

NR500 Series Industrial Cellular VPN Router

Application Note 055

TR069

Version: V1.0.0
Date: Jul 2020
Status: 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

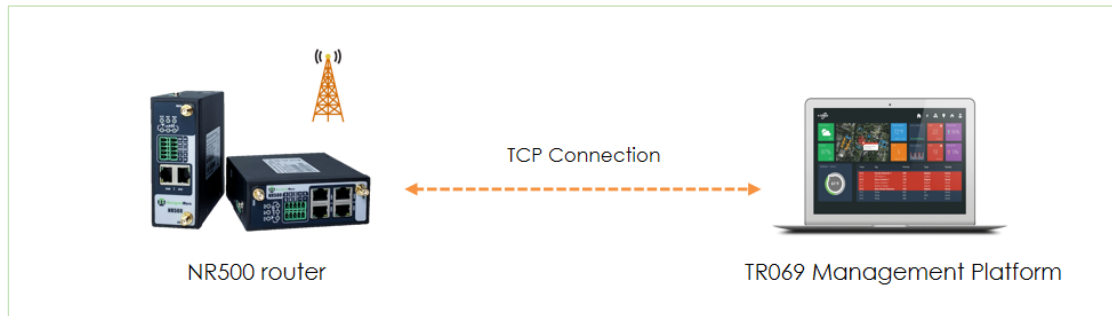
Updates between document versions are cumulative. Therefore, the latest document will include all the content of previous versions.

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



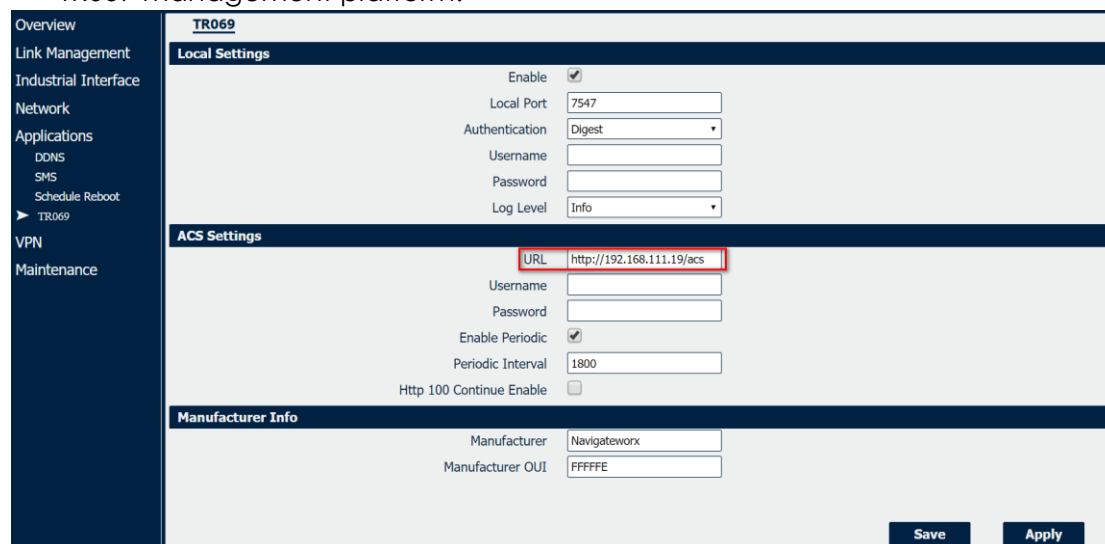
1. NR500 router connect to the TR069 management platform.
2. TR069 management platform can do the monitoring or control the router. For example control the router restart, reset the router to factory default setting, upgrade the firmware/APPs/configuration, syslog upload, NTP configured, check the cellular,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

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

3. Configuration

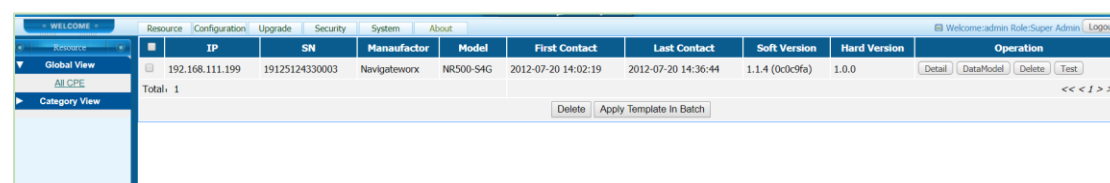
3.1 Configuration on NR500

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



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:

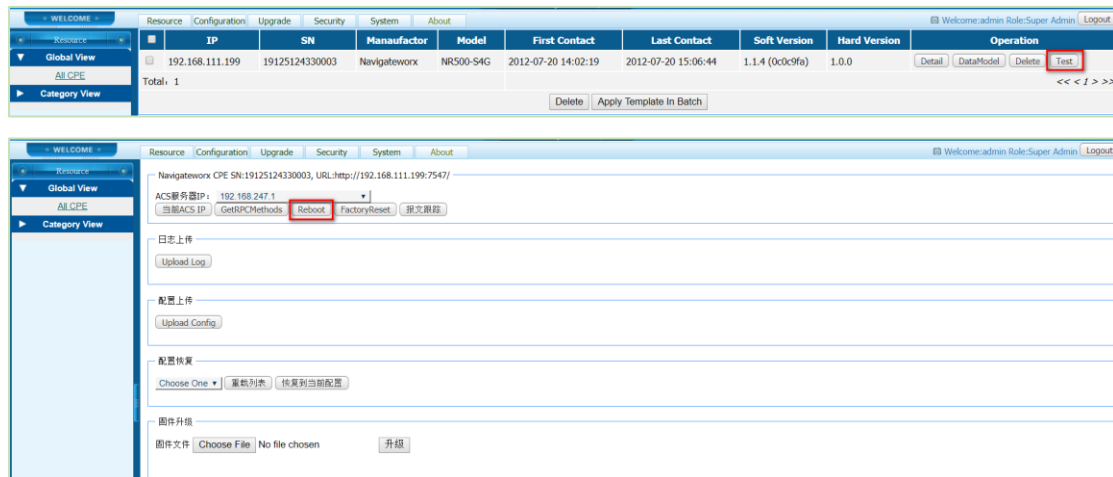


IP	SN	Manufactor	Model	First Contact	Last Contact	Soft Version	Hard Version	Operation
192.168.111.199	19125124330003	Navigateworx	NR500-S4G	2012-07-20 14:02:19	2012-07-20 14:36:44	1.1.4 (0c0c9fa)	1.0.0	Detail DataModel Delete Test

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:



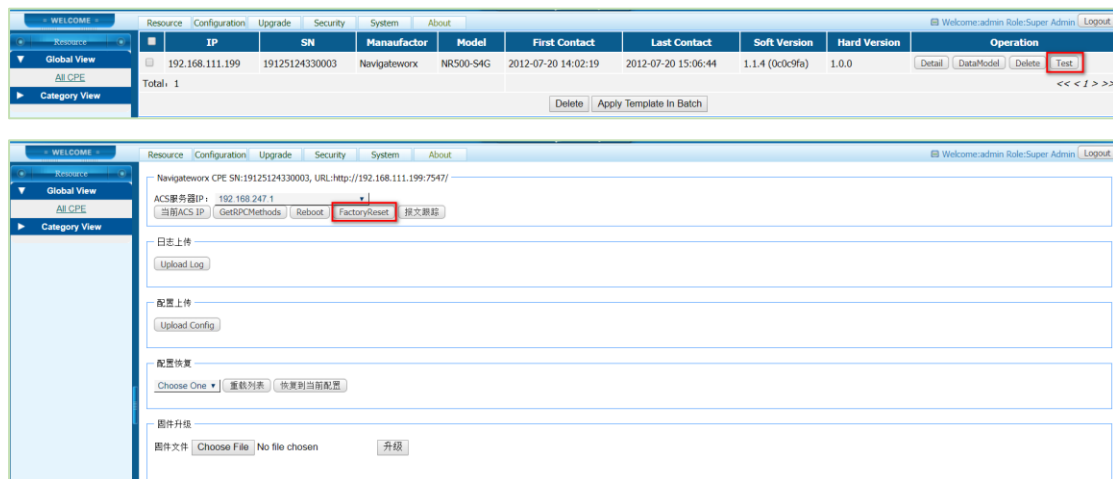
The first screenshot shows a table of resources with the following data:

IP	SN	Manufacturer	Model	First Contact	Last Contact	Soft Version	Hard Version	Operation
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

The second screenshot shows the configuration page for the selected resource, with the 'Reboot' button highlighted in the 'ACS 服务器IP' section.

4.2 Factory Reset

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



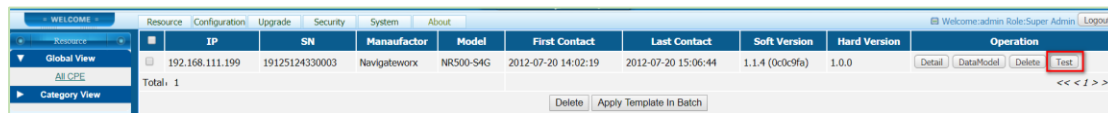
The first screenshot shows a table of resources with the following data:

IP	SN	Manufacturer	Model	First Contact	Last Contact	Soft Version	Hard Version	Operation
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

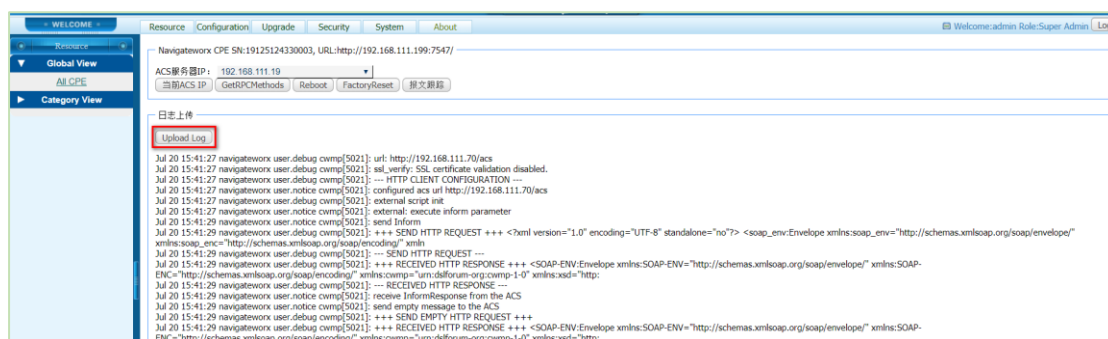
The second screenshot shows the configuration page for the selected resource, with the 'FactoryReset' button highlighted in the 'ACS 服务器IP' section.

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:



Resource	Configuration	Upgrade	Security	System	About																		
<table border="1"> <thead> <tr> <th>IP</th> <th>SN</th> <th>Manufacturer</th> <th>Model</th> <th>First Contact</th> <th>Last Contact</th> <th>Soft Version</th> <th>Hard Version</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>192.168.111.199</td> <td>19125124330003</td> <td>Navigateworx</td> <td>NR500-S4G</td> <td>2012-07-20 14:02:19</td> <td>2012-07-20 15:06:44</td> <td>1.1.4 (0c0c9fa)</td> <td>1.0.0</td> <td> Detail DataModel Delete Test </td> </tr> </tbody> </table>	IP	SN	Manufacturer	Model	First Contact	Last Contact	Soft Version	Hard Version	Operation	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					
IP	SN	Manufacturer	Model	First Contact	Last Contact	Soft Version	Hard Version	Operation															
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															



Navigateworx CPE SN:19125124330003, URL:http://192.168.111.199:7547/
 ACS服务器IP: 192.168.111.19
[当前ACS IP](#) [GetRPCMethods](#) [Reboot](#) [FactoryReset](#) [提交数据](#)

日志上传

[Upload Log](#)

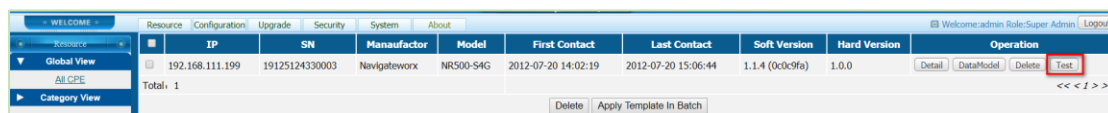
```

Jul 20 15:41:27 navigateworx user.debug cwmpl5021]: url: http://192.168.111.70/acs
Jul 20 15:41:27 navigateworx user.debug cwmpl5021]: ssl_verify: SSL certificate validation disabled.
Jul 20 15:41:27 navigateworx user.debug cwmpl5021]: --- HTTP CLIENT CONFIGURATION ---
Jul 20 15:41:27 navigateworx user.notice cwmpl5021]: configured acs url http://192.168.111.70/acs
Jul 20 15:41:27 navigateworx user.debug cwmpl5021]: external script init
Jul 20 15:41:27 navigateworx user.notice cwmpl5021]: external: execute inform parameter
Jul 20 15:41:29 navigateworx user.debug cwmpl5021]: +++ SEND HTTP REQUEST +++ <?xml version="1.0" encoding="UTF-8" standalone="no"?> <soap:env:Envelope xmlns:soap:env="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:soap:enc="http://schemas.xmlsoap.org/soap/encoding/" xmlns:cwmp="urn:diforum-org:cwmp-1-0" xmlns:asd="http:
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:cwmp="urn:diforum-org:cwmp-1-0" xmlns:asd="http:
+++ RECEIVED HTTP RESPONSE +++ <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:cwmp="urn:diforum-org:cwmp-1-0" xmlns:asd="http:
+++ SEND HTTP REQUEST +++
+++ RECEIVED HTTP RESPONSE +++
+++ SEND EMPTY HTTP REQUEST +++
+++ RECEIVED HTTP RESPONSE +++ <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:cwmp="urn:diforum-org:cwmp-1-0" xmlns:asd="http:

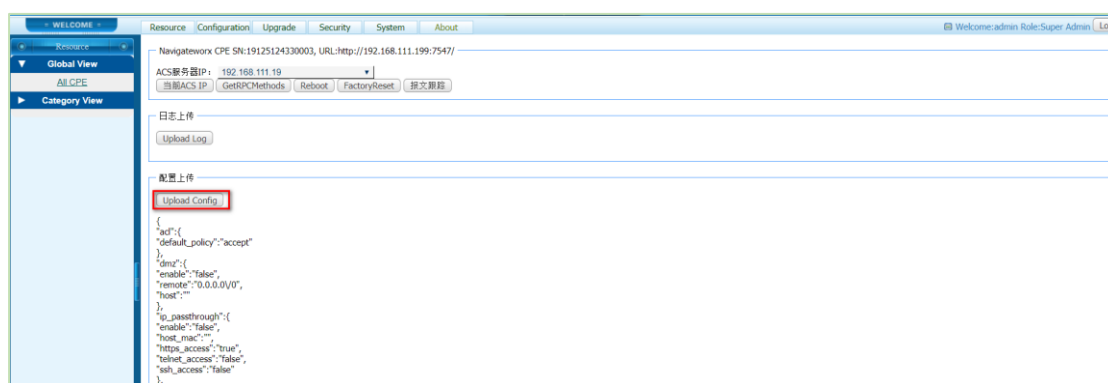
```

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:



Resource	Configuration	Upgrade	Security	System	About																		
<table border="1"> <thead> <tr> <th>IP</th> <th>SN</th> <th>Manufacturer</th> <th>Model</th> <th>First Contact</th> <th>Last Contact</th> <th>Soft Version</th> <th>Hard Version</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>192.168.111.199</td> <td>19125124330003</td> <td>Navigateworx</td> <td>NR500-S4G</td> <td>2012-07-20 14:02:19</td> <td>2012-07-20 15:06:44</td> <td>1.1.4 (0c0c9fa)</td> <td>1.0.0</td> <td> Detail DataModel Delete Test </td> </tr> </tbody> </table>	IP	SN	Manufacturer	Model	First Contact	Last Contact	Soft Version	Hard Version	Operation	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					
IP	SN	Manufacturer	Model	First Contact	Last Contact	Soft Version	Hard Version	Operation															
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															



Navigateworx CPE SN:19125124330003, URL:http://192.168.111.199:7547/
 ACS服务器IP: 192.168.111.19
[当前ACS IP](#) [GetRPCMethods](#) [Reboot](#) [FactoryReset](#) [提交数据](#)

日志上传

[Upload Log](#)

配置上传

[Upload Config](#)

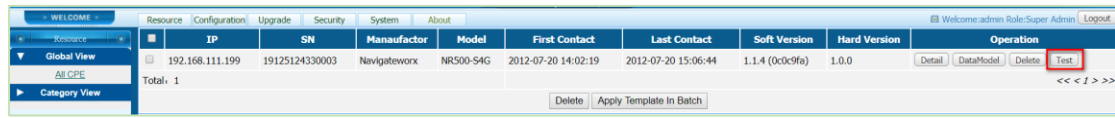
```

{
  "ad":{
    "default_policy":"accept"
  },
  "dmz":{
    "enable":"false",
    "remote":"0.0.0.0/0",
    "host":""
  },
  "p_passthrough":{
    "enable":"false",
    "host_mac":"",
    "https_access":"true",
    "telnet_access":"false",
    "ssh_access":"false"
  }
}

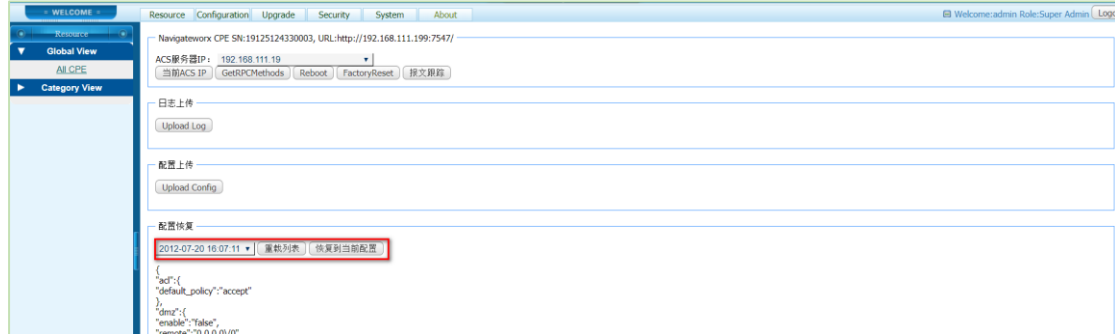
```

4.5 Config Update

From the TR069 management platform, we can do the config update to the router. Follow step 4.4 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:



IP	SN	Manufacturer	Model	First Contact	Last Contact	Soft Version	Hard Version	Operation
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



Configure Reset

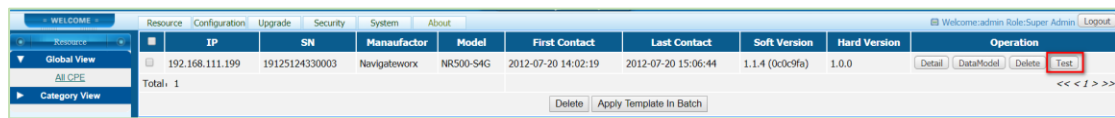
2012-07-20 16:07:11 | [重新列表](#) | [恢复到当前配置](#)

```

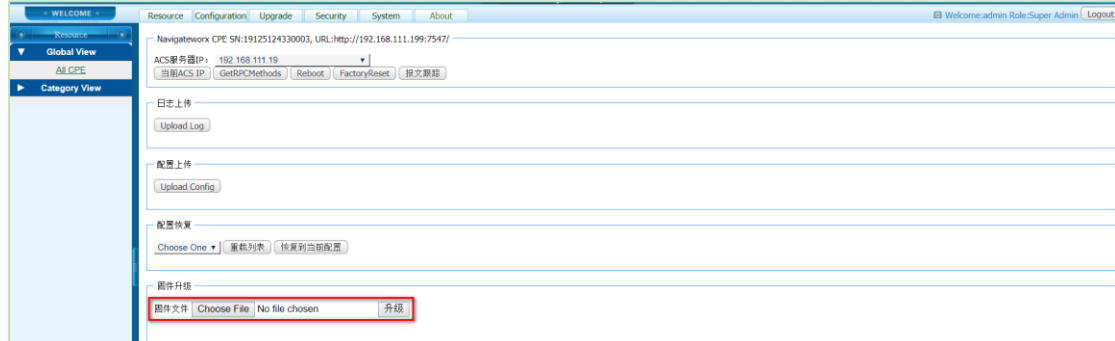
{
  "acl": {
    "default_policy": "accept"
  },
  "dmz": {
    "enable": "false",
    "remote": "0.0.0.0/0"
  }
}
    
```

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:



IP	SN	Manufacturer	Model	First Contact	Last Contact	Soft Version	Hard Version	Operation
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



Firmware Upgrade

Choose One | [重新列表](#) | [恢复到当前配置](#)

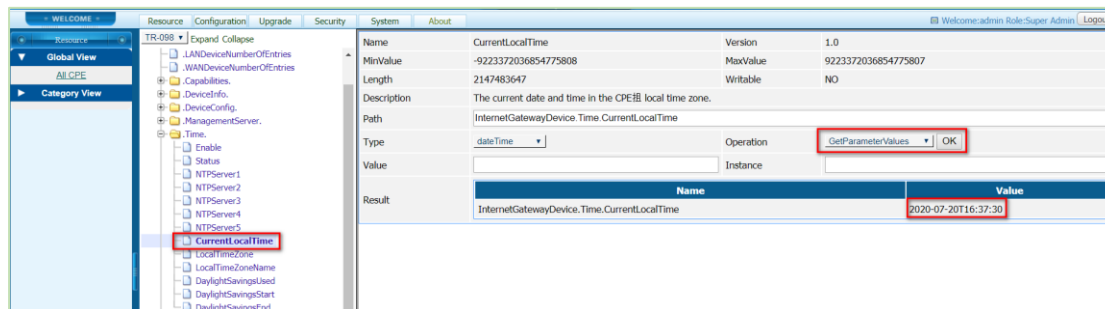
固件升级

附件文件 | Choose File | No file chosen | [升级](#)

4.7 NTP Operation

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

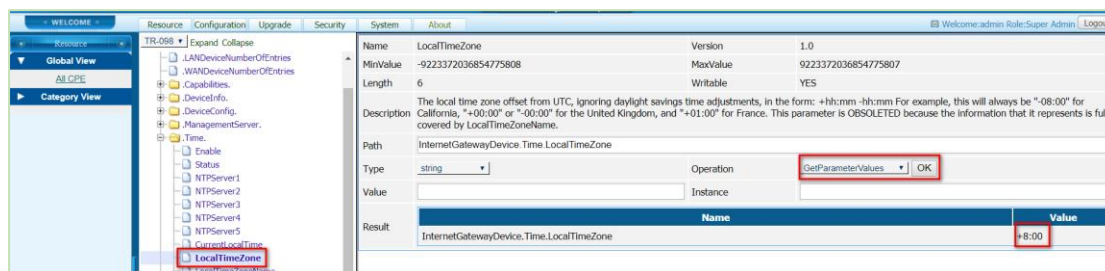
Check the local time:



The screenshot shows the configuration page for the 'CurrentLocalTime' parameter. The left sidebar shows the tree structure with 'CurrentLocalTime' selected. The main panel displays the parameter details:

Name	CurrentLocalTime	Version	1.0				
MinValue	-9223372036854775808	MaxValue	9223372036854775807				
Length	2147483647	Writable	NO				
Description	The current date and time in the CPE's local time zone.						
Path	InternetGatewayDevice.Time.CurrentLocalTime						
Type	dateTime	Operation	GetParameterValues OK				
Value		Instance					
Result	<table border="1"> <thead> <tr> <th>Name</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>InternetGatewayDevice.Time.CurrentLocalTime</td> <td>2020-07-20T16:37:30</td> </tr> </tbody> </table>			Name	Value	InternetGatewayDevice.Time.CurrentLocalTime	2020-07-20T16:37:30
Name	Value						
InternetGatewayDevice.Time.CurrentLocalTime	2020-07-20T16:37:30						

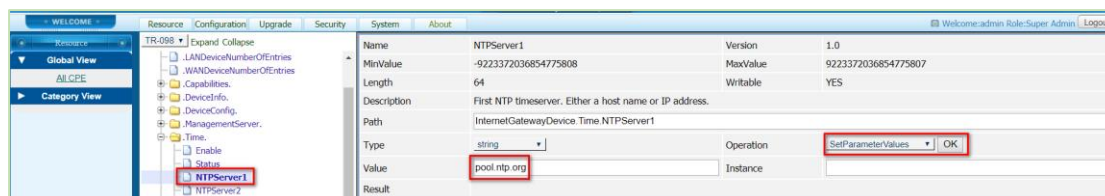
Check the timezone:



The screenshot shows the configuration page for the 'LocalTimeZone' parameter. The left sidebar shows the tree structure with 'LocalTimeZone' selected. The main panel displays the parameter details:

Name	LocalTimeZone	Version	1.0				
MinValue	-9223372036854775808	MaxValue	9223372036854775807				
Length	6	Writable	YES				
Description	The 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 California, "+00:00" or "-00:00" for the United Kingdom, and "+01:00" for France. This parameter is OBSOLETE because the information that it represents is fully covered by LocalTimeZoneName.						
Path	InternetGatewayDevice.Time.LocalTimeZone						
Type	string	Operation	GetParameterValues OK				
Value		Instance					
Result	<table border="1"> <thead> <tr> <th>Name</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>InternetGatewayDevice.Time.LocalTimeZone</td> <td>+8:00</td> </tr> </tbody> </table>			Name	Value	InternetGatewayDevice.Time.LocalTimeZone	+8:00
Name	Value						
InternetGatewayDevice.Time.LocalTimeZone	+8:00						

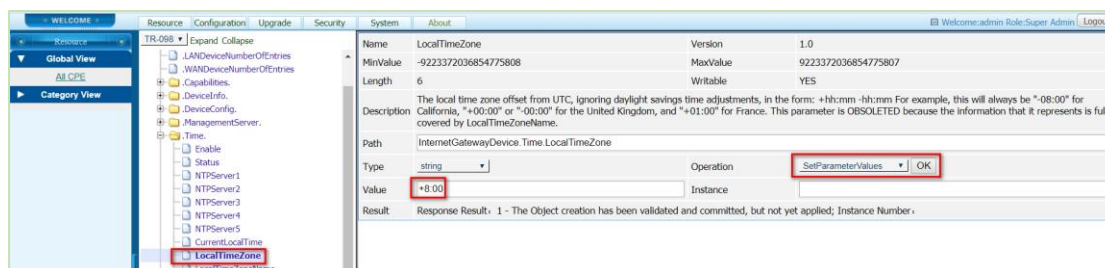
Specify the NTP server1 address:



The screenshot shows the configuration page for the 'NTPServer1' parameter. The left sidebar shows the tree structure with 'NTPServer1' selected. The main panel displays the parameter details:

Name	NTPServer1	Version	1.0
MinValue	-9223372036854775808	MaxValue	9223372036854775807
Length	64	Writable	YES
Description	First NTP timeserver. Either a host name or IP address.		
Path	InternetGatewayDevice.Time.NTPServer1		
Type	string	Operation	SetParameterValues OK
Value	pool.ntp.org	Instance	
Result			

Specify the timezone:



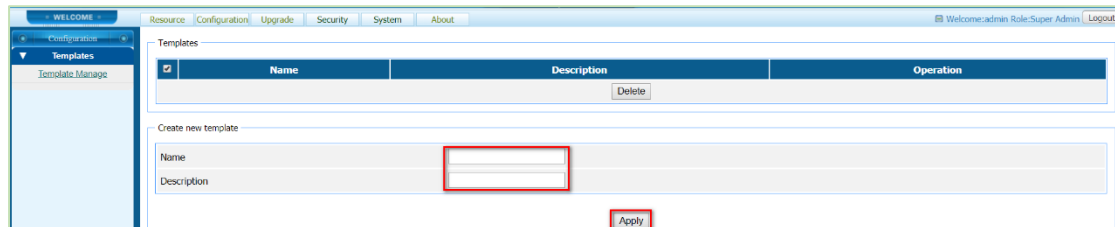
The screenshot shows the configuration page for the 'LocalTimeZone' parameter. The left sidebar shows the tree structure with 'LocalTimeZone' selected. The main panel displays the parameter details:

Name	LocalTimeZone	Version	1.0
MinValue	-9223372036854775808	MaxValue	9223372036854775807
Length	6	Writable	YES
Description	The 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 California, "+00:00" or "-00:00" for the United Kingdom, and "+01:00" for France. This parameter is OBSOLETE because the information that it represents is fully covered by LocalTimeZoneName.		
Path	InternetGatewayDevice.Time.LocalTimeZone		
Type	string	Operation	SetParameterValues OK
Value	+8:00	Instance	
Result	Response Result: 1 - The Object creation has been validated and committed, but not yet applied; Instance Number.		

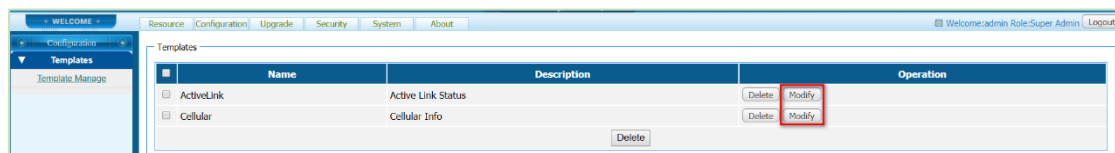
4.8 ActiveLink and Cellular Status

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

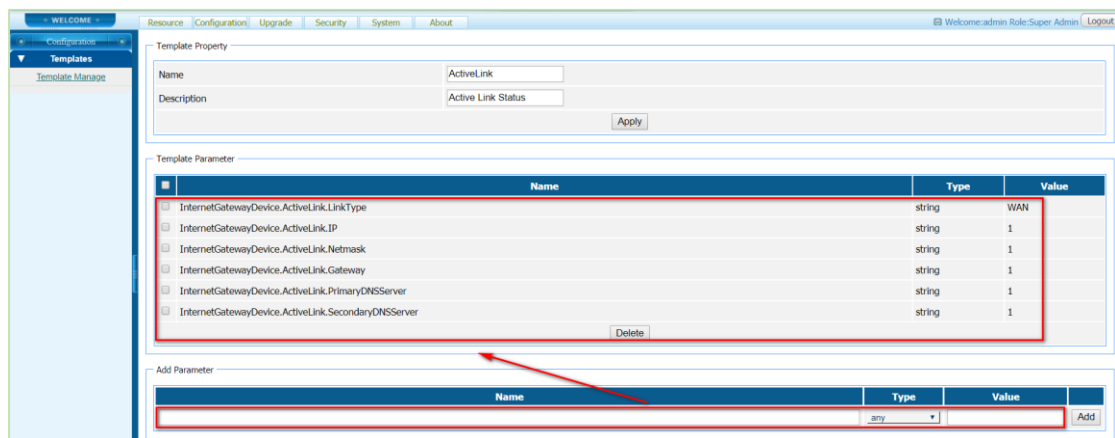
Login to the platform and go to **Configuration>Create new template**, to create the template for active link and cellular:



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

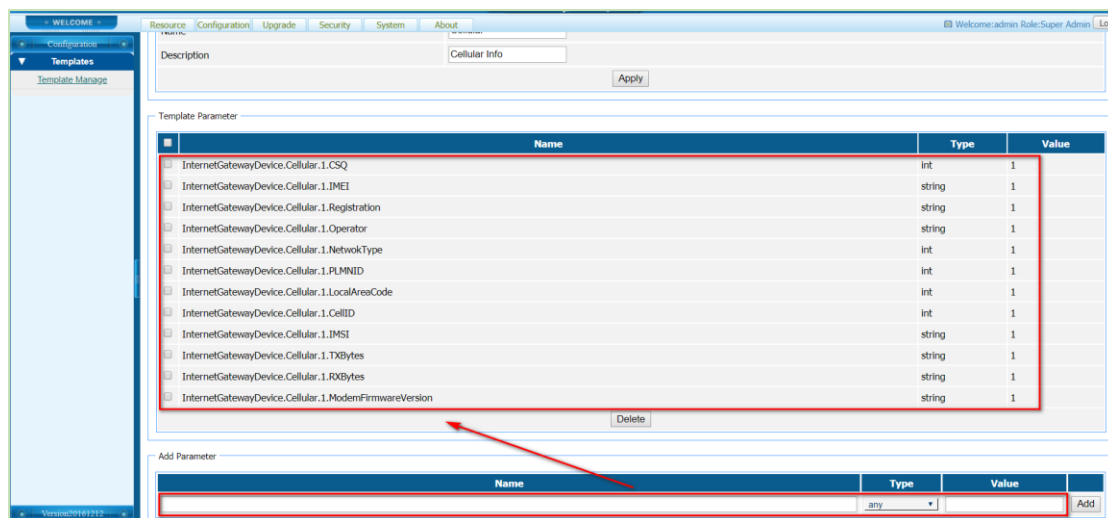


Template Parameters for ActiveLink:



Name	Type	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:



The screenshot shows the 'Template Parameter' configuration window. The main table lists the following parameters:

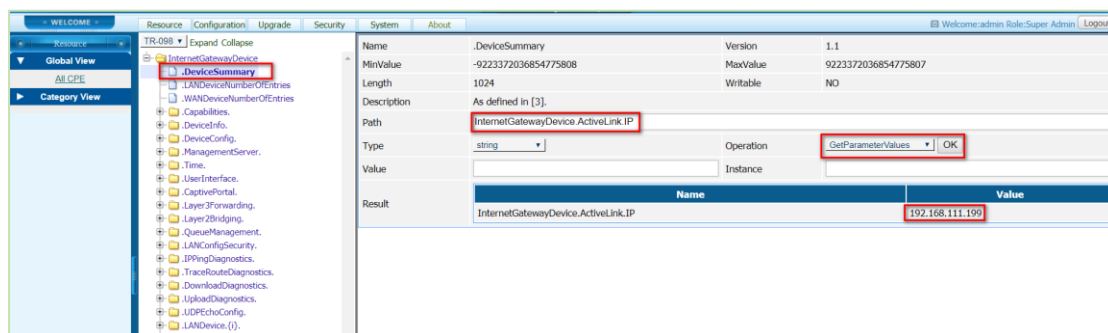
Name	Type	Value
InternetGatewayDevice.Cellular.1.CSQ	int	1
InternetGatewayDevice.Cellular.1.IMEI	string	1
InternetGatewayDevice.Cellular.1.Registration	string	1
InternetGatewayDevice.Cellular.1.Operator	string	1
InternetGatewayDevice.Cellular.1.NetwokType	int	1
InternetGatewayDevice.Cellular.1.PLMNID	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

Below the table is an 'Add Parameter' section with a table structure:

Name	Type	Value
	any	

Name	Type	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:



The screenshot shows the 'DataModel' configuration window. The 'Path' field is set to 'InternetGatewayDevice.ActiveLink.IP'. The 'Operation' dropdown is set to 'GetParameterValues'. The 'Result' table shows the value '192.168.111.199'.

Name	Value
InternetGatewayDevice.ActiveLink.IP	192.168.111.199