



hp WBEM solutions



hp technical
data sheet

HP-VMS Internet Protocol CIM provider

provider overview

description

The Internet Protocol (IP) Provider makes available information on what IP addresses can be used to access a platform. The provider also supports an association to a LAN Endpoint (CIM_LANEndpoint), making correlation between IP addresses and LAN interfaces possible. Further, the provider instruments a list of IP routes supported by the platform.

Client applications can use this provider to determine all the IP addresses for a platform, determine which LAN interface is associated with a given IP address, and to determine which IP routes are supported by the platform. For platforms that have the LAN provider installed, it is possible to relate a given IP address to its LAN interface, MAC address, logical port, and network interface card (NIC).

The Internet Protocol (IP) Provider instruments the CIM_IPProtocolEndpoint, PG_BindsIPToLANEndpoint, and the PG_IPRoute classes.

This provider is for use by clients as part of a basic understanding of the identity of the managed system on which it is running (typically a server or appliance). The current implementation is for HP-VMS only.

requirements

The provider requires HP WBEM Services for HP-VMS.

release history

Initial release with HP WBEM Services for HP-VMS.

- HP I64VMS WBEMPROVIDERS V1.7-16 (May 2009)
- HP I64VMS WBEMPROVIDERS V2.0-4 (June 2010)
- HP I64VMS WBEMPROVIDERS V2.1-4 (August 2010)
- HP I64VMS WBEMPROVIDERS V2.2-3 (February 2011)

supported managed resources

Managed systems running HP WBEM Services for HP-VMS. This provider supports IPv4 only.

setting up this provider

installing this provider

The installation of HP WBEM Providers will set up this provider. Ensure HP WBEM Services is already installed.

On installation, executable binaries, configuration files and MOF definition and registration files will be available in their respective directory, as follows:

- The CIM MOF file, containing the definitions of the MOF classes, (namely PG_IP20.mof) will be available in SYS\$COMMON:[WBEM_Services.opt.wbem.mof.Pegasus]. This directory will also include the provider registration file, namely PG_IP20R.mof. Note: All the HP-specific MOF classes will be registered under the "root/cimv2" namespace.
- The SYS\$SPECIFIC:[WBEMPROVIDERS] directory will contain the configuration files of the WBEM Providers Product.
- The WBEM Services SYS\$SPECIFIC:[WBEM_Services]CIMSERVER_STARTUP.LOG log file will contain logs generated during the execution of this provider. By editing the "Severity" property

in the SYS\$SPECIFIC:[WBEMPROVIDERS]FMLOGGERCONFIG.TXT file different levels of messages in the SYS\$SPECIFIC:[WBEM_SERVICES]CIMSERVER.LOG can be generated. The valid values are TRACE, DEBUG, INFORMATIONAL, WARNING, ERROR, CRITICAL, STOPLOGGING.

There are no special installation instructions; the provider will be installed by default with HP WBEM Services for OpenVMS.

configuring this provider

This provider does not accept specific configuration adjustments (beyond standard WBEM support).

using this provider

schema supported by this provider

This provider supports the CIM_IPProtocolEndpoint and PG_IPRoute classes. It also supports the PG_BindsIPToLANEndpoint association. Tables 1 through 5 describe the properties and methods supported by the provider.

table 1: CIM_IPProtocolEndpoint properties

Table 1 describes the properties of the CIM_IPProtocolEndpoint class. It has three columns. The first is the property name (including type and units), the second is the property inheritance (indicating which class or superclass defines the property), and the third is the property's value and data source. Each row describes a property.

| Property name | property inheritance | property value (and data source) |
|--------------------------------------|--|--|
| string Caption | Inherited from CIM_ManagedElement | <u>HP-VMS</u> : Returns the IP Address in dot notation |
| string Description | Inherited from CIM_ManagedElement | <u>HP-VMS</u> : Returns "IP Protocol Endpoint for <ip_address> (IPv4)." |
| datetime InstallDate | Inherited from CIM_ManagedSystemElement | <u>HP-VMS</u> : Not implemented. |
| string Status | Inherited from CIM_ManagedSystemElement | <u>HP-VMS</u> : Not implemented. |
| string SystemCreationClassName [Key] | Inherited from CIM_ServiceAccessPoint | <u>HP-VMS</u> : Always returns string "CIM_UnitaryComputerSystem". |
| string SystemName [Key] | Inherited from CIM_ServiceAccessPoint | <u>HP-VMS</u> : Returns the fully qualified host name if available from the gethostbyname() system call; otherwise it returns the hostname from the gethostname() system call. |
| string CreationClassName [Key] | Inherited from CIM_ServiceAccessPoint | <u>HP-VMS</u> : Returns the string "CIM_IPProtocolEndpoint" |
| string Name [Key] | Inherited from CIM_ManagedSystemElement, overridden in CIM_ServiceAccessPoint and CIM_ProtocolEndpoint | <u>HP-VMS</u> : Returns the concatenation of the Protocol Type, an underscore character, and the LAN interface name (for example "IPv4_EIA0"). |
| string NameFormat | Inherited from CIM_IPProtocolEndpoint | <u>HP-VMS</u> : Returns the string "<ProtocolType>_<InterfaceName>". |
| uint16 ProtocolType | Inherited from CIM_IPProtocolEndpoint | <u>HP-VMS</u> : Returns 2 for "IPv4" and 3 for "IPv6". |
| string OtherTypeDescription | Inherited from CIM_IPProtocolEndpoint | <u>HP-VMS</u> : Returns NULL. |
| string IPv4Address | Local to CIM_IPProtocolEndpoint | <u>HP-VMS</u> : Returns the IPv4 Address in dot notation as obtained from the ID_ipAddrTable object through the sys\$qjow () call. |

| | | |
|-------------------------|---------------------------------|---|
| string SubnetMask | Local to CIM_IPProtocolEndpoint | <u>HP-VMS</u> : Returns the IP Subnet Mask in dot notation as obtained from the ID_ipAddrTable object through the sys\$qiow () system call. |
| uint16 AddressType | Local to CIM_IPProtocolEndpoint | <u>HP-VMS</u> : Returns 1 for "IPv4" and 3 for "IPv6". |
| uint16 IPVersionSupport | Local to CIM_IPProtocolEndpoint | <u>HP-VMS</u> : Returns 1 ("IPv4 only"). |

Table 2: PG_BindsIPToLANEndpoint properties

Table 2 describes the properties of the PG_BindsIPToLANEndpoint association class. It has three columns. The first is the property name (including type and units), the second is the property inheritance (indicating which class or superclass defines the property), and the third is the property's value and data source. Each row describes a property.

| property name | property inheritance | property value (and data source) |
|---|--|---|
| CIM_LANEndpoint REF Antecedent | Inherited from CIM_Dependency, overridden by CIM_SAPSAPDependency, overridden by CIM_BindsTo, overridden by CIM_BindsToLANEndpoint. | <u>HP-VMS</u> : Within the reference property: CreationClassName returns "CIM_LANEndpoint". Name returns the Interface Name (e.g. "EIAO"). |
| CIM_IPProtocolEndpoint REF Dependent | Inherited from CIM_Dependency, overridden by CIM_SAPSAPDependency, overridden by CIM_BindsTo, overridden by PG_BindsIPToLANEndpoint. | <u>HP-VMS</u> : Within the reference property: CreationClassName returns "CIM_IPProtocolEndpoint". Name returns the concatenation of the protocol type ("IPv4"), an underscore ("_"), and the LAN interface name (e.g. "IPv4_EIAO"). See the CIM_IPProtocolEndpoint.Name property in Table 1 above. |
| uint16 FrameType | Inherited from CIM_BindsToLANEndpoint. | <u>HP-VMS</u> : Returns 1 ("Ethernet"). |

table 3: PG_IPRoute properties

Table 3 describes the properties of the PG_IPRoute class. It has three columns. The first is the property name (including type and units), the second is the property inheritance (indicating which class or superclass defines the property), and the third is the property's value and data source. Each row describes a property.

| property name | property inheritance | property value (and data source) |
|--------------------------------------|--|---|
| string Caption | Inherited from CIM_ManagedElement. | <u>HP-VMS</u> : Returns the IP Destination Address in dot notation. |
| string Description | Inherited from CIM_ManagedElement. | <u>HP-VMS</u> : Returns "IP Route Information for Destination <ip_destaddress> (IPv4)." |
| string Status | Inherited from CIM_ManagedSystemElement. | Not implemented. |
| datetime InstallDate | Inherited from CIM_ManagedSystemElement. | Not implemented. |
| string Name | Inherited from CIM_ManagedSystemElement | <u>HP-VMS</u> : Returns the IP Destination Address in dot notation. |
| string NextHop | Inherited from CIM_NextHopRouting. | <u>HP-VMS</u> : Returns the route gateway in dot notation as obtained from the ID_ipRouteTable object through the get_mib_info() system call. |
| boolean IsStatic | Inherited from CIM_NextHopRouting. | Not implemented. |
| string SystemCreationClassName [Key] | Local to CIM_IPRoute, propagated from CIM_ForwardingService.SystemCreationClassName. | <u>HP-VMS</u> : Always returns string "CIM_UnitaryComputerSystem". |

| | | |
|---------------------------------------|--|--|
| string SystemName [Key] | Local to CIM_IPRoute, propagated from CIM_ForwardingService.SystemName. | <u>HP-VMS</u> : Returns the fully qualified host name if available from the gethostbyname() system call; otherwise it returns the hostname from the gethostname() system call. |
| string ServiceCreationClassName [Key] | Local to CIM_IPRoute, propagated from CIM_ForwardingService.CreationClassName. | <u>HP-VMS</u> : Returns the empty string. |
| string ServiceName [Key] | Local to CIM_IPRoute, propagated from CIM_ForwardingService.Name. | <u>HP-VMS</u> : Returns the empty string. |
| string CreationClassName [Key] | Inherited from CIM_IPRoute. | <u>HP-VMS</u> : Returns "PG_IPRoute". |
| string IPDestinationAddress [Key] | Inherited from CIM_IPRoute. | <u>HP-VMS</u> : Returns the IP Destination Address in dot notation as obtained from the ID_ipRouteTable(Not yet decided how to get). |
| string IPDestinationMask [Key] | Inherited from CIM_IPRoute. | <u>HP-VMS</u> : Returns the IP Destination Mask in dot notation as obtained from the ID_ipRouteTable(Not yet decided how to get). |
| uint16 AddressType [Key] | Inherited from CIM_IPRoute. | <u>HP-VMS</u> : Returns 1 ("IPv4"). |
| string DestinationAddress | Inherited from CIM_NextHopRouting, overridden in CIM_IPRoute. | Same as IPDestinationAddress. |
| string DestinationMask | Inherited from CIM_NextHopRouting, overridden in CIM_IPRoute. | Same as IPDestinationMask. |

table 4: intrinsic methods for CIM_IPProtocolEndpoint, PG_BindsIPToLANEndpoint, and PG_IPRoute

Table 4 describes the intrinsic methods supported by this provider. It has three columns. The first is the method name, the second is a description of the provider's actions based on invoking that method, and the third is a list of any exceptions that could result from invoking the method. Each row describes a method.

| Method name | description | exceptions thrown |
|------------------------|---|---|
| enumerateInstances | Returns all instances of class with all properties and respective values. | None |
| enumerateInstanceNames | Returns object path of all instances of class. | None |
| getInstance | Supported. | CIM_ERR_INVALID_PARAMETER if wrong class for a key. CIM_ERR_NOT_FOUND if wrong number of keys, or instance is not found. |
| modifyInstance | Does nothing. | CIM_ERR_NOT_SUPPORTED |
| deleteInstance | Does nothing. | CIM_ERR_NOT_SUPPORTED |
| initialize | Does nothing. | None. |
| terminate | Does nothing. | None |
| createInstance | Does nothing. | CIM_ERR_NOT_SUPPORTED |

- **Indications generated by this provider**
This provider does not currently generate any indications.
- **Associations provided by this provider**

table 5: associations

Table 5 describes the associations supported by this provider. It has four columns. The first is the name of the association class, the second lists the classes referenced by the associations, the third is a brief description of the associations, and the fourth describes possible applications for this association. Each row describes an association. Note that each of these associations is also covered in a properties table above.

| <i>name</i> | <i>references</i> | <i>description</i> | <i>how association is used</i> |
|-------------------------|---|--|--|
| PG_BindsIPToLANEndpoint | CIM_IPProtocolEndpoint CIM_LANEndpoint | Instances of this association exist for each LAN Endpoint. They can be used to associate an IP address with a particular LAN Endpoint. | Clients can use this association to relate IP addresses to a particular interface. The association ties layers 2 and 3 in ISO network model. |

Links to more information

- **Additional provider documentation**
There is currently no additional documentation for this provider beyond this information.
See also man pages for information on the various commands and system calls noted in the descriptions above.
- **WBEM information**
For a CIM tutorial, go to <http://www.dmtf.org/education/cimtutorial.php>.
For information about HP WBEM Services for HP-VMS, see software.hp.com and hp.com (the Network and Systems Management areas).
- **Managed resource documentation**
See RFC 1213, "MIB-II". See also the HP-VMS man pages for `gethostent(3N)`, `inet(3N)`, `inet6(3N)`, `routing(7)` and other system calls as referenced in the descriptions above. For HP-VMS, also reference "Network management Interfaces for HP-VMS 11.0" (describing the Network Management library - libnm).
- **Client information**
None.
- **Support contacts**
The HP-VMS Internet Protocol Provider is supported as part of HP WBEM Services for HP-VMS.

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