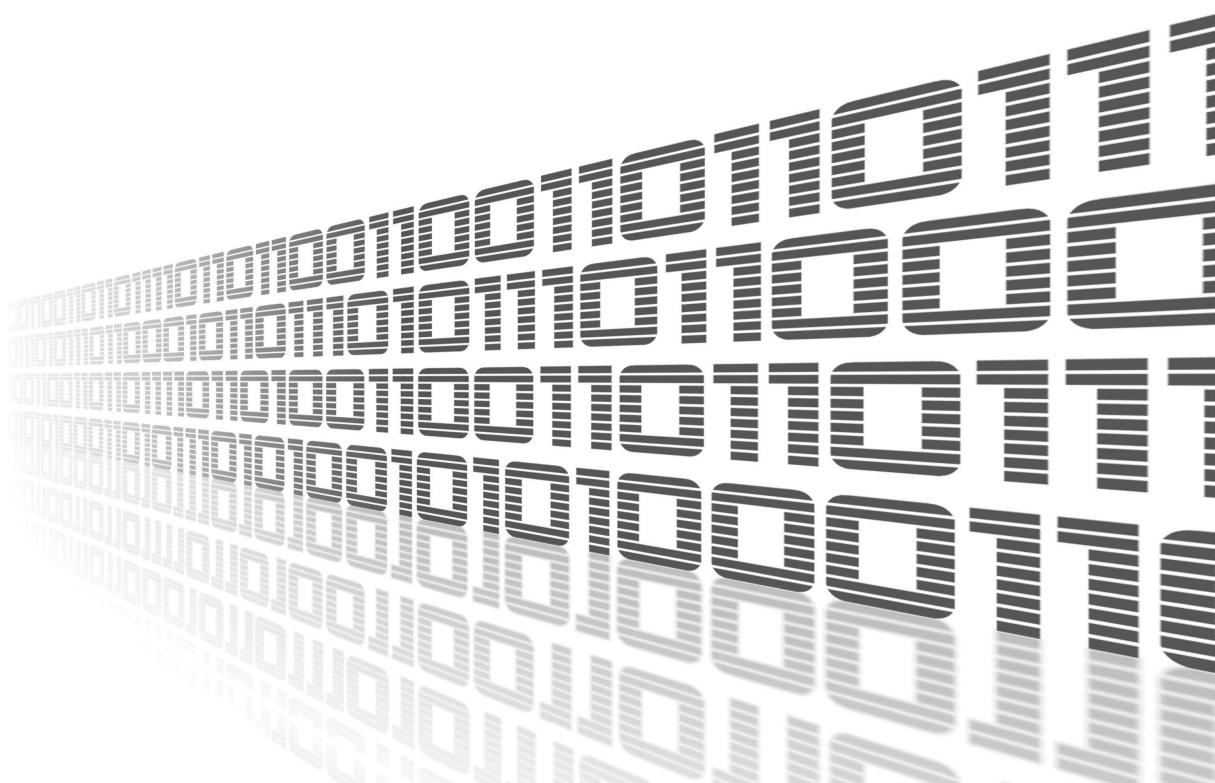




# TR-069

## APPLICATION NOTE



[www.lucom.de](http://www.lucom.de)

# ADVANTECH

## Used symbols



*Danger* – Information regarding user safety or potential damage to the router.



*Attention* – Problems that may arise in specific situations.



*Information or notice* – Useful tips or information of special interest.



*Example* – Example of function, command or script.



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# 1. Basic Information

Technical Report 069 (TR-069) is a technical specification of the Broadband Forum that defines an application layer protocol for remote management and provisioning of customer-premises equipment (CPE) connected to an Internet Protocol (IP) network. TR-069 uses the CPE WAN Management Protocol (CWMP) which provides support functions for auto-configuration, software or firmware image management, software module management, status and performance managements, and diagnostics.

## 2. Router App Description

### 2.1 Web Interface

After Router App installation, the module's GUI can be invoked by clicking the router app name on the Router Apps page of router's web interface.

Left part of this GUI contains menu with Status menu section, Configuration menu section and Information menu section. Customization menu section contains only the Return item, which switches back from the module's web page to the router's web configuration pages. The main menu of router app GUI is shown on Figure below.

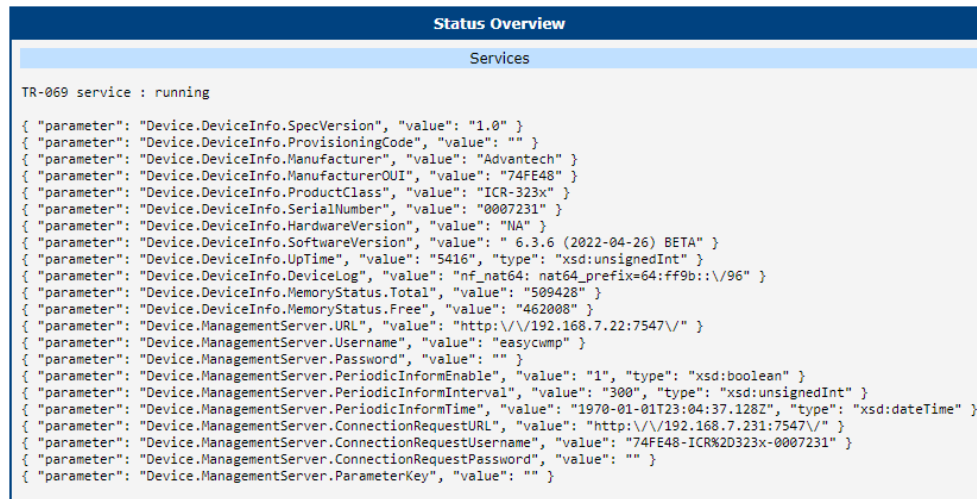


Status
Overview
System Log
Configuration
Global
Information
Licenses
Customization
Return

Figure 1: Menu

## 2.2 Status

Status menu section contains Overview item where we can find detailed data about TR-069 service and received parameters.

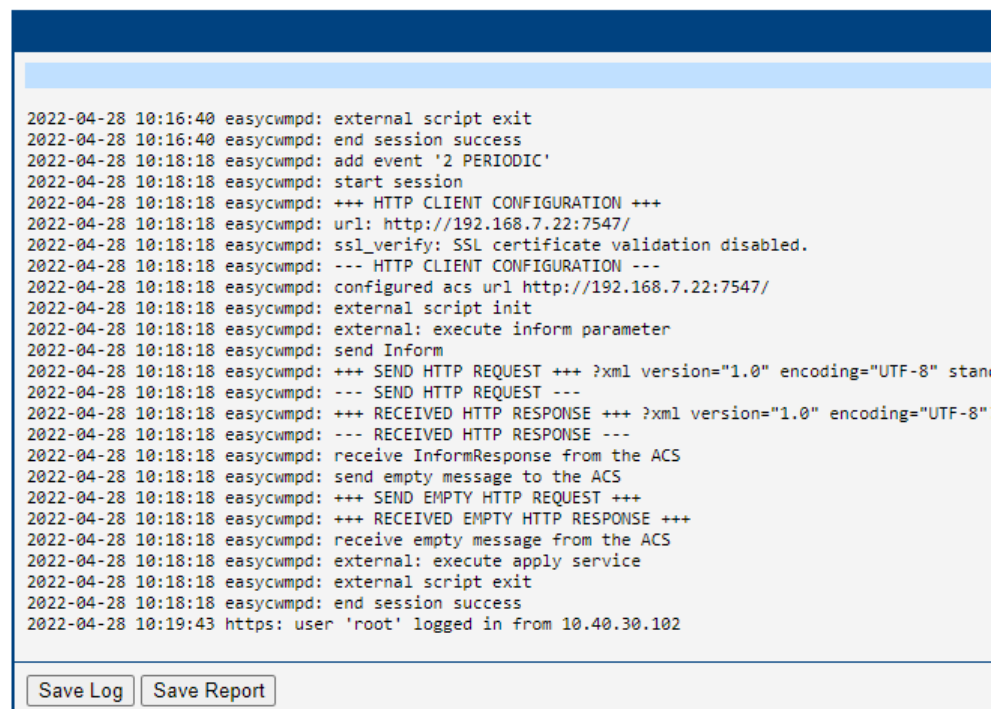


```

Status Overview
Services
TR-069 service : running
{ "parameter": "Device.DeviceInfo.SpecVersion", "value": "1.0" }
{ "parameter": "Device.DeviceInfo.ProvisioningCode", "value": "" }
{ "parameter": "Device.DeviceInfo.Manufacturer", "value": "Advantech" }
{ "parameter": "Device.DeviceInfo.ManufacturerOUI", "value": "74FE48" }
{ "parameter": "Device.DeviceInfo.ProductClass", "value": "ICR-323x" }
{ "parameter": "Device.DeviceInfo.SerialNumber", "value": "0007231" }
{ "parameter": "Device.DeviceInfo.HardwareVersion", "value": "NA" }
{ "parameter": "Device.DeviceInfo.SoftwareVersion", "value": " 6.3.6 (2022-04-26) BETA" }
{ "parameter": "Device.DeviceInfo.UpTime", "value": "5416", "type": "xsd:unsignedInt" }
{ "parameter": "Device.DeviceInfo.DeviceLog", "value": "nf_nat64: nat64_prefix=64:ff9b::\96" }
{ "parameter": "Device.DeviceInfo.MemoryStatus.Total", "value": "509428" }
{ "parameter": "Device.DeviceInfo.MemoryStatus.Free", "value": "462008" }
{ "parameter": "Device.ManagementServer.URL", "value": "http://192.168.7.22:7547/" }
{ "parameter": "Device.ManagementServer.Username", "value": "easycwmp" }
{ "parameter": "Device.ManagementServer.Password", "value": "" }
{ "parameter": "Device.ManagementServer.PeriodicInformEnable", "value": "1", "type": "xsd:boolean" }
{ "parameter": "Device.ManagementServer.PeriodicInformInterval", "value": "300", "type": "xsd:unsignedInt" }
{ "parameter": "Device.ManagementServer.PeriodicInformTime", "value": "1970-01-01T23:04:37.128Z", "type": "xsd:dateTime" }
{ "parameter": "Device.ManagementServer.ConnectionRequestURL", "value": "http://192.168.7.231:7547/" }
{ "parameter": "Device.ManagementServer.ConnectionRequestUsername", "value": "74FE48-ICR%20323x-0007231" }
{ "parameter": "Device.ManagementServer.ConnectionRequestPassword", "value": "" }
{ "parameter": "Device.ManagementServer.ParameterKey", "value": "" }
    
```

Figure 2: Overview

While System log contains log messages.



```

2022-04-28 10:16:40 easycwmpd: external script exit
2022-04-28 10:16:40 easycwmpd: end session success
2022-04-28 10:18:18 easycwmpd: add event '2 PERIODIC'
2022-04-28 10:18:18 easycwmpd: start session
2022-04-28 10:18:18 easycwmpd: +++ HTTP CLIENT CONFIGURATION +++
2022-04-28 10:18:18 easycwmpd: url: http://192.168.7.22:7547/
2022-04-28 10:18:18 easycwmpd: ssl_verify: SSL certificate validation disabled.
2022-04-28 10:18:18 easycwmpd: --- HTTP CLIENT CONFIGURATION ---
2022-04-28 10:18:18 easycwmpd: configured acs url http://192.168.7.22:7547/
2022-04-28 10:18:18 easycwmpd: external script init
2022-04-28 10:18:18 easycwmpd: external: execute inform parameter
2022-04-28 10:18:18 easycwmpd: send Inform
2022-04-28 10:18:18 easycwmpd: +++ SEND HTTP REQUEST +++ ?xml version="1.0" encoding="UTF-8" stan
2022-04-28 10:18:18 easycwmpd: --- SEND HTTP REQUEST ---
2022-04-28 10:18:18 easycwmpd: +++ RECEIVED HTTP RESPONSE +++ ?xml version="1.0" encoding="UTF-8"
2022-04-28 10:18:18 easycwmpd: --- RECEIVED HTTP RESPONSE ---
2022-04-28 10:18:18 easycwmpd: receive InformResponse from the ACS
2022-04-28 10:18:18 easycwmpd: send empty message to the ACS
2022-04-28 10:18:18 easycwmpd: +++ SEND EMPTY HTTP REQUEST +++
2022-04-28 10:18:18 easycwmpd: +++ RECEIVED EMPTY HTTP RESPONSE +++
2022-04-28 10:18:18 easycwmpd: receive empty message from the ACS
2022-04-28 10:18:18 easycwmpd: external: execute apply service
2022-04-28 10:18:18 easycwmpd: external script exit
2022-04-28 10:18:18 easycwmpd: end session success
2022-04-28 10:19:43 https: user 'root' logged in from 10.40.30.102
    
```

Save Log Save Report

Figure 3: System log

## 2.3 Configuration

Global configuration is place where the configuration string should be. Most important lines are *option url*, *option username* and *option password* in the *config acs* part.

Global Configuration

☒ Enable TR-069 (CPE WAN Management Protocol) service

Configuration:
 

```

# easycwmp uci configuration

config local
    option enable '1'
    option interface eth1
    option port 7547
    option ubus_socket /var/run/ubus.sock
    option date_format %FT%T%z
    option username easycwmp
    option password easycwmp
    option provisioning_code ''
    option authentication 'Digest'
    #Logging levels: Critic=0, Warning=1, Notice=2, Info=3,
    Debug=4
    option logging_level '4'

config acs
    option url http://192.168.7.22:7547/
    option username easycwmp
    option password easycwmp
    option parameter_key ''
    option periodic_enable '1'
    option periodic_interval '100'
    option periodic_time '0001-01-01T00:00:00Z'
            
```

Apply

Figure 4: Global configuration



## 2.4 Licenses

Summarizes Open-Source Software (OSS) licenses used by this module.

TR-069 (CPE WAN Management Protocol) Licenses		
Project	License	More Information
easycwmp	GPLv2	<a href="#">License</a>
openssl	OpenSSL	<a href="#">License</a>
json-c	Json-c	<a href="#">License</a>
libubox	Ubox	<a href="#">License</a>
libuci	LGPLv2.1	<a href="#">License</a>
libubus	LGPLv2.1	<a href="#">License</a>
microxml	LGPL2	<a href="#">License</a>
curl	Curl	<a href="#">License</a>

Figure 5: Licenses

## 3. Example

In this example is *genieacs*<sup>1</sup> solution used as auto configuration server (acs). There are 3 routers managed with ACS.

	Serial number	Product class	Software version	IP	SSID	Last inform	Tags
<input type="checkbox"/>	ACZ1100002281167	ICR-253x				26. 4. 2022 10:27:56	<input type="radio"/> Others <a href="#">Show</a>
<input type="checkbox"/>	0007231	ICR-323x				28. 4. 2022 7:21:07	<input checked="" type="radio"/> Online now <a href="#">Show</a>
<input type="checkbox"/>	N/A	ICR-445x				26. 4. 2022 10:30:31	<input type="radio"/> Others <a href="#">Show</a>

3/3 More [Download](#)

Reboot Reset Push file Delete Tag Untag

Figure 6: Devices

We can display the detail of each added device

74FE48-ICR%2D323x-0007231

+  
Pinging 192.168.7.231: 0 ms

Last inform 28. 4. 2022 8:36:06 ☒ Online now [Summon](#)

Serial number 0007231  
Product class ICR-323x  
OUI 74FE48  
Manufacturer Advantech

Faults

Channel	Code	Message	Detail	Retries	Timestamp
No faults					

All parameters

Search parameters

Parameter	Value
Device	
Device.DeviceInfo	
Device.DeviceInfo.HardwareVersion	NA
Device.DeviceInfo.Manufacturer	Advantech
Device.DeviceInfo.ManufacturerOUI	74FE48
Device.DeviceInfo.ProductClass	ICR-323x
Device.DeviceInfo.ProvisioningCode	blank
Device.DeviceInfo.SerialNumber	0007231
Device.DeviceInfo.SpecVersion	1.0
Device.ManagementServer	

Reboot Reset Push file Delete

[Download](#)

Figure 7: Detail of the device

<sup>1</sup><https://genieacs.com/>

In this detail it is possible to edit parameter values

Queued: 0 Pending: 0 Fault: 0 Stale: 0 Commit Clear

Editing Device.Configuration.eth0\_ipaddr

10.10.0.1 Queue Cancel

**74FE48-ICR%2D323x-0007231**

Pinging 192.168.7.231: 0 ms

Last inform 28. 4. 2022 8:42:26 Online now Summon

Serial number 0007231

Product class ICR-323x

OUI 74FE48

Manufacturer Advantech

**Faults**

Channel	Code	Message	Detail	Retries	Timestamp
No faults					

**All parameters**

Search parameters

Parameter	Value	Actions
Device		
Device.Configuration		
Device.Configuration.eth0_bootproto	static	
Device.Configuration.eth0_ipaddr	10.0.0.1	
Device.Configuration.eth0_netmask	255.255.255.0	
Device.Configuration.eth0_network	10.0.0.0	
Device.Configuration.eth1_bootproto	static	
Device.Configuration.eth1_ipaddr	192.168.7.231	
Device.Configuration.eth1_netmask	255.255.255.0	
Device.Configuration.eth1_network	192.168.7.0	

Reboot Reset Push file Delete

Download

Figure 8: Device parameter edit

or even push files. Files, that can be pushed to router are only:

- Config files
- Router firmware

to the router which could be useful for changing config files of even uploading new firmware.

Queued: 0 Pending: 0 Fault: 0 Stale: 0 Commit Clear

Push

ICR-323x(5).cfg

ICR-323x.bin Queue Cancel

**74FE48-ICR%2D323x-0007231**

Pinging 192.168.7.231: 0 ms

Last inform 28. 4. 2022 8:42:59 Online now Summon

Serial number 0007231

Product class ICR-323x

OUI 74FE48

Manufacturer Advantech

Figure 9: Push file to the device

## 4. Related Documents

You can obtain product-related documents on *Engineering Portal* at [icr.advantech.cz](http://icr.advantech.cz) address.

To get your router's *Quick Start Guide*, *User Manual*, *Configuration Manual*, or *Firmware* go to the [Router Models](#) page, find the required model, and switch to the *Manuals* or *Firmware* tab, respectively.

The *Router Apps* installation packages and manuals are available on the [Router Apps](#) page.

For the *Development Documents*, go to the [DevZone](#) page.