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Информация об устройстве

Информация об устройстве доступна в InternetGatewayDevice.DeviceInfo.

Нода	Описание
HardwareVersion	Версия оборудования, должна соответствовать значениям в WebUI и OMCI
Manufacturer	Производитель оборудования
ManufacturerOUI	Первые 6 символов MAC адреса устройства
ModelName	Модель, должна соответствовать значениям в WebUI и OMCI
ProductClass	Должен совпадать с ModelName
SerialNumber	Серийный номер устройства, должен соответствовать значениям в WebUI и OMCI
SoftwareVersion	Версия ПО устройства, должна соответствовать значениям в WebUI и OMCI
TemperatureStatus.TemperatureSensor.{x}.Name	Название температурного датчика, должен быть минимум 1 (на оптическом модуле). Температура чипсета – опционально.
TemperatureStatus.TemperatureSensor. {x}.Status	Текущий статус датчика
TemperatureStatus.TemperatureSensor. {x}.Value	Текущее значение температуры в градусах Цельсия
UpTime	Время работы устройства после загрузки.
X_RTK_DeviceLogEnable	Позволяет включить/выключить системный лог
X_RTK_RemoteLogEnable	Позволяет включить/выключить передачу системного лога на удаленный сервер
X_RTK_RemoteLogServer	Сервер для удаленного логирования
MemoryStatus.Free (unsignedInt)	The free physical RAM, in kilobytes, currently available on the device.
MemoryStatus.Total (unsignedInt)	The total physical RAM, in kilobytes, installed on the device.
ProcessStatus.CPUUsage (unsignedInt)	The total amount of the CPU, in percent, rounded up to the nearest whole percent. In the case that multiple CPU are present, this value represents the average of all CPU.
InternetGatewayDevice. ManagementServer.X_RTK_ConnectionRequestPort (unsignedInt)	Входящий порт для Connection Request. Значение по умолчанию 7547.

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Команды настроек PPP соединения

Название процедуры	Команда
Активация интерфейса	Set "InternetGatewayDevice.WANDevice. {n}.WANConnectionDevice. {k}.WANPPPConnection. {j}.Enable" = 1
Имя пользователя	Set "InternetGatewayDevice.WANDevice. {n}.WANConnectionDevice. {k}.WANPPPConnection. {j}.Username" = 1
Пароль	Set "InternetGatewayDevice.WANDevice. {n}.WANConnectionDevice. {k}.WANPPPConnection. {j}.Password" = 1
Тип соединения	Set "InternetGatewayDevice.WANDevice. {n}.WANConnectionDevice. {k}.WANPPPConnection. {j}.ConnectionType" = IP_Routed
Имя соединения	Set "InternetGatewayDevice.WANDevice. {n}.WANConnectionDevice. {k}.WANPPPConnection. {j}.Name" = HSI
Таймер	Set "InternetGatewayDevice.WANDevice. {n}.WANConnectionDevice. {k}.WANPPPConnection. {j}.IdleDisconnectTime" = 0
Условия установки соединения	Set "InternetGatewayDevice.WANDevice. {n}.WANConnectionDevice. {k}.WANPPPConnection. {j}.ConnectionTrigger" = AlwaysOn
Количество повторов отправки LCP	Set "InternetGatewayDevice.WANDevice. {n}.WANConnectionDevice. {k}.WANPPPConnection. {j}.PPPLCPEchoRetry" = 5
Интервал отправки LCP	Set "InternetGatewayDevice.WANDevice. {n}.WANConnectionDevice. {k}.WANPPPConnection. {j}.PPPLCPEcho" = 30
Активация NAT	Set "InternetGatewayDevice.WANDevice. {n}.WANConnectionDevice. {k}.WANPPPConnection. {j}.NATEnabled" = 1
Выбор протокола	Set "InternetGatewayDevice.WANDevice. {n}.WANConnectionDevice. {k}.WANPPPConnection. {j}.X_RTK_IP_Version" = 1 {int} 1- IPV4 2 -IPV6 3- IPv4/IPv6
Активация IGMP Проху	Set "InternetGatewayDevice.WANDevice. {n}.WANConnectionDevice. {k}.WANPPPConnection. {j}.X_RTK_IGMPProxy" = True
Текущее значение PPPoEACName	Get InternetGatewayDevice.WANDevice. {i}.WANConnectionDevice. {i}.WANPPPConnection. {i}.X_RTK_CurrentPPPoEACName { string } , {readonly}

Команды настроек IPoE соединения

Название процедуры	Команда
Активация интерфейса	Set "InternetGatewayDevice.WANDevice. {n}.WANConnectionDevice. {k}.WANIPConnection. {j}.Enable" = 1
Тип соединения	Set "InternetGatewayDevice.WANDevice. {n}.WANConnectionDevice. {k}.WANIPConnection. {j}.ConnectionType" = IP_Routed
Имя соединения	Set "InternetGatewayDevice.WANDevice. {n}.WANConnectionDevice. {k}.WANIPConnection. {j}.Name" = HSI
Режим работы	Set "InternetGatewayDevice.WANDevice. {n}.WANConnectionDevice. {k}.WANIPConnection. {j}.AddressingType" = DHCP

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Настройка arp ping	Set "InternetGatewayDevice.WANDevice.{n}.WANConnectionDevice.{k}.WANIPConnection.{j}.X_RTK_IPArpEcho" = 30 { unsignedInt}
Настройка arp ping	Set "InternetGatewayDevice.WANDevice.{n}.WANConnectionDevice.{k}.WANIPConnection.{j}.X_RTK_IPArpRetry" = 3 { unsignedInt}
Настройка ARP Ping	Set "InternetGatewayDevice.WANDevice.{n}.WANConnectionDevice.{k}.WANIPConnection.{j}.X_RTK_IPArpEnable" = 0 {boolean}
Активация NAT	Set "InternetGatewayDevice.WANDevice.{n}.WANConnectionDevice.{k}.WANIPConnection.{j}.NATEnabled" = 1
Выбор протокола	Set "InternetGatewayDevice.WANDevice.{n}.WANConnectionDevice.{k}.WANIPConnection.{j}.X_RTK_IP_Version" = 1 {int} 1- IPV4 2 -IPV6 3- IPv4/IPv6
Активация IGMP Proхy	Set "InternetGatewayDevice.WANDevice.{n}.WANConnectionDevice.{k}.WANIPConnection.{j}.X_RTK_IGMPProxy" = True

Управление признаком интерфейса

Конфигурация признака интерфейса	Set "InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANIPConnection.{i}.X_RTK_ServiceType" = XXXX {int} Set "InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPOConnection.{i}.X_RTK_ServiceType" = XXXX {int} Признаки интерфейса 1 бит – Internet 2 бит – TR-069 3 бит – VoIP В итоге формируется DEC число, например для Internet+TR+VoIP признак интерфейса = 111 или 7 Если второй бит (TR069) во всех соединениях равен 0, то встроенный клиент TR069 работает через соединение, помеченное как маршрут по умолчанию. Пользователь admin не может создавать/редактировать соединение, у которого этот бит равен «1». По умолчанию и при создании соединения бит равен «0». Если третий бит (VoIP) во всех соединениях равен 0, то встроенный клиент FXS работает через соединение, помеченное как маршрут по умолчанию. Пользователь admin не может создавать/редактировать соединение, у которого этот бит равен «1». По умолчанию и при создании соединения бит равен «0».
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Управление DHCP опциями. Все опции, которые запрашиваются/передаются на IPoE должны быть в этом дереве.

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InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANIPConnection.{i}.DHCPClient.SentDHCPOption.{i}.	object	W Each instance of this object represents a DHCP option that MUST, if enabled, be sent in DHCP client requests. All sent DHCP options MUST be listed. At most one entry in this table (regardless of whether or not it is enabled) can exist with a given value for Alias . On creation of a new table entry, the CPE MUST choose an initial value for Alias such that the new entry does not conflict with any existing entries. At most one enabled entry in this table can exist with a given value for Tag .	-	1.4
Enable	boolean	W Enables or disables this SentDHCPOption table entry.	false	1.4
Alias	string(64)	W A non-volatile handle used to reference this instance. Alias provides a mechanism for an ACS to label this instance for future reference. If the CPE supports the Alias-based Addressing feature as defined in [Section 3.6.1/ TR-069a4] and described in [Appendix II/ TR-069a4], the following mandatory constraints MUST be enforced: • Its value MUST NOT be empty. • Its value MUST start with a letter. • If its value is not assigned by the ACS, it MUST start with a "cpe-" prefix. • The CPE MUST NOT change the parameter value.	-	1.9
Tag	unsignedInt-[1:254]	W Option tag as defined in RFC 2132 [RFC2132].	-	1.4
Value	base64(255)	W Base64 encoded option value.	<Empty>	1.4
InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANIPConnection.{i}.DHCPClient.RegDHCPOption.{i}.	object	W Each instance of this object represents a DHCP option that MUST, if enabled, be requested in DHCP client requests. All requested DHCP options MUST be listed. At most one entry in this table (regardless of whether or not it is enabled) can exist with a given value for Alias . On creation of a new table entry, the CPE MUST choose an initial value for Alias such that the new entry does not conflict with any existing entries. At most one enabled entry in this table can exist with a given value for Tag .	-	1.4
Enable	boolean	W Enables or disables this RegDHCPOption table entry.	false	1.4

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Alias	string(64)	W	A non-volatile handle used to reference this instance. Alias provides a mechanism for an ACS to label this instance for future reference. If the CPE supports the Alias-based Addressing feature as defined in [Section 3.6.1/TR-069a4] and described in [Appendix II/TR-069a4], the following mandatory constraints MUST be enforced: • Its value MUST NOT be empty. • Its value MUST start with a letter. • If its value is not assigned by the ACS, it MUST start with a "cpe-" prefix. • The CPE MUST NOT change the parameter value.	-	1.9
Order	unsignedInt-[1:]	W	Position of the option in the DHCP client request. A value of 1 indicates the first entry. When this value is modified, if the value matches that of an existing entry, the Order value for the existing entry and all lower Order entries is incremented to ensure uniqueness of this value. A deletion causes Order values to be compacted. When a value is changed, incrementing occurs before compaction. The value on creation of a ReqDHCPOption table entry MUST be one greater than the largest current value.	-	1.4
Tag	unsignedInt-[1:254]	W	Option tag as defined in RFC 2132 [RFC2132].	-	1.4
Value	base64(255)	-	Base64 encoded most recently received DHCP option value. If no option value has been received, then the value MUST represent an empty string. Received DHCP option values MAY, but need not, persist across CPE reboots.	<Empty>	1.4

Управление NTP

Название процедуры	Команда
Конфигурация NTP	Set “InternetGatewayDevice.Time.NTPServer1” = pool.ntp.org
	Set “InternetGatewayDevice.Time.LocalTimeZone” = +04:00

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	Set “InternetGatewayDevice.Time.Enable” = True
Получение статуса NTP	Get InternetGatewayDevice.Time.Status
Текущее время	Get InternetGatewayDevice.Time.CurrentLocalTime

Управление пробросом портов PortMapping

Название процедуры	Команда
Конфигурация PortMapping	Add object “InternetGatewayDevice.WANDevice.{n}.WANConnectionDevice.{k}.WANIP{PPP}Connection.PortMapping”
	Set “InternetGatewayDevice.WANDevice.{n}.WANConnectionDevice.{k}.WANIP{PPP}Connection.PortMapping{i}.PortMappingEnabled” = True
	Set “InternetGatewayDevice.WANDevice.{n}.WANConnectionDevice.{k}.WANIP{PPP}Connection.PortMapping{i}.PortMappingLeaseDuration” = 0
	Set “InternetGatewayDevice.WANDevice.{n}.WANConnectionDevice.{k}.WANIP{PPP}Connection.PortMapping{i}.RemoteHost” = 0.0.0.0
	Set “InternetGatewayDevice.WANDevice.{n}.WANConnectionDevice.{k}.WANIP{PPP}Connection.PortMapping{i}.ExternalPort” = XXXX
	Set “InternetGatewayDevice.WANDevice.{n}.WANConnectionDevice.{k}.WANIP{PPP}Connection.PortMapping{i}.ExternalPortEndRange” = XXXX
	Set “InternetGatewayDevice.WANDevice.{n}.WANConnectionDevice.{k}.WANIP{PPP}Connection.PortMapping{i}.InternalPort” = XXXX
	Set “InternetGatewayDevice.WANDevice.{n}.WANConnectionDevice.{k}.WANIP{PPP}Connection.PortMapping{i}.PortMappingProtocol” = TCP или UDP
	Set “InternetGatewayDevice.WANDevice.{n}.WANConnectionDevice.{k}.WANIP{PPP}Connection.PortMapping{i}.InternalClient” = xx.xx.xx.xx
	Set “InternetGatewayDevice.WANDevice.{n}.WANConnectionDevice.{k}.WANIP{PPP}Connection.PortMapping{i}.PortMappingDescription” = Description_PM1

Управление паролем администратора

Название процедуры	Команда
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Смена пароля администратора	Set "InternetGatewayDevice.LANConfigSecurity.ConfigPassword" = <new_admin_password>
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Управление беспроводным интерфейсом

Название процедуры	Команда
Выключение беспроводного интерфейса	Set "InternetGatewayDevice.LANDevice. {i}.WLANConfiguration. {i}.Enable" = False
Включение беспроводного интерфейса	Set "InternetGatewayDevice.LANDevice. {i}.WLANConfiguration. {i}.Enable" = True
Изменение SSID	Set "InternetGatewayDevice.LANDevice. {i}.WLANConfiguration. {i}.SSID" = <NewSSIDName>
Изменение канала	Set "InternetGatewayDevice.LANDevice. {i}.WLANConfiguration. {i}.Channel" = <NewChannel>
Изменения стандарта (<i>a</i> , <i>b</i> , <i>g</i> (b and g clients supported), <i>g-only</i> (only g clients supported), <i>N</i> , <i>ac</i>)	Set "InternetGatewayDevice.LANDevice. {i}.WLANConfiguration. {i}.Standard" = "ac"
Изменение силы сигнала	Set "InternetGatewayDevice.LANDevice. {i}.WLANConfiguration. {i}.TransmitPower" = 100
Изменение RegulatoryDomain	Set "InternetGatewayDevice.LANDevice. {i}.WLANConfiguration. {i}.RegulatoryDomain" = "RU" Set "InternetGatewayDevice.LANDevice. {i}.WLANConfiguration. {i}.RegulatoryDomain" = "CN"
Включение функционала 802.11R	Set "InternetGatewayDevice.X_RTK_WiFiMesh.802.11r.Enable" = True Значение по умолчанию = false (выключено)

Установка WPA2

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InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.Enable=true
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.RadioEnabled = True
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.BeaconType = 11i
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.Channel = <unsignedint>
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.IEEE11iEncryptionModes = AESEncryption
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.IEEE11iAuthenticationMode = PSKAuthentication
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.PreSharedKey.{k}.KeyPassphrase = <string>*
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.PreSharedKey.{k}.PreSharedKey = <hexadecimal string>
*опционально

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Установка WPA

Название процедуры	Команда
	<pre> InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.RadioEnabled = True InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.Channel = <unsignedint> InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.WPAEncryptionModes = AESEncryption InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.WPAAuthenticationMode = PSKAuthentication InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.PreSharedKey.{k}.KeyPassphrase = <string>* InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.PreSharedKey.{k}.PreSharedKey = <hexadecimal string> *опционально </pre>

Установка WPA+WPA2

Название процедуры	Команда
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	<pre> InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.Enable = true InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.RadioEnabled = True InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.BeaconType = WPAand11i InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.Channel = <unsignedint> InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.IEEE11iEncryptionModes = AESEncryption InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.IEEE11iAuthenticationMode = PSKAuthentication InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.PreSharedKey.{k}.KeyPassphrase = <string>* InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.PreSharedKey.{k}.PreSharedKey= <hexadecimal string> *опционально </pre>
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Установка WPA3

Название процедуры	Команда
	<pre> InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.Enable=true InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.RadioEnabled = True InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.BeaconType = WPA3 InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.Channel = <unsignedint> InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.IEEE11iEncryptionModes = AESEncryption InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.IEEE11iAuthenticationMode = PSKAuthentication InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.PreSharedKey.{k}.KeyPassphrase = <string>* InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.PreSharedKey.{k}.PreSharedKey = <hexadecimal string> *опционально </pre>

Установка WPA2+WPA3 mixed

Название процедуры	Команда
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	<pre> InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.Enable = true InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.RadioEnabled = True InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.BeaconType = WPA3and11i InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.Channel = <unsignedint> InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.IEEE11iEncryptionModes = AESEncryption InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.IEEE11iAuthenticationMode = PSKAuthentication InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.PreSharedKey.{k}.KeyPassphrase = <string>* InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{j}.PreSharedKey.{k}.PreSharedKey= <hexadecimal string> *опционально </pre>
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Управление AutoChannel

Название процедуры	Команда
Включение AutoChannel	Set "InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.AutoChannelEnable" = True
Установка интервала для перевыбора	Set "InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.AutoChannelRefreshPeriod" = 600

Управление приоритезацией

Название процедуры	Команда
Настройки QoS	Set "InternetGatewayDevice.QueueManagement.Enable" = True
	Set "InternetGatewayDevice.QueueManagement.DefaultDSCPMark" = 0
	AddObject "InternetGatewayDevice.QueueManagement.Classification.{i}"
	Set "InternetGatewayDevice.QueueManagement.Classification.{i}.Protocol" = <1>
	Set "InternetGatewayDevice.QueueManagement.Classification.{i}.DestPort" = <5050>
	Set "InternetGatewayDevice.QueueManagement.Classification.{i}.ForwardingPolicy" = <1>
	Set "InternetGatewayDevice.QueueManagement.Classification.{i}.ClassQueue" = <4>.
	Set "InternetGatewayDevice.QueueManagement.Classification.{i}.ClassificationEable" = True
	Set "InternetGatewayDevice.QueueManagement.Queue.{i}.DropAlgorithm" = <DT>
	Set "InternetGatewayDevice.QueueManagement.Queue.{i}.SchedulerAlgorithm" = <SP >
	Set "InternetGatewayDevice.QueueManagement.Queue.{i}.QueueInterface" = <LAN>

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Set “InternetGatewayDevice.QueueManagement.Queue.{i}.ShapingBurstSize” = <0>
Set “InternetGatewayDevice.QueueManagement.Queue.{i}.ShapingRate” = <-1>

Управление голосовым модулем

Название процедуры	Команда
Активация настройка голосового модуля	Add Object “InternetGatewayDevice.Services.VoiceService.” Add Object “InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.”
Настройка и активация DigitMap	Set “InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.DigitMapEnable” = 1 Set “InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.DigitMap” = YXXXXXX/ZKKK
Включение функционала «100rel»	Set “InternetGatewayDevice.Services.VoiceService.{i}.VoiceProfile.{i}.X_RTK_PRACK” = True
Управление функционала «SIP OPTIONS ping»	Set “InternetGatewayDevice.Services.VoiceService.{i}.VoiceProfile.{i}.PingInterval” = < unsignedInt-[0:65535]>

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Название процедуры	Команда
Настройка Сервера регистрации	<pre> AddObject "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.SIP." Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.SIP.UserAgentDomain" = <Domain> Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.SIP.UserAgentPort." = <PORT> Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.SIP.RegistrarServer" = <SERVER> Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.SIP.RegistrarServerPort" = <SERVER_PORT> Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.SIP.ProxyServer" = <SERVER> Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.SIP.ProxyServer.ProxyServerPort" = <SERVER_PORT> Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.SIP.OutboundProxy" = <Proxy> Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.SIP.OutboundProxyPort" = <PROXY_PORT> Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.SIP.RegisterExpires" = <Timer> Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.SIP.RegistrationPeriod" = <Timer> </pre>
Изменение значения параметра RFC2833 payload type для передачи DTMF сигналов	<pre> Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.RTP.TelephoneEventPayloadType" = <PayloadType> </pre>
Настройка аккаунта	<pre> AddObject "InternetGatewayDevice.Services.VoiceService.1.Line.1." Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.Line.1.Enable" = Enabled Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.Line.1.SIP.AuthUserName" = <UserName> Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.Line.1.SIP.AuthPassword" = <Password> Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.Line.1.DirectoryNumber" = <Number> Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.Line.1.CallingFeatures.CallerIDEnable" = <Enabled> Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.Line.1.CallingFeatures.CallerIDName" = <CallerID> Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.Line.1.PhyReferenceList" = <FXS_PORT> Set "InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.1.Line.1.SIP.URI" = <SIP_URI> </pre>

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Директивы процедуры Download

Назначение процедуры	Команда
Обновление ПО	<pre>"Username": "<Имя пользователя>", "URL": "<путь к файлу прошивки>", "TargetFileName": "<имя файла>", "Password": "<Пароль>", "FileType": "1 Firmware Upgrade Image", "FileSize": <размер файла в байтах>, "DelaySeconds": 0, "CommandKey": <уникальное значение>, "DelaySeconds": 0</pre> Возможно обновление по протоколам HTTP/FTP с указанием авторизации
Обновление конфигурации	<pre>"Username": "<Имя пользователя>", "URL": "<путь к файлу прошивки>", "TargetFileName": "<имя файла>", "Password": "<Пароль>", "FileType": "3 Vendor Configuration File", "FileSize": <размер файла в байтах>, "DelaySeconds": 0, "CommandKey": <уникальное значение>, "DelaySeconds": 0</pre> Возможно обновление по протоколам HTTP/FTP с указанием авторизации

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Директивы процедуры Upload

Назначение процедуры	Команда
Загрузка конфигурации на сервер	<pre>"Username": "<Имя пользователя>", "URL": "<путь к файлу прошивки>", "TargetFileName":<имя файла>""", "Password": "<Пароль>", "FileType": "1 Vendor Configuration File", "DelaySeconds": 0, "CommandKey": <уникальное значение>", "DelaySeconds": 0</pre> Возможно обновление по протоколам HTTP/FTP с указанием авторизации
Обновление конфигурации	<pre>"Username": "<Имя пользователя>", "URL": "<путь к файлу прошивки>", "TargetFileName":<имя файла>""", "Password": "<Пароль>", "FileType": "3 Vendor Configuration File""", "FileSize": <размер файла в байтах>, "DelaySeconds": 0, "CommandKey": <уникальное значение>", "DelaySeconds": 0</pre> Возможно обновление по протоколам HTTP/FTP с указанием авторизации

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Конфигурация TR-098 VLAN и мостов GPON / FTTH

Требование к соответствию LAN портов

Физически порт должен быть привязан к соответствующему TR069 параметру, данные параметры не должны изменяться после перезагрузки или добавления, изменения мостовых групп

Использование вендорных параметров запрещено

Физический порт	TR-069 параметр
LAN1 (eth0)	InternetGatewayDevice.LANDevice.1.LANEthernetInterfaceConfig.1.
LAN2 (eth1)	InternetGatewayDevice.LANDevice.1.LANEthernetInterfaceConfig.2.
LAN3 (eth2)	InternetGatewayDevice.LANDevice.1.LANEthernetInterfaceConfig.3.
LAN4 (eth3)	InternetGatewayDevice.LANDevice.1.LANEthernetInterfaceConfig.4.

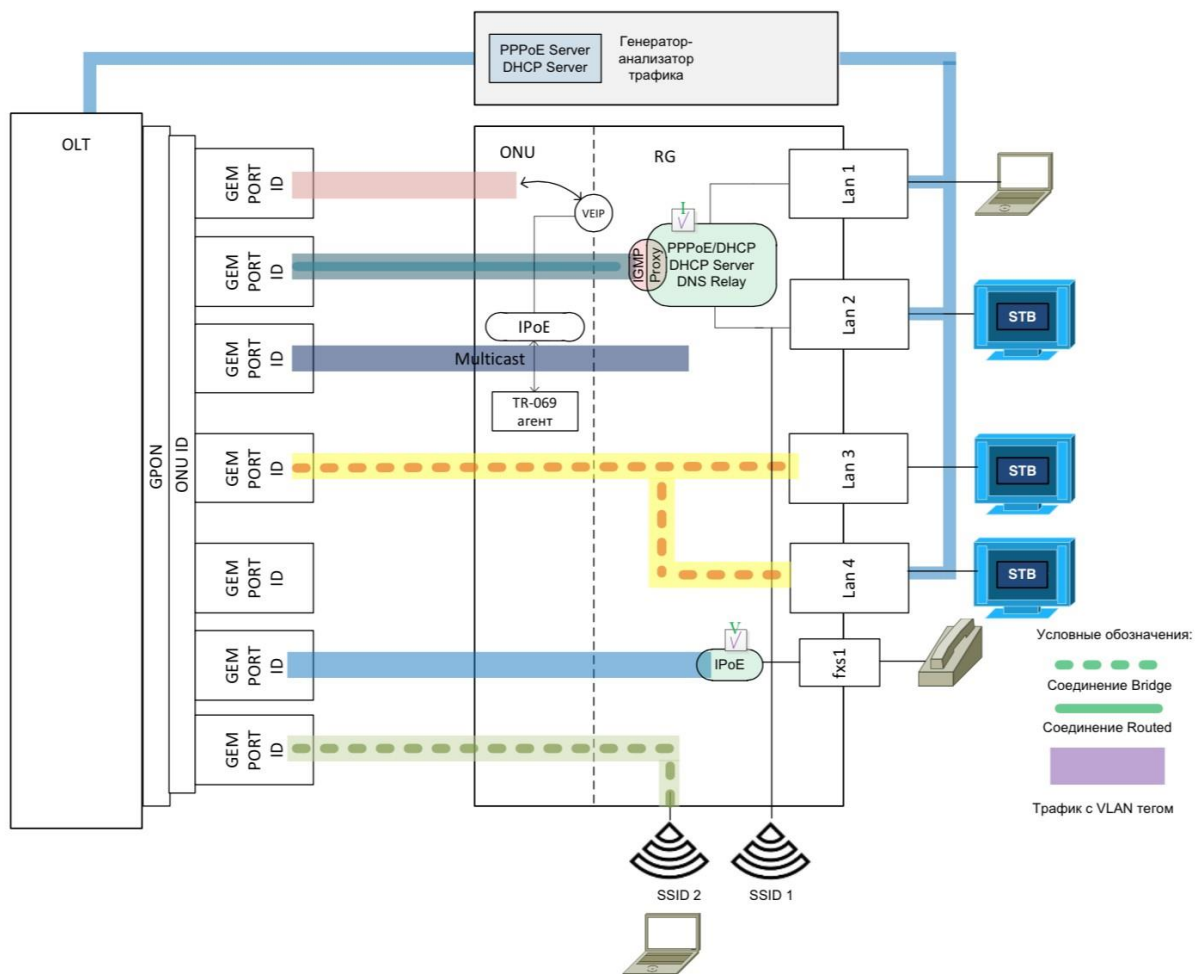
Требование к соответствию SSID портов

Каждый SSID должен быть привязан к соответствующему TR069 параметру, данные параметры не должны изменяться после перезагрузки или добавления, изменения мостовых групп

Использование вендорных параметров запрещено

SSID

SSID1	InternetGatewayDevice.LANDevice.1.WLANConfiguration.1.
SSID2	InternetGatewayDevice.LANDevice.1.WLANConfiguration.2.
SSID3	InternetGatewayDevice.LANDevice.1.WLANConfiguration.3.
SSID4	InternetGatewayDevice.LANDevice.1.WLANConfiguration.4.



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1. Конфигурация бриджа для услуги интернет (PPPoE) порты LAN1, LAN2 и SSID1

Спецификация

Услуга	Интернет
Имя бриджа	HSI
Тип соединения	PPPoE
VLAN ID	23
LAN порты	LAN1, LAN2
WLAN	SSID1
EthernetPriorityMark	1

1. Создание Bridge

Бридже создается только в случае отсутствия существующего бриджа для VLAN 23, иначе используется существующий

1. AddObject:

InternetGatewayDevice.Layer2Bridging.Bridge.

Создается новая инстанция с номером A

2. SetParameterValues:

InternetGatewayDevice.Layer2Bridging.Bridge.{A}.VLANID = 23

InternetGatewayDevice.Layer2Bridging.Bridge.{A}.BridgeEnable = 1

InternetGatewayDevice.Layer2Bridging.Bridge.{A}.BridgeName = "HSI"

InternetGatewayDevice.Layer2Bridging.Bridge.{A}.BridgeStandard = "802.1Q"

3. GetParameterValues

InternetGatewayDevice.Layer2Bridging.Bridge.{A}.BridgeKey На данный параметр будут ссылаться Filter и Marking. Далее будем его значение называть **BridgeKey**

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2. Создание PPPoE соединения

Ищется используемое для канала управления InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}. и создается если необходимо новое PPPoE соединение

1. AddObject InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPPConnection. Создается новая инстанция с номером B
2. SetParameterValues InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPPConnection.{B}.Enable = True
 InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPPConnection.{B}.Name = HSI
 InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPPConnection.{B}.Username = (login)
 InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPPConnection.{B}.Password = (password)
 InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPPConnection.{B}.PPPLCPEchoRetry = 5
 InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPPConnection.{B}.PPPLCPEcho = 30
 InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPPConnection.{B}.IdleDisconnectTime = 120
 InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPPConnection.{B}.ConnectionTrigger = AlwaysOn или OnDemand
 InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPPConnection.{B}.ConnectionType = IP_Routed
 InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPPConnection.{B}.X_RTK_ServiceType = 1
 InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPPConnection.{B}.X_RTK_IGMPPProxy = True
 InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPPConnection.{B}.NATEnabled = 1

3. Получение доступных интерфейсов

1. GetParameterValues
 InternetGatewayDevice.Layer2Bridging.AvailableInterface.

Данный метод возвращает список доступных интерфейсов, как физических, так и логических

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Пример ответа:

InternetGatewayDevice.Layer2Bridging.AvailableInterface.1.AvailableInterfaceKey : 1
InternetGatewayDevice.Layer2Bridging.AvailableInterface.1.InterfaceReference
: LANDevice.1.LANEthernetInterfaceConfig.1
InternetGatewayDevice.Layer2Bridging.AvailableInterface.1.InterfaceType : LANInterface
InternetGatewayDevice.Layer2Bridging.AvailableInterface.10.AvailableInterfaceKey : 10
InternetGatewayDevice.Layer2Bridging.AvailableInterface.10.InterfaceReference
: InternetGatewayDevice.WANDevice.1.WANConnectionDevice.1
InternetGatewayDevice.Layer2Bridging.AvailableInterface.10.InterfaceType : WANInterface
InternetGatewayDevice.Layer2Bridging.AvailableInterface.11.AvailableInterfaceKey : 11

ACS сохраняет соответствие между TR069 параметром (*LANDevice.1.LANEthernetInterfaceConfig.1*) и AvailableInterfaceKey(1)
 На данный параметр будут ссылаться Filter и Marking. В дальнейшем мы его будем называть **InterfaceKey**

4. Создание Filter для WAN интерфейса (WANConnectionDevice)

1. AddObject
InternetGatewayDevice.Layer2Bridging.Filter.
2. SetParameterValues InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterBridgeReference = **BridgeKey** InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterInterface = **InterfaceKey** (InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i})
InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterEnable = True
InternetGatewayDevice.Layer2Bridging.Filter.{i}.VLANIDFilter = -1

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InternetGatewayDevice.Layer2Bridging.Filter.{i}.AdmitOnlyVLANTagged = False

5. Создание Filter для WANPPPPConnection интерфейса

(InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPPConnection.{B})

1. AddObject

InternetGatewayDevice.Layer2Bridging.Filter.

2. SetParameterValues InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterBridgeReference =

BridgeKey InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterInterface

= **InterfaceKey** (InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPPConnection.{B})

InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterEnable=True InternetGatewayDevice.Layer2Bridging.Filter.{i}.VLANIDFilter=-

1 InternetGatewayDevice.Layer2Bridging.Filter.{i}.AdmitOnlyVLANTagged = False

6. Создание Marking для WAN интерфейса (WANConnectionDevice)

1. AddObject

InternetGatewayDevice.Layer2Bridging.Marking.

2. SetParameterValues InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingBridgeReference =

BridgeKey InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingInterface = **InterfaceKey** (

InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i})

InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingEnable=True

InternetGatewayDevice.Layer2Bridging.Marking.{j}.EthernetPriorityMark=1

InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDUntag=False

InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDMark=23

InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDMarkOverride = True

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7. Создание Marking для LAN Port 1

Marking создается только в случае отсутствия Marking для LAN порта 1, иначе изменяется существующий

1. AddObject
InternetGatewayDevice.Layer2Bridging.Marking.
2. SetParameterValues InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingBridgeReference = **BridgeKey** InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingInterface = **InterfaceKey** (InternetGatewayDevice.LANDevice.1.LANEthernetInterfaceConfig.1)
InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingEnable = True
InternetGatewayDevice.Layer2Bridging.Marking.{j}.EthernetPriorityMark = -1
InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDUntag = True
InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDMark = -1
InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDMarkOverride = False

8. Создание Filter для LAN Port 1

Filter создается только в случае отсутствия Filter для LAN порта 1, иначе изменяется существующий

1. AddObject
InternetGatewayDevice.Layer2Bridging.Filter.
2. SetParameterValues InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterBridgeReference = **BridgeKey** InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterInterface = **InterfaceKey** (InternetGatewayDevice.LANDevice.1.LANEthernetInterfaceConfig.1)
InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterEnable = True InternetGatewayDevice.Layer2Bridging.Filter.{i}.VLANIDFilter = -1 InternetGatewayDevice.Layer2Bridging.Filter.{i}.AdmitOnlyVLANTagged = False

9. Создание Marking для LAN Port 2, аналогично как и для LAN Port 1

10. Создание Filter для LAN Port 2, аналогично как и для LAN Port 1

11. Создание Marking для SSID1, аналогично как и для LAN Port 1

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12. Создание Filter для SSID1, аналогично как и для LAN Port 1

13. Конфигурация LANIP интерфейса

1. SetParameterValues

InternetGatewayDevice.LANDevice.1.LANHostConfigManagement.IPInterface.1.Enable = True

InternetGatewayDevice.LANDevice.1.LANHostConfigManagement.IPInterface.1.IPInterfaceIPAddress = 192.168.0.1

InternetGatewayDevice.LANDevice.1.LANHostConfigManagement.IPInterface.1.IPInterfaceAddressingType = StaticIP

14. Конфигурация локального DHCP

1. InternetGatewayDevice.LANDevice.1.LANHostConfigManagement.DomainName = HomeLAN

InternetGatewayDevice.LANDevice.1.LANHostConfigManagement.DHCPSEnable = True

InternetGatewayDevice.LANDevice.1.LANHostConfigManagement.IPRouters = 192.168.0.1

InternetGatewayDevice.LANDevice.1.LANHostConfigManagement.SubnetMask = 255.255.255.0

InternetGatewayDevice.LANDevice.1.LANHostConfigManagement.DNSServers = 192.168.0.1

InternetGatewayDevice.LANDevice.1.LANHostConfigManagement.MinAddress = 192.168.0.2

InternetGatewayDevice.LANDevice.1.LANHostConfigManagement.MaxAddress = 192.168.0.254

15. Создание Filter для LANIPInterface

Filter создается только в случае отсутствия Filter для LANIPInterface, иначе изменяется существующий

1. AddObject

InternetGatewayDevice.Layer2Bridging.Filter.

2. SetParameterValues InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterBridgeReference =

BridgeKey InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterInterface

= **InterfaceKey** (InternetGatewayDevice.LANDevice.1.LANHostConfigManagement.IPInterface.1)

InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterEnable = True InternetGatewayDevice.Layer2Bridging.Filter.{i}.VLANIDFilter =

-1 InternetGatewayDevice.Layer2Bridging.Filter.{i}.AdmitOnlyVLANTagged = False

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Пример вывода группировки объектов

```
{'BRIDGE': {'BridgeEnable': 1,
            'BridgeKey': '2',
            'BridgeName': 'HSI', 'BridgeStandard':
            '802.1Q',
            'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Bridge.2',
            'VLANID': 23},
'SUBOBJ': {'FILTERS': [{'AdmitOnlyVLANTagged': 0,
                        'FilterBridgeReference': 2,
                        'FilterEnable': 1,
                        'FilterInterface': '9',
                        'TR69Interface': 'InternetGatewayDevice.WANDevice.1.WANConnectionDevice.1',
                        'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Filter.11', 'VLANIDFilter': -1},
                      {'AdmitOnlyVLANTagged': 0,
                        'FilterBridgeReference': 2,
                        'FilterEnable': 1,
                        'FilterInterface': '12',
                        'TR69Interface': 'InternetGatewayDevice.LANDevice.1.LANHostConfigManagement.IPInterface.1', 'TR69Name':
                        'InternetGatewayDevice.Layer2Bridging.Filter.13',
                        'VLANIDFilter': -1},
                      {'AdmitOnlyVLANTagged': 0,
                        'FilterBridgeReference': 2,
                        'FilterEnable': 1,
                        'FilterInterface': '11',
                        'TR69Interface': 'WANDevice.1.WANConnectionDevice.1.WANPPPConnection.2',
                        'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Filter.12', 'VLANIDFilter': -1},
                      {'AdmitOnlyVLANTagged': 0,
                        'FilterBridgeReference': 2,
                        'FilterEnable': 1,
                        'FilterInterface': '1',
                        'FilterKey': 1, 'FilterStatus': 'Enabled',
                        'TR69Interface': 'LANDevice.1.LANEthernetInterfaceConfig.1',
                        'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Filter.1',
                        'VLANIDFilter': -1},
                      {'AdmitOnlyVLANTagged': 0,
                        'FilterBridgeReference': 2,
```

```
'FilterEnable': 1,
'FilterInterface': '2',
'FilterKey': 2, 'FilterStatus': 'Enabled',
'TR69Interface': 'LANDevice.1.LANEthernetInterfaceConfig.2',
'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Filter.2',
'VLANIDFilter': -1},
{'AdmitOnlyVLANTagged': 0,
'FilterBridgeReference': 2,
'FilterEnable': 1,
'FilterInterface': '5',
'FilterKey': 5, 'FilterStatus': 'Enabled',
'TR69Interface': 'LANDevice.1.WLANConfiguration.1', 'TR69Name':
'InternetGatewayDevice.Layer2Bridging.Filter.5', 'VLANIDFilter': -1}},
'MARKING': [{ 'EthernetPriorityMark': -1,
'MarkingBridgeReference': 2,
'MarkingEnable': 1,
'MarkingInterface': '1',
'TR69Interface': 'LANDevice.1.LANEthernetInterfaceConfig.1',
'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Marking.3',
'VLANIDMark': -1,
'VLANIDMarkOverride': 0,
'VLANIDUntag': 1},
{'EthernetPriorityMark': 1,
'MarkingBridgeReference': 2,
'MarkingEnable': 1,
'MarkingInterface': '9',
'TR69Interface': 'InternetGatewayDevice.WANDevice.1.WANConnectionDevice.1',
'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Marking.2',
'VLANIDMark': 23,
'VLANIDMarkOverride': 1,
'VLANIDUntag': 0},
{'EthernetPriorityMark': -1,
'MarkingBridgeReference': 2,
'MarkingEnable': 1,
'MarkingInterface': '5',
'TR69Interface': 'LANDevice.1.WLANConfiguration.1', 'TR69Name':
'InternetGatewayDevice.Layer2Bridging.Marking.5', 'VLANIDMark': -1,
```

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```
'VLANIDMarkOverride': 0,
'VLANIDUntag': 1},
{'EthernetPriorityMark': -1,
'MarkingBridgeReference': 2,
'MarkingEnable': 1,
'MarkingInterface': '2',
'TR69Interface': 'LANDevice.1.LANEthernetInterfaceConfig.2', 'TR69Name':
'InternetGatewayDevice.Layer2Bridging.Marking.4', 'VLANIDMark': -1,
'VLANIDMarkOverride': 0,
'VLANIDUntag': 1}}}]}
```

2. Конфигурация бриджа для услуги IPTV (Bridge) порты LAN3, LAN4

Спецификация

Услуга	IPTV
Имя бриджа	IPTV
Тип соединения	IP_Bridged
VLAN ID	33
LAN порты	LAN3, LAN4
WLAN	-
EthernetPriorityMark	4

1. Создание Bridge

Бридже создается только в случае отсутствия существующего бриджа для VLAN 33, иначе используется существующий

1. AddObject:

InternetGatewayDevice.Layer2Bridging.Bridge.

Создается новая инстанция с номером B

2. SetParameterValues: InternetGatewayDevice.Layer2Bridging.Bridge.{B}.VLANID = 33

InternetGatewayDevice.Layer2Bridging.Bridge.{B}.Enable = 1

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```
InternetGatewayDevice.Layer2Bridging.Bridge.{B}.BridgeName = "IPTV"
InternetGatewayDevice.Layer2Bridging.Bridge.{B}.BridgeStandard =
"802.1Q"
```

3. GetParameterValues

InternetGatewayDevice.Layer2Bridging.Bridge.{B}.BridgeKey На данный параметр будут ссылаться Filter и Marking. Далее будем его значение называть **BridgeKey**

2. Получение доступных интерфейсов

1. GetParameterValues

```
InternetGatewayDevice.Layer2Bridging.AvailableInterface.
```

Данный метод возвращает список доступных интерфейсов На данный параметр будут ссылаться Filter и Marking. В дальнейшем мы его будем называть **InterfaceKey**

3. Создание Filter для WAN интерфейса (WANConnectionDevice)

1. AddObject

```
InternetGatewayDevice.Layer2Bridging.Filter.
```

2. SetParameterValues

```
InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterBridgeReference = BridgeKey
InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterInterface = InterfaceKey(
InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i})
InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterEnable = True
InternetGatewayDevice.Layer2Bridging.Filter.{i}.VLANIDFilter = -1
InternetGatewayDevice.Layer2Bridging.Filter.{i}.AdmitOnlyVLANTagged = False
```

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4. Создание Marking для WAN интерфейса (WANConnectionDevice)

1. AddObject
InternetGatewayDevice.Layer2Bridging.Marking.
2. SetParameterValues InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingBridgeReference = **BridgeKey** InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingInterface = **InterfaceKey** (InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i})
InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingEnable = True
InternetGatewayDevice.Layer2Bridging.Marking.{j}.EthernetPriorityMark = **4**
InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDUntag = False
InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDMark = 33
InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDMarkOverride = True

5. Создание Marking для LAN Port 3

Marking создается только в случае отсутствия Marking для LAN порта 3, иначе изменяется существующий

1. AddObject
InternetGatewayDevice.Layer2Bridging.Marking.
2. SetParameterValues InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingBridgeReference = **BridgeKey** InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingInterface = **InterfaceKey** (InternetGatewayDevice.LANDevice.1.LANEthernetInterfaceConfig.3)
InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingEnable = True
InternetGatewayDevice.Layer2Bridging.Marking.{j}.EthernetPriorityMark = **-1**
InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDUntag = True
InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDMark = -1
InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDMarkOverride = False

6. Создание Filter для LAN Port 3

Filter создается только в случае отсутствия Filter для LAN порта 1, иначе изменяется существующий

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1. AddObject
InternetGatewayDevice.Layer2Bridging.Filter.
2. SetParameterValues InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterBridgeReference = **BridgeKey** InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterInterface = **InterfaceKey** (InternetGatewayDevice.LANDevice.1.LANEthernetInterfaceConfig.3)
InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterEnable=True InternetGatewayDevice.Layer2Bridging.Filter.{i}.VLANIDFilter=-
1 InternetGatewayDevice.Layer2Bridging.Filter.{i}.AdmitOnlyVLANTagged = False
7. Создание Marking для LAN Port 4, аналогично как и для LAN Port 3.
8. Создание Filter для LAN Port 4, аналогично как и для LAN Port 3.

Пример вывода группировки объектов

```
{'BRIDGE': {'BridgeEnable': 1,
            'BridgeKey': '2', 'BridgeName':
            'IPTV', 'BridgeStandard': '802.1Q',
            'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Bridge.2',
            'VLANID': 33},
'SUBOBJ': {'FILTERS': [{'AdmitOnlyVLANTagged': 0,
                        'FilterBridgeReference': 2,
                        'FilterEnable': 1,
                        'FilterInterface': '9',
                        'TR69Interface': 'InternetGatewayDevice.WANDevice.1.WANConnectionDevice.1',
                        'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Filter.11', 'VLANIDFilter': -1},
                      {'AdmitOnlyVLANTagged': 0,
                        'FilterBridgeReference': 2,
                        'FilterEnable': 1,
                        'FilterInterface': '3',
                        'FilterKey': 3, 'FilterStatus':
                        'Enabled',
                        'TR69Interface': 'LANDevice.1.LANEthernetInterfaceConfig.3',
```

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```

      'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Filter.3', 'VLANIDFilter': -1 },
      { 'AdmitOnlyVLANTagged': 0,
        'FilterBridgeReference': 2,
        'FilterEnable': 1,
        'FilterInterface': '4',
        'FilterKey': 4, 'FilterStatus':
        'Enabled',
        'TR69Interface':      'LANDevice.1.LANEthernetInterfaceConfig.4',
        'TR69Name':           'InternetGatewayDevice.Layer2Bridging.Filter.4',
        'VLANIDFilter': -1 } ],
'MARKING': [ { 'EthernetPriorityMark': -1,
               'MarkingBridgeReference': 2,
               'MarkingEnable': 1,
               'MarkingInterface': '3',
               'TR69Interface': 'LANDevice.1.LANEthernetInterfaceConfig.3',
               'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Marking.3',
               'VLANIDMark': -1,
               'VLANIDMarkOverride': 0,
               'VLANIDUntag': 1 },
               { 'EthernetPriorityMark': 4,
                 'MarkingBridgeReference': 2,
                 'MarkingEnable': 1,
                 'MarkingInterface': '9',
                 'TR69Interface': 'InternetGatewayDevice.WANDevice.1.WANConnectionDevice.1',
                 'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Marking.2', 'VLANIDMark': 33,
                 'VLANIDMarkOverride': 1,
                 'VLANIDUntag': 0 },
               { 'EthernetPriorityMark': -1,
                 'MarkingBridgeReference': 2,
                 'MarkingEnable': 1,
                 'MarkingInterface': '4',
                 'TR69Interface': 'LANDevice.1.LANEthernetInterfaceConfig.4',
                 'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Marking.4',
                 'VLANIDMark': -1,
                 'VLANIDMarkOverride': 0,
                 'VLANIDUntag': 1 } ] ] ] ]

```

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3. Конфигурация бриджа для услуги VOIP (IPoE)

Спецификация

Услуга	VOIP
Имя бриджа	VOIP
Тип соединения	IPoE (DHCP, опция 60: VOIP_TEST)
VLAN ID	30
LAN порты	-
WLAN	-
EthernetPriorityMark	7

Примечание: в данном примере рассматривается только создание IP интерфейса, без настроек SIP.

1. Создание _=B5 Bridge

Бридже создается только в случае отсутствия существующего бриджа для VLAN 30, иначе используется существующий

1. AddObject:

InternetGatewayDevice.Layer2Bridging.Bridge.

Создается новая инстанция с номером C

2. SetParameterValues:

InternetGatewayDevice.Layer2Bridging.Bridge.{C}.VLANID = 30

InternetGatewayDevice.Layer2Bridging.Bridge.{C}.Enable = 1

InternetGatewayDevice.Layer2Bridging.Bridge.{C}.BridgeName = "VOIP"

InternetGatewayDevice.Layer2Bridging.Bridge.{C}.BridgeStandard = "802.1Q"

3. GetParameterValues

InternetGatewayDevice.Layer2Bridging.Bridge.{C}.BridgeKey На данный параметр будут ссылаться Filter и Marking.

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Дальше будем его значение называть **BridgeKey**

2. Создание IPoE соединения

Ищется используемое для канала управления InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}. и создается если необходимо новое IPoE соединение

1. AddObject

InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANIPConnection. Создается новая инстанция с номером D

2. SetParameterValues InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANIPConnection.{D}.Enable = True

InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANIPConnection.{D}.Name = VOIP

InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANIPConnection.{D}.AddressingType = DHCP

InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANIPConnection.{D}.ConnectionType = IP_Routed

InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANIPConnection.{D}.X_RTK_ServiceType = 4

3. Конфигурация опций для DHCP клиента (опция 60)

1. AddObject

InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANIPConnection.{D}.DHCPClient.SentDHCPOption. Создается новая инстанция с номером E

2. SetParameterValues

InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANIPConnection.{D}.DHCPClient.SentDHCPOption.{E}.Enable = True
 InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANIPConnection.{D}.DHCPClient.SentDHCPOption.{E}.Tag = 60
 InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANIPConnection.{D}.DHCPClient.SentDHCPOption.{E}.Value = Base64("VOIP_TEST")

4. Получение доступных интерфейсов

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1. GetParameterValues
InternetGatewayDevice.Layer2Bridging.AvailableInterface.

Данный метод возвращает список доступных интерфейсов. На данный параметр будут ссылаться Filter и Marking.
В дальнейшем мы его будем называть **InterfaceKey**

5. Создание Filter для WAN интерфейса (WANConnectionDevice)

1. AddObject
InternetGatewayDevice.Layer2Bridging.Filter.
2. SetParameterValues InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterBridgeReference = **BridgeKey** InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterInterface = **InterfaceKey** (InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i})
InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterEnable = True
InternetGatewayDevice.Layer2Bridging.Filter.{i}.VLANIDFilter = -1
InternetGatewayDevice.Layer2Bridging.Filter.{i}.AdmitOnlyVLANTagged = False

6. Создание Filter для WANIPConnection интерфейса (InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANIPConnection.{D}.)

1. AddObject
InternetGatewayDevice.Layer2Bridging.Filter.
2. SetParameterValues InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterBridgeReference = **BridgeKey** InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterInterface = **InterfaceKey** (InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANIPConnection.{D})
InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterEnable = True

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```
InternetGatewayDevice.Layer2Bridging.Filter.{i}.VLANIDFilter = -1
InternetGatewayDevice.Layer2Bridging.Filter.{i}.AdmitOnlyVLANTagged = False
```

7. Создание Marking для WAN интерфейса (WANConnectionDevice)

1. AddObject
InternetGatewayDevice.Layer2Bridging.Marking.
2. SetParameterValues InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingBridgeReference = **BridgeKey** InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingInterface = **InterfaceKey** (InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i})
InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingEnable = True
InternetGatewayDevice.Layer2Bridging.Marking.{j}.EthernetPriorityMark = 7
InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDUntag = False
InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDMark = 30
InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDMarkOverride = True

Пример вывода группировки объектов

```
{'BRIDGE': {'BridgeEnable': 1,
            'BridgeKey': '2', 'BridgeName':
            'VOIP', 'BridgeStandard': '802.1Q',
            'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Bridge.2',
            'VLANID': 30},
'SUBOBJ': {'FILTERS': [{'AdmitOnlyVLANTagged': 0,
                        'FilterBridgeReference': 2,
                        'FilterEnable': 1,
                        'FilterInterface': '13',
                        'TR69Interface': 'WANDevice.1.WANConnectionDevice.1.WANIPConnection.2', 'TR69Name':
                        'InternetGatewayDevice.Layer2Bridging.Filter.11', 'VLANIDFilter': -1},
                      {'AdmitOnlyVLANTagged': 0,
```

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```

'FilterBridgeReference': 2,
'FilterEnable': 1,
'FilterInterface': '9',
'TR69Interface': 'InternetGatewayDevice.WANDevice.1.WANConnectionDevice.1',
'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Filter.12', 'VLANIDFilter': -1}],
'MARKING': [{ 'EthernetPriorityMark': 7,
'MarkingBridgeReference': 2,
'MarkingEnable': 1,
'MarkingInterface': '9',
'TR69Interface': 'InternetGatewayDevice.WANDevice.1.WANConnectionDevice.1',
'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Marking.2', 'VLANIDMark': 30,
'VLANIDMarkOverride': 1,
'VLANIDUntag': 0}]]}

```

4. Конфигурация бриджа для услуги Guest_WIFI (Bridge) для SSID2

Спецификация

Услуга	Public WIFI
Имя бриджа	Guest_wifi
Тип соединения	IP_Bridged
VLAN ID	54
LAN порты	-
WLAN	SSID2
EthernetPriorityMark	0

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1. Создание Bridge

Бридже создается только в случае отсутствия существующего бриджа для VLAN 54, иначе используется существующий

1. AddObject:

`InternetGatewayDevice.Layer2Bridging.Bridge.`

Создается новая инстанция с номером F

2. SetParameterValues:

`InternetGatewayDevice.Layer2Bridging.Bridge.{F}.VLANID = 54`

`InternetGatewayDevice.Layer2Bridging.Bridge.{F}.Enable = 1`

`InternetGatewayDevice.Layer2Bridging.Bridge.{F}.BridgeName = "Guest_wifi"`

`InternetGatewayDevice.Layer2Bridging.Bridge.{F}.BridgeStandard = "802.1Q"`

3. GetParameterValues

`InternetGatewayDevice.Layer2Bridging.Bridge.{F}.BridgeKey` На данный параметр будут ссылаться Filter и Marking. Далее будем его значение называть **BridgeKey**

2. Получение доступных интерфейсов

1. GetParameterValues

`InternetGatewayDevice.Layer2Bridging.AvailableInterface.`

Данный метод возвращает список доступных интерфейсов На данный параметр будут ссылаться Filter и Marking.

В дальнейшем мы его будем называть **InterfaceKey**

3. Создание Filter для WAN интерфейса (WANConnectionDevice)

1. AddObject

`InternetGatewayDevice.Layer2Bridging.Filter.`

2. SetParameterValues

`InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterBridgeReference = BridgeKey`
`InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterInterface = InterfaceKey`

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```

InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}) InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterEnable =
True InternetGatewayDevice.Layer2Bridging.Filter.{i}.VLANIDFilter = -1
InternetGatewayDevice.Layer2Bridging.Filter.{i}.AdmitOnlyVLANTagged = False

```

4. Создание Marking для WAN интерфейса (WANConnectionDevice)

1. AddObject
InternetGatewayDevice.Layer2Bridging.Marking.
2. SetParameterValues InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingBridgeReference = **BridgeKey**
 InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingInterface = **InterfaceKey**(
 InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i})
 InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingEnable = True
 InternetGatewayDevice.Layer2Bridging.Marking.{j}.EthernetPriorityMark = **0**
 InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDUntag = False
 InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDMark = 54
 InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDMarkOverride = True

5. Создание Marking для SSID2

Marking создается только в случае отсутствия Marking для SSID2, иначе изменяется существующий Marking

1. AddObject
InternetGatewayDevice.Layer2Bridging.Marking.
2. SetParameterValues InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingBridgeReference = **BridgeKey**
 InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingInterface = **InterfaceKey**(InternetGatewayDevice.LANDevice.1.WLANConfiguration.2)
 InternetGatewayDevice.Layer2Bridging.Marking.{j}.MarkingEnable = True
 InternetGatewayDevice.Layer2Bridging.Marking.{j}.EthernetPriorityMark = **-1**

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```

InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDUntag=True
InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDMark=-1
InternetGatewayDevice.Layer2Bridging.Marking.{j}.VLANIDMarkOverride = False

```

6. Создание Filter для SSID2

Filter создается только в случае отсутствия Filter для SSID2, иначе изменяется существующий

1. AddObject

```
InternetGatewayDevice.Layer2Bridging.Filter.
```

2. SetParameterValues InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterBridgeReference =

```
BridgeKey InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterInterface
```

```
= InterfaceKey (InternetGatewayDevice.LANDevice.1.WLANConfiguration.2)
```

```
InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterEnable=True InternetGatewayDevice.Layer2Bridging.Filter.{i}.VLANIDFilter
=-1 InternetGatewayDevice.Layer2Bridging.Filter.{i}.AdmitOnlyVLANTagged = False
```

7. Активация WLAN SSID2

1. SetParameterValues

```
InternetGatewayDevice.LANDevice.1.WLANConfiguration.2.BasicAuthenticationMode = None
```

```
InternetGatewayDevice.LANDevice.1.WLANConfiguration.2.RadioEnabled=True
```

```
InternetGatewayDevice.LANDevice.1.WLANConfiguration.2.Enable=True
```

```
InternetGatewayDevice.LANDevice.1.WLANConfiguration.2.BeaconType=None
```

```
InternetGatewayDevice.LANDevice.1.WLANConfiguration.2.BasicEncryptionModes = None
```

```
InternetGatewayDevice.LANDevice.1.WLANConfiguration.2.SSID = Guest_wifi_TEST2
```

```

{'BRIDGE': {'BridgeEnable': 1,
            'BridgeKey': '2', 'BridgeName':
            'Guest_wifi', 'BridgeStandard':
            '802.1Q',
            'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Bridge.2',
            'VLANID': 54},
'SUBOBJ': {'FILTERS': [{'AdmitOnlyVLANTagged': 0,

```

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```

'FilterBridgeReference': 2,
'FilterEnable': 1,
'FilterInterface': '9',
'TR69Interface': 'InternetGatewayDevice.WANDevice.1.WANConnectionDevice.1',
'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Filter.11', 'VLANIDFilter': -1},
{'AdmitOnlyVLANTagged': 0,
'FilterBridgeReference': 2,
'FilterEnable': 1,
'FilterInterface': '6',
'FilterKey': 6, 'FilterStatus':
'Enabled',
'TR69Interface': 'LANDevice.1.WLANConfiguration.2', 'TR69Name':
'InternetGatewayDevice.Layer2Bridging.Filter.6', 'VLANIDFilter': -1}],
'MARKING': [{ 'EthernetPriorityMark': -1,
'MarkingBridgeReference': 2,
'MarkingEnable': 1,
'MarkingInterface': '6',
'TR69Interface': 'LANDevice.1.WLANConfiguration.2', 'TR69Name':
'InternetGatewayDevice.Layer2Bridging.Marking.3', 'VLANIDMark': -1,
'VLANIDMarkOverride': 0,
'VLANIDUntag': 1},
{'EthernetPriorityMark': 8,
'MarkingBridgeReference': 2,
'MarkingEnable': 1,
'MarkingInterface': '9',
'TR69Interface': 'InternetGatewayDevice.WANDevice.1.WANConnectionDevice.1',
'TR69Name': 'InternetGatewayDevice.Layer2Bridging.Marking.2', 'VLANIDMark': 54,
'VLANIDMarkOverride': 1,
'VLANIDUntag': 0}]]}

```

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5. Деконфигурация бриджа для услуги интернет (PPPoE) порты LAN1и SSID1 (модель МРФ С3)

Деконфигурация услуги PPPoE проводится в обратном порядке, используемом при конфигурации сервиса.

1. Получение доступных интерфейсов:

GetParameterValues

InternetGatewayDevice.Layer2Bridging.AvailableInterface.

Данный метод возвращает список доступных интерфейсов, как физических, так и логических

ACS сохраняет соответствие между TR069 параметром (*LANDevice.1.LANEthernetInterfaceConfig.1*) и AvailableInterfaceKey(1)

Производим поиск бриджа с именем «HSI» и запоминаем его индекс:

InternetGatewayDevice.Layer2Bridging.Bridge.{A}.BridgeName = "HSI"

ACS сохраняет информацию о связке существующих интерфейсов с бриджем для деактивируемой услуги (BridgeName = "HSI").

2. Деконфигурация интерфейса PPPoE

SetParameterValues

InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPConnection.{B}.Enable = False

InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPConnection.{B}.Username = <entry>

InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPConnection.{B}.Password = <entry>

3. Перепривязка интерфейсов

Делается последовательная перепривязка всех интерфейсов привязанных к бриджу (BridgeName = "HSI") к дефолтному бриджу:

InternetGatewayDevice.Layer2Bridging.Bridge.{i}.BridgeName = "DEFAULT"

1. SetParameterValues InternetGatewayDevice.Layer2Bridging.Filter.{i}.FilterBridgeReference = **BridgeKey** (<определяется по BridgeName = "DEFAULT >)

InternetGatewayDevice.Layer2Bridging.Marking.{i}.MarkingBridgeReference = **BridgeKey**

(<определяется по BridgeName = "DEFAULT >)

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4. Выключение Bridge

1. SetParameterValues InternetGatewayDevice.Layer2Bridging.Bridge.{A}.BridgeEnable = 0

6. Деконфигурация бриджа для услуги VOIP (модель МРФ СЗ)

Деконфигурация услуги VOIP заключается в деконфигурации SIP UA и деконфигурации бриджа.

1. Получение доступных интерфейсов:

```
GetParameterValues
InternetGatewayDevice.Layer2Bridging.AvailableInterface.
```

Данный метод возвращает список доступных интерфейсов, как физических, так и логических

ACS сохраняет соответствие между TR069 параметром (*LANDevice.1.LANEthernetInterfaceConfig.1*) и AvailableInterfaceKey(1)

Производим поиск бриджа с именем «VOIP» и запоминаем его индекс:

```
InternetGatewayDevice.Layer2Bridging.Bridge.{A}.BridgeName = "VOIP"
```

ACS сохраняет информацию о связке существующих интерфейсов с бриджем для деактивируемой услуги (BridgeName = "VOIP").

Производим поиск L3 интерфейса с именем «VOIP» и запоминаем его индекс:

```
InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANIPConnection.{D}.Name = VOIP
```

2. Деконфигурация SIP UA

1. Запрос существующего профайла на CPE

```
GetParameterValues
InternetGatewayDevice.Services.VoiceService.1.VoiceProfile.
```

```
SetParameterValues
```

```
InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPPConnection.{B}.Enable = False
```

```
InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPPConnection.{B}.Username = <entry>
```

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InternetGatewayDevice.WANDevice.{i}.WANConnectionDevice.{i}.WANPPPPConnection.{B}.Password = <entry>

3. Перепривязка интерфейсов

Делается последовательное удаление всех filter/markings привязанных к бриджу (BridgeName = "VOIP"):
 InternetGatewayDevice.Layer2Bridging.Bridge.{i}.BridgeName = "VOIP"

1. DeleteObject

InternetGatewayDevice.Layer2Bridging.Filter.{Key}. = **FilterKey**

InternetGatewayDevice.Layer2Bridging.Marking.{Key} = **MarkingKey**

4. Выключение Bridge

1. SetParameterValues InternetGatewayDevice.Layer2Bridging.Bridge.{A}.BridgeEnable = 0

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Технические требования к реализации управления тестом FXS- порта по протоколу TR-069:

Необходимые параметры стандарта TR-104:

VoiceService.{i}.PhyInterface.{i}.Test	object	-	Voice port tests. If this object is supported, <i>Capabilities.VoicePortTests</i> MUST be equal to <i>true</i> .	-	1.0
TestState	string	W	Indicates the current test state. Enumeration of: • <i>None</i> • <i>Requested</i> • <i>Complete</i> • <i>Error_TestNotSupported</i> Value MAY be set to <i>Requested</i> to initiate a diagnostic test. When writing, the only allowed value is <i>Requested</i> . To ensure the use of the proper test parameters (the writable parameters in this object), the test parameters MUST be set either prior to or at the same time as (in the same SetParameterValues) setting the value <i>Requested</i> . When requested, the CPE SHOULD wait until after completion of the communication session with the ACS before starting the test. When the test initiated by the ACS is completed (successfully or not), the CPE MUST establish a new connection to the ACS to allow the ACS to view the results, indicating the Event code "8 DIAGNOSTICS COMPLETE" in the Inform message.	-	1.0
TestSelector	string - (64)	W	Indicates which test to perform. Enumeration of: • <i>PhoneConnectivityTest</i>	-	1.0

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			The phone connectivity test indicates that the CPE should determine if one or more phones associated with this physical port are properly connected. This test is appropriate only for CPE that connect to phones of any type. The parameter MAY instead indicate a vendor-specific test, which MUST use the format defined in [TR-106]. For example: "X_EXAMPLE-COM_MyTest"		
PhoneConnectivity	boolean	-	Indicates whether or not at least one phone associated with this physical port is properly connected. This parameter is applicable only if <i>PhoneConnectivityTest</i> is supported.	-	1.0

Запуск тестирования производится путем установки параметров:

"TestState": "Requested",

"TestSelector":

"PhoneConnectivityTest"

При тестировании дополнительно выполняются тесты, необходимые для заполнения следующих полей:

Дополнительные необходимые вендор-специфичные параметры:

InternetGatewayDevice.Services.VoiceService.{i}.PhyInterface.{i}.Tests.X_RTK_LineTest.Conclusion

--- Test Conclusion

Значения:

Normal - тест успешен

PhoneDisconnect - Телефон не подключен

InternetGatewayDevice.Services.VoiceService.{i}.PhyInterface.{i}.Tests.X_RTK_LineTest.IsTestOnBusy

---Флаг "тест в процессе"

Значения:

1: Тест выполняется

0: Тест не выполняется

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InternetGatewayDevice.Services.VoiceService.{i}.PhyInterface.{i}.Tests.X_RTK_InnerTest.OnOffHookTestResult

--- Результат теста положения телефонной трубки

Значения:

PhoneOnhook - Трубка положена

PhoneOffhook - Трубка поднята

InternetGatewayDevice.Services.VoiceService.{i}.VoiceProfile.{i}.X_RTK_DTMFMethodSIPInfoBody

Формат тела сообщения SIP (Content-Type), используемый, когда цифры и символы DTMF отправляются в сообщениях INFO протокола SIP.

Тип: string. Значения:

DTMFRelay – формат тела сообщения соответствует полю Content-Type равному application/dtmf-relay TELEven –

формат тела сообщения соответствует полю Content-Type равному audio/telephone-event

InternetGatewayDevice.Services.VoiceService.{i}.VoiceProfile.{i}.Line.{i}.CallingFeatures.X_RTK_3PTY

Настройка, меняющая параметры услуги конференцсвязь трех абонентов.

Тип: integer. Значения:

0 – (по умолчанию) CPE отправляет сообщения INVITE двум абонентам для сбора конференции, звук “замешивается” на CPE. 1 – CPE отправляет сообщение INVITE на адрес сервера конференции (указанный в ноде

InternetGatewayDevice.Services.VoiceService.{i}.VoiceProfile.{i}.Line.{i}.CallingFeatures.X_RTK_3PTY_IMS.conference-uri), звук “замешивается” на Softswitch.

InternetGatewayDevice.Services.VoiceService.{i}.VoiceProfile.{i}.Line.{i}.CallingFeatures.X_RTK_3PTY_IMS.conference-uri

Адрес сервера конференции, используемый при предоставлении услуги конференцсвязь трех абонентов. Работает только в случае если нода

InternetGatewayDevice.Services.VoiceService.{i}.VoiceProfile.{i}.Line.{i}.CallingFeatures.X_RTK_3PTY равна 1.

Тип: string.

Примеры значений: “conf@rcs.rt.ru”, “conf@msk.ims.rt.”

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InternetGatewayDevice.Services.VoiceService.{i}.VoiceProfile.{i}.SIP.X_RTK_SubscribeEnable'

Настройка, включающая отправку сообщений SUBSCRIBE и анализ сообщений NOTIFY.

Тип: integer. Значения:

0 – (по умолчанию) CPE не отправляет сообщения SUBSCRIBE.

1 – CPE отправляет сообщение SUBSCRIBE и анализирует последующие сообщения NOTIFY.

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Модуль «Карта сети» и «Lan-порты»

Вывести отображение подключенных к любому lan-порту устройств, также подключённых в Bridge

InternetGatewayDevice.LANDevice.{i}.Hosts. Host.{i}.	object	Host table. At most one entry in this table can exist with a given value for MACAddress.	-
IPAddress	string(45)	[IPAddress] Current IP Address of the host.	-
AddressSource	string	Indicates whether the IP address of the host was allocated by the CPE using DHCP, was assigned to the host statically, or was assigned using automatic IP address allocation. Enumeration of: • DHCP • Static • AutoIP • X_RTK_BRIDGE	
MACAddress	string(17)	[MACAddress] MAC address of the host.	
Layer2Interface	string(256)	This parameter is the full hierarchical parameter name of a particular LAN**InterfaceConfig object or a WLANConfiguration object. For example: InternetGatewayDevice.LANDevice.1.LANEthernetInterfaceConfig.2. In the case of an embedded Ethernet switch, the Layer2Interface parameter references the LANEthernetInterfaceConfig object that corresponds to the switch port the device is connected to (a LANEthernetInterfaceConfig instance for each switch port).	
		In the case of an embedded WLAN access point, the Layer2Interface parameter references the WLANConfiguration object that corresponds to the SSID the device is connected to (if the access point supports multiple SSIDs, then each SSID is a separate instance)	

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InterfaceType		Type of physical interface through which this host is connected to the CPE. Enumeration of: Ethern et USB 802.11 HomePN A HomePl ug MoCA Other	
LeaseTimeRemaining	int[-1:]	DHCP lease time remaining in seconds. A value of -1 indicates an infinite lease. The value MUST be 0 (zero) if the <i>AddressSource</i> is not <i>DHCP</i> .	
Active	boolean	Whether or not the host is currently present on the LAN. The method of presence detection is a local matter to the CPE. - The ability to list inactive hosts is OPTIONAL. If the CPE includes inactive hosts in this table, this variable MUST be set to <i>false</i> for each inactive host. The length of time an inactive host remains listed in this table is a local matter to the CPE.	
HostName	string-(64)	The device's host name or an empty string if unknown.	
ClientID	string-(256)	Client Identifier DHCP option (Option 61) for the specific IP connection of the client. - The option value is binary, so an exact match is REQUIRED. It MAY be defined when <i>AddressSource</i> is <i>DHCP</i> . An empty string indicates this option is not used.	

Вывести отображение порядкового номера lan-порта у подключенного к нему устройства. Кроме ip-адреса выводить и mac-адрес. Вывести в «Карте сети» в блоке с именем сети: используемый точкой wifi-канал и мощность сигнала на конечном хосте.

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.LANDevice.{i}.WLANConfiguration.{i}.AssociatedDevice.{i}.	object	A table of the devices currently associated with the access point. The size of this table is given by InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.TotalAssociations. This object MUST be implemented for CPE that contain an 802.11 interface on the LAN side.	- 2.7
AssociatedDeviceMACAddress	string	[MACAddress] The MAC address of an associated device.	
AssociatedDeviceIPAddress	string	The IP address or DNS name of an associated device.	
X_RTK_RSSI	integer	The received signal strength in dBm.	
X_RTK_Noise	integer	Indicator of average noise strength (in dBm).	
X_RTK_Uptime	integer	Time in seconds since the CPE was last connected.	
LastDataTransmitRate	string	The data transmit rate that was most recently used for a station with a specified MAC address.	

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Модуль «WiFi -Radar»

Для реализаций данного функционала предлагается реализовать поддерево из TR181, не смотря на то что устройства используют TR-098. Для реализации нод TR-181 требуется заменить корень “device.” на “InternetGatewayDevice.”

InternetGatewayDevice.WiFi.NeighboringWiFiDiagnostic.Result.{i}.	object	- Neighboring SSID table. This table models the other WiFi SSIDs that this device is able to receive. At most one entry in this table can exist with a given value for <u>BSSID</u> .	- 2.7
Radio	string	- The value MUST be the path name of a row in the <u>InternetGatewayDevice.WiFi.Radio</u> table. The Radio that detected the neighboring WiFi SSID.	- 2.7
SSID	string(32)	- The current service set identifier in use by the neighboring WiFi SSID. The value MAY be empty for hidden SSIDs.	- 2.7
BSSID	string(17)	- [MACAddress] The BSSID used for the neighboring WiFi SSID.	- 2.7
Mode	string	- The mode the neighboring WiFi radio is operating in. Enumeration of: • <i>AdHoc</i> • <i>Infrastructure</i>	- 2.7
Channel	unsignedInt-	- The current radio channel used by the neighboring WiFi radio.	- 2.7
SignalStrength	int[-200:0]	- An indicator of radio signal strength (RSSI) of the neighboring WiFi radio measured in <i>dBm</i> , as an average of the last 100 packets received.	- 2.7
SecurityModeEnabled	string	- The type of encryption the neighboring WiFi SSID advertises. Enumeration of: • <i>None</i> • <i>WEP</i> • <i>WPA</i> • <i>WPA2</i> • <i>WPA-WPA2</i> • <i>WPA-Enterprise</i> • <i>WPA2-Enterprise</i> • <i>WPA-WPA2-Enterprise</i>	- 2.7

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EncryptionMode	string	Comma-separated list of strings. The type of encryption the neighboring WiFi SSID advertises. Each list item is an enumeration of: • <i>TKIP</i> • <i>AES</i>	- 2.7
OperatingFrequencyBand	string	Indicates the frequency band at which the radio this SSID instance is operating. Enumeration of: • <i>2.4GHz</i> • <i>5GHz</i>	- 2.7
SupportedStandards	string	Comma-separated list of strings. List items indicate which IEEE 802.11 standards this <i>Result</i> instance can support simultaneously, in the frequency band specified by <i>OperatingFrequencyBand</i> . Each list item is an enumeration of: ☐ <i>a</i> ([802.11a-1999]) ☐ <i>b</i> ([802.11b-1999]) ☐ <i>g</i> ([802.11g-2003]) ☐ <i>n</i> ([802.11n-2009]) ☐ <i>ac</i> ([802.11ac-2013]) Each value indicates support for the indicated standard. If <i>OperatingFrequencyBand</i> is set to <i>2.4GHz</i> , only values <i>b</i> , <i>g</i> , <i>n</i> are allowed. If <i>OperatingFrequencyBand</i> is set to <i>5GHz</i> , only values <i>a</i> , <i>n</i> , <i>ac</i> are allowed.	- 2.7

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OperatingStandards	string	Comma-separated list of strings. Each list item MUST be a member of the list reported by the <u>SupportedStandards</u> parameter. List items indicate which IEEE 802.11 standard that is detected for this <u>Result</u>. Each value indicates support for the indicated standard. If <u>OperatingFrequencyBand</u> is set to <u>2.4GHz</u>, only values <i>b</i>, <i>g</i>, <i>n</i> are allowed. If <u>OperatingFrequencyBand</u> is set to <u>5GHz</u>, only values <i>a</i>, <i>n</i>, <i>ac</i> are allowed. For example, a value of "g,b" (or "b,g" - order is not important) means that the 802.11g standard [<u>802.11g-2003</u>] is used with a backwards-compatible mode for 802.11b [<u>802.11b-1999</u>]. A value of "g" means that only the 802.11g standard can be used.	- 2.7
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OperatingChannelBandwidth	string	Indicates the bandwidth at which the channel is operating. Enumeration of: • 20MHz • 40MHz • 80MHz • 160MHz • Auto	- 2.7
BeaconPeriod	unsignedInt	Time interval (in <i>ms</i>) between transmitting beacons.	- 2.
Noise	int[-200:0]	Indicator of average noise strength (in <i>dBm</i>) received from the neighboring WiFi radio.	- 2.7
BasicDataTransferRates	string(256)	Comma-separated list (maximum list length 256) of strings. Basic data transmit rates (in Mbps) for the SSID. For example, if <i>BasicDataTransferRates</i> is "1,2", this indicates that the SSID is operating with basic rates of 1 Mbps and 2 Mbps.	- 2.7
SupportedDataTransferRates	string(256)	Comma-separated list (maximum list length 256) of strings. Data transmit rates (in Mbps) for unicast frames at which the SSID will permit a station to connect. For example, if <i>SupportedDataTransferRates</i> is "1,2,5.5", this indicates that the SSID will only permit connections at 1 Mbps, 2 Mbps and 5.5 Mbps.	- 2.7
DTIMPeriod	unsignedInt	The number of beacon intervals that elapse between transmission of Beacon frames containing a TIM element whose DTIM count field is 0. This value is transmitted in the DTIM Period field of beacon frames. [802.11-2012]	- 2.7

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Модуль «WiFi Extender»

InternetGatewayDevice.X_RTK_WiFiExtender.	object	- This object contains parameters Wi-Fi Extender table.
NodeNumberOfEntries	unsignedInt	- Number of entries in Node table.
RootMode	boolean	- Если CPE является «мастер» устройством, то данный параметр =1, если дополнительным – то «0»
InternetGatewayDevice.X_RTK_WiFiExtender.Node.{i}.	object	- This object contains parameters Wi-Fi Extender Node table.
RSSIValue	int[-200:0]	- Wi-Fi Mesh Node RSSI value
Manufacturer	string(64)	- The manufacturer of the CPE (human readable string).
ModelName	string(64)	- Model name of the CPE (human readable string).
SerialNumber	string(64)	-
HardwareVersion	string(64)	- A string identifying the particular CPE model and version.
SoftwareVersion	string(64)	-
UpTime	unsignedInt	- Time in seconds since the CPE was last restarted.
Active	boolean	- Показывает активен сейчас сателит или нет
IPAddress	string(45)	- [IPAddress] Current IP Address of the host.
MACAddress	string(17)	[MACAddress] MAC address of the host.
Mode	string	Indicates work mode. Enumeration of: - Extended AP - WDS AP

Также каждый из сателлитов должен полностью поддерживать дерево InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}. в соответствии с данным приложением

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Модуль «WiFi Mesh»

InternetGatewayDevice. X_RTK_WiFiMesh.	object	-	This object contains parameters Wi-Fi Mesh table.
NumberOfEntries	unsignedInt	-	Number of entries in Node table.
RootMode	boolean	-	Если CPE является «мастер устройством» то данный параметр =1, если дополнительным – то «0»
802.11r.Enable	boolean	-	Включение/выключение функционала 802.11r
InternetGatewayDevice. X_RTK_WiFiMesh.Node.{i}.	object	-	This object contains parameters Wi-Fi Mesh Node table.
RSSIValue	int[-200:0]	-	Wi-Fi Mesh Node RSSI value
Manufacturer	string(64)	-	The manufacturer of the CPE (human readable string).
ModelName	string(64)	-	Model name of the CPE (human readable string).
SerialNumber	string(64)	-	
HardwareVersion	string(64)	-	A string identifying the particular CPE model and version.
SoftwareVersion	string(64)	-	
UpTime	unsignedInt	-	Time in seconds since the CPE was last restarted.
MACAddress	string(17)	-	[MACAddress] MAC address of the host.
Active	boolean	-	Показывает активен сейчас сателлит или нет
Interface	string	-	Показывает интерфейс, к которому подключен сателлит. Если он подключен к мастер устройству то выводится L2 интерфейс, например InternetGatewayDevice.LANDevice.1.WLANConfiguration.1. Или InternetGatewayDevice.LANDevice.1.LANEthernetInterfaceConfig.1. Или если сателлит подключен к другому сателлиту то InternetGatewayDevice. X_RTK_WiFiMesh.Node.1.
ClientNumberOfEntries	unsignedInt	-	Number of entries in Client table.
InternetGatewayDevice. X_RTK_WiFiMesh.Node.{i}.Client.{j}.	object	-	This object contains parameters Wi-Fi Mesh Client table.
Active	boolean	-	

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LastDataDownlinkRate	unsignedInt	-	The data transmit rate in kbps that was most recently used for transmission from the access point to the associated device.
LastDataUplinkRate	unsignedInt	-	The data transmit rate in kbps that was most recently used for transmission from the associated device to the access point.
AssociatedDeviceMACAddress	string(17)	-	[MACAddress] The MAC address of an associated device.
AssociatedDeviceIPAddress	string(64)	-	The IP address or DNS name of an associated device.
RSSI	integer	-	The received signal strength in dBm.
Noise	integer	-	Indicator of average noise strength (in dBm).
Uptime	integer	-	Time in seconds since the CPE was last connected.

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Модуль «Диагностика»

InternetGatewayDevice.DownloadDiagnostics.	object	-	This object defines the diagnostics configuration for a HTTP and FTP DownloadDiagnostics Test.	-	1. 3
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DiagnosticsState	string	W Indicate the availability of diagnostic data. Enumeration of: • <i>None</i> • <i>Requested</i> • <i>Completed</i> • <i>Error_InitConnectionFailed</i> • <i>Error_NoResponse</i> • <i>Error_TransferFailed</i> • <i>Error_PasswordRequestFailed</i> • <i>Error_LoginFailed</i> • <i>Error_NoTransferMode</i> • <i>Error_NoPASV</i> • <i>Error_IncorrectSize</i> • <i>Error_Timeout</i> If the ACS sets the value of this parameter to <i>Requested</i>, the CPE MUST initiate the corresponding diagnostic test. When writing, the only allowed value is <i>Requested</i>. To ensure the use of the proper test parameters (the writable parameters in this object), the test parameters MUST be set either prior to or at the same time as (in the same SetParameterValues) setting the <i>DiagnosticsState</i> to <i>Requested</i>. When requested, the CPE SHOULD wait until after completion of the communication session with the ACS before starting the diagnostic. When the test is completed, the value of this parameter MUST be either <i>Completed</i> (if the test completed successfully), or one of the <i>Error</i> values listed above. If the value of this parameter is anything other than <i>Completed</i>, the values of the results parameters for this test are indeterminate. When the diagnostic initiated by the ACS is completed (successfully or not), the CPE MUST establish a new connection to the ACS to allow the ACS to view the results, indicating the Event code 8 <i>DIAGNOSTICS COMPLETE</i> in the Inform message. After the diagnostic is complete, the value of all result parameters (all read-only parameters in this object) MUST be retained by the CPE until either this diagnostic is run again, or the CPE reboots. After a reboot, if the CPE has not retained the result parameters from the most recent test, it MUST set the value of this parameter to <i>None</i>.	- 1.3
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			Modifying any of the writable parameters in this object except for this one MUST result in the value of this parameter being set to <i>None</i>. While the test is in progress, modifying any of the writable parameters in this object except for this one MUST result in the test being terminated and the value of this parameter being set to <i>None</i>. While the test is in progress, setting this parameter to <i>Requested</i> (and possibly modifying other writable parameters in this object) MUST result in the test being terminated and then restarted using the current values of the test parameters.	
Interface	string(256)	W	The value MUST be the path name of the IP-layer interface over which the test is to be performed. The value of this parameter MUST be either a valid interface or an empty string. An attempt to set this parameter to a different value MUST be rejected as an invalid parameter value. If an empty string is specified, the CPE MUST use the default routing interface.	- 1.3
DownloadURL	string(256)	W	The URL, as defined in [RFC3986], for the CPE to perform the download on. This parameter MUST be in the form of a valid HTTP [RFC2616] or FTP [RFC862] URL. When using FTP transport, FTP binary transfer MUST be used. When using HTTP transport, persistent connections MUST be used and pipelining MUST NOT be used. When using HTTP transport the HTTP Authentication MUST NOT be used.	- 1.3
DSCP	unsignedInt- [0:63]	W	The DiffServ code point for marking packets transmitted in the test. The default value SHOULD be zero.	- 1.3
EthernetPriority	unsignedInt- [0:7]	W	Ethernet priority code for marking packets transmitted in the test (if applicable). The default value SHOULD be zero.	- 1.3

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ROMTime	dateTime	- Request time in UTC, which MUST be specified to microsecond precision. For example: 2008-04-09T15:01:05.123456 - For HTTP this is the time at which the client sends the GET command. - For FTP this is the time at which the client sends the RTRV command.	- 1.3
BOMTime	dateTime	- Begin of transmission time in UTC, which MUST be specified to microsecond precision For example: 2008-04-09T15:01:05.123456 - For HTTP this is the time at which the first data packet is received. - For FTP this is the time at which the client receives the first data packet on the data connection.	- 1.3
EOMTime	dateTime	- End of transmission in UTC, which MUST be specified to microsecond precision. For example: 2008-04-09T15:01:05.123456 - For HTTP this is the time at which the last data packet is received. - For FTP this is the time at which the client receives the last packet on the data connection.	- 1.3
TestBytesReceived	unsignedInt	- The test traffic received in bytes during the FTP/HTTP transaction including FTP/HTTP headers, between <u>BOMTime</u> and <u>EOMTime</u> ,	- 1.3
TotalBytesReceived	unsignedInt	- The total number of bytes received on the Interface between <u>BOMTime</u> and <u>EOMTime</u> .	- 1.
TCPOpenRequestTime	dateTime	- Request time in UTC, which MUST be specified to microsecond precision. For example: 2008-04-09T15:01:05.123456 - For HTTP this is the time at which the TCP socket open (SYN) was sent for the HTTP connection. - For FTP this is the time at which the TCP socket open (SYN) was sent for the data connection. Note: Interval of 1 microsecond SHOULD be supported.	- 1.3

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TCPOpenResponseTime	dateTime	- Response time in UTC, which MUST be specified to microsecond precision. For example: 2008-04-09T15:01:05.123456 - For HTTP this is the time at which the TCP ACK to the socket opening the HTTP connection was received. - For FTP this is the time at which the TCP ACK to the socket opening the data connection was received. Note: Interval of 1 microsecond SHOULD be supported.	- 1.3
InternetGatewayDevice.UploadDiagnostics.	object	- This object defines the diagnostics configuration for a HTTP or FTP UploadDiagnostics test. Files sent by the UploadDiagnostics do not require file storage on the CPE device, and MAY be an arbitrary stream of bytes.	- 1.3
DiagnosticsState	string	W Indicate the availability of diagnostic data. Enumeration of: <i>None</i> <i>Requested</i> <i>Completed</i> <i>Error_InitConnectionFailed</i> <i>Error_NoResponse</i> <i>Error_PasswordRequestFailed</i> <i>Error_LoginFailed</i> <i>Error_NoTransferMode</i> <i>Error_NoPASV</i> <i>Error_NoCWD</i> <i>Error_NoSTOR</i> <i>Error_NoTransferComplete</i> If the ACS sets the value of this parameter to <i>Requested</i> , the CPE MUST initiate the corresponding diagnostic test. When writing, the only allowed value is <i>Requested</i> . To ensure the use of the proper test parameters (the writable parameters in this object), the test parameters MUST be set either prior to or at the same time as (in the same SetParameterValues) setting the <i>DiagnosticsState</i> to <i>Requested</i> .	- 1.3

		When requested, the CPE SHOULD wait until after completion of the communication session with the ACS before starting the diagnostic. When the test is completed, the value of this parameter MUST be either <i>Completed</i> (if the test completed successfully), or one of the <i>Error</i> values listed above. If the value of this parameter is anything other than <i>Completed</i>, the values of the results parameters for this test are indeterminate. When the diagnostic initiated by the ACS is completed (successfully or not), the CPE MUST establish a new connection to the ACS to allow the ACS to view the results, indicating the Event code 8 <i>DIAGNOSTICS COMPLETE</i> in the Inform message. After the diagnostic is complete, the value of all result parameters (all read-only parameters in this object) MUST be retained by the CPE until either this diagnostic is run again, or the CPE reboots. After a reboot, if the CPE has not retained the result parameters from the most recent test, it MUST set the value of this parameter to <i>None</i>. Modifying any of the writable parameters in this object except for this one MUST result in the value of this parameter being set to <i>None</i>. While the test is in progress, modifying any of the writable parameters in this object except for this one MUST result in the test being terminated and the value of this parameter being set to <i>None</i>. While the test is in progress, setting this parameter to <i>Requested</i> (and possibly modifying other writable parameters in this object) MUST result in the test being terminated and then restarted using the current values of the test parameters.	
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Interface	string(256)	W	The value MUST be the path name of the IP-layer interface over which the test is to be performed. The value of this parameter MUST be either a valid interface or an empty string. An attempt to set this parameter to a different value MUST be rejected as an invalid parameter value. If an empty string is specified, the CPE MUST use the default routing interface.	- 1. 3
UploadURL	string(256)	W	The URL, as defined in [RFC3986], for the CPE to Upload to. This parameter MUST be in the form of a valid HTTP [RFC2616] or FTP [RFC862] URL. When using FTP transport, FTP binary transfer MUST be used. When using HTTP transport, persistent connections MUST be used and pipelining MUST NOT be used. When using HTTP transport the HTTP Authentication MUST NOT be used.	- 1. 3
DSCP	unsignedInt- [0:63]	W	DiffServ code point for marking packets transmitted in the test. The default value SHOULD be zero.	- 1. 3
EthernetPriority	unsignedInt- [0:7]	W	Ethernet priority code for marking packets transmitted in the test (if applicable). The default value SHOULD be zero.	- 1. 3
TestFileLength	unsignedInt	W	The size of the file (in bytes) to be uploaded to the server. The CPE MUST insure the appropriate number of bytes are sent.	- 1. 3
ROMTime	dateTime	-	Request time in UTC, which MUST be specified to microsecond precision. For example: 2008-04-09T15:01:05.123456 - For HTTP this is the time at which the client sends the PUT command - For FTP this is the time at which the STOR command is sent.	- 1. 3
BOMTime	dateTime	-	Begin of transmission time in UTC, which MUST be specified to microsecond precision. For example: 2008-04-09T15:01:05.123456 - For HTTP this is the time at which the first data packet is sent. - For FTP this is the time at which the client receives the ready for transfer notification.	- 1. 3

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EOMTime	dateTime	-	End of transmission in UTC, which MUST be specified to microsecond precision. For example: 2008-04-09T15:01:05.123456 - For HTTP this is the time when the HTTP successful response code is received. - For FTP this is the time when the client receives a transfer complete.	- 1.
TotalBytesSent	unsignedInt	-	The total number of bytes sent on the Interface between <i>BOMTime</i> and <i>EOMTime</i> .	- 1.
TCPOpenRequestTime	dateTime	-	Request time in UTC, which MUST be specified to microsecond precision. For example: 2008-04-09T15:01:05.123456 - For HTTP this is the time at which the TCP socket open (SYN) was sent for the HTTP connection. - For FTP this is the time at which the TCP socket open (SYN) was sent for the data connection Note: Interval of 1 microsecond SHOULD be supported.	- 1. 3
TCPOpenResponseTime	dateTime	-	Response time in UTC, which MUST be specified to microsecond precision. For example: 2008-04-09T15:01:05.123456 - For HTTP this is the Time at which the TCP ACK to the socket opening the HTTP connection was received. - For FTP this is the Time at which the TCP ACK to the socket opening the Data connection was received. Note: Interval of 1 microsecond SHOULD be supported.	- 1. 3
InternetGatewayDevice.UDPEchoDiagnostics.	object	-	This object defines the diagnostics configuration for a UDP Echo test [Appendix A.1/ TR-143a1] defined in [RFC862] or a UDP Echo Plus test defined in [Appendix A.1/ TR-143a1].	- 1.1
DiagnosticsState	string	W	Indicate the availability of diagnostic data. Enumeration of: - None (READONLY) - Requested - Completed (READONLY)	- 1.1

- Error_CannotResolveHostName (READONLY)
- Error_Internal (READONLY)
- Error_Other (READONLY)

If the ACS sets the value of this parameter to Requested, the CPE MUST initiate the corresponding diagnostic test. When writing, the only allowed value is Requested. To ensure the use of the proper test parameters (the writable parameters in this object), the test parameters MUST be set either prior to or at the same time as (in the same SetPropertyValues) setting the DiagnosticsState to Requested.

When requested, the CPE SHOULD wait until after completion of the communication session with the ACS before starting the diagnostic. When the test is completed, the value of this parameter MUST be either Completed (if the test completed successfully), or one of the Error values listed above.

If the value of this parameter is anything other than Completed, the values of the results parameters for this test are indeterminate.

When the diagnostic initiated by the ACS is completed (successfully or not), the CPE MUST establish a new connection to the ACS to allow the ACS to view the results, indicating the Event code 8 DIAGNOSTICS COMPLETE in the Inform message.

After the diagnostic is complete, the value of all result parameters (all read-only parameters in this object) MUST be retained by the CPE until either this diagnostic is run again, or the CPE reboots. After a reboot, if the CPE has not retained the result parameters from the most recent test, it MUST set the value of this parameter to None and remove all object instances from [IndividualPacketResult](#).

Modifying any of the writable parameters in this object except for this one MUST result in the value of this parameter being set to None and remove all object instances from [IndividualPacketResult](#).

While the test is in progress, modifying any of the writable parameters in this object except for this one MUST result in the test being terminated and the value of this parameter being set to None and remove all object

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			instances from IndividualPacketResult . While the test is in progress, setting this parameter to Requested (and possibly modifying other writable parameters in this object) MUST result in the test being terminated and then restarted using the current values of the test parameters.		
Interface	string(256)	W	None of the possible target objects exist in this data model, so the parameter value MUST be an empty string. Example: Device.IP.Interface.1 If an empty string is specified, the CPE MUST use the interface as directed by its routing policy (Forwarding table entries) to determine the appropriate interface.	-	1.1
Host	string(256)	W	Host name or address of the host to perform tests to.	-	1.1
Port	unsignedInt-[1:65535]	W	Port on the host to perform tests to.	-	1.1
NumberOfRepetitions	unsignedInt-[1:]	W	Number of repetitions of the test to perform before reporting the results. The default value SHOULD be 1.	-	1.1
Timeout	unsignedInt-[1:]	W	Timeout in milliseconds for the test. That is, the amount of time to wait for the return of a packet that was sent to the Host .	-	1.1
DataBlockSize	unsignedInt-[1:65535]	W	Size of the data block in bytes to be sent for each packet. The default value SHOULD be 24.	-	1.1
DSCP	unsignedInt-[0:63]	W	DiffServ codepoint to be used for the test packets. The default value SHOULD be zero.	-	1.1
InterTransmissionTime	unsignedInt-[1:65535]	W	The time in milliseconds between the NumberOfRepetitions of packets sent during a given test. The default value SHOULD be 1000.	-	1.1
ProtocolVersion	string	W	Indicates the IP protocol version to be used. The default value SHOULD be Any. Enumeration of: - Any (Use either IPv4 or IPv6 depending on the system preference) - IPv4 (Use IPv4 for the requests) - IPv6 (Use IPv6 for the requests)	-	1.1

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IPAddressUsed	string(45)	-	[IPAddress] Indicates which IP address was used to send the request.	-	1.1
SuccessCount	unsignedInt	-	Result parameter indicating the number of successful packets (those in which a successful response was received prior to the timeout) in the most recent test.	-	1.1
FailureCount	unsignedInt	-	Result parameter indicating the number of failed packets (those in which a successful response was not received prior to the timeout) in the most recent test.	-	1.1
AverageResponseTime	unsignedInt	-	Result parameter indicating the average response time in microseconds over all repetitions with successful responses of the most recent test. If there were no successful responses, this value MUST be zero.	-	1.1
MinimumResponseTime	unsignedInt	-	Result parameter indicating the minimum response time in microseconds over all repetitions with successful responses of the most recent test. If there were no successful responses, this value MUST be zero.	-	1.1
MaximumResponseTime	unsignedInt	-	Result parameter indicating the maximum response time in microseconds over all repetitions with successful responses of the most recent test. If there were no successful responses, this value MUST be zero.	-	1.1
EnableIndividualPacketResults	boolean	W	The results must be returned in the IndividualPacketResult table for every repetition of the test when set to true. The default value SHOULD be false.	-	1.1
IndividualPacketResultNumberOfEntries	unsignedInt	-	The number of entries in the IndividualPacketResult table.	-	1.1
UDPEchoDiagnosticsMaxResults	unsignedInt-[1:]	-	The maximum number of rows in IndividualPacketResult that the CPE will store. If a test would create more rows than UDPEchoDiagnosticsMaxResults only the first UDPEchoDiagnosticsMaxResults rows are present in IndividualPacketResult .	-	1.1
UDPEchoDiagnostics.IndividualPacketResult.{i}.	object	-	This object provides the results from individual UDPEchoPlus test packets collected during a test if EnableIndividualPacketResults is set to true. When DiagnosticsState is set to Completed it should	-	1.1

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			contain NumberOfRepetitions objects. Instance numbers MUST start at 1 and sequentially increment as new instances are created. The instance number should match the TestIterationNumber field of the request and response packet. All instances are removed when DiagnosticsState is set to Requested or None .		
PacketSuccess	boolean	-	Indicates that the response to this UDP Echo Plus packet sent was received by the client. When this value is true, then all the remaining parameters in this instance are valid. Otherwise only the values originally set by the CPE client (e.g. PacketSendTime and TestGenSN) MAY be set to valid values.	-	1.1
PacketSendTime	dateTime	-	Time the client sent this UDP Echo Plus packet in UTC, which MUST be specified to microsecond precision. For example: 2008-04-09T15:01:05.123456Z	-	1.1
PacketReceiveTime	dateTime	-	Time the client receives the response packet in UTC, which MUST be specified to microsecond precision. For example: 2008-04-09T15:01:05.123456Z If this response is never received, PacketReceiveTime SHOULD be set to the Unknown Time value as specified in [Section 3.2.2/ TR-106a7].	-	1.1
TestGenSN	unsignedInt	-	The TestGenSN field in the UDPEcho Plus packet [Section A.1.4/ TR-143a1] sent by the CPE client.	-	1.1
TestRespSN	unsignedInt	-	The TestRespSN field in the response packet [Section A.1.4/ TR-143a1] from the UDP Echo Plus server (i.e. Host) for this Echo Plus packet sent by the CPE client. If PacketSuccess is false, TestRespSN SHOULD be 0.	-	1.1
TestRespRcvTimeStamp	unsignedInt	-	The TestRespRcvTimeStamp field in the response packet [Section A.1.4/ TR-143a1] from the UDP Echo Plus server (i.e. Host) to record the reception time of this UDP Echo Plus packet sent from the CPE client. If PacketSuccess is false, TestRespRcvTimeStamp SHOULD be 0.	-	1.1
TestRespReplyTimeStamp	unsignedInt	-	The TestRespReplyTimeStamp field in the response packet [Section A.1.4/ TR-143a1] from the UDP Echo Plus server (i.e. Host) to record the server reply time of this UDP Echo Plus packet sent from the CPE client. That is, the time that the server returned the UDP Echo Plus packet.	-	1.1

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		If PacketSuccess is false, TestRespReplyTimeStamp SHOULD be 0.		
TestRespReplyFailureCount	unsignedInt	- The count value that was set by the UDP Echo Plus server (i.e. Host) to record the number of dropped echo response packets by the server. This count is incremented if a valid echo request packet is received at a UDP EchoPlus server but for some reason cannot be responded to (e.g. due to local buffer overflow, CPU utilization, etc...). If PacketSuccess is false, TestRespReplyFailureCount SHOULD be 0.	-	1.1

1. Период сканирования сети для подбора канала.

InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.AutoChannelRefreshPeriod	unsignedInt	W The time period in <i>seconds</i> between two consecutive automatic channel selections. A value of 0 means that the automatic channel selection is done only at boot time.
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2. Статистика по WIFI

InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.Stats.	object	-	
BytesSent	unsignedLong	-	The total number of bytes transmitted out of the interface, including framing characters.
BytesReceived	unsignedLong	-	The total number of bytes received on the interface, including framing characters.
PacketsSent	unsignedLong	-	The total number of packets transmitted out of the interface.
PacketsReceived	unsignedLong	-	The total number of packets received on

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ErrorsSent	unsignedInt	- The total number of outbound packets that could not be transmitted because of errors.
ErrorsReceived	unsignedInt	- The total number of inbound packets that contained errors preventing them from being delivered to a higher-layer protocol.
DiscardPacketsSent	unsignedInt	- The total number of outbound packets which were chosen to be discarded even though no errors had been detected to prevent their being transmitted. One possible reason for discarding such a packet could be to free up buffer space.
DiscardPacketsReceived	unsignedInt	- The total number of inbound packets which were chosen to be discarded even though no errors had been detected to prevent their being delivered. One possible reason for discarding such a packet could be to free up buffer space.

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PLCPErrCount	unsignedInt	- The number of packets that were received with a detected Physical Layer Convergence Protocol (PLCP) header error.
FCSErrCount	unsignedInt	- The number of packets that were received with a detected FCS error. This parameter is based on dot11FCSErrCount from [Annex C/ 802.11-2012].
InvalidMACCount	unsignedInt	- The number of packets that were received with a detected invalid MAC header error.
PacketsOtherReceived	unsignedInt	- The number of packets that were received, but which were destined for a MAC address that is not associated with this interface.

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Noise	int	- An indicator of average noise strength received at this radio, measured in <i>dBm</i> . This measurement of non-IEEE 802.11 noise power is made by sampling the channel when virtual carrier sense indicates idle and this radio is neither transmitting nor receiving a frame.
RetransCount	unsignedInt	- The total number of transmitted packets which were retransmissions. Two retransmissions of the same packet results in this counter incrementing by two.
FailedRetransCount	unsignedInt	- The number of packets that were not transmitted successfully due to the number of retransmission attempts exceeding an 802.11 retry limit. This parameter is based on dot11FailedCount from [802.11-2012].

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RetryCount	unsignedInt	- The number of packets that were successfully transmitted after one or more retransmissions. This parameter is based on dot11RetryCount from <u>[802.11-2012]</u> .
MultipleRetryCount	unsignedInt	- The number of packets that were successfully transmitted after more than one retransmission. This parameter is based on dot11MultipleRetryCount from <u>[802.11-2012]</u> .
ACKFailureCount	unsignedInt	- The number of expected ACKs that were never received. This parameter is based on dot11ACKFailureCount from <u>[802.11-2012]</u> .

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3. Получение данных по подключенным устройствам по WIFI

InternetGatewayDevice.LANDevice.{i}.WLAN	object	-	A table of the devices currently associated with the access point.
			At most one entry in this table can exist with a given value for
MACAddress	string(17)	-	[<i>MACAddress</i>] The MAC address of an associated device.
AuthenticationState	boolean	-	Whether an associated device has authenticated (<i>true</i>) or not (<i>false</i>).
LastDataDownlinkRate	unsignedInt[1000:600000]	-	The data transmit rate in <i>kbps</i> that was most recently used for transmission from the access point to the associated device.
LastDataUplinkRate	unsignedInt[1000:600000]	-	The data transmit rate in <i>kbps</i> that was most recently used for transmission from the associated device to the access point.
SignalStrength	int[-200:0]	-	An indicator of radio signal strength of the uplink from the associated device to the access point, measured in <i>dBm</i> , as an average of the last 100 packets received from the device.
Retransmissions	unsignedInt[0:100]	-	The number of <i>packets</i> that had to be re-transmitted, from the last 100 packets sent to the associated device. Multiple re-transmissions of the same packet count as one.
Active	boolean	-	Whether or not this node is currently present in the WiFi AccessPoint network. The ability to list inactive nodes is OPTIONAL. If the CPE includes inactive nodes in this table, <i>Active</i> MUST be set to <i>false</i> for each inactive node. The length of time an inactive node remains listed in this table is a local matter to the CPE.

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4. Получение статистики по каждому подключенному устройству

InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.AssociatedDevice.{i}.Stats.	object	These count bytes or packets sent to, or received from, this Associated Device, which is a WiFi station associated to this access point. Packet counters here count 802.11 WiFi frames. - The CPE MUST reset these <i>Stats</i> parameters (unless otherwise stated in individual object or parameter descriptions) either when the <i>Status</i> of the parent <i>AccessPoint</i> object transitions from <i>Disabled</i> to <i>Enabled</i>, or when it transitions from <i>Enabled</i> to <i>Disabled</i>.
BytesSent	unsignedLong	- [<i>StatsCounter64</i>] The total number of bytes transmitted to the Associated Device, including framing characters.
BytesReceived	unsignedLong	- [<i>StatsCounter64</i>] The total number of bytes received from the Associated Device, including framing characters.
PacketsSent	unsignedLong	- [<i>StatsCounter64</i>] The total number of packets transmitted to the Associated Device.
PacketsReceived	unsignedLong	- [<i>StatsCounter64</i>] The total number of packets received from the Associated Device.
ErrorsSent	unsignedInt	- [<i>StatsCounter32</i>] The total number of outbound packets that could not be transmitted because of errors. These might be due to the number of retransmissions exceeding the retry limit, or from other causes.

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RetransCount	unsignedInt	[StatsCounter32] The total number of transmitted packets which were retransmissions. Two retransmissions of the same packet results in this counter incrementing by two.
FailedRetransCount	unsignedInt	[StatsCounter32] The number of packets that were not transmitted successfully due to the number of retransmission attempts exceeding an 802.11 retry limit. This parameter is based on dot11FailedCount from [802.11- 2012].
RetryCount	unsignedInt	[StatsCounter32] The number of packets that were successfully transmitted after one or more retransmissions. This parameter is based on dot11RetryCount from [802.11- 2012].
MultipleRetryCount	unsignedInt	[StatsCounter32] The number of packets that were successfully transmitted after more than one retransmission. This parameter is based on dot11MultipleRetryCount from [802.11-2012].

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5. Конфигурирования стандарта a,b,g,n,ac

Согласно стандарта данный параметр является доступным только для чтения, необходимо предоставить возможность его изменения

InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.Standard	string	W Indicates which IEEE 802.11 standard this <i>WLANConfiguration</i> instance is configured for. Enumeration of: • <i>a (only a clients)</i> • <i>b (only b clients)</i> • <i>g (b and g clients supported)</i> • <i>g-only (only g clients supported)</i> • <i>b/g/n (b and g and n clients supported)</i> • <i>n (only n clients)</i> • <i>ac (only ac clients)</i> • <i>a/n/ac (a and n and ac clients supported)</i> • <i>a/n (a and n clients supported)</i> • <i>n/ac (n and ac clients supported)</i>
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6. Предоставить поддержку WIFI радара

InternetGatewayDevice.WiFi.NeighboringWiFiDiag	object	-	This object defines access to other WiFi SSIDs that this device is able to
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DiagnosticsState	string	W	Indicates availability of WiFi SSID data. Enumeration of: • <i>None</i> • <i>Requested</i> • <i>Completed</i> • <i>Error</i> If the ACS sets the value of this parameter to <i>Requested</i>, the CPE MUST initiate the WiFi scan. When writing, the only allowed value is <i>Requested</i>. When requested, the CPE SHOULD wait until after completion of the communication session with the ACS before starting the diagnostic. When the test is completed, the value of this parameter MUST be either <i>Completed</i> (if the test completed successfully), or one of the <i>Error</i> values listed above. If the value of this parameter is anything other than <i>Completed</i>, the values of the results parameters for this test are indeterminate. When the diagnostic initiated by the ACS is completed (successfully or not), the CPE MUST establish a new connection to the ACS to allow the ACS to view the results, indicating the Event code 8 <i>DIAGNOSTICS COMPLETE</i> in the Inform message. After the diagnostic is complete, the value of all result parameters (all read-only parameters in this object) MUST be retained by the CPE until either this diagnostic is run again, or the CPE reboots. After a reboot, if the CPE has not retained the result parameters from the most recent test, it MUST set the value of this parameter to <i>None</i>. While the test is in progress, setting this parameter to <i>Requested</i> (and possibly modifying other writable parameters in this object) MUST result in the test being terminated and then restarted using the current values of the test parameters.
ResultNumberOfEntries	unsignedInt	-	The number of entries in the <u>Result</u> table.

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InternetGatewayDevice.WiFi.NeighboringWiFiDiagnostic.Result.{i}.	object	- Neighboring SSID table. This table models the other WiFi SSIDs that this device is able to receive. At most one entry in this table can exist with a given value for <u>BSSID</u> .
Radio	string	- The value MUST be the path name of a row in the <u>Device.WiFi.Radio</u> table. The Radio that detected the neighboring WiFi SSID.
SSID	string(32)	- The current service set identifier in use by the neighboring WiFi SSID. The value MAY be empty for hidden SSIDs.
BSSID	string(17)	- <u>[MACAddress]</u> The BSSID used for the neighboring WiFi SSID.
Mode	string	- The mode the neighboring WiFi radio is operating in. Enumeration of: • <i>AdHoc</i> • <i>Infrastructure</i>
Channel	unsignedInt-	- The current radio channel used by the neighboring WiFi radio.
SignalStrength	int[-200:0]	- An indicator of radio signal strength (RSSI) of the neighboring WiFi radio measured in <i>dBm</i> , as an average of the last 100 packets received.
SecurityModeEnabled	string	- The type of encryption the neighboring WiFi SSID advertises. Enumeration of: • <i>None</i> • <i>WEP</i> • <i>WPA</i> • <i>WPA2</i> • <i>WPA-WPA2</i> • <i>WPA-Enterprise</i> • <i>WPA2-Enterprise</i> • <i>WPA-WPA2-Enterprise</i>

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EncryptionMode	string	- Comma-separated list of strings. The type of encryption the neighboring WiFi SSID advertises. Each list item is an enumeration of: • <i>TKIP</i> • <i>AES</i>
OperatingFrequencyBand	string	- Indicates the frequency band at which the radio this SSID instance is operating. Enumeration of: • <i>2.4GHz</i> • <i>5GHz</i>
SupportedStandards	string	- Comma-separated list of strings. List items indicate which IEEE 802.11 standards this <u>Result</u> instance can support simultaneously, in the frequency band specified by <u>OperatingFrequencyBand</u> . Each list item is an enumeration of: ☐ <i>a</i> ([802.11a-1999]) ☐ <i>b</i> ([802.11b-1999]) ☐ <i>g</i> ([802.11g-2003]) ☐ <i>n</i> ([802.11n-2009]) ☐ <i>ac</i> ([802.11ac-2013]) Each value indicates support for the indicated standard. If <u>OperatingFrequencyBand</u> is set to <i>2.4GHz</i> , only values <i>b</i> , <i>g</i> , <i>n</i> are allowed. If <u>OperatingFrequencyBand</u> is set to <i>5GHz</i> , only values <i>a</i> , <i>n</i> , <i>ac</i> are allowed.

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OperatingStandards	string	- Comma-separated list of strings. Each list item MUST be a member of the list reported by the <i>SupportedStandards</i> parameter. List items indicate which IEEE 802.11 standard that is detected for this <i>Result</i>. Each value indicates support for the indicated standard. If <i>OperatingFrequencyBand</i> is set to <i>2.4GHz</i>, only values <i>b</i>, <i>g</i>, <i>n</i> are allowed. If <i>OperatingFrequencyBand</i> is set to <i>5GHz</i>, only values <i>a</i>, <i>n</i>, <i>ac</i> are allowed. For example, a value of "g,b" (or "b,g" - order is not important) means that the 802.11g standard [802.11g-2003] is used with a backwards-compatible mode for 802.11b [802.11b-1999]. A value of "g" means that only the 802.11g standard can be used.
OperatingChannelBandwidth	string	- Indicates the bandwidth at which the channel is operating. Enumeration of: • 20MHz • 40MHz • 80MHz • 160MHz • Auto
BeaconPeriod	unsignedInt	- Time interval (in <i>ms</i>) between transmitting beacons.
Noise	int[-200:0]	- Indicator of average noise strength (in <i>dBm</i>) received from the neighboring WiFi radio.
BasicDataTransferRates	string(256)	- Comma-separated list (maximum list length 256) of strings. Basic data transmit rates (in Mbps) for the SSID. For example, if <i>BasicDataTransferRates</i> is "1,2", this indicates that the SSID is operating with basic rates of 1 Mbps and 2 Mbps.
SupportedDataTransferRates	string(256)	- Comma-separated list (maximum list length 256) of strings. Data transmit rates (in Mbps) for unicast frames at which the SSID will permit a station to connect. For example, if <i>SupportedDataTransferRates</i> is "1,2,5.5", this indicates that the SSID will only permit connections at 1 Mbps, 2 Mbps and 5.5 Mbps.

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DTIMPeriod	unsignedInt	-	The number of beacon intervals that elapse between transmission of Beacon frames containing a TIM element whose DTIM count field is 0. This value is transmitted in the DTIM Period field of beacon frames. <u>[802.11-2012]</u>
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7. Определения чистого канала для передачи информации

InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.X_RTK_CCARrequest	hexBinary- (11:11)	W	A request for the clear channel assessment (CCA) report in the format specified in [Clause 8.4.2.23.3/802.11- 2012].
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.X_RTK_CCARReport	hexBinary- (12:12)	-	The clear channel assessment (CCA) report in the format specified in [Clause 8.4.2.24.3/802.11-2012]. When read, the value of this parameter MUST correspond to CCARrequest. How this is achieved is a local matter to the CPE. If this parameter is read before a CCARrequest has been issued, then its value is an empty string.
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.X_RTK_RPIHistogramRequest	hexBinary- (11:11)	W	A request for a received power indicator (RPI) histogram in the format specified in [Clause 8.4.2.23.4/802.11- 2012].
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.X_RTK_RPIHistogramReport	hexBinary- (19:19)	-	Received power indicator (RPI) histogram report in the format specified in [Clause 8.4.2.24.4/802.11-2012].

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8. Управление функционалом изоляции на SSID

InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.X_RTK_IsolationEnable	boolean	W Enables or disables device isolation. A value of true means that the devices connected to the Access Point are isolated from all other devices within the home	Object Default: 0
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Управление 2 Radio модулями

Возможность привязывать SSID к определенному Radio модулю Для Radio **2.4GHz** модуля SSID1, SSID2, SSID3, SSID4:

- InternetGatewayDevice.LANDevice.1.WLANConfiguration.1.
- InternetGatewayDevice.LANDevice.1.WLANConfiguration.2.
- InternetGatewayDevice.LANDevice.1.WLANConfiguration.3.
- InternetGatewayDevice.LANDevice.1.WLANConfiguration.4.

Для Radio **5GHz** модуля SSID5, SSID6, SSID7, SSID8:

- InternetGatewayDevice.LANDevice.1.WLANConfiguration.5.
- InternetGatewayDevice.LANDevice.1.WLANConfiguration.6.
- InternetGatewayDevice.LANDevice.1.WLANConfiguration.7.
- InternetGatewayDevice.LANDevice.1.WLANConfiguration.8.

Параметры, отвечающие за управления Radio модулем должны присутствовать только:

- InternetGatewayDevice.LANDevice.1.WLANConfiguration.1.
- InternetGatewayDevice.LANDevice.1.WLANConfiguration.5.

Набор параметров необходимых для каждого Radio модуля:

InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.	object	-	
Status	string	-	Indicates the status of this interface. Enumeration of: • <i>Up</i> • <i>Error</i> (OPTIONAL) • <i>Disabled</i>

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			The <i>Error</i> value MAY be used by the CPE to indicate a locally defined error condition.
BSSID	string	-	The MAC address of the interface.
MaxBitRate	string(4)	W	The maximum upstream and downstream bit rate available to this connection in Mbps. Either <i>Auto</i> , or the largest of the <u>OperationalDataTransmitRates</u> values.
Channel	unsignedInt-[0:255]	W	The current radio channel used by the connection. To request automatic channel selection, set <u>AutoChannelEnable</u> to <i>true</i>. Whenever <u>AutoChannelEnable</u> is <i>true</i>, the value of the <i>Channel</i> parameter MUST be the channel selected by the automatic channel selection procedure.
AutoChannelEnable	boolean	W	Enable or disable automatic channel selection. Set to <i>false</i> to disable the automatic channel selection procedure, in which case the currently selected channel remains selected. Set to <i>true</i> to enable the automatic channel selection procedure. This procedure MUST automatically select the channel, and MAY also change it subsequently. <i>AutoChannelEnable</i> MUST automatically change to <i>false</i> whenever the channel is manually selected, i.e. whenever the <u>Channel</u> parameter is written. Whenever <i>AutoChannelEnable</i> is <i>true</i>, the value of the <u>Channel</u> parameter MUST be the channel selected by the automatic channel selection procedure.

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AutoChannelRefreshPeriod	unsignedInt	W	The time period in <i>seconds</i> between two consecutive automatic channel selections. A value of 0 means that the automatic channel selection is done only at boot time. This parameter is significant only if <i>AutoChannelEnable</i> is set to <i>true</i>.
Standard	string	W	Comma-separated list of strings. List items indicate which IEEE 802.11 standard this Radio instance is configured for. Each value indicates support for the indicated standard. If OperatingFrequencyBand is set to 2.4GHz, only values b, g, n are allowed. If OperatingFrequencyBand is set to 5GHz, only values a, n, ac are allowed. For example, a value of "g,b" (or "b,g" - order is not important) means that the 802.11g standard [802.11g-2003] is used with a backwards-compatible mode for 802.11b [802.11b-1999]. A value of "g" means that only the 802.11g standard can be used.
PossibleChannels	string(1024)	-	Comma-separated list (maximum list length 1024) of strings. Possible radio channels for the wireless standard (a, b or g) and the regulatory domain. Ranges in the form "n-m" are permitted. For example, for 802.11b and North America, would be "1-11".
BasicDataTransmitRates	string(256)	W	Comma-separated list (maximum list length 256) of strings. Maximum access point data transmit rates in Mbps for unicast, multicast and broadcast frames.

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			For example, a value of "1,2", indicates that unicast, multicast and broadcast frames can be transmitted at 1 Mbps and 2 Mbps.
OperationalDataTransmitRates	string(256)	W	Comma-separated list (maximum list length 256) of strings. Maximum access point data transmit rates in Mbps for unicast frames (a superset of BasicDataTransmitRates). Given the value of BasicDataTransmitRates from the example above, <i>OperationalDataTransmitRates</i> might be "1,2,5.5,11", indicating that unicast frames can additionally be transmitted at 5.5 Mbps and 11 Mbps.
PossibleDataTransmitRates	string(256)	-	Comma-separated list (maximum list length 256) of strings. Data transmit rates for unicast frames at which the access point will permit a station to connect (a subset of OperationalDataTransmitRates). Given the values of BasicDataTransmitRates and OperationalDataTransmitRates from the examples above, <i>PossibleDataTransmitRates</i> might be "1,2,5.5", indicating that the AP will only permit connections at 1 Mbps, 2 Mbps and 5.5 Mbps, even though it could theoretically accept connections at 11 Mbps.
RadioEnabled	boolean	W	Indicates whether or not the access point radio is enabled.
TransmitPowerSupported	string(64)	-	Comma-separated list (maximum list length 64) of unsigned integers (value 0 to 100). Supported transmit power levels as percentages of full power. For example, "0,25,50,75,100".
TransmitPower	unsignedInt-[0:100]	W	Indicates the current transmit power level as a percentage of full power. The value MUST be one of the values reported by the TransmitPowerSupported parameter.
RegulatoryDomain	string(3)	W	802.11d Regulatory Domain String. First two octets are ISO/IEC 3166-1 two-character country code. The third octet is either " " (all environments), "O" (outside) or "I" (inside).

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ChannelsInUse	string(1024)	-	Comma-separated list (maximum list length 1024) of strings. Channels that the access point determines to be currently in use (including any that it is using itself). Ranges in the form "n-m" are permitted.
OperatingChannelBandwidth	string	W	The preferred channel bandwidth to be used (applicable to 802.11n and 802.11ac specifications only). Enumeration of: • 20MHz • 40MHz (wide mode) • 80MHz (802.11ac only) • 160MHz (802.11ac only) • Auto
CurrentOperatingChannelBandwidth	string	-	The channel bandwidth currently in use. Enumeration of: • 20MHz • 40MHz • 80MHz • 160MHz
ExtensionChannel	string	W	The secondary extension channel position, applicable when operating in wide channel mode (i.e. when <u>OperatingChannelBandwidth</u> is set to <u>40MHz</u> or <u>Auto</u>). Enumeration of: • AboveControlChannel • BelowControlChannel • Auto
PreambleType	string	W	The type of preamble. Longer preambles (more overhead) are needed by 802.11g to coexist with legacy systems 802.11 and 802.11b. Enumeration of: • short • long • auto

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Модуль диагностика состояния оптического порта

InternetGatewayDevice.Optical.	object	- This object models optical interface technologies. It defines an Interface object that models a layer 1 optical interface that is capable of transporting Ethernet packets. The data model definition is based on parts of [G.988].	2.4
InterfaceNumberOfEntries	unsignedInteger	- The number of entries in the Interface table.	2.4
InternetGatewayDevice.Optical.Interface.{i}.	object	- Optical interface table (a stackable interface object as described in [Section 4.2/TR-181i2]). This table models physical optical interfaces.	2.4
Enable	boolean	- Enables or disables the optical interface.	2.4
Status	string	- The current operational state of the optical interface (see [Section 4.2.2/TR-181i2]). Enumeration of: • <i>Up</i> • <i>Down</i> • <i>Unknown</i> • <i>Dormant</i> • <i>NotPresent</i> • <i>LowerLayerDown</i> • <i>Error</i> (OPTIONAL) When Enable is <i>false</i> then <i>Status</i> SHOULD normally be <i>Down</i> (or <i>NotPresent</i> or <i>Error</i> if there is a fault condition on the interface). When Enable is changed to <i>true</i> then <i>Status</i> SHOULD change to <i>Up</i> if and only if the interface is able to transmit and receive network traffic; it SHOULD change to <i>Dormant</i> if and only if the interface is operable but is waiting for external actions before it can transmit and receive network traffic (and subsequently change to <i>Up</i> if still operable when the expected actions have completed); it SHOULD change to <i>LowerLayerDown</i> if and only if the interface is prevented from entering the <i>Up</i> state because one or more of the interfaces beneath it is	2.4

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Alias	string(64)	W A non-volatile handle used to reference this instance. Alias provides a mechanism for an ACS to label this instance for future reference. If the CPE supports the Alias-based Addressing feature as defined in [Section 3.6.1/ TR-069a4] and described in [Appendix II/ TR-069a4], the following mandatory constraints MUST be enforced: • Its value MUST NOT be empty. • Its value MUST start with a letter. • If its value is not assigned by the ACS, it MUST start with a "cpe-" prefix. • The CPE MUST NOT change the parameter value.	- 2.4
Name	string(64)	- The textual name of the optical interface as assigned by the CPE.	- 2.4
LastChange	unsignedInt	- The accumulated time in <i>seconds</i> since the optical interface entered its current operational state.	- 2.4
LowerLayers	string(1024)	W Comma-separated list (maximum list length 1024) of strings. Each list item MUST be the path name of an interface object that is stacked immediately below this interface object. If the referenced object is deleted, the corresponding item MUST be removed from the list. See [Section 4.2.1/ TR-181i2]. Note: Since Interface is a layer 1 interface, it is expected that <i>LowerLayers</i> will not be used.	- 2.4
Upstream	boolean	- Indicates whether the interface points towards the Internet (<i>true</i>) or towards End Devices (<i>false</i>). For example: • For an Internet Gateway Device, <i>Upstream</i> will be <i>true</i> for all WAN interfaces and <i>false</i> for all LAN interfaces. • For a standalone WiFi Access Point that is connected via Ethernet to an Internet Gateway Device, <i>Upstream</i> will be <i>true</i> for the Ethernet interface and <i>false</i> for the WiFi Radio interface. • For an End Device, <i>Upstream</i> will be <i>true</i> for all interfaces.	- 2.4

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OpticalSignalLevel	int	- Current measurement of total downstream optical signal level. The value is measured in <i>dBm/1000</i>, i.e. the value divided by 1000 is dB relative to 1 mW. For example, -12345 means -12.345 dBm, 0 means 0 dBm (1 mW) and 12345 means 12.345 dBm. Valid values are -65.536 dBm (coded as -65536), to 65.534 dBm (coded as 65534) in 0.002 dB increments. This parameter is based on <i>Optical signal level</i> from [Section 9.2.1/G.988].	- 2.4
LowerOpticalThreshold	int	- Optical level that is used to declare the downstream low received optical power alarm. The value is measured in <i>dBm/1000</i>, i.e. the value divided by 1000 is dB relative to 1 mW. For example, -12345 means -12.345 dBm, 0 means 0 dBm (1 mW) and 12345 means 12.345 dBm. Valid values are -127.5 dBm (coded as -127500) to 0 dBm (coded as 0) in 0.5 dB increments. The value -127500 indicates the device's internal policy. This parameter is based on <i>Lower optical threshold</i> from [Section 9.2.1/G.988].	- 2.4
UpperOpticalThreshold	int	- Optical level that is used to declare the downstream high received optical power alarm. The value is measured in <i>dBm/1000</i>, i.e. the value divided by 1000 is dB relative to 1 mW. For example, -12345 means -12.345 dBm, 0 means 0 dBm (1 mW) and 12345 means 12.345 dBm. Valid values are -127.5 dBm (coded as -127500) to 0 dBm (coded as 0) in 0.5 dB increments. The value -127500 indicates the device's internal policy. This parameter is based on <i>Upper optical threshold</i> from [Section 9.2.1/G.988].	- 2.4

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TransmitOpticalLevel	int	- Current measurement of mean optical launch power. The value is measured in <i>dBm/1000</i>, i.e. the value divided by 1000 is dB relative to 1 mW. For example, -12345 means -12.345 dBm, 0 means 0 dBm (1 mW) and 12345 means 12.345 dBm. Valid values are -127.5 dBm (coded as -127500) to 0 dBm (coded as 0) in 0.5 dB increments. The value -127500 indicates the device's internal policy. This parameter is based on <i>Transmit optical level</i> from [Section 9.2.1/G.988].	2.4
LowerTransmitPowerThreshold	int	- Minimum mean optical launch power that is used to declare the low transmit optical power alarm. The value is measured in <i>dBm/1000</i>, i.e. the value divided by 1000 is dB relative to 1 mW. For example, -12345 means -12.345 dBm, 0 means 0 dBm (1 mW) and 12345 means 12.345 dBm. Valid values are -63.5 dBm (coded as -63500) to +63.5 dBm (coded as 63500) in 0.5 dB increments. The value -63500 indicates the device's internal policy.	2.4
UpperTransmitPowerThreshold	int	- Maximum mean optical launch power that is used to declare the high transmit optical power alarm. The value is measured in <i>dBm/1000</i>, i.e. the value divided by 1000 is dB relative to 1 mW. For example, -12345 means -12.345 dBm, 0 means 0 dBm (1 mW) and 12345 means 12.345 dBm. Valid values are -63.5 dBm (coded as -63500) to +63.5 dBm (coded as 63500) in 0.5 dB increments. The value -63500 indicates the device's internal policy.	2.4

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InternetGatewayDevice.Optical.Interface.{i}.Stats.	object	Throughput statistics for this interface. The CPE MUST reset the interface's Stats parameters (unless otherwise stated in individual object or parameter descriptions) either when the interface becomes operationally down due to a previous administrative down (i.e. the interface's Status parameter transitions to a down state after the interface is disabled) or when the interface becomes administratively up (i.e. the interface's Enable parameter transitions from <i>false</i> to <i>true</i>). Administrative and operational interface status is discussed in [Section 4.2.2/TR-181i2].	- 2.4
BytesSent	unsignedLong	The total number of bytes transmitted out of the interface, including framing characters.	- 2.4
BytesReceived	unsignedLong	The total number of bytes received on the interface, including framing characters.	- 2.4
PacketsSent	unsignedLong	The total number of packets transmitted out of the interface.	- 2.4
PacketsReceived	unsignedLong	The total number of packets received on the interface.	- 2.4
ErrorsSent	unsignedInt	The total number of outbound packets that could not be transmitted because of errors.	- 2.4
ErrorsReceived	unsignedInt	The total number of inbound packets that contained errors preventing them from being delivered to a higher-layer protocol.	- 2.4
DiscardPacketsSent	unsignedInt	The total number of outbound packets which were chosen to be discarded even though no errors had been detected to prevent their being transmitted. One possible reason for discarding such a packet could be to free up buffer space.	- 2.4
DiscardPacketsReceived	unsignedInt	The total number of inbound packets which were chosen to be discarded even though no errors had been detected to prevent their being delivered. One possible reason for discarding such a packet could be to free up buffer space.	- 2.4

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Модуль «Удаленный доступ»

InternetGatewayDevice.UserInterface.RemoteAccess.{i}.	object	This object contains parameters relating to remotely accessing the CPE's user interface. - Remote access is defined as any entity not of a local subnet attempting to connect to the CPE. Remote access requires user authentication. To provide remote access authentication the CPE MUST support a "User" table with at least one instance that has "RemoteAccessCapable" set to <i>true</i>.	- 1.5
Enable	boolean	W Enables/Disables remotely accessing the CPE's user interface.	- 1.5
Port	unsignedInt-[:65535]	W Destination TCP port required for remote access connection.	- 1.5
SupportedProtocols	string	- Comma-separated list of strings. Indicates the protocols that are supported by the CPE for the purpose of remotely accessing the user interface. Each list item is an enumeration of: • HTTP (As defined in RFC2616) • HTTPS (As defined in RFC2818) • TELNET • SSH • ICMP	- 1.5
Protocol	string	W The value MUST be a member of the list reported by the <u>SupportedProtocols</u> parameter. This is the protocol currently being used for remote access.	- 1.5

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IP	string	W	[IPAddress] Rule criterion. Source IP address. An empty string indicates this criterion is not used for matching. This parameter can only be modified if the Rule is Static (as explained in the object description).		
Mask	string	W	[IPPrefix] Source IP address mask, represented as an IP routing prefix using CIDR notation [RFC4632]. The IP address part MUST be an empty string (and, if specified, MUST be ignored).		
Interface	string(256)	W	Rule criterion. The value MUST be the path name of a table row. If the referenced object is deleted, the parameter value MUST be set to an empty string. This specifies the ingress interface associated with the entry. It MAY be a layer 1, 2 or 3 interface, however, the types of interfaces for which Rules can be instantiated is a local matter to the CPE.		

Все изменения, предусмотренные данным модулем, должны быть отражены в WebUI. И все изменения в WebUI (открытие/закрытие доступа, разрешение/запрещение PING) должны быть видны в данном модуле.

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Модуль L2TP/GRE

InternetGatewayDevice.GRE.	object	-	This object contains parameters associated with the Generic Routing Encapsulation (GRE) Tunnel ([RFC2784]) with Key and Sequence Number extensions ([RFC2890]). This object also provides a means to treat packets that are encapsulated within a GRE Tunnel by using a set of Filter objects to determine the treatment of the packet.	-	2.8
TunnelNumberOfEntries	unsignedInt	-	The number of entries in the Tunnel table.	-	2.8
InternetGatewayDevice.GRE.Tunnel.{i}.	object	W	GRE Tunnel table, models the GRE Tunnel instance and represents the entry point and exit point of the tunnel in relation to the WAN interface. A Tunnel object has one or more Interface objects that further define the sessions or flows within the tunnel. At most one entry in this table can exist with a given value for Alias. On creation of a new table entry, the Agent MUST choose an initial value for Alias such that the new entry does not conflict with any existing entries.	-	2.8
Name	string(64)	-	The textual name of the interface as assigned by the CPE.	-	2.8
Enable	boolean	W	Enables or disables the tunnel.	-	2.8
Status	string	-	The current operational state of the tunnel. Enumeration of: - Disabled - Enabled - Error (OPTIONAL)	-	2.8
RemoteEndpoints	string	W	Comma-separated list (up to 4 items) of strings (maximum item length 256). The Fully Qualified Domain Name (FQDN) or IP address of the remote GRE tunnel endpoint. If more than one name/address is supplied, they will be tried in turn, i.e. they are in decreasing order of precedence.	-	2.8
KeepAlivePolicy	string	W	The mechanism used to keep the tunnel from timing out at the ConnectedRemoteEndpoint. Enumeration of: - ICMP - None	"None"	2.8
KeepAliveTimeout	unsignedInt	W	The tunnel keepalive timeout in seconds.	10	2.8
KeepAliveThreshold	unsignedInt	W	Number of KeepAlive messages unacknowledged by the ConnectedRemoteEndpoint before the Tunnel is perceived failed.	3	2.8
DeliveryHeaderProtocol	string	W	The protocol used for the delivery header. Enumeration of: - IPv4 - IPv6	-	2.8
DefaultDSCPMark	unsignedInt	W	If the specified entries in the Filter table do not match this Tunnel object or an instance of the Interface object for this Tunnel object, then the value of this parameter is applied to the delivery header of the packets in this Tunnel.	0	2.8



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ConnectedRemoteEndpoint	string(256)	-	The Fully Qualified Domain Name (FQDN) name or IP address of the connected remote GRE tunnel endpoint.	-	2.8
InterfaceNumberOfEntries	unsignedInt	-	The number of entries in the Interface table.	-	2.8
InternetGatewayDevice.GRE.Tunnel.{i}.Stats.	object	-	Statistics for this GRE tunnel, i.e. all traffic that has passed through the tunnel. The device MUST reset the tunnel's Stats parameters (unless otherwise stated in individual object or parameter descriptions) either when the tunnel becomes operationally down due to a previous administrative down (i.e., Status parameter transitions to a disabled state after the tunnel has been disabled) or when the tunnel becomes administratively up (i.e. the Enable parameter transitioned from false to true).	-	2.8
KeepAliveSent	unsignedInt	-	[StatsCounter32] The total number of KeepAlive messages sent out the tunnel.	-	2.8
KeepAliveReceived	unsignedInt	-	[StatsCounter32] The total number of KeepAlive messages received by the tunnel.	-	2.8
BytesSent	unsignedLong	-	[StatsCounter64] The total number of bytes sent by the tunnel.	-	2.8
BytesReceived	unsignedLong	-	[StatsCounter64] The total number of bytes received by the tunnel.	-	2.8
PacketsSent	unsignedLong	-	[StatsCounter64] The total number of packets sent by the tunnel.	-	2.8
PacketsReceived	unsignedLong	-	[StatsCounter64] The total number of packets received by the tunnel.	-	2.8
ErrorsSent	unsignedInt	-	[StatsCounter32] The total number of packets discarded by the tunnel due to any error. This can include packets dropped due to a lack of transmit buffers.	-	2.8
ErrorsReceived	unsignedInt	-	[StatsCounter32] The total number of packets received by the tunnel that contained errors preventing them from being delivered to a higher-layer protocol.	-	2.8
InternetGatewayDevice.GRE.Tunnel.{i}.Interface.{i}.	object	W	GRE Interface table (a stackable interface object as described in [Section 4.2/TR-181i2]). The Interface object models the GRE Header as defined in [RFC2784] and extensions to the GRE Header as defined in [RFC2890]. The Interface object provides a way to discriminate how sessions or flows are encapsulated within the GRE Tunnel. In addition the Interface object represents the entry point and exit point of the tunnel in relation to the LAN interface. Unless the Key Identifier of [RFC2890] is supported there is only one instance of this Interface object per tunnel. At most one entry in this table can exist with a given value for Alias, or with a given value for Name. On creation of a new table entry, the Agent MUST choose initial values for Alias and Name such that the new entry does not conflict with any existing entries.	-	2.8
Enable	boolean	W	Enables or disables the interface. This parameter is based on ifAdminStatus from [RFC2863].	-	2.8
Status	string	-	The current operational state of the interface (see [Section 4.2.2/TR-181i2]). Enumeration of: • Up • Down • Unknown • Dormant • NotPresent • LowerLayerDown	-	2.8



			Error (OPTIONAL) When Enable is false then Status SHOULD normally be Down (or NotPresent or Error if there is a fault condition on the interface). When Enable is changed to true then Status SHOULD change to Up if and only if the interface is able to transmit and receive network traffic; it SHOULD change to Dormant if and only if the interface is operable but is waiting for external actions before it can transmit and receive network traffic (and subsequently change to Up if still operable when the expected actions have completed); it SHOULD change to LowerLayerDown if and only if the interface is prevented from entering the Up state because one or more of the interfaces beneath it is down; it SHOULD remain in the Error state if there is an error or other fault condition detected on the interface; it SHOULD remain in the NotPresent state if the interface has missing (typically hardware) components; it SHOULD change to Unknown if the state of the interface can not be determined for some reason. This parameter is based on ifOperStatus from [RFC2863].		
Name	string(64)	-	The textual name of the interface as assigned by the CPE.	-	2.8
LastChange	unsignedInt	-	The accumulated time in seconds since the interface entered its current operational state.	-	2.8
LowerLayers	string(1024)	W	Comma-separated list (maximum list length 1024) of strings. Each list item MUST be the Path Name of an interface object that is stacked immediately below this interface object. If the referenced object is deleted, the corresponding item MUST be removed from the list. See [Section 4.2.1/TR-181i2].	-	2.8
ProtocolIdOverride	unsignedInt	W	The Protocol ID assigned to this Interface. The Protocol Id is the EtherType value used to identify the encapsulated payload. When set to 0 the CPE determines the Protocol Id.	0	2.8
UseChecksum	boolean	W	When true, includes the "Checksum" field in the GRE header as defined in [RFC2784].	false	2.8
KeyIdentifierGenerationPolicy	string	W	The method used to generate the Key Identifier extension as defined in.[RFC2890]. Enumeration of: - Disabled - Provisioned - CPE_Generated (The generation of the Key field is CPE specific implementation, OPTIONAL)	"Disabled"	2.8
KeyIdentifier	unsignedInt	W	When the value of KeyIdentifierGenerationPolicy is Provisioned this KeyIdentifier parameter is used to identify an individual traffic flow within a GRE tunnel, as defined in [RFC2890].	0	2.8
UseSequenceNumber	boolean	W	When true, includes the "SequenceNumber" field in the GRE header as defined in [RFC2890]	false	2.8
InternetGatewayDevice.X_RTK_VPN.L2TP.	object	-		-	2.8
TunnelNumberOfEntries	unsignedInt	-	The number of entries in the Tunnel table.	-	2.8
InternetGatewayDevice.X_RTK_VPN.L2TP.Tunnel.{i}	object	W			
Name	string(64)	-	The textual name of the interface as assigned by the CPE.	-	2.8
Enable	boolean	W	Enables or disables the tunnel.	-	2.8
Status	string	-	The current operational state of the tunnel. Enumeration of:	-	2.8



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			• Disabled • Enabled • Error (OPTIONAL)		
ConnectionType	tring	W	Specifies the connection type of the connection instance. Enumeration of: • Unconfigured • IP_Routed • IP_Bridged	-	1.0
ConnectionTrigger	string	W	Trigger used to establish the IP connection. Enumeration of: • OnDemand • AlwaysOn • Manual The above values are defined as follows: • OnDemand: If this IP connection is disconnected for any reason, it is to remain disconnected until the CPE has one or more packets to communicate over this connection, at which time the CPE automatically attempts to reestablish the connection. • AlwaysOn: If this IP connection is disconnected for any reason, the CPE automatically attempts to reestablish the connection (and continues to attempt to reestablish the connection as long it remains disconnected). • Manual: If this IP connection is disconnected for any reason, it is to remain disconnected until the user of the CPE explicitly instructs the CPE to reestablish the connection. Note that the reason for an IP connection becoming disconnected to begin with might be either external to the CPE, such as non-renewal of a DHCP lease or momentary disconnection of the physical interface, or internal to the CPE, such as use of the IdleDisconnectTime and/or AutoDisconnectTime parameters in this object. Note also that the means by which a CPE would keep an IP connection disconnected (while waiting for the designated trigger) if it is otherwise physically connected and has an IP address is a local matter specific to the implementation of the CPE.	"On-Demand"	1.0
CurrentMRUSize	unsignedInt-[1:1540]	-	The current MRU in use over this connection.	-	1.0
MaxMRUSize	unsignedInt-[1:1540]	W	The maximum allowed size of frames sent from the remote peer.	-	1.0
MaxMTUSize	unsignedInt-[1:1540]	W	The maximum allowed size of an Ethernet frame from LAN-side devices.	-	1.0

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Username	string(64)	W	Username to be used for authentication.	<Empty>	1.0
Password	string(64)	W	Password to be usef for authentication. When read, this parameter returns an empty string, regardless of the actual value.	<Empty>	1.0
ServerAddress	string	W	IP адрес или доменное имя сервера L2TP		
RemoteIPAddress	string(45)	W	[IPAddress] The remote IP address for this connection.	-	1.0
PPPAuthenticationProtocol	string	W	Describes the PPP authentication protocol used between the WAN device and the ISP POP. Enumeration of: • PAP • CHAP • MS-CHAP • Auto	Auto	1.0
PPPEncryptionProtocol	string	W	Describes the PPP encryption protocol used between the WAN device and the ISP POP. Enumeration of: • None • MPPE	None	1.0
PPPoEServiceName	string(256)	W	PPPoE Service Name.	<Empty>	1.0
NATEnabled	boolean	W	Indicates if Network Address Translation (NAT) is enabled for this connection.	-	1.0
IdleDisconnectTime	unsignedInt	W	The time in seconds that if the connection remains idle, the CPE automatically terminates the connection. A value of 0 (zero) indicates that the connection is not to be shut down automatically.	-	1.0
DNSEnabled	boolean	W	Whether or not the device SHOULD attempt to query a DNS server across this connection.	true	1.0
DNSServers	string(64)	W	[IPAddress] Comma-separated list (maximum list length 64) of IPAddresses. DNS server IP addresses for this connection. Support for more than three DNS Servers is OPTIONAL.	-	1.0
ExternalIPAddress	string(45)	W	[IPAddress] This is the external IP address used by NAT for this connection.	-	1.0
MACAddress	string(17)	W	[MACAddress] The physical address. Configurable only if MACAddressOverride is present and true.	-	1.0
Uptime					
MACAddressOverride	boolean	W	Whether the value of MACAddress parameter can be overridden. If false, the CPE's default value is used (or restored if it had previously been overridden).	-	1.0

Пример настройки
Сценарий:

```
//исходные параметры
// l2tp_server = 'server.ru'
```

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```
// username = 'user'
// password = 'password'
// remoteip = '7.0.0.75'
// vlanid = 11
// ssid_2 = 'Public_WiFi_2GHz'
// ssid_5 = 'Public_WiFi_5GHz'

//AddObject
{
  "ParameterKey": "",
  "ObjectName": "InternetGatewayDevice.Layer2Bridging.Bridge."
}

//SetParameterValues
{
  "InternetGatewayDevice.Layer2Bridging.Bridge.2.BridgeName": "br_EoGRE",
  "InternetGatewayDevice.Layer2Bridging.Bridge.2.BridgeEnable": true
}

//AddObject
{
  "ParameterKey": "",
  "ObjectName": "InternetGatewayDevice.Layer2Bridging.Marking."
}

//SetParameterValues
{
  "InternetGatewayDevice.Layer2Bridging.Marking.14.MarkingEnable": true,
  "InternetGatewayDevice.Layer2Bridging.Marking.14.MarkingBridgeReference": 1,
  "InternetGatewayDevice.Layer2Bridging.Marking.14.MarkingInterface": 15,
  "InternetGatewayDevice.Layer2Bridging.Marking.14.VLANIDMark": 11,
  "InternetGatewayDevice.Layer2Bridging.Marking.14.EthernetPriorityMark": 0
}

//AddObject
{
  "ParameterKey": "",
  "ObjectName": "InternetGatewayDevice.GRE.Tunnel."
}

//SetParameterValues
{
  "InternetGatewayDevice.GRE.Tunnel.1.Name": "GRE",
  "InternetGatewayDevice.GRE.Tunnel.1.Enable": true,
  "InternetGatewayDevice.GRE.Tunnel.1.RemoteEndpoints": "7.0.0.75"
}

//AddObject
{
  "ParameterKey": "",
  "ObjectName": "InternetGatewayDevice.GRE.Tunnel.1.Interface."
}

//SetParameterValues
{
```

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```

"InternetGatewayDevice.GRE.Tunnel.1.Interface.1.Enable": true
}
//AddObject
{
  "ParameterKey": "",
  "ObjectName": "InternetGatewayDevice.Layer2Bridging.Filter."
}

//SetParameterValues
{
  "InternetGatewayDevice.Layer2Bridging.Filter.18.FilterBridgeReference": 1,
  "InternetGatewayDevice.Layer2Bridging.Filter.18.FilterInterface": 19
}
//SetParameterValues
{
  "InternetGatewayDevice.Layer2Bridging.Filter.8.FilterBridgeReference": 1,
  "InternetGatewayDevice.LANDevice.1.WLANConfiguration.2.Enable": true,
  "InternetGatewayDevice.LANDevice.1.WLANConfiguration.2.SSID": "Public_WiFi_2GHz",
  "InternetGatewayDevice.LANDevice.1.WLANConfiguration.2.BeaconType": "None"
}
//SetParameterValues
{
  "InternetGatewayDevice.Layer2Bridging.Filter.12.FilterBridgeReference": 1,
  "InternetGatewayDevice.LANDevice.1.WLANConfiguration.6.Enable": true,
  "InternetGatewayDevice.LANDevice.1.WLANConfiguration.6.SSID": "Public_WiFi_5GHz",
  "InternetGatewayDevice.LANDevice.1.WLANConfiguration.6.BeaconType": "None"
}

//SetParameterValues
{
  "InternetGatewayDevice.X_RTK_VPN.L2TP.Tunnel.1.Name": "L2TP_EoGRE",
  "InternetGatewayDevice.X_RTK_VPN.L2TP.Tunnel.1.Enable": true,
  "InternetGatewayDevice.X_RTK_VPN.L2TP.Tunnel.1.ConnectionType": "IP_Routed",
  "InternetGatewayDevice.X_RTK_VPN.L2TP.Tunnel.1.Username": "user",
  "InternetGatewayDevice.X_RTK_VPN.L2TP.Tunnel.1.Password": "password",
  "InternetGatewayDevice.X_RTK_VPN.L2TP.Tunnel.1.ServerAddress": "server.ru",
  "InternetGatewayDevice.X_RTK_VPN.L2TP.Tunnel.1.PPPEncryptionProtocol": "None",
  "InternetGatewayDevice.X_RTK_VPN.L2TP.Tunnel.1.PPPAuthenticationProtocol": "Auto"
}

```

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Модуль USSD

InternetGatewayDevice.USSD.	object	-	Объект для работы с USSD	-	1.3
USSDState	string	W	Indicate the availability of diagnostic data. Enumeration of: • <i>None</i> • <i>Requested</i> • <i>Completed</i> • <i>Error_NoResponse</i>	-	1.3
Interface	string-(256)	W	В случае если используется несколько SIM, необходимо передать имя интерфейса вида InternetGatewayDevice.Cellular.Interface.{i}.	-	1.3
USSDrequest	string-(256)	W	USSB запрос, который нужно передать	-	1.3
USSDreply	string-(256)	W	Ответ, полученный на USSD запрос	-	1.3

Модуль «3G/LTE».

InternetGatewayDevice.Cellular.	object	-	This object models cellular interfaces and access points.	-	2.8
RoamingEnabled	boolean	W	Enables or disables roaming.	-	2.8
RoamingStatus	string	-	Current roaming status. Enumeration of: • <i>Home</i> • <i>Roaming</i>	-	2.8
InterfaceNumberOfEntries	unsignedInt	-	The number of entries in the Interface table.	-	2.8
AccessPointNumberOfEntries	unsignedInt	-	The number of entries in the AccessPoint table.	-	2.8
InternetGatewayDevice.Cellular.Interface.{i}.	object	-	Cellular interface table (a stackable interface object as described in [Section 4.2/ TR-181i2]). Each instance of this object models a cellular modem with a single radio and a single USIM . At most one entry in this table can exist with a given value for Alias , or with a given value for Name .	-	2.8

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X_RTK_CID	string	- Идентификатор соты. Этот параметр должен быть представлен в шестнадцатеричном виде		
X_RTK_LAC	string	- Location Area Code (код локальной зоны). Этот параметр должен быть представлен в шестнадцатеричном виде		
X_RTK_TAC	string	- Код локальной зоны. Этот параметр должен быть представлен в шестнадцатеричном виде		
Enable	boolean	W Enables or disables the interface. This parameter is based on <i>ifAdminStatus</i> from [RFC2863].	-	2.8
Status	string	- The current operational state of the interface (see [Section 4.2.2/TR-181i2]). Enumeration of: • <i>Up</i> (Corresponds to GPRS, UMTS, LTE etc <i>ATTACHED</i> status) • <i>Down</i> • <i>Unknown</i> • <i>Dormant</i> • <i>NotPresent</i> (Corresponds to GPRS, UMTS, LTE etc <i>DETACHED</i> status) • <i>LowerLayerDown</i> • <i>Error</i> (OPTIONAL) When Enable is <i>false</i> then <i>Status</i> SHOULD normally be <i>Down</i> (or <i>NotPresent</i> or <i>Error</i> if there is a fault condition on the interface). When Enable is changed to <i>true</i> then <i>Status</i> • SHOULD change to <i>Up</i> if and only if the interface is able to transmit and receive network traffic. • SHOULD change to <i>Dormant</i> if and only if the interface is operable but is waiting for external actions before it can transmit and receive network traffic (and subsequently change to <i>Up</i> if still operable when the expected actions have completed) • SHOULD remain in the <i>Error</i> state if there is an error or other fault condition detected on the interface • SHOULD remain in the <i>NotPresent</i> state if the interface has missing (typically hardware) components; it SHOULD change to <i>Unknown</i> if the state of the interface can not be determined for some reason. Because the interface includes layer 1 the <i>LowerLayerDown</i> value SHOULD never be used. This parameter is based on <i>ifOperStatus</i> from [RFC2863].	-	2.8

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Alias	string(64)	W A non-volatile handle used to reference this instance. Alias provides a mechanism for an ACS to label this instance for future reference. If the CPE supports the Alias-based Addressing feature as defined in [Section 3.6.1/ TR-069a4] and described in [Appendix II/ TR-069a4], the following mandatory constraints MUST be enforced: • Its value MUST NOT be empty. • Its value MUST start with a letter. • If its value is not assigned by the ACS, it MUST start with a "cpe-" prefix. • The CPE MUST NOT change the parameter value.	- 2.8
Name	string(64)	- The textual name of the interface as assigned by the CPE.	- 2.8
LastChange	unsignedInt	- The accumulated time in <i>seconds</i> since the interface entered its current operational state.	- 2.8
LowerLayers	string(1024)	W Comma-separated list (maximum list length 1024) of strings. Each list item MUST be the path name of an interface object that is stacked immediately below this interface object. If the referenced object is deleted, the corresponding item MUST be removed from the list. See [Section 4.2.1/ TR-181i2]. Note: Since Interface is a layer 1 interface, it is expected that <i>LowerLayers</i> will not be used.	- 2.8
Upstream	boolean	- Indicates whether the interface points towards the Internet (<i>true</i>) or towards End Devices (<i>false</i>). For example: • For an Internet Gateway Device, <i>Upstream</i> will be <i>true</i> for all WAN interfaces and <i>false</i> for all LAN interfaces. • For a standalone WiFi Access Point that is connected via Ethernet to an Internet Gateway Device, <i>Upstream</i> will be <i>true</i> for the Ethernet interface and <i>false</i> for the WiFi Radio interface. • For an End Device, <i>Upstream</i> will be <i>true</i> for all interfaces.	- 2.8
IMEI	string(15:15)	- International Mobile Station Equipment Identity number, represented as a 15 digit string (digits 0-9). Possible patterns: • <i>[0-9]{15,15}</i>	- 2.8

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SupportedAccessTechnologies	string	-	Comma-separated list of strings. Access technologies supported by the interface. Each list item is an enumeration of: • <i>GPRS</i> (GSM with GPRS) • <i>EDGE</i> (GSM with EDGE) • <i>UMTS</i> • <i>UMTSHSPA</i> (UMTS with High Speed Packet Access (HSPA [3GPP-HSPA])) • <i>CDMA2000OneX</i> • <i>CDMA2000HRPD</i> • <i>LTE</i>	-	2.8
PreferredAccessTechnology	string	W	The value MUST be a member of the list reported by the SupportedAccessTechnologies parameter, or else be <i>Auto</i> . Preferred access technology. The factory default value MUST be <i>Auto</i> .	-	2.8
CurrentAccessTechnology	string	-	The value MUST be a member of the list reported by the SupportedAccessTechnologies parameter. Access technology that is currently in use.	-	2.8
AvailableNetworks	string	-	Comma-separated list of strings (maximum item length 64). List of available networks.	-	2.8
NetworkRequested	string(64)	W	Name of the network which will be used, or an empty string if the network is selected automatically. The factory default value MUST be <i><Empty></i> .	-	2.8
NetworkInUse	string(64)	-	The value MUST be a member of the list reported by the AvailableNetworks parameter, or else be an empty string. The value is an empty string if no network is found, or if the network specified in NetworkRequested is not found.	-	2.8
X_RTK_CurrentBand	int		Текущий Band, например 3 или 7 или 20 или др.		
RSSI	int	-	The received signal strength in <i>dBm</i> . The allowed values depend on CurrentAccessTechnology : • For GPRS, EDGE the range is -111 <i>dBm</i> to -49 <i>dBm</i> • For UMTS, UMTSHSPA the range is -117 <i>dBm</i> to -54 <i>dBm</i> • For LTE the range is -117 <i>dBm</i> to -25 <i>dBm</i> Note: An undetectable signal is indicated by the appropriate lower limit, e.g. -117 <i>dBm</i> for LTE.	-	2.8
X_RTK_CINR	int	-	Carrier to Interference + Noise Ratio		

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X_RTK_RSCP	int	-	Received signal code power		
X_RTK_Elco	int	-			
X_RTK_RX	int	-			
UpstreamMaxBitRate	unsignedInt	-	The current maximum attainable data rate upstream (expressed in <i>Kbps</i>).	-	2.8
DownstreamMaxBitRate	unsignedInt	-	The current maximum attainable data rate downstream (expressed in <i>Kbps</i>).	-	2.8
InternetGatewayDevice.Cellular.Interface.{i}.USIM.	object	-	USIM (Universal Subscriber Identity Module or SIM card) parameters for the interface.	-	2.8
Status	string	-	The current status of the USIM card. Enumeration of: <i>None</i> (No card available) <i>Available</i> (Card is available but not verified) <i>Valid</i> (Card can be used; either valid PIN was entered, or PIN check is deactivated) <i>Blocked</i> (USIM is blocked because the maximum number of invalid PIN entries was exceeded) <i>Error</i> (An error was detected with the card, OPTIONAL)	-	2.8
IMSI	string(14:15)	-	International Mobile Subscriber Identity represented as a string with either 14 or 15 digits (digits 0-9). The first 3 digits are the mobile country code (MCC), which are followed by the mobile network code (MNC), either 2 digits (European standard) or 3 digits (North American standard), followed by the mobile subscription identification number (MSIN). Possible patterns: <i>[0-9]{14,15}</i>	-	2.8
ICCID	string(6:20)	-	Integrated Circuit Card Identifier represented as a string of up to 20 digits (digits 0-9). The number is composed of the following parts: - Major industry identifier (MII), 2 fixed digits, 89 for telecommunication purposes. - Country code, 1–3 digits, as defined by ITU-T recommendation [ITU-E.164]. - identifier, 1–4 digits. - Individual account identification number. Its length is variable, but every number under one IIN will have the same length. - Single check digit calculated from the other digits using the Luhn algorithm. For cards using an ICCID according to [ITU-E.118] the maximum length is 19 Digits, for GSM cards 20 digits. Possible patterns:	-	2.8

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			[0-9]{6,20}		
MSISDN	string(14:15)	-	Mobile Subscriber Integrated Service Digital Network Number, a number uniquely identifying a subscription in a GSM, UMTS, or LTE mobile network. [ITU-E.164] Possible patterns: [0-9]{14,15}	-	2.8
PINCheck	string	W	Controls the PIN verification of the USIM card. Enumeration of: <i>OnNetworkAccess</i> (Check the PIN with each access to a new network) <i>Reboot</i> (Check the PIN with first access after (re)boot) <i>Off</i> (Disable the PIN check)	-	2.8
PIN	string(4)	W	Allows the ACS to change the USIM PIN used for SIM card activation. When read, this parameter returns an empty string, regardless of the actual value.	-	2.8
InternetGatewayDevice.Cellular.Interface.{i}.Stats.	object	-	Throughput statistics for this interface. The CPE MUST reset the interface's Stats parameters (unless otherwise stated in individual object or parameter descriptions) either when the interface becomes operationally down due to a previous administrative down (i.e. the interface's Status parameter transitions to a down state after the interface is disabled) or when the interface becomes administratively up (i.e. the interface's Enable parameter transitions from <i>false</i> to <i>true</i>). Administrative and operational interface status is discussed in [Section 4.2.2/ TR-181i2].	-	2.8
BytesSent	unsignedLong	-	[StatsCounter64] The total number of bytes transmitted out of the interface, including framing characters.	-	2.8
BytesReceived	unsignedLong	-	[StatsCounter64] The total number of bytes received on the interface, including framing characters.	-	2.8
PacketsSent	unsignedLong	-	[StatsCounter64] The total number of packets transmitted out of the interface.	-	2.8
PacketsReceived	unsignedLong	-	[StatsCounter64] The total number of packets received on the interface.	-	2.8
ErrorsSent	unsignedLong	-	[StatsCounter64] The total number of outbound packets that could not be transmitted because of errors.	-	2.8
ErrorsReceived	unsignedLong	-	[StatsCounter64] The total number of inbound packets that contained errors preventing them from being delivered to a higher-layer protocol.	-	2.8

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UnicastPacketsSent	unsignedLong	-	[StatsCounter64] The total number of packets requested for transmission which were not addressed to a multicast or broadcast address at this layer, including those that were discarded or not sent.	-	2.8
UnicastPacketsReceived	unsignedLong	-	[StatsCounter64] The total number of received packets, delivered by this layer to a higher layer, which were not addressed to a multicast or broadcast address at this layer.	-	2.8
DiscardPacketsSent	unsignedLong	-	[StatsCounter64] The total number of outbound packets which were chosen to be discarded even though no errors had been detected to prevent their being transmitted. One possible reason for discarding such a packet could be to free up buffer space.	-	2.8
DiscardPacketsReceived	unsignedLong	-	[StatsCounter64] The total number of inbound packets which were chosen to be discarded even though no errors had been detected to prevent their being delivered. One possible reason for discarding such a packet could be to free up buffer space.	-	2.8
MulticastPacketsSent	unsignedLong	-	[StatsCounter64] The total number of packets that higher-level protocols requested for transmission and which were addressed to a multicast address at this layer, including those that were discarded or not sent.	-	2.8
MulticastPacketsReceived	unsignedLong	-	[StatsCounter64] The total number of received packets, delivered by this layer to a higher layer, which were addressed to a multicast address at this layer.	-	2.8
BroadcastPacketsSent	unsignedLong	-	[StatsCounter64] The total number of packets that higher-level protocols requested for transmission and which were addressed to a broadcast address at this layer, including those that were discarded or not sent.	-	2.8
BroadcastPacketsReceived	unsignedLong	-	[StatsCounter64] The total number of received packets, delivered by this layer to a higher layer, which were addressed to a broadcast address at this layer.	-	2.8
UnknownProtoPacketsReceived	unsignedLong	-	[StatsCounter64] The total number of packets received via the interface which were discarded because of an unknown or unsupported protocol.	-	2.8
InternetGatewayDevice.Cellular.AccessPoint.{i}.	object	W	Cellular Access Point table. Each entry is identified by an APN (Access Point Name) that identifies a gateway between the mobile network and another computer network. At most one entry in this table (regardless of whether or not it is enabled) can exist with a given value for Alias. On creation of a new table entry, the CPE MUST choose an initial value for Alias such that the new entry does not conflict with any existing entries. At most one enabled entry in this table can exist with a given value for APN, or with a given value for Interface.	-	2.8
Enable	boolean	W	Enables or disables the Access Point.	-	2.8

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Alias	string(64)	W	A non-volatile handle used to reference this instance. Alias provides a mechanism for an ACS to label this instance for future reference. If the CPE supports the Alias-based Addressing feature as defined in [Section 3.6.1/TR-069a4] and described in [Appendix II/TR-069a4], the following mandatory constraints MUST be enforced: • Its value MUST NOT be empty. • Its value MUST start with a letter. • If its value is not assigned by the ACS, it MUST start with a "cpe-" prefix. • The CPE MUST NOT change the parameter value.	-	2.8
APN	string(64)	W	Access Point Name.	-	2.8
Username	string(256)	W	Username used to authenticate the CPE when making a connection to the Access Point.	-	2.8
Password	string(256)	W	Password used to authenticate the CPE when making a connection to the Access Point. When read, this parameter returns an empty string, regardless of the actual value.	-	2.8
Proxy	string(45)	W	[IPAddress] Proxy server IP address.	-	2.8
ProxyPort	unsignedInt-[1:65535]	W	Proxy server port.	-	2.8
Interface	string	W	The value MUST be the path name of a row in the Cellular.Interface table. Reference to the interface with which the access point is associated.	-	2.8

Модуль WAN интерфейса

Если в устройстве присутствует несколько WAN интерфейсов, то запись WANDevice должна быть для каждого.

InternetGatewayDevice.WANDevice.{i}.WANCommonInterfaceConfig.	object	-	Объект для работы с USSD		
EnabledForInternet	boolean	W	Used to enable or disable access to and from the Internet across all connection instances.	-	1.0
WANAccessType	string	-	Specifies the WAN access (modem) type. Enumeration of: • ADSL • VDSL • GPON	-	1.0



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			• GEPON • MLM • Ethernet		
Layer1UpstreamMaxBitRate	unsignedInt	-	Specifies the maximum upstream theoretical bit rate for the WAN device in bits per second. This describes the maximum possible rate given the type of interface assuming the best-case operating environment, regardless of the current operating rate. For example, if the physical interface is 100BaseT, this value would be 100000000, regardless of the current operating rate.	-	1.0
Layer1DownstreamMaxBitRate	unsignedInt	-	Specifies the maximum downstream theoretical bit rate for the WAN device in bits per second. This describes the maximum possible rate given the type of interface assuming the best-case operating environment, regardless of the current operating rate. For example, if the physical interface is 100BaseT, this value would be 100000000, regardless of the current operating rate.	-	1.0
PhysicalLinkStatus	string	-	Indicates the state of the physical connection (link) from WANDevice to a connected entity. Enumeration of: • Up • Down • Initializing • Unavailable	-	1.0
WANAccessProvider	string(256)	-	Name of the Service Provider providing link connectivity on the WAN.	-	1.0
TotalBytesSent	unsignedInt	-	The cumulative counter for total number of bytes sent upstream across all connection service instances on the WAN device.	-	1.0
TotalBytesReceived	unsignedInt	-	The cumulative counter for total number of bytes received downstream across all connection service instances on the WAN device.	-	1.0
TotalPacketsSent	unsignedInt	-	The cumulative counter for total number of packets (IP or PPP) sent upstream across all connection service instances on the WAN device.	-	1.0
TotalPacketsReceived	unsignedInt	-	The cumulative counter for total number of packets (IP or PPP) received downstream across all connection service instances on the WAN device.	-	1.0
MaximumActiveConnections	unsignedInt	-	Indicates the maximum number of active connections the CPE can simultaneously support.	-	1.0
NumberOfActiveConnections	unsignedInt	-	Number of WAN connection service instances currently active on this WAN interface.	-	1.0

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Модуль UDPHTTProxy

InternetGatewayDevice.X_RTK_UDPHTTProxy.	object	-	Объект для работы с UDPHTTProxy	
Enable	boolean	W	По умолчанию 0	-
TCPPort	unsignedInt-[:65535]	W	TCP порт, для запроса потока. По умолчанию 4022	
Buffer	unsignedInt-[:65535]	W	Размер в килобайтах, по умолчанию 5000	
ProxyIP	string	W	По умолчанию 192.168.0.1	
Timeout	unsignedInt	W	Значение в секундах, через которое CPE должно отписаться от группы в случае разрыва TCP соединения. По умолчанию 5 сек.	

Модуль маршрутизация

InternetGatewayDevice.Layer3Forwarding.	object	-	This object allows the handling of the routing and forwarding configuration of the device.	-	1.0
DefaultConnectionService	string(256)	W	Specifies the default WAN interface. The content is the full hierarchical parameter name of the default layer 3 connection object. Example: <i>InternetGatewayDevice.WANDevice.1.WANConnectionDevice.2.WANPPPCConnection.1.</i>	-	1.0
ForwardNumberOfEntries	unsignedInt	-	Number of forwarding instances.	-	1.0
InternetGatewayDevice.Layer3Forwarding.Forwarding.{i}.	object	W	Layer 3 forwarding table. In addition to statically configured routes, this table MUST include dynamic routes learned through layer 3 routing protocols, including RIP, OSPF, DHCP, and IPCP. The CPE MAY reject attempts to delete or modify a dynamic route entry. For each incoming packet, the layer 3 forwarding decision is conceptually made as follows: - Only table entries with a matching ForwardingPolicy are considered, i.e. those that either do not specify a ForwardingPolicy, or else specify a ForwardingPolicy that matches that of the incoming packet. - For the remaining table entries, those for which the source address/mask matches are sorted by longest prefix, i.e. with the most specific networks first (an unspecified source address is a wild-card and always matches, with a prefix length of zero). - For the remaining table entries, those for which the destination address/mask matches are sorted by longest prefix, i.e. with the most specific networks first (an unspecified destination address is a wild-card and always matches, with a prefix length of zero). - The first of the remaining table entries is applied to the packet.	-	1.0

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			At most one entry in this table (regardless of whether or not it is enabled) can exist with a given value for Alias. On creation of a new table entry, the CPE MUST choose an initial value for Alias such that the new entry does not conflict with any existing entries. At most one enabled entry in this table can exist with all the same values for DestIPAddress, DestSubnetMask, SourceIPAddress and SourceSubnetMask.		
Enable	boolean	W	Enables or disables the forwarding entry. On creation, an entry is disabled by default.	false	1.0
Status	string	-	Indicates the status of the forwarding entry. Enumeration of: • <i>Disabled</i> • <i>Enabled</i> • <i>Error</i> (OPTIONAL) The <i>Error</i> value MAY be used by the CPE to indicate a locally defined error condition.	"Disabled"	1.0
Alias	string(64)	W	A non-volatile handle used to reference this instance. Alias provides a mechanism for an ACS to label this instance for future reference. If the CPE supports the Alias-based Addressing feature as defined in [Section 3.6.1/TR-069a4] and described in [Appendix II/TR-069a4], the following mandatory constraints MUST be enforced: • Its value MUST NOT be empty. • Its value MUST start with a letter. • If its value is not assigned by the ACS, it MUST start with a "cpe-" prefix. • The CPE MUST NOT change the parameter value. This parameter can only be modified if StaticRoute is <i>true</i>	-	1.9
StaticRoute	boolean	-	If <i>true</i> , this route is a Static route.	true	1.4
Type	string	W	Indicates the type of route. Enumeration of: • <i>Default</i> • <i>Network</i> • <i>Host</i> This parameter is DEPRECATED because its value could conflict with DestIPAddress and/or DestSubnetMask.	"Host"	1.0
DestIPAddress	string(45)	W	[IPAddress] Destination address. An empty string or a value of "0.0.0.0" indicates no destination address is specified. A Forwarding table entry for which DestIPAddress and DestSubnetMask are both an empty string or "0.0.0.0" is a default route.	<Empty>	1.0

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DestSubnetMask	string(45)	W [IPAddress] Destination subnet mask. An empty string or a value of "0.0.0.0" indicates no destination subnet mask is specified. If a destination subnet mask is specified, the <i>DestSubnetMask</i> is ANDed with the destination address before comparing with the DestIPAddress . Otherwise, the full destination address is used as is. A Forwarding table entry for which DestIPAddress and <i>DestSubnetMask</i> are both an empty string or "0.0.0.0" is a default route.	<Empty>	1.0
SourceIPAddress	string(45)	W [IPAddress] Source address. An empty string or a value of "0.0.0.0" indicates no source address is specified.	<Empty>	1.0
SourceSubnetMask	string(45)	W [IPAddress] Source subnet mask. An empty string or a value of "0.0.0.0" indicates no source subnet mask is specified. If a source subnet mask is specified, the <i>SourceSubnetMask</i> is ANDed with the source address before comparing with the SourceIPAddress . Otherwise, the full source address is used as is.	<Empty>	1.0
ForwardingPolicy	int[-1:]	W Identifier of a set of classes or flows that have the corresponding <i>ForwardingPolicy</i> value as defined in the <i>QueueManagement</i> object. A value of -1 indicates no <i>ForwardingPolicy</i> is specified. If specified, this forwarding entry is to apply only to traffic associated with the specified classes and flows.	-1	1.1
GatewayIPAddress	string(45)	W [IPAddress] IP address of the gateway. Only one of <i>GatewayIPAddress</i> and <i>Interface</i> SHOULD be configured for a route. If both are configured, <i>GatewayIPAddress</i> and Interface MUST be consistent with each other.	<Empty>	1.0
Interface	string(256)	W Specifies the egress interface associated with this entry. The value MUST be the path name of the layer 3 connection object. Example: <i>InternetGatewayDevice.WANDevice.1.WANConnectionDevice.2.WANPPPOConnection.1</i> . Only one of GatewayIPAddress and <i>Interface</i> SHOULD be configured for a route. If both are configured, GatewayIPAddress and <i>Interface</i> MUST be consistent with each other. For a route that was configured by setting GatewayIPAddress but not <i>Interface</i> , read access to <i>Interface</i> MUST return the full hierarchical parameter name for the route's egress interface.	-	1.0
ForwardingMetric	int[-1:]	W Forwarding metric. A value of -1 indicates this metric is not used.	-1	1.0
MTU	unsignedInt- [1:1540]	W The maximum allowed size of an Ethernet frame for this route.	-	1.0

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Device.SoftwareModules.ExecutionUnit.{i}.	object	- This table serves as the Execution Unit inventory and contains both status information about each Execution Unit as well as configurable parameters for each Execution Unit. Each DeploymentUnit that is installed can have zero or more Execution Units. Once a Deployment Unit is installed it populates this table with its contained Execution Units. When the Deployment Unit (that caused this <i>ExecutionUnit</i> to come into existence) is updated, this instance MAY be removed and new instances MAY come into existence. While the Deployment Unit (that caused this <i>ExecutionUnit</i> to come into existence) is being updated, all <i>ExecutionUnit</i> instances associated with the Deployment Unit will be stopped until the update is complete at which time they will be restored to the state that they were in before the update started. When the Deployment Unit (that caused this <i>ExecutionUnit</i> to come into existence) is uninstalled, this instance is removed. Each <i>ExecutionUnit</i> MAY also contain a set of vendor specific parameters displaying status and maintaining configuration that reside under the Extensions object. At most one entry in this table can exist with a given value for EUID, or with a given value for Alias.	- 2.1
EUID	string(64)	- Execution Unit Identifier chosen by the ExecEnv during installation of the associated DeploymentUnit. The format of this value is Execution Environment specific, but it MUST be unique across ExecEnv instances. Thus, it is recommended that this be a combination of the ExecEnv.{i}.Name and an Execution Environment local unique value.	- 2.1
Alias	string(64)	W A non-volatile handle used to reference this instance. Alias provides a mechanism for an ACS to label this instance for future reference. If the CPE supports the Alias-based Addressing feature as defined in [Section 3.6.1/TR-069a4] and described in [Appendix II/TR-069a4], the following mandatory constraints MUST be enforced: • Its value MUST NOT be empty. • Its value MUST start with a letter. • If its value is not assigned by the ACS, it MUST start with a "cpe-" prefix. • The CPE MUST NOT change the parameter value.	- 2.1
Name	string(32)	- The name of this ExecutionUnit as it pertains to its associated DeploymentUnit, which SHOULD be unique across all ExecutionUnit instances contained within its associated DeploymentUnit.	- 2.1
ExecEnvLabel	string(64)	- The name of this ExecutionUnit as provided by the ExecEnv, which SHOULD be unique across all ExecutionUnit instances contained within a specific ExecEnv.	- 2.1
Status	string	- Indicates the status of this ExecutionUnit. Enumeration of:	- 2.1

			<i>Idle</i> (This instance is in an Idle state and not running) <i>Starting</i> (This instance is in the process of Starting and SHOULD transition to the <i>Active</i> state) <i>Active</i> (This instance is currently running) <i>Stopping</i> (This instance is in the process of Stopping and SHOULD transition to the <i>Idle</i> state)		
RequestedState	string	W	Indicates the state transition that the ACS is requesting for this ExecutionUnit. Enumeration of: <i>Idle</i> (If this ExecutionUnit is currently in Starting or Active the CPE will attempt to Stop the Execution Unit; otherwise this requested state is ignored) <i>Active</i> (If this ExecutionUnit is currently in Idle the CPE will attempt to Start the Execution Unit. If this ExecutionUnit is in Stopping the request is rejected and a fault raised. Otherwise this requested state is ignored) If this ExecutionUnit is associated with an Execution Environment that is disabled and an attempt is made to alter this value, then a CWMP Fault MUST be generated. The value of this parameter is not part of the device configuration and is always an empty string when read.	-	2.1
ExecutionFaultCode	string	-	If while running or transitioning between states this ExecutionUnit identifies a fault this parameter embodies the problem. The value of <i>NoFault</i> MUST be used when everything is working as intended. Enumeration of: <i>NoFault</i> <i>FailureOnStart</i> <i>FailureOnAutoStart</i> <i>FailureOnStop</i> <i>FailureWhileActive</i> <i>DependencyFailure</i> <i>UnStartable</i> For fault codes not included in this list, the vendor MAY include vendor-specific values, which MUST use the format defined in [Section 3.3/TR-106a4].	-	2.1
ExecutionFaultMessage	string(256)	-	If while running or transitioning between states this ExecutionUnit identifies a fault this parameter provides a more detailed explanation of the problem. If ExecutionFaultCode has the value of <i>NoFault</i> then the value of this parameter MUST an empty string and ignored by the ACS.	-	2.1
AutoStart	boolean	W	If <i>true</i> and the RunLevel verification is also met, then this ExecutionUnit will be automatically started by the device after its ExecEnv is either rebooted or restarted. If <i>false</i> this ExecutionUnit will not be started after its ExecEnv is either rebooted or restarted until it is explicitly commanded to do so by either the ACS or another Execution Unit.	-	2.1

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RunLevel	unsignedInt- [:65535]	W Determines when this ExecutionUnit will be started. If AutoStart is true and ExecEnv.f().CurrentRunLevel is greater than or equal to RunLevel , then this ExecutionUnit will be started. If the value of ExecEnv.f().CurrentRunLevel is -1, then the associated ExecEnv doesn't support Run Levels, thus the value of this parameter is irrelevant when read and setting its value has no impact to the Run Level of this ExecutionUnit .	- 2.1
Vendor	string(128)	- Vendor of this ExecutionUnit .	- 2.1
Version	string(32)	- Version of the ExecutionUnit . The format of this value is Execution Environment specific.	- 2.1
Description	string(256)	- Textual description of this ExecutionUnit . The format of this value is Execution Environment specific.	- 2.1
DiskSpaceInUse	int[-1:]	- The amount of disk space measured in <i>kilobytes</i> currently being used by this ExecutionUnit . A value of -1 MUST be used for ExecutionUnit instances where this parameter is not applicable.	- 2.1
MemoryInUse	int[-1:]	- The amount of physical RAM measured in <i>kilobytes</i> currently being used by this ExecutionUnit . A value of -1 MUST be used for ExecutionUnit instances where this parameter is not applicable.	- 2.1
References	string	- Comma-separated list of strings. Each list item MUST be the path name of a table row. If the referenced object is deleted, the corresponding item MUST be removed from the list. Represents the instances of multi-instanced objects that are directly controlled by, and have come into existence because of, this ExecutionUnit . See [Appendix II.3.2/ TR-157a3] for more description and some examples. NOTE: All other objects and parameters (i.e. not multi-instanced objects) that this ExecutionUnit has caused to come into existence can be discovered via the DeviceInfo.SupportedDataModel.f() table.	- 2.1
AssociatedProcessList	string	- Comma-separated list of strings. Each list item MUST be the path name of a row in the DeviceInfo.ProcessStatus.Process table. If the referenced object is deleted, the corresponding item MUST be removed from the list. Represents the system processes that are active in the system because of this ExecutionUnit . If Status is not Active it is expected that this list will be an empty string. Some ExecutionUnit instances MIGHT NOT have any system processes irrespective of the value of Status .	- 2.1
VendorLogList	string	- Comma-separated list of strings. Each list item MUST be the path name of a row in the DeviceInfo.VendorLogFile table. If the referenced object is deleted, the corresponding item MUST be removed from the list. Represents the vendor log files that have come into existence because of this ExecutionUnit . When the DeploymentUnit (that caused this ExecutionUnit to come into existence) is uninstalled the vendor log files referenced here SHOULD be removed from the CPE. Not all ExecutionUnit instances will actually have a corresponding vendor log file, in which case the value of this parameter will be an empty string.	- 2.1
VendorConfigList	string	- Comma-separated list of strings. Each list item MUST be the path name of a row in the DeviceInfo.VendorConfigFile table. If the referenced object is deleted, the corresponding item MUST be removed from the list. Represents the vendor config files that have come into existence because of this ExecutionUnit . When the DeploymentUnit (that caused this ExecutionUnit to come into existence) is uninstalled the vendor config files referenced here SHOULD be removed from the CPE.	- 2.1



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		Not all ExecutionUnit instances will actually have a corresponding vendor config file, in which case the value of this parameter will be an empty string.		
SupportedDataModelList	string	- Comma-separated list of strings. Each list item MUST be the path name of a row in the DeviceInfo.SupportedDataModel table. If the referenced object is deleted, the corresponding item MUST be removed from the list. Represents the CWMP-DT schema instances that have been introduced to this device because of the existence of this ExecutionUnit .	-	2.1
ExecutionEnvRef	string	- The value MUST be the path name of a row in the ExecEnv table. If the referenced object is deleted, the parameter value MUST be set to an empty string. Represents the ExecEnv that this ExecutionUnit is associated with.	-	2.1