HP-VMS LAN Indication Provider - CIM Indication Provider for Ethernet LAN interfaces

Provider Overview

Description

The HP-VMS LAN Indication Provider delivers indications for events that occur on Ethernet interfaces. This provider instruments the HP_DeviceIndication class.

Client applications can subscribe to HP_DeviceIndication and start receiving indications based on events generated by Ethernet interfaces.

The currently supported indications are:

- Link down for unknown reasons
- Link up

Requirements

The provider requires HP WBEM Services for HP-VMS.

Release history

Initial release with HP WBEM Services for HP-VMS.

o HP I64VMS WBEMPROVIDERS V1.7-16 (May 2009)

o HP I64VMS WBEMPROVIDERS V2.0-4 (June 2010)

o HP I64VMS WBEMPROVIDERS V2.1-4 (August 2010)

o HP I64VMS WBEMPROVIDERS V2.2-3 (February 2011)

Supported managed resources

Managed systems running HP WBEM Services for HP-VMS. This provider only supports HP Ethernet-based LAN interface products for HP-VMS.

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 files, containing the definitions of the HP-specific MOF classes, (namely HP_DeviceIndication.mof) will be available in SYS$COMMON:[WBEMPROVIDERS.MOF]. This directory will also include the provider registration file, namely HPVMSLANIndicationProviderModuleR.mof. Note: All the HP-specific MOF classes will be registered under the "root/cimv2" namespace.
- The SYS$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 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.

Using This Provider

Schema supported by this provider

This provider supports the HP_DeviceIndication class. The following tables 1 through 3 describe all the supported properties and methods supported by the provider corresponding to these MOF classes, along with the properties inherited from the standard CIM MOF classes, as per CIM 2.8 schema specifications.

Table 1: HP_DeviceIndication properties

Table 1 describes the properties of the HP_DeviceIndication 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 IndicationIdentifier	Inherited from CIM_Indication	A unique identifier for the indication. Format: "eip.ssssssmmmmmm"
datetime IndicationTime	Inherited from CIM_Indication	The time and date of creation of the Indication. Format: "yyyymmddhhmmss.mmmmmmsutc"
string Description	Inherited from CIM_AlertIndication	A short description of the Indication. See table 3: Event Descriptions
string AlertingManagedElement	Inherited from CIM_AlertIndication	The identifying information of the entity (ie, the instance) for which this Indication is generated. This is according to the CIMObjectPath format: protocol://hostname:namespace:class.property="value",property="value"
uint16 AlertType	Inherited from CIM_AlertIndication	Primary classification of the Indication. Hardcoded to 5 – Device Alert
uint16 PerceivedSeverity	Inherited from CIM_AlertIndication	An enumerated value that describes the severity of the Alert Indication from the notifier's point of view: 0 – Unknown 2 – Information 3 – Warning 4 -- Minor 5 – Major See table 3: Event Descriptions

Property name	Property Inheritance	Property Value (and data source)
uint16 ProbableCause	Inherited from CIM_AlertIndication	An enumerated value that describes the probable cause of the situation which resulted in the AlertIndication. See table 3: Event Descriptions
string ProbableCauseDescription	Inherited from CIM_AlertIndication	Provides additional information related to the ProbableCause. See table 3: Event Descriptions
string[] RecommendedActions	Inherited from CIM_AlertIndication	Free form descriptions of the recommended actions to take to resolve the cause of the notification. See table 3: Event Descriptions
string EventID	Inherited from CIM_AlertIndication	An instrumentation or provider specific value that describes the underlying event represented by the Indication. See table 3: Event Descriptions
string SystemCreationClassName	Inherited from CIM_AlertIndication	The scoping System's CreationClassName for the Provider generating this Indication. Hardcoded to "CIM_ComputerSystem"
datetime EventTime	Inherited from CIM_AlertIndication	The time and date the underlying event was first detected. "yyyymmddhhmmss.mmmmmmsutc
string SystemName	Inherited from CIM_AlertIndication	The scoping System's Name for the Provider generating this Indication. i.e. Host name of the system (fully qualified if possible)
string ProviderName	Inherited from CIM_AlertIndication	The name of the Provider generating this Indication. Hardcoded to "HPVMSEthernetIndicationProvider"
string Summary	Local to HP_DeviceIndication	Short description of the reason for the indication.See table 3: Event Descriptions
uint32 EventCategory	Local to HP_DeviceIndication	Category for the event. Hardcoded to 12 – Network Adaptor.
string OtherEventSubCategory	Local to HP_DeviceIndication	A string defining other values for EventSubCategory.
uint32 EventSubCategory	Local to HP_DeviceIndication	Sub-category for the event . Returns11 indicating Ethernet Port if the HP_AlertIndication version > 1.8. Else returns 1 indicating Other.
uint32 EventThreshold	Local to HP_DeviceIndication	Identifies the number of indications that need to occur as part of the internal provider throttling configured for this event. Hardcoded to 1

Property name	Property Inheritance	Property Value (and data source)
uint32 EventTimeWindow	Local to HP_DeviceIndication	Identifies the time window during which the EventThreshold number of events need to occur as part of the internal provider throttling configured for this event. Hardcoded to 0
uint32 ActualEventThreshold	Local to HP_DeviceIndication	Identifies the number of indications that have occurred to meet the internal provider throttling configured for this event. Hardcoded to 1
uint32 ActualEventTimeWindow	Local to HP_DeviceIndication	Identifies the time window during which the ActualEventThreshold number of events have occurred to meet the internal provider throttling configured for this event. Hardcoded to 0
boolean ClusterWideEvent	Local to HP_DeviceIndication	Indicates whether this event is of interest to all cluster members. Hardcoded to 0 indicating false
string ProviderVersion	Local to HP_DeviceIndication	The version of the provider generating this indication. Returns NULL.
uint16 OSType	Local to HP_DeviceIndication	The type of OS on the system generating the indication. Hardcoded to 7 – "OpenVMS"
string OSVersion	Local to HP_DeviceIndication	Version of the OS on the system generating the indication.
string[] NetworkAddresses	Local to HP_DeviceIndication	Array of ALL the network addresses of the system generating the indication. i.e.Array of IP addresses used on the system. ex. {'15.13.1.1', '15.13.1.2'}
string SystemSerialNumber	Local to HP_DeviceIndication	Serial number of the system generating the indication. Retrieved from PG_ComputerSystem
string SystemModel	Local to HP_DeviceIndication	Model of the system generating the indication. Retrieved from PG_ComputerSystem
string UserComment	Local to HP_DeviceIndication	User comment information associated with the indication. Returns NULL
string[] VariableNames	Local to HP_DeviceIndication	Array of variable names for information that is associated with this indication, but cannot be described by the other properties of the indication. Hardcoded to "Device ID"
uint16[] VariableTypes	Local to HP_DeviceIndication	Array of variable types defined as an enumerated value. Returns 1 – String

Property name	Property Inheritance	Property Value (and data source)
string[] VariableValues	Local to HP_DeviceIndication	Name of the LAN device. ex {"ElA0"}
uint16 AlertingElementFormat	Local to HP_DeviceIndication	The format of the AlertingManagedElement property is interpretable based upon the value of this property. Hardcoded to 2 – CimObjectPath
string HWPartNumber	Local to HP_DeviceIndication	Part number for the hardware generating the indication. Returns NULL
string[] HWFirmwareVersion	Local to HP_DeviceIndication	Array of versions of firmware on the system generating the indication. Returns NULL.
string HWManufacturer	Local to HP_DeviceIndication	Manufacturer of the hardware associated with the indication. Returns NULL.
string[] HWLogicalLocation	Local to HP_DeviceIndication	Array of ALL the logical locations of the hardware associated with the indication. Returns NULL.
string[] HWSerialNumber	Local to HP_DeviceIndication	Array of all the serial numbers of the hardware associated with the indication. Returns NULL.
string DeviceModel	Local to HP_DeviceIndication	Model of the device generating the indication Ex : i82575 LOM (Gigabit Ethernet) ex. "HP PCI-X 133MHz 10GbE SR Fiber Adapter"
string DevicePermanentName	Local to HP_DeviceIndication	The permanent, system unique, name of the device, encoded as a string parameter. i.e. the factory assigned MAC address of the network interface.
uint16 DevicePermanentNameFormat	Local to HP_DeviceIndication	The permanent, system unique, name of the device, encoded as a string parameter. Hardcoded to 3 – MAC Address

Note: It can be assumed properties not listed above will have their values set to NULL.

Tables 2 describe the intrinsic methods for CIM_Indication and inherited by HPVMSEthernetIndication There are no extrinsic methods within HPVMSEthernetIndicationProvider. The provider registers as an indication provider.

Table 2: intrinsic methods for HPVMSEthernetIndicationProvider

Table 2 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
EnableIndications	The provider will start delivering Indications	CIM_ERR_FAILED
DisableIndications	The provider will stop delivering Indications	None
createSubscription	No operation done	None
ModifySubscription	No operation done	None
DeleteSubscription	No operation done	None
Initialize	Initializes data	CIM_ERR_FAILED
Terminate	Free's provider resources	None

Table 3: Event Descriptions

Severity	ProbableCause	Description	CauseDescription	Recommended Actions	Event ID
5 – Major	26 – LAN Error	"lan<ppa> link has gone down."	"The link has gone down for an unknown reason."	["If the interface does not return back to its normal operating state on its own try these other actions, in the order listed here, until the problem is resolved."]k ["Verify that the link partner is operating normally."] ["Verify that the link settings on this adapter are compatible with the corresponding settings on its link partner."] ["If this interface is directly connected to another Ethernet adapter with a copper cable, ensure that a cross-over cable is used for speeds less than 1000 Mb/s."] ["Try resetting the card."]	5

				["Verify that the cable from this interface to its link partner is not defective."] ["Replace The NIC."]	
2 – Informational	1 – Other	"lan<ppa> link is now up."	"The link is now up."	["No action is necessary. The interface is operating normally."]	1

- Associations provided by this provider
  This provider does not currently support any associations.

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/tutorials.
  For information about HP WBEM Services for HP-VMS, please see http://software.hp.com and http://docs.hp.com (the Network and Systems Management section).

- **Client information**
  This provider is designed to work with any WBEM aware client that subscribes and handles HP_DeviceIndications. Please refer to client specific documentation for information on how to enable HP_DeviceIndications.

For additional information on HP products and services, visit us at
http://www.hp.com.

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