



## EVM CIM Provider – CIM Indication Provider for events from the Event Manager.

### Provider Overview

#### Description

The EVM CIM provider is a CIM Indication provider which translates EVM events to CIM indicators for HP-UX. Subscribers to CIM indications like Nimbus or other system management software will consume the indications produced by the provider. The EVM CIM provider creates a migration path for users of EVM to WBEM and eliminates the need to gather events from multiple sources.

When an EVM event is generated, the EVM CIM provider constructs an indication class from the data received delivers it as an indication through the HP-UX WBEM services. Selected EVM events will require to obtain more event details from Central Event Repository (CER).

The EVM CIM provider creates two different types of indications

- o HP\_EVMEventIndication
- o HP\_AlertIndication, HP\_HardwareIndication and HP\_DeviceIndication.

Translating EVM events into WBEM indications will allow event consumers to use a consistent interface and supports WBEM as HP's strategic management solution.

#### Requirements

For software dependency of HP UX WBEM Services and EVM please refer to Release notes

#### Release history

EvmCimProvider is available from HPUX 11.31 onwards.

#### Supported Managed Resources

Managed systems running Event Manager only.

For a list of supported platforms, see the SFM Release Notes at, <http://docs.hp.com/en/diaq>.

### Setting up this provider

#### Installing this provider

The installation of the bundle SysFaultMgmt will set up this provider.

Ensure HPWBEM services and EVM is already installed.

Use swinstall to install the product: "swinstall -s Fully\_Qualified\_Depot\_Name SysFaultMgmt"

(Detailed instructions for installation of the System Fault Management product are available in the System Fault Management Administrator's Guide, available at <http://docs.hp.com/en/diaq>.)

On installation, the shared-library files, executable binaries, configuration files and MOF definition and registration files will be available in the /opt/sfm/ directory, as follows:

- The CIM MOF files HP\_AlertIndication and HP\_EVMEventIndication will be available under /opt/sfm/schemas/mof/. This directory will also have the provider registration MOF file EVMCIMProviderR.mof. Note: All the HP-specific MOF classes will be registered under the "root/cimv2" namespace.
- The provider module shared library is libevmcimprovider.1 which will be available under /opt/sfm/lib. A symbolic link is made available in /opt/wbem/providers/lib/libEvmCimProvider.sl to link to the provider modules shared library.
- The /opt/sfm/msgcat/C directory will contain the catalog file EVMCIMProvider.cat for all the supported locales. (This is used for the localization of the message strings in EvmCimProvider).

## Configuring this provider

EVMCIM Provider uses a common configuration file along with other SysfaultMgmt Providers. So editing the configuration file will affect the other providers as well. The configuration file can be found in –  
`/var/opt/sfm/conf/FMLoggerConfig.xml`

The file specifies the logging threshold severity, and the location of the log-file. The contents of the file are as follows:

```
<SFMConfig>
  <LoggerConfig>
    <Severity> WARNING </Severity> <Target>
      /var/opt/sfm/log/sfm.log </Target>
    </LoggerConfig>
  </SFMConfig>
```

In order to change the logging configuration, the following steps are to be followed:

1. Edit the configuration file `/var/opt/sfm/conf/FMLoggerConfig.xml` to change the threshold logging level and/or target.

a) Threshold: Possible values are (in increasing severity)

INFORMATIONAL

WARNING

ERROR

CRITICAL

NOTE: The INFORMATIONAL logging severity will generate a lot of log-messages. It is strongly advised not to use this severity level for a long time, for the generated log-files may use a lot of disk space. The default (and recommended) threshold in the runtime environment is WARNING.

b) Target: Possible values include:

(i) STDOUT: All log messages are delivered to console.

(ii) The complete path to the file where the log messages are to be written

NOTE: The current implementation of the logging mechanism assumes that the path to the log file (target specified in the configuration file) already exists. i.e., if the target is specified as `"/abc/def/ghi.log"`, the path `"/abc/def/"` should already exist, and should be writeable by root-user.

2. Run `/opt/sfm/bin/sfmconfig -c` program, to specify the changed configuration file. i.e.

```
$ /opt/sfm/bin/sfmconfig -c /var/opt/sfm/conf/FMLoggerConfig.xml
```

Note that the complete path of the configuration file must be provided.

## Using this provider

### Schema supported by this provider

This Provider services HP\_EVMEventIndication and is compliant with CIMSchema V2.9.

Clients are expected to subscribe to this provider using a CIMClient (could be Java/C++ client or `wbemexec`) and also write an appropriate WBEM consumer to consume the indications generated by EVMCIM provider.

### Methods given by this provider

This Provider currently does not provide any method.

### Indications generated by this provider.

HP\_EVMEventIndication and HP\_AlertIndication (and it's subclasses HP\_DeviceIndication and HP\_HardwareIndication).

Property Name	Property Inheritance	Property Value and data source
string IndicationIdentifier	Inherited from CIM_Indication	A unique identifier for the Indication similar to a key value in that it can be used for identification.
string[] CorrelatedIndications*	Inherited from CIM_Indication	A list of IndicationIdentifiers whose notifications are correlated with (related to) this one.
string[] RelatedIndications	Inherited from CIM_Indication	The list of IndicationIdentifiers whose notifications are caused by this one.
string[] RootCauseIndications	Inherited from CIM_Indication	The list of IndicationIdentifiers whose notifications are the root-cause of this indication.
datetime IndicationTime	Inherited from CIM_Indication	The time and date of creation of the Indication.
string Description	Inherited from CIM_AlertIndication	A short description of the indication. The identifying information of the entity (ie, the instance) for which this Indication is generated. The property contains the path of an instance, encoded as a string parameter - if the instance is modeled in the CIM Schema. If not a CIM instance, the property contains some identifying string that names the entity for which the Alert is generated.
string AlertingManagedElement*	Inherited from CIM_AlertIndication	Primary classification of the Indication. (1 - Other, 2 - Communications Alert, 3 - Quality of Service Alert, 4 - Processing Error, 5 - Device Alert, 6 - Environmental Alert, 7 - Model Change, 8 - Security Alert)
uint16 AlertType	Inherited from CIM_AlertIndication	A string describing the Alert type - used when the AlertType property is set to 1(Other)
string OtherAlertType	Inherited from CIM_AlertIndication	An enumerated value that describes the severity of the AlertIndication from the notifier's point of view. ValueMap {"1","2","3","4"."5","6","7"}
uint16 PerceivedSeverity	Inherited from CIM_AlertIndication.	Values { "Unknown", "Other", "Information", "Degraded/Warning", "Minor", "Major", "Critical", "Fatal/NonRecoverable"}
string OtherSeverity	Inherited from CIM_AlertIndication	Holds the value of the user defined severity value when 'Severity' is 1
uint16 ProbableCause	Inherited from CIM_AlertIndication	An enumerated value that describes the probable cause of the situation which resulted in the AlertIndication.
string ProbableCauseDescription	Inherited from CIM_AlertIndication.	Provides additional information related to the ProbableCause.
uint16 Trending*	Inherited from CIM_AlertIndication.	Provides information on trending - trending up, down or no change.
string[] RecommendedActions	Inherited from CIM_AlertIndication.	Free form descriptions of the recommended actions to take to resolve the cause of the notification. An instrumentation or provider specific value that
string EventID	Inherited from CIM_AlertIndication.	describes the underlying real-world event represented by the Indication.
datetime EventTime	Inherited from CIM_AlertIndication.	The time and date the underlying event was first detected. If specified, this property MUST be set to NULL if the creating entity is not capable of providing this information.
string SystemCreationClassName	Inherited from CIM_AlertIndication.	The scoping System's CreationClassName for the Provider generating this Indication.
string SystemName	Inherited from CIM_AlertIndication.	The scoping System's Name for the Provider generating this Indication.
string ProviderName	Inherited from CIM_AlertIndication.	The name of the Provider generating this Indication.
string Summary	Property of HP_AlertIndication	Short description of the reason for the indication.

string EventCategory	Property of HP_AlertIndication	Category for the event. This is a value map which is intended to be used by the consumer to group events.
uint32 OtherEventCategory	Property of HP_AlertIndication	A string defining other values for "EventCategory".
string EventSubCategory*	Property of HP_AlertIndication	Sub-category for the event. This sub-category is intended to be used by the consumer in conjunction with "EventCategory" to provide additional granularity to group events.
string OtherEventSubCategory*	Property of HP_AlertIndication	A string defining other values for "EventSubCategory".
uint32 EventThreshold*	Property of HP_AlertIndication	Identifies the number of indications that need to occur as part of the internal provider throttling configured for this event.
uint32 EventTimeWindow*	Property of HP_AlertIndication	Identifies the time window during which "EventThreshold" events need to occur as part of the internal provider throttling configured for this event. Time is in minutes. 0 means any amount of time.
uint32 ActualEventThreshold	Property of HP_AlertIndication	Identifies the number of indications that have occurred to meet the internal provider throttling configured for this event.
uint32 ActualEventTimeWindow	Property of HP_AlertIndication	Identifies the time window during which the "ActualEventThreshold" events have occurred to meet the internal provider throttling configured for this event. Time is in minutes. 0 means any amount of time.
string Query*	Property of HP_AlertIndication	The query expression that defines the condition (s) that was met by this Indication.
Boolean ClusterWideEvent	Property of HP_AlertIndication	Indicates whether this event is of interest to all cluster members.
string ProviderVersion	Property of HP_AlertIndication	The version of the provider generating this indication.
string InformationURL	Property of HP_AlertIndication	URL where the user should go for the latest information related to this indication.
string[] ActionURLs	Property of HP_AlertIndication	URLs where the user should go to launch tool that will provide information functionality that will allow the user to perform the recommended action for this indication.
uint16 OSType	Property of HP_AlertIndication	The type of OS on the system generating the indication.
string OSVersion	Property of HP_AlertIndication	Version of the OS on the system generating the indication.
string[] NetworkAddresses	Property of HP_AlertIndication	Array of ALL the network addresses of the system generating the indication.
string[] SystemFirmwareVersion	Property of HP_AlertIndication	Array of versions of firmware on the system generating the indication.
string SystemSerialNumber	Property of HP_AlertIndication	Serial number of the system generating the indication.
string SystemModel	Property of HP_AlertIndication	Model of the system generating the indication.
string UserComment	Property of HP_AlertIndication	User comment information associated with the indication
string[] VariableNames	Property of HP_AlertIndication	Array of variable names for information that is associated with this indication, but cannot be described by the other properties of the indication. The names are correlated with the variable's types and values in the "VariableTypes" and "VariableValues" arrays. Each entry is related to the entries in the other arrays that are located at the same index.

int VariableTypes	Property of HP_AlertIndication	Array of variable types defined as an enumerated value.  (1 - string, 2 - datetime, 3 - uint8, 4 - uint16, 5 - uint32, 6 - uint64, 7 - sint8, 8 - sint16, 9 - sint32, 10 - sint64, 11 - real32, 12 - real64, 13 - char16, 14 - Boolean)
string VariableValues	Property of HP_AlertIndication	Array of variable values to be used in conjunction with "VariableTypes" and "VariableNames" to reconstruct the information
uint16 AlertingElementFormat*	Property of HP_AlertIndication	The format of the AlertingManagedElement property is interpretable based upon the value of this property. (0 - Unknown, 1 - Other, 2 - CIMObjectPath)
string OtherAlertingElementFormat*	Property of HP_AlertIndication	A string defining other values for "AlertingElementFormat".

Table 1: HP\_AlertIndication

Table2: HP\_HardwareIndication: HP\_AlertIndication

This table describes the properties of HP\_HardwareIndication. It extends from HP\_AlertIndication. 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.

PropertyName	Property Inheritance	Property value (and data source)
string HWPartNumber	Property of HP_HardwareIndication	Array of versions of firmware for the hardware associated with the indication.
String[] HWFirmwareVersion	Property of HP_HardwareIndication	Manufacturer of the hardware associated with the indication.
String HWManufacturer	Property of HP_HardwareIndication	Array of ALL the logical locations of the hardware associated with the indication.
String[] HWLogicalLocation	Property of HP_HardwareIndication	Physical location of the hardware associated with the indication.
String HWPhysicalLocation	Property of HP_HardwareIndication	Array of all the serial numbers of the hardware associated with the indication.
String[] HWSerialNumber	Property of HP_HardwareIndication	Array of all the serial numbers of the hardware associated with the indication.
String[] HWProductID	Property of HP_HardwareIndication	Array of all the Product ID of the hardware associated with the indication that uniquely identifies the hardware product.

Table3: HP\_DeviceIndication : HP\_HardwareIndication

This table describes the properties of HP\_DeviceIndication. It extends from HP\_HardwareIndication. 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.

PropertyName	Property Inheritance	Property value (and data source)
string DeviceModel	Property of HP_DeviceIndication	Model of the device generating the indication
string [] DeviceControllerLogicalLocation	Property of HP_DeviceIndication	Array of ALL the logical locations of the controller of the device associated with the indication.
string DevicePermanentName	Property of HP_DeviceIndication	The permanent, system unique, name of the device, encoded as a string parameter.
uint16 DevicePermanentNameFormat	Property of HP_DeviceIndication	The format of the DevicePermanentName property is interpretable based upon the value of this property. (0 - Unknown, 1 - Other, 2 - WorldWideName, 3 - MACAddress)
string OtherPermanentNameFormat	Property of HP_DeviceIndication	A string defining other values for "DevicePermanentFormat".

Table4: HP\_EVMEventIndication.

This table describes the properties of HP\_EVMEventIndication. 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.

PropertyName	Property Inheritance	Property value (and data source)
string IndicationIdentifier	Property of CIM_Indication	An identifier for the Indication. This property is similar to a key value in that it can be used for identification, when correlating Indications. Its value SHOULD be unique as long as Alert correlations are reported, but MAY be reused or left NULL if no future Indications

		will reference it in their CorrelatedIndications array.
string[] CorrelatedIndications*	Property of CIM_Indication	A list of IndicationIdentifiers whose notifications are correlated with (related to) this one.
datetime IndicationTime	Property of CIM_Indication	The time and date of creation of the Indication.
string HostName	Property of HP_EVMEventIndication	The HostName of the system from which the event was posted.
string IPAddress	Property of HP_EVMEventIndication	The IP address from which the event was posted.
string Name	Property of HP_EVMEventIndication	The system event name, these names are in the format sys.unix.subsystem.details
datetime TimeStamp	Property of HP_EVMEventIndication	The UNIX system time that the event was generated.
uint64 EventID	Property of HP_EVMEventIndication	A number assigned sequentially to every event as it is posted. This value, combined with the hostname and timestamp, represents a unique identity for an event.
		Priority of the EVM event. The event priority is a number which is used to categorize the severity of an event based upon a numerical range.
		The EVM system uses the event priority solely for internal filtering purposes. The manner in which the event is filtered is configurable and system specific. The following event priority ranges are defined:
		[0 - 99] - Debug.
		[100 - 199] - Info.
		[200 - 299] - Notice.
		[300 - 399] - Warning.
		[400 - 499] - Error.
		[500 - 599] - Critical.
		[600 - 699] - Alert.
		[700 - 799] - Emergency.
uint16 Priority	Property of HP_EVMEventIndication	
string Format	Property of HP_EVMEventIndication	A string utilized by associated EVM system utilities to convert the event into a human readable format. The string may contain variables which are delivered in the VariableNames, VariableTypes and VariableValues tuple.
string Description	Property of HP_EVMEventIndication	A short description of the event. This is the Format string with variables replaced by their values.
string ReferenceFileName	Property of HP_EVMEventIndication	A reference to a filename containing the event explanatory text. The explanatory text is used to provide detailed information describing the corresponding event.
string I18NCatalog	Property of HP_EVMEventIndication	The name of the I18N catalog files for internationalized events.
uint16 I18NSetID	Property of HP_EVMEventIndication	Identifies the message set within the I18N message catalog.
uint16 I18NMsgID	Property of HP_EVMEventIndication	I18N message id for the event.
uint64 ProcessID	Property of HP_EVMEventIndication	The process ID of the process which posted the event.
uint64 ParentProcessID	Property of HP_EVMEventIndication	The parent process ID of the process which posted the event.
string UserName	Property of HP_EVMEventIndication	The name of the user who posted the event.

string VariableNames	Property of HP_EVMEventIndication	EVM variable types defined as an enumerated value. This array is correlated with the VariableNames and VariableValues arrays. Each entry is related to the entries in the other arrays that are located at the same index. In this way, the variable binding's name/type/value tuple can be constructed.
uint16[] VariableTypes	Property of HP_EVMEventIndication	The EVM variable values. This array is correlated with the VariableNames and VariableTypes arrays. Each entry is related to the entries in the other arrays that are located at the same index. In this way, the variable binding's name/type/value tuple can be constructed.  ValueMap {"1", "2", "3", "4", "5", "6", "7", "8", "9", "10", "11", "12", "13"}  Values {"EvmTYPE_BOOLEAN", "EvmTYPE_CHAR", "EvmTYPE_INT16", "EvmTYPE_INT32", "EvmTYPE_INT64", "EvmTYPE_UINT8", "EvmTYPE_UINT16", "EvmTYPE_UINT32", "EvmTYPE_UINT64", "EvmTYPE_FLOAT", "EvmTYPE_DOUBLE", "EvmTYPE_STRING", "EvmTYPE_OPAQUE"}
string VariableValues[]	Property of HP_EVMEventIndication	This array is correlated with the VariableNames and VariableTypes arrays. Each entry is related to the entries in the other arrays that are located at the same index. In this way, the variable binding's name/type/value tuple can be constructed.
Boolean ClusterWideEvent	Property of HP_EVMEventIndication	Cluster EVM events are distributed by the EVM system to all members of the cluster.
String ClusterName	Property of HP_EVMEventIndication	In a cluster environment this represents the cluster alias if the event is cluster-wide.
String ClusterIP	Property of HP_EVMEventIndication	In a cluster environment this represents the IP address of the cluster when the event is cluster-wide.

## Links to more information

- Additional provider documentation  
There is no documentation for this provider beyond this information.
- WBEM information
  - For a CIM tutorial, go to <http://www.wbemsolutions.com/tutorials/DMTF/>
  - For information about HP WBEM Services for hp-ux, see <http://software.hp.com> and <http://www.hp.com> in Network and Systems Management.
  - For an overview of the indication schema go to <http://www.openpegasus.org/uploads/40/3452/WBEMIndications.pdf>
  - For writing indication consumers go to <http://www.openpegasus.org/pp/doc.tpl?CALLER=index.tpl&qdid=3550>
  - For writing Java clients go to <http://www.openpegasus.org/pp/doc.tpl?CALLER=index.tpl&qdid=3314>
- Managed resource documentation  
See EMS hardware monitors under the HP-Diagnostics page <http://docs.hp.com/hpux/diag/index.html>.
- Client information  
None.
- Support contacts  
None.

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

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