上传								
		Unload Config								
		一配医恢复								
		Choose One + TEtta	1本 位置列当动印度							
		Choose one • AL #C7	「我」「我們自動的量」							
		- 因性升伤								
		Industration Character File	No. dia sharara	6.47						
		图件文件 Choose File	No file chosen	并极						



### 4.7 NTP Operation

Login to the platform and go to **Resource>DataModel>.Time**, we can configure NTP parameters and check the NTP status.

Check the local time:

- WELCOME -	Resource Configuration Upgrade Security	System About			Welcome:admin Role:Super Admin Logout
Resource     Global View	TR-098 v Expand Collapse	Name MinValue	CurrentLocalTime -9223372036854775808	Version MaxValue	1.0 9223372036854775807
Category View	Capabilities.     Capabil	Length Description Path	2147483647 The current date and time in the CPE招 local time zone. InternetGatewayDevice.Time.CurrentLocalTime	Writable	NO
	Generation and a set of the	Type Value	dateTime •	Operation Instance	GetParameterValues   OK
	MTPServer2     MTPServer3     MTPServer4	Result	Name InternetGatewayDevice. Time. CurrentLocalTime		Value 2020-07-20T16:37:30
	NTPSever5     CorrentLocaTime     LocaTimeCore     DoylohtSwingsUsed     DoylohtSwingsEnd				

#### Check the timezone:

· WELCOME ·	Resource Configuration Upgrade Security	System	About		C Welco	me:admin Role:Super Admin Logout
Resource (a)	TR-098  Expand Collapse	Name	LocalTimeZone	Version	1.0	
Global View	LANDeviceNumberOfEntries	MinValue	-9223372036854775808	MaxValue	9223372036854775807	
AICPE	🕀 🔛 .Capabilities.	Length	6	Writable	YES	
Category View	<ul> <li>DeviceInfo.</li> <li>DeviceConfig.</li> <li>ManagementServer.</li> </ul>	Description	The local time zone offset from UTC, ignor California, "+00:00" or "-00:00" for the Ur covered by LocalTimeZoneName.	ing daylight savings time adjustments, in the lited Kingdom, and "+01:00" for France. This	e form: +hh:mm -hh:mm For example, th s parameter is OBSOLETED because the in	s will always be "-08:00" for formation that it represents is fully
	B-G Time.	Path	InternetGatewayDevice Time LocalTimeZ	one		
	Status     NTPServer1	Туре	string v	Operation	GetParameterValues • OK	
	- NTPServer2	Value		Instance		
	NTPServer3     NTPServer4     NTPServer5	Result		Name		Value
	Currenti ocalTime		Internet/satewayDevice. Time.LocalTime2	one		*8:00

#### Specify the NTP server1 address:

	- WELCOME -	Resource Configuration Upgrade Security	System About			Welcome:admin Role:Super Admin	
	Resource 💿	TR-098 -   Expand Collapse           -   LANDeviceNumberOFErtries           -   MONOviceNumberOFErtries           -   MONOviceNumberOFErtries           -   Capabilities.           -   DevictInfo.           - DevictOnfo.           - DevictInfo.           - Data           - Data           - Data	Name	NTPServer1	Version	1.0	
	Global View		* MinValue	-9223372036854775808	MaxValue	9223372036854775807	
	ALCPE Category View		Length	64	Writable	YES	
•			Description	First NTP timeserver. Either a host name or IP address			
			Path	InternetGatewayDevice.Time.NTPServer1			
			Туре	string	Operation	SetParameterValues   OK	
			Value	pool.ntp.org	Instance		
		NTPServer2	Result				

#### Specify the timezone:

WELCOME      Resource	Configuration Upgrade Security System	m About			Welcome:admin Role:Super Admin Logout	
Reserved (0) TR-098 *	Expand Collapse Name	LocalTimeZone		Version	1.0	
Global View	ANDeviceNumberOfEntries  MinValu	ue -9223372036854775	5808	MaxValue	9223372036854775807	
ALCPE	apabilities. Length	6		Writable	YES	
Category View	eviceInfo. eviceConfig. lanagementServer.	tion The local time zone California, "+00:00" covered by LocalTim	he local time zone offset from UTC, ignoring daylight savings time adjustments, in the form: +hh:mm -hh:mm For example, this will always be *08:00° for alifornia, *40:00° or *00:00° for the United Kingdom, and *+01:00° for France. This parameter is OBSOLETED because the information that it represents is fully overed by LocalTimeZoneName.			
0-03.T	Enable Path	InternetGatewayDer	InternetGatewayDevice.Time.LocalTimeZone			
-0	Status Type	string •		Operation	SetParameterValues   OK	
-0	NTPServer2 Value	+8:00		Instance		
	NTPServer3 Result NTPServer4 Result NTPServer5 CurrentLocalTime LocalTimeZoneName	Response Result 1	- The Object creation has been validated a	nd committed, but not ye	t applied; Instance Number	



#### 4.8 ActiveLink and Cellular Status

From the TR069 management platform we can check the active link and cellular status.

Login to the platform and go to **Configuration>Create new template**, to create the template for active link and cellular:

	- WELCOME -	Resource Config	uration Upgrade Security Syste	em About	😂 Welcome:admin Role:Super Admin Logout			
0	Configuration	Templates	□ Templates					
·	Templates Template Manage		Name	Description	Operation			
				Delete				
		- Create pay tam	alata					
		create new terri	plate					
		Name						
		Description						
				Apply				

After that, add the template parameters for active link and cellular:

	= WELCOME =	Resource Configurat	ion Upgrade Security Sys	tem About		Welcome:admin Role:Super Admin     Logou		
0	Configuration	- Templates						
	Templates							
	Template Manage	Name		Description		Operation		
	_	ActiveLink		Active Link Status	(	Delete Modify		
	Cellular			Cellular Info		Delete Modify		
				E	Delete			

#### Template Parameters for ActiveLink:

= WELCOME =	Resource Configuration Upgrade Security Sys	tem About	🖨 Welcome:admin Role	:Super Admin Log
Configuration	Template Property			
Templates Template Manage	Name	ActiveLink		
	Description	Active Link Status		
		Apply		
	- Template Parameter			
		Manue	Time	Makua
	InternetGatewayDevice ActiveLink LinkType	Name	string WAI	
	InternetGatewayDevice.ActiveLink.IP		string 1	
	InternetGatewayDevice.ActiveLink.Netmask		string 1	
	InternetGatewayDevice.ActiveLink.Gateway	InternetGatewayDevice. ActiveLink. Gateway		
	InternetGatewayDevice.ActiveLink.PrimaryDNSSen	erver	string 1	
	InternetGatewayDevice.ActiveLink.SecondaryDN	ISServer	string 1	
		Delete		
				_
	Add Parameter			
		Name	Type Value	
			any	Add

Name	Туре	Value
InternetGatewayDevice.ActiveLink.LinkType	string	WAN
InternetGatewayDevice.ActiveLink.IP	string	1
InternetGatewayDevice.ActiveLink.Netmask	string	1
InternetGatewayDevice.ActiveLink.Gateway	string	1
InternetGatewayDevice.ActiveLink.PrimaryDNSServer	string	1
InternetGatewayDevice.ActiveLink.SecondaryDNSServer	string	1



#### Template Parameters for Cellular:

tes Description	Cellular Info		
anage	Apply		
Template Parameter			
	Name	Туре	Val
InternetGatewayDevice.Cellular.1.CSQ		int	1
InternetGatewayDevice.Cellular.1.IMEI		string	1
InternetGatewayDevice.Cellular.1.Registra	ation	string	1
InternetGatewayDevice.Cellular.1.Operate	x	string	1
InternetGatewayDevice.Cellular.1.Netwok	Туре	int	1
InternetGatewayDevice.Cellular.1.PLMNII	)	int	1
InternetGatewayDevice.Cellular.1.LocalAr	eaCode	int	1
InternetGatewayDevice.Cellular.1.CellID		int	1
InternetGatewayDevice.Cellular.1.IMSI		string	1
InternetGatewayDevice.Cellular.1.TXByte	5	string	1
InternetGatewayDevice.Cellular.1.RXByte	5	string	1
InternetGatewayDevice.Cellular.1.Modem	FirmwareVersion	string	1
	Delete		
Add Parameter			
	Name	Type	Value

Name	Туре	Value
InternetGatewayDevice.Cellular.1.CSQ	int	1
InternetGatewayDevice.Cellular.1.IMEI	string	1
InternetGatewayDevice.Cellular.1.Registration	string	1
InternetGatewayDevice.Cellular.1.Operator	string	1
InternetGatewayDevice.Cellular.1.NetwokType	int	1
InternetGatewayDevice.Cellular.1.PLMNID	int	1
InternetGatewayDevice.Cellular.1.LocalAreaCode	int	1
InternetGatewayDevice.Cellular.1.CellID	int	1
InternetGatewayDevice.Cellular.1.IMSI	string	1
InternetGatewayDevice.Cellular.1.TXBytes	string	1
InternetGatewayDevice.Cellular.1.RXBytes	string	1
InternetGatewayDevice.Cellular.1.ModemFirmwareVersion	string	1

After creating the template, go to **Resource>DataModel**, click any one of the templates, and copy the Template Parameters to the "Path", Click "OK" then we can get the related value. Here get the "IP address" as an example:

= WELCOME =	Resource Configuration Upgrade Security	System About			Welcome:admin Role:Super Admin Logout
Resource	TR-098  Expand Collapse	Name	.DeviceSummary	Version	1.1
Global View	InternetGatewayDevice	MinValue	-9223372036854775808	MaxValue	9223372036854775807
All CPE	LANDeviceNumberOfEntries	Length	1024	Writable	NO
Category View		Description	As defined in [3].		
	<ul> <li>Capabilities.</li> <li>DeviceInfo.</li> </ul>	Path	InternetGatewayDevice.ActiveLink.IP		
	DeviceConfig.     DeviceConfig.     DeviceConfig.     ManagementServer.	Туре	string	Operation	GetParameterValues V
	Time.	Value		Instance	
	CaptivePortal.     Layer2Brivarding.     Layer2Bridging.	Result	Name InternetGatewayDevice.ActiveLink.IP		Value 192.168.111.199