

INTERNATIONAL STANDARD

**Information technology – UPnP Device Architecture –
Part 8-4: Internet Gateway Device Control Protocol – Wide Area Network
Connection Device**

ISO/IEC 29341-8-4:2008

<https://standards.iteh.ai/catalog/standards/sist/463b6941-7414-49ba-9b2d-fe898eb557d4/iso-iec-29341-8-4-2008>



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IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland
Email: inmail@iec.ch
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Email: csc@iec.ch
Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00



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INFORMATION TECHNOLOGY – UPNP DEVICE ARCHITECTURE –

Part 8-4: Internet Gateway Device Control Protocol – Wide Area Network Connection Device

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The list of all currently available parts of the ISO/IEC 29341 series, under the general title *Universal plug and play (UPnP) architecture*, can be found on the IEC web site.

This International Standard has been approved by vote of the member bodies, and the voting results may be obtained from the address given on the second title page.

ORIGINAL UPnP DOCUMENTS (informative)

Reference may be made in this document to original UPnP documents. These references are retained in order to maintain consistency between the specifications as published by ISO/IEC and by UPnP Implementers Corporation. The following table indicates the original UPnP document titles and the corresponding part of ISO/IEC 29341:

UPnP Document Title	ISO/IEC 29341 Part
UPnP Device Architecture 1.0	ISO/IEC 29341-1
UPnP Basic:1 Device	ISO/IEC 29341-2
UPnP AV Architecture:1	ISO/IEC 29341-3-1
UPnP MediaRenderer:1 Device	ISO/IEC 29341-3-2
UPnP MediaServer:1 Device	ISO/IEC 29341-3-3
UPnP AVTransport:1 Service	ISO/IEC 29341-3-10
UPnP ConnectionManager:1 Service	ISO/IEC 29341-3-11
UPnP ContentDirectory:1 Service	ISO/IEC 29341-3-12
UPnP RenderingControl:1 Service	ISO/IEC 29341-3-13
UPnP MediaRenderer:2 Device	ISO/IEC 29341-4-2
UPnP MediaServer:2 Device	ISO/IEC 29341-4-3
UPnP AV Datastructure Template:1	ISO/IEC 29341-4-4
UPnP AVTransport:2 Service	ISO/IEC 29341-4-10
UPnP ConnectionManager:2 Service	ISO/IEC 29341-4-11
UPnP ContentDirectory:2 Service	ISO/IEC 29341-4-12
UPnP RenderingControl:2 Service	ISO/IEC 29341-4-13
UPnP ScheduledRecording:1	ISO/IEC 29341-4-14
UPnP DigitalSecurityCamera:1 Device	ISO/IEC 29341-5-1
UPnP DigitalSecurityCameraMotionImage:1 Service	ISO/IEC 29341-5-10
UPnP DigitalSecurityCameraSettings:1 Service	ISO/IEC 29341-5-11
UPnP DigitalSecurityCameraStillImage:1 Service	ISO/IEC 29341-5-12
UPnP HVAC_System:1 Device	ISO/IEC 29341-6-1
UPnP HVAC_ZoneThermostat:1 Device	ISO/IEC 29341-6-2
UPnP ControlValve:1 Service	ISO/IEC 29341-6-10
UPnP HVAC_FanOperatingMode:1 Service	ISO/IEC 29341-6-11
UPnP FanSpeed:1 Service	ISO/IEC 29341-6-12
UPnP HouseStatus:1 Service	ISO/IEC 29341-6-13
UPnP HVAC_SetpointSchedule:1 Service	ISO/IEC 29341-6-14
UPnP TemperatureSensor:1 Service	ISO/IEC 29341-6-15
UPnP TemperatureSetpoint:1 Service	ISO/IEC 29341-6-16
UPnP HVAC_UserOperatingMode:1 Service	ISO/IEC 29341-6-17
UPnP BinaryLight:1 Device	ISO/IEC 29341-7-1
UPnP DimmableLight:1 Device	ISO/IEC 29341-7-2
UPnP Dimming:1 Service	ISO/IEC 29341-7-10
UPnP SwitchPower:1 Service	ISO/IEC 29341-7-11
UPnP InternetGatewayDevice:1 Device	ISO/IEC 29341-8-1
UPnP LANDevice:1 Device	ISO/IEC 29341-8-2
UPnP WANDevice:1 Device	ISO/IEC 29341-8-3
UPnP WANConnectionDevice:1 Device	ISO/IEC 29341-8-4
UPnP WLANAccessPointDevice:1 Device	ISO/IEC 29341-8-5
UPnP LANHostConfigManagement:1 Service	ISO/IEC 29341-8-10
UPnP Layer3Forwarding:1 Service	ISO/IEC 29341-8-11
UPnP LinkAuthentication:1 Service	ISO/IEC 29341-8-12
UPnP RadiusClient:1 Service	ISO/IEC 29341-8-13
UPnP WANCableLinkConfig:1 Service	ISO/IEC 29341-8-14
UPnP WANCommonInterfaceConfig:1 Service	ISO/IEC 29341-8-15
UPnP WANDSLLinkConfig:1 Service	ISO/IEC 29341-8-16
UPnP WANEthernetLinkConfig:1 Service	ISO/IEC 29341-8-17
UPnP WANIPConnection:1 Service	ISO/IEC 29341-8-18
UPnP WANPOTSLinkConfig:1 Service	ISO/IEC 29341-8-19
UPnP WANPPPPConnection:1 Service	ISO/IEC 29341-8-20
UPnP WLANConfiguration:1 Service	ISO/IEC 29341-8-21
UPnP Printer:1 Device	ISO/IEC 29341-9-1
UPnP Scanner:1.0 Device	ISO/IEC 29341-9-2
UPnP ExternalActivity:1 Service	ISO/IEC 29341-9-10
UPnP Feeder:1.0 Service	ISO/IEC 29341-9-11
UPnP PrintBasic:1 Service	ISO/IEC 29341-9-12
UPnP Scan:1 Service	ISO/IEC 29341-9-13
UPnP QoS Architecture:1.0	ISO/IEC 29341-10-1
UPnP QoSDevice:1 Service	ISO/IEC 29341-10-10
UPnP QoSManager:1 Service	ISO/IEC 29341-10-11
UPnP QoSPolicyHolder:1 Service	ISO/IEC 29341-10-12
UPnP QoS Architecture:2	ISO/IEC 29341-11-1
UPnP QOS v2 Schema Files	ISO/IEC 29341-11-2

UPnP Document Title	ISO/IEC 29341 Part
UPnP QosDevice:2 Service	ISO/IEC 29341-11-10
UPnP QosManager:2 Service	ISO/IEC 29341-11-11
UPnP QosPolicyHolder:2 Service	ISO/IEC 29341-11-12
UPnP RemoteUIClientDevice:1 Device	ISO/IEC 29341-12-1
UPnP RemoteUIServerDevice:1 Device	ISO/IEC 29341-12-2
UPnP RemoteUIClient:1 Service	ISO/IEC 29341-12-10
UPnP RemoteUIServer:1 Service	ISO/IEC 29341-12-11
UPnP DeviceSecurity:1 Service	ISO/IEC 29341-13-10
UPnP SecurityConsole:1 Service	ISO/IEC 29341-13-11

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1. Overview and Scope

This device template is compliant with the UPnP Device Architecture, Version 1.0.

WANConnectionDevice is a REQUIRED virtual device defined under **urn:schemas-upnp-org:device:WANDevice**

An instance of **WANDevice** is specified under the root device **urn:schemas-upnp-org:device:InternetGatewayDevice**

WANConnectionDevice is a container for a link and connection services specific to a link on a WAN interface. Most types of WAN interfaces can be modeled by a single instance of **WANConnectionDevice**. However, in the case of DSL, each VC can have unique link attributes and can be provisioned for connection services that are different from other VCs. In this case, each VC will be modeled by an instance of **WANConnectionDevice**. Also, in the case of a POTS modem based **InternetGatewayDevice** (IGD), each separate ISP instance can be modeled as an instance of **WANConnectionDevice**.

The *Theory of Operation* section describes the services contained in **WANConnectionDevice** in more detail.

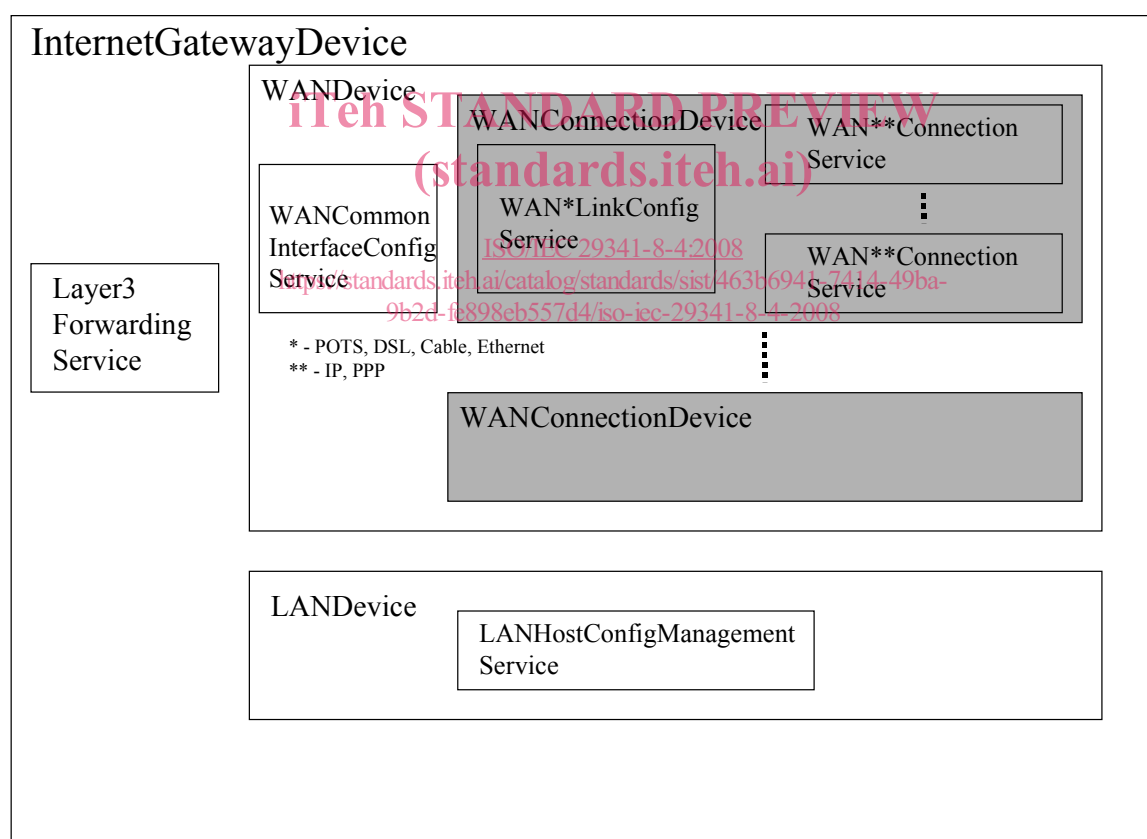


Figure 1: **WANConnectionDevice** Devices and Services Hierarchy

2. Device Definitions

2.1. Device Type

The following device type identifies a device that is compliant with this template:

urn:schemas-upnp-org:device:*WANConnectionDevice:1*

2.2. Device Model

Products that expose devices of the type urn:schemas-upnp-org:device:*WANConnectionDevice:1* must implement minimum version numbers of all required embedded devices and services specified in the table below.

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Table 1: Device Requirements

DeviceType	Root	Req. or Opt. ¹	ServiceType	Req. or Opt. ¹	Service ID ²
			<u>WANPOTSLinkConfig:1</u>	<u>O for POTS modems</u>	<u>WANPOTSLinkC1</u>
			<u>WANDSLLinkConfig:1</u>	<u>O for DSL modems</u>	<u>WANDSLLinkC1</u>
			<u>WANCableLinkConfig:1</u>	<u>O for Cable modems</u>	<u>WANCableLinkC1</u>
			<u>WANEthernetLinkConfig:1</u>	<u>O for Ethernet attached modems</u>	<u>WANEthLinkC1</u>
			<u>WANPPPConnection:1</u>	<u>R for modems that support PPP based connections</u>	<u>Multiple instances possible within a WANConnectionDevice. ServiceIDs for multiple instances will be WANPPPConn1, WANPPPConn2, WANPPPConn3 and so on.</u>
			<u>WANIPConnection:1</u>	<u>R for modems that support IP based connections</u>	<u>Multiple instances possible within a WANConnectionDevice. ServiceIDs for multiple instances will be WANIPConn1, WANIPConn2, WANIPConn3 and so on.</u>
			Non-standard services embedded by an UPnP vendor go here.	X	TBD
Non-standard devices embedded by a UPnP vendor go here.	TBD	X	TBD	TBD	TBD

¹ R = Required, O = Optional, X = Non-standard.

² Prefixed by urn:[upnp-org:serviceId: .](https://standards.iteh.ai/catalog/standards/sist/463b6941-7414-49ba-9b2d-fe898eb557d4/iso-iec-29341-8-4-2008)

Note: the word modem in the table above refers to the WAN interface (or **WANDevice**).

2.2.1. Description of Device Requirements

Each **WANConnectionDevice** models a link on a physical WAN interface. A **WANDevice** may contain one or more instances of **WANConnectionDevice** corresponding to one or more active links on a modem.

WANCommonInterfaceConfig is a service in **WANDevice** that models attributes and actions that are common across all links and all connection instances on a link.

2.2.2. Relationships Between Services

The DefaultConnectionService state variable in the **Layer3Forwarding** service refers to the UDN of a **WANConnectionDevice** instance – this is an external dependency. There may also be dependencies between a specific instance of **WAN*LinkConfig** and **WAN**Connection** service in a **WANConnectionDevice**.