

Dell Lifecycle Controller (LC) Management Profile

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1 Scope

The Lifecycle Controller (LC) Management Profile extends the management capabilities of referencing profiles by adding the capability to represent the configuration attributes for the Dell Lifecycle Controller. The LC configuration attributes are modeled as attribute collections for an individual LC; typically there is one LC per system platform. This profile is a specialization of the BIOS Management Profile.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

2.1 Approved References

DMTF DSP1033, *Profile Registration Profile 1.0.0*

DMTF DSP1061, *BIOS Management Profile 1.0.0*

DELL, *Job Control Profile 1.0.0*

DMTF DSP0200, *CIM Operations over HTTP 1.2.0*

DMTF DSP0004, *CIM Infrastructure Specification 2.3.0*

DMTF DSP1000, *Management Profile Specification Template*

DMTF DSP1001, *Management Profile Specification Usage Guide*

DMTF DSP0226, *Web Services for Management (WS-Management) Specification 1.1.0*

DMTF DSP0227, *WS-Management CIM Binding Specification 1.0.0*

2.2 Other References

ISO/IEC Directives, Part 2, *Rules for the structure and drafting of International Standards*, <http://isotc.iso.org/livelink/livelink.exe?func=ll&objId=4230456&objAction=browse&sort=subtype>

Unified Modeling Language (UML) from the Open Management Group (OMG), <http://www.uml.org>

3 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

3.1

can

used for statements of possibility and capability, whether material, physical, or causal

3.2

cannot

used for statements of possibility and capability, whether material, physical, or causal

3.3

conditional

indicates requirements to be followed strictly in order to conform to the document when the specified conditions are met

3.4

mandatory

indicates requirements to be followed strictly in order to conform to the document and from which no deviation is permitted

3.5

may

indicates a course of action permissible within the limits of the document

3.6

need not

indicates a course of action permissible within the limits of the document

3.7

optional

indicates a course of action permissible within the limits of the document

3.8

referencing profile

indicates a profile that owns the definition of this class and can include a reference to this profile in its "Related Profiles" table

3.9

shall

indicates requirements to be followed strictly in order to conform to the document and from which no deviation is permitted

3.10

shall not

indicates requirements to be followed strictly in order to conform to the document and from which no deviation is permitted

3.11

should

indicates that among several possibilities, one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required

3.12

should not

indicates that a certain possibility or course of action is deprecated but not prohibited

3.13

ENUMERATE

Refers to WS-MAN **ENUMERATE** operation as described in Section 8.2 of DSP0226_V1.1 and Section 9.1 of DSP0227_V1.0

3.14

GET

Refers to WS-MAN GET operation as defined in Section 7.3 of DSP00226_V1.1 and Section 7.1 of DSP0227_V1.0

4 Symbols and Abbreviated Terms

4.1

CIM

Common Information Model

4.2

WBEM

Web-Based Enterprise Management

5 Synopsis

Profile Name: Lifecycle Controller (LC) Management

Version: 1.0.0

Organization: Working Group Name

CIM Schema Version: 2.19.1

Central Class: DCIM_LCService

Scoping Class: CIM_ComputerSystem

The LC Management Profile extends the management capability of the referencing profiles by adding the capability to describe LC configuration attributes simply. In this profile, LC is represented by a collection and zero or more instances of the CIM_BIOSAttribute class each representing a LC configuration-related attribute. DCIM_LCService shall be the Central Class. CIM_ComputerSystem shall be the Scoping Class. An instance of DCIM_LCService shall be the Central Instance. The instance of CIM_ComputerSystem that the Central Instance is associated with through the CIM_HostedService association shall be the Scoping Instance.

Table 1 identifies profiles that are related to this profile.

Table 1 – Related Profiles

Profile Name	Organization	Version	Relationship
Profile Registration Profile	DMTF	1.0	Mandatory
Dell Job Control	DCIM	1.0	Mandatory

6 Description

The LC Management Profile describes the LC attribute configuration service and the collections and attributes instances that the service manages. The profile also describes the relationship of the LC attribute service to the DMTF/Dell profile version information and Dell Job Control profile.

Figure 1 represents the class schema for the LC Management Profile. For simplicity, the prefix CIM_ has been removed from the names of the classes. The LC service in a managed system is represented by the instance of the DCIM_LCService class. The LC is represented by the CIM_ConcreteCollection class.

The LC Management Profile information is represented with the instance of the CIM_RegisteredProfile.

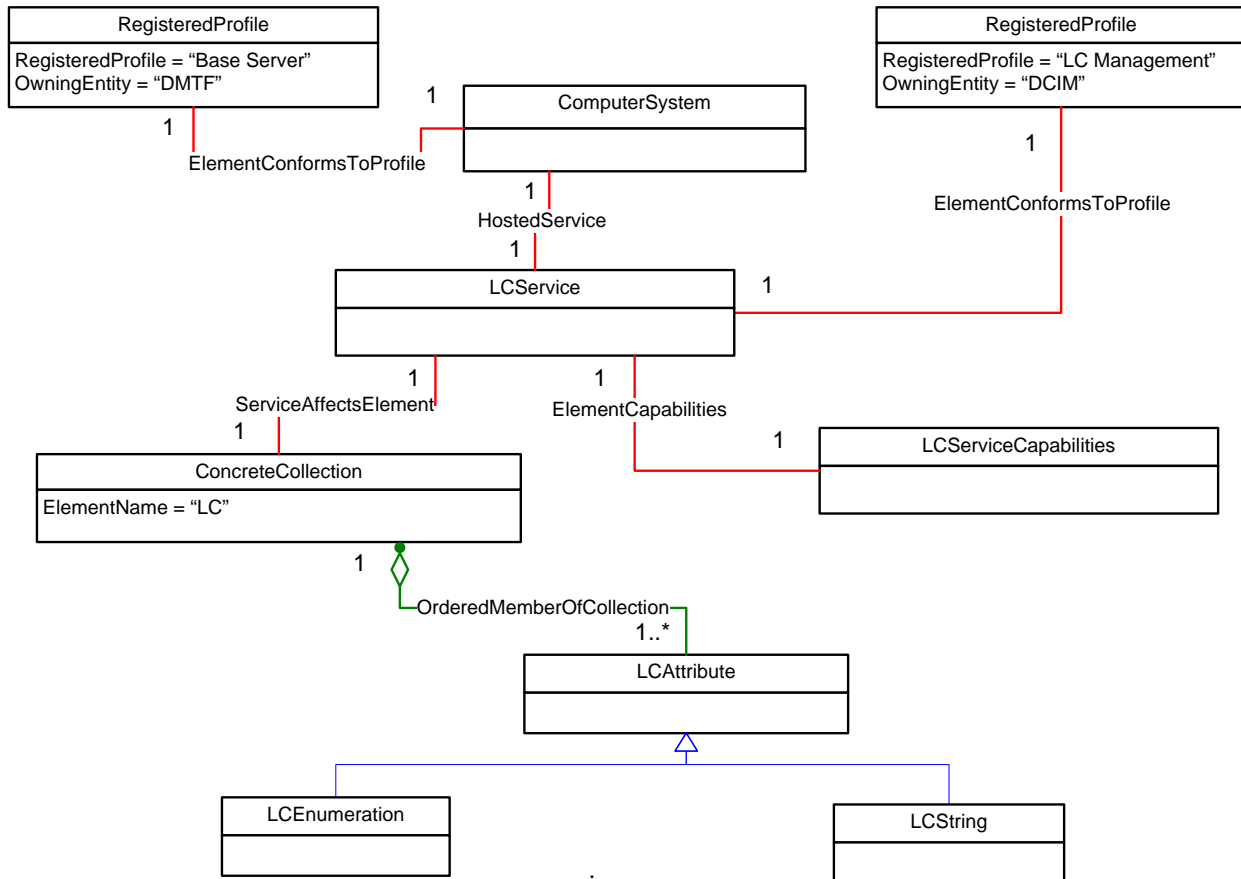


Figure 1 – LC Management Profile: Class Diagram

6.1 Object Diagrams

Section 6.2 & Figure 2 represents a possible instantiation of the LC Management Profile. In this instantiation, the ComputerSystem is not represented.

For simplicity, the prefix CIM_ has been removed from the names of the standard classes in the figure.

6.2 Representing CCR, System ID and DHS attributes

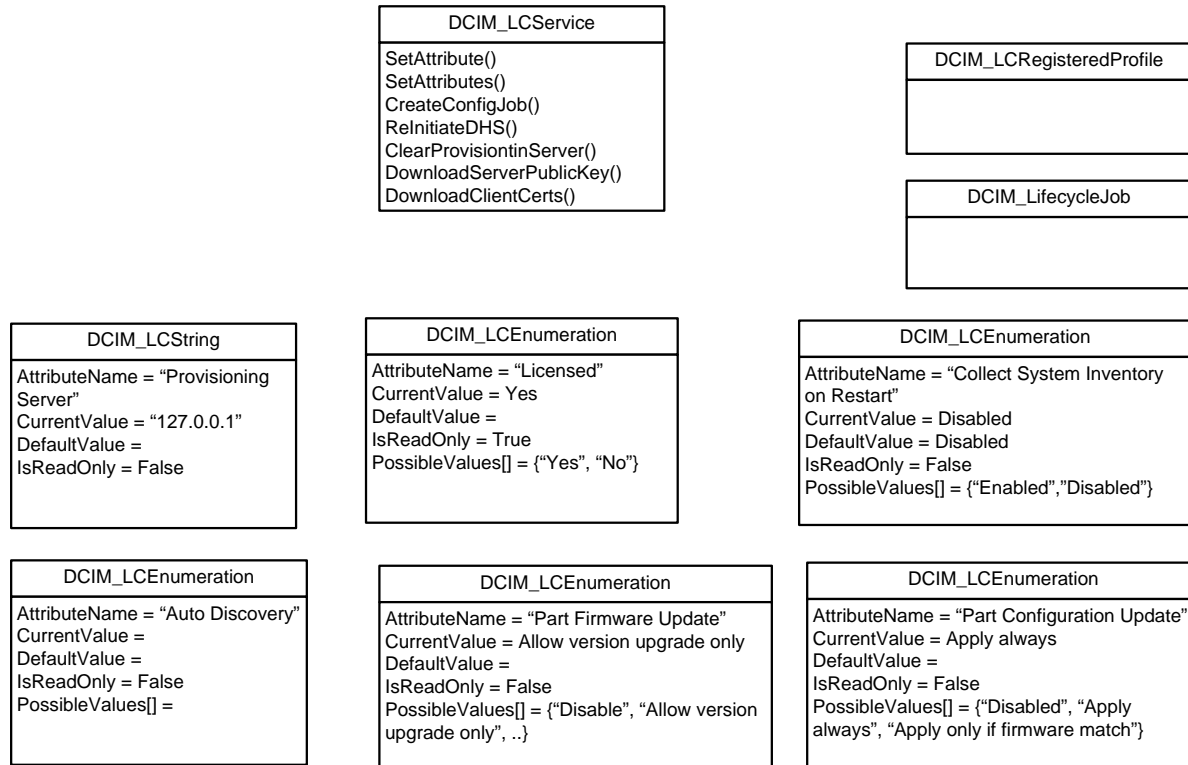


Figure 2 – Object Diagram representing CCR, System ID and DHS attributes

7 Implementation Requirements

Requirements and guidelines for propagating and formulating certain class properties are discussed in this section; methods are listed in section 8, and properties are listed in section 9.

7.1 DCIM_LCService

One instance of DCIM_LCService shall be instantiated.

7.2 DCIM_LCEnumeration

One or more instances of DCIM_LCEnumeration shall be instantiated.

7.3 DCIM_LCString

One or more instances of DCIM_LCString shall be instantiated.

7.4 DCIM_LCRegisteredProfile

One instance of DCIM_LCRegisteredProfile shall be instantiated.

7.5 Lifecycle Controller Attributes to be Represented by LC Management Profile

The LC Management Profile defines the modeling of LC configuration attributes using the derivation of CIM_BIOSAttribute class to represent each LC configuration attribute. The following are the LC configuration areas that may require representation using this profile. Some areas are already represented using other profiles, and will not need representation using the CIM_BIOSAttribute classes. Each of the attributes represented by the derivation of the CIM_BIOSAttribute class may be modified using SetAttribute() and SetAttributes() methods.

7.5.1 CCR (Component Configuration Recovery) Attributes:

- Licensed
- Part Firmware Update
- Collect System Inventory on Restart
- Part Configuration Update

Table 2 – CCR Attributes

Attribute Type	Attribute Name	Attribute Description	Possible Values
DCIM_LCEnumeration	Licensed	If "Yes" vFlash is licensed, If "No" vFlash is not licensed.	"Yes" = Licensed, "No" = Not Licensed
DCIM_LCEnumeration	Part Firmware Update	Control part firmware update policy based on this attribute value	Disable (default) = firmware update is not allowed, Allow version upgrade only = Allow firmware update only on up-revision, Match firmware of replaced part = Always update firmware
DCIM_LCEnumeration	Collect System Inventory on Restart	If enabled, system inventory is collected on restart.	Disabled (default) = Disallow collecting inventory on restart, Enabled = Allow collecting system inventory on restart
DCIM_LCEnumeration	Part Configuration Update	Control part firmware configuration policy based on this value	Disabled (default) = Configuration update is not allowed, Apply always = Apply the Configuration changes to the replaced card, Apply only if firmware match = Apply Configuration changes if firmware version of the replaced card is same as the older one

7.5.2 Dell System ID

- System ID

7.5.3 Discovery and Handshake Attributes:

- Provisioning Server
- Auto Discovery
- Discovery Factory Defaults

Table 3 – Discovery and Handshake Attributes

Attribute Type	Attribute Name	Attribute Description	Possible Values
DCIM_LCString	Provisioning Server	Provisioning server addresses and ports used for auto discovery feature of the server	provisioning server addresses and ports Examples: hostname hostname.domain.com 1.1.1.1 Mypc:8080 Myps.dell.com(1.2.3.4):8080 Host1:80,host2:8080 Hostname[2001:db8:0000:1428:57ab]:443 [2001:db8:0000:1428:57ab]:443
DCIM_LCString	SystemID	Unique System ID in Hex	
DCIM_LCEnumeration	Auto Discovery	Enable or Disable the auto discovery feature of the server	Off (default) = Auto Discovery feature is turned off On = Auto Discovery feature is turned on
DCIM_LCEnumeration	Discovery Factory Defaults	If turned on, resets to factory defaults when performing auto discovery	Off (default) = Do not reset to factory defaults when performing auto discovery On = Reset to factory defaults when performing auto discovery

8 Methods

This section details the requirements for supporting intrinsic operations and extrinsic methods for the CIM elements defined by this profile.

8.1 DCIM_LCService.SetAttribute()

A method used to set the value of a single attribute.

Table 4 – DCIM_LCService.SetAttribute() Method: Return Code Values

Value	Description
0	Request was successfully executed.
1	Method is unsupported.
2	Error occurred

Table 5 – DCIM_LCService.SetAttribute() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN	AttributeName	string	DCIM_LCAttribute.AttributeName
IN	AttributeValue	string []	Pending or Current value to be set
OUT	SetResult	string	Invoking the SetAttribute may result in the CurrentValue or PendingValue property being set. A value of "2" means CurrentValue property is set, and a value of "3" means PendingValue property is set
OUT	RebootRequired	string	A value of "Yes" means a reboot is required to set this value, and a value of "No" means a reboot is not required to set this value
OUT (optional)	MessageID	string	Error Message ID- can be used to index into Dell Message registry files
OUT (optional)	Message	string	Error Message in English corresponding to MessageID is returned if the method fails to execute
OUT	MessageArguments	string[]	Substitution variables for dynamic error messages

8.2 DCIM_LCService.SetAttributes()

A method used to set the values of multiple attributes.

Table 6 – DCIM_LCService.SetAttributes() Method: Return Code Values

Value	Description
0	Request was successfully executed.
1	Method is unsupported.
2	Error occurred

Table 7 – DCIM_LCService.SetAttributes() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN	AttributeName	string []	Array of DCIM_LCAttribute.AttributeName
IN	AttributeValue	string []	Corresponding array of Pending or Current value to be set
OUT	SetResult	string []	invoking the SetAttributes may result in the CurrentValue or PendingValue property of each input element being set. AttributeValue array will have a corresponding SetResult value in the SetResult array. A value of "2" means the CurrentValue property is set, and a value of "3" means the PendingValue property is set
OUT	RebootRequired	string []	Each input element's AttributeValue array will have a corresponding RebootRequired value in the RebootRequired array. A value of "Yes" means a reboot is required to set this value, and a value of "No" means a reboot is not required to set this value
OUT	MessageID	string []	Error Message ID- can be used to index into Dell Message registry files
OUT	Message	string []	Error Message in English corresponding to MessageID is returned if the method fails to execute
OUT	MessageArguments	string[]	Substitution variables for dynamic error messages

8.3 DCIM_LCService.CreateConfigJob()

A method used to apply the pending values set by the SetAttribute and SetAttributes methods.

Table 8 – DCIM_LCService.CreateConfigJob() Method: Return Code Values

Value	Description
0	Request was successfully executed.
1	Method is unsupported.
2	Error occurred
4096	Job started: REF returned to started CIM_ConcreteJob

Table 9 – DCIM_LCService.CreateConfigJob() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN (optional)	ScheduledStartTime	Datetime	Job will be scheduled immediately. Scheduling is not supported in this version
IN (optional)	RebootIfRequired	Boolean	Reboot the system if it is required for the current value to be effective. This parameter is optional for this version and system is not rebooted.
OUT	Job	CIM_ConcreteJob REF	Returned to keep track of config job status
OUT	MessageID	string	Error Message ID- can be used to index into Dell Message registry files
OUT	Message	string	Error Message in English corresponding to MessageID is returned if the method fails to execute
OUT	MessageArguments	string[]	Substitution variables for dynamic error messages

8.4 DCIM_LCService.ReInitiateDHS()

A method used to reinitiate the provisioning server discovery and handshake.

Table 10 – DCIM_LCService.ReInitiateDHS() Method: Return Code Values

Value	Description
0	Request was successfully executed.
1	Method is unsupported.
2	Error occurred

Table 11 – DCIM_LCService.ReInitiateDHS() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN (optional)	ProvisioningServer	string	An optional parameter to specify provisioning server addresses and ports used for auto discovery. If omitted, the Lifecycle Controller will get the value from DHCP or DNS
IN	ResetToFactoryDefaults	boolean	If set to "true", all configuration information is replaced with the auto discovery factory defaults. If set to "false", an error will be returned
IN	PerformAutoDiscovery	uint16	A value of "Off = 1" disables auto discovery. A value of "Now = 2" enables and initiates auto discovery immediately. A value of "NextBoot = 3" will delay reconfiguration and auto discovery until next powercycle.
OUT	MessageID	string	Error Message ID- can be used to index into Dell Message registry files
OUT	Message	string	Error Message in English corresponding to MessageID is returned if the method fails to execute
OUT	MessageArguments	string[]	Substitution variables for dynamic error messages

8.5 DCIM_LCService.ClearProvisioningServer()

A method used to clear the provisioning server values.

Table 12 – DCIM_LCService.ClearProvisioningServer() Method: Return Code Values

Value	Description
0	Request was successfully executed.
1	Method is unsupported.
2	Error occurred

Table 13 – DCIM_LCService.ClearProvisioningServer() Method: Parameters

Qualifiers	Name	Type	Description/Values
OUT (optional)	MessageID	string	Error MessageID is returned if the method fails to execute
OUT (optional)	Message	string	Error Message in English corresponding to MessageID is returned if the method fails to execute

8.6 DCIM_LCService.DownloadServerPublicKey()

A method used to download the server public key to the LC.

Table 14 – DCIM_LCService.DownloadServerPublicKey() Method: Return Code Values

Value	Description
0	Request was successfully executed.
1	Method is unsupported.
2	Error occurred
4096	Job started: REF returned to started CIM_ConcreteJob

Table 15 – DCIM_LCService.DownloadServerPublicKey() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN, OctetString	KeyContent	string	Base64 encoded public key content.
OUT	Job	CIM_ConcreteJob REF	Returned to keep track of public key download status
OUT	MessageID	string	Error Message ID- can be used to index into Dell Message registry files
OUT	Message	string	Error Message in English corresponding to MessageID is returned if the method fails to execute
OUT	MessageArguments	string[]	Substitution variables for dynamic error messages

8.7 DCIM_LCService.DownloadClientCerts()

A method used to download the client private certificate, password, and root certificate to LC.

Table 16 – DCIM_LCService.DownloadClientCerts() Method: Return Code Values

Value	Description
0	Request was successfully executed.
1	Method is unsupported.
2	Error occurred
4096	Job started: REF returned to started CIM_ConcreteJob

Table 17 – DCIM_LCService.DownloadClientCerts() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN, OctetString	KeyContent	string	Base64 encoded private key content.
IN	Password	string	Private key password
IN OctetString	CAConcent	string	Base64 encoded root certificate content
OUT	Job	CIM_ConcreteJob REF	Returned to keep track of public key download status
OUT (optional)	MessageID	string	Error Message ID- can be used to index into Dell Message registry files
OUT	Message	string	Error Message in English corresponding to MessageID is returned if the method fails to execute
OUT	MessageArguments	string[]	Substitution variables for dynamic error messages

8.8 DCIM_LCService.DeleteAutoDiscoveryClientCerts()

This method is used to delete the client certificates set previously by the auto discovery method.

Table 18 – DCIM_LCService.DeleteAutoDiscoveryClientCerts() Method: Return Code Values

Value	Description
0	Request was successfully executed.
1	Method is unsupported.
2	Error occurred

Table 19 – DCIM_LCService.DeleteAutoDiscoveryClientCerts() Method: Parameters

Qualifiers	Name	Type	Description/Values
OUT	MessageID	string	Error Message ID- can be used to index into Dell Message registry files
OUT	Message	string	Error Message in English corresponding to MessageID is returned if the method fails to execute
OUT	MessageArguments	string[]	Substitution variables for dynamic error messages

8.9 DCIM_LCService.SetCertificateAndPrivateKey()

This method is used to update iDRAC certificate and private key pairs using the contents of a PKCS#12 file.

Table 20 – DCIM_LCService.SetCertificateAndPrivateKey() Method: Return Code Values

Value	Description
0	Request was successfully executed.
1	Method is unsupported.
2	Error occurred

Table 21 – DCIM_LCService.SetCertificateAndPrivateKey() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN	Type	string	This parameter specifies the service the certificate is for. "server" = web server
IN	PKCS12	string	An input parameter that represents the Base64 encoded contents of PKCS#12 file to upload. Note this is the contents of the file and not a filename.
IN	PKCS12pin	string	Password to decode the PKCS12
OUT	MessageID	String	Error Message ID- can be used to index into Dell Message registry files
OUT	Message	String	Error Message in English corresponding to MessageID is returned if the method fails to execute
OUT	MessageArguments	string[]	Substitution variables for dynamic error messages

8.10 DCIM_LCService.SetPublicCertificate()

This method is used to update a public SSL Certificate on the iDRAC.

Table 22 – DCIM_LCService.SetPublicCertificate() Method: Return Code Values

Value	Description
0	Request was successfully executed.
1	Method is unsupported.
2	Error occurred

Table 23 – DCIM_LCService.SetPublicCertificate() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN	Type	string	This parameter specifies the service the certificate is for. “directoryCA” = CA certificate for Active Directory or LDAP server
IN	Certificate	string	An input parameter that represents the certificate to upload. The certificate must be in X509 format and Base64 encoded.
OUT	MessageID	String	Error Message ID- can be used to index into Dell Message registry files
OUT	Message	String	Error Message in English corresponding to MessageID is returned if the method fails to execute
OUT	MessageArguments	string[]	Substitution variables for dynamic error messages

8.11 DCIM_LCService.DeleteAutoDiscoveryServerPublicKey()

This method is used to delete the server public key set previously by the auto discovery method.

Table 24 – DCIM_LCService.DeleteAutoDiscoveryServerPublicKey() Method: Return Code Values

Value	Description
0	Request was successfully executed.
1	Method is unsupported.
2	Error occurred

Table 25 – DCIM_LCService.DeleteAutoDiscoveryServerPublicKey () Method: Parameters

Qualifiers	Name	Type	Description/Values
OUT	MessageID	String	Error Message ID- can be used to index into Dell Message registry files
OUT	Message	String	Error Message in English corresponding to MessageID is returned if the method fails to execute
OUT	MessageArguments	string[]	Substitution variables for dynamic error messages

8.12 DCIM_LCService.InsertCommentInLCLog()

This method is used to insert additional user comments into the Lifecycle Controller log.

Table 26 – DCIM_LCService.InsertCommentInLCLog() Method: Return Code Values

Value	Description
0	Request was successfully executed.
1	Method is unsupported.
2	Error occurred

Table 27 – DCIM_LCService.InsertCommentInLCLog() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN	Comment	string	This parameter holds the text that will be inserted into the LC log
OUT	MessageID	String	Error Message ID- can be used to index into Dell Message registry files
OUT	Message	String	Error Message in English corresponding to MessageID is returned if the method fails to execute
OUT	MessageArguments	string[]	Substitution variables for dynamic error messages

8.13 DCIM_LCService.ExportLCLog()

This method is used to export the log from the Lifecycle Controller to a file on a remote share.

Table 28 – DCIM_LCService.ExportLCLog() Method: Return Code Values

Value	Description
0	Request was successfully executed.
1	Method is unsupported.
2	Error occurred
4096	Job started: REF returned to started CIM_ConcreteJob

Table 29 – DCIM_LCService.ExportLCLog() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN	IPAddress	string	The IP address of the target export server
IN	ShareName	string	The directory path to the mount point
IN	FileName	string	The target output file name
IN	ShareType	uint16	Type of share: NFS=0, CIFS=2
IN	Username	String	Username for the target export server
IN	Password	String	Password for the target export server
IN	Workgroup	String	The applicable workgroup
OUT	Job	CIM_ConcreteJob REF	Returned to keep track of config job status
OUT	MessageID	String	Error Message ID- can be used to index into Dell Message registry files
OUT	Message	String	Error Message in English corresponding to MessageID is returned if the method fails to execute
OUT	MessageArguments	string[]	Substitution variables for dynamic error messages

8.14 DCIM_LCService.ExportHWInventory()

This method is used to export the hardware inventory from the Lifecycle Controller to a file on a remote share.

Table 30 – DCIM_LCService.ExportHWInventory() Method: Return Code Values

Value	Description
0	Request was successfully executed.
1	Method is unsupported.
2	Error occurred
4096	Job started: REF returned to started CIM_ConcreteJob

Table 31 – DCIM_LCService.ExportHWInventory() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN	IPAddress	string	The IP address of the target export server
IN	ShareName	string	The directory path to the mount point
IN	FileName	string	The target output file name
IN	ShareType	uint16	Type of share: NFS=0, CIFS=2
IN	Username	String	Username for the target export server
IN	Password	String	Password for the target export server
IN	Workgroup	String	The applicable workgroup
OUT	Job	CIM_ConcreteJob REF	Returned to keep track of config job status
OUT	MessageID	String	Error Message ID- can be used to index into Dell Message registry files
OUT	Message	String	Error Message in English corresponding to MessageID is returned if the method fails to execute
OUT	MessageArguments	string[]	Substitution variables for dynamic error messages

8.15 DCIM_LCService.ExportFactoryConfiguration()

This method is used to export the factory configuration from the Lifecycle Controller to a file on a remote share.

Table 32 – DCIM_LCService.ExportFactoryConfiguration() Method: Return Code Values

Value	Description
0	Request was successfully executed.
1	Method is unsupported.
2	Error occurred
4096	Job started: REF returned to started CIM_ConcreteJob

Table 33 – DCIM_LCService.ExportFactoryConfiguration() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN	IPAddress	string	The IP address of the target export server
IN	ShareName	string	The directory path to the mount point
IN	FileName	string	The target output file name
IN	ShareType	uint16	Type of share: NFS=0, CIFS=2
IN	Username	String	Username for the target export server
IN	Password	String	Password for the target export server
IN	Workgroup	String	The applicable workgroup
OUT	Job	CIM_ConcreteJob REF	Returned to keep track of config job status
OUT	MessageID	String	Error Message ID- can be used to index into Dell Message registry files
OUT	Message	String	Error Message in English corresponding to MessageID is returned if the method fails to execute
OUT	MessageArguments	string[]	Substitution variables for dynamic error messages

8.16 DCIM_LCService.LCWipe()

This method is called to delete all configurations from the Lifecycle controller before the system is retired.

Table 34 – DCIM_LCService.LCWipe() Method: Return Code Values

Value	Description
0	Request was successfully executed.
1	Method is unsupported.
2	Error occurred
4096	Job started: REF returned to started CIM_ConcreteJob

Table 35 – DCIM_LCService.LCWipe() Method: Parameters

Qualifiers	Name	Type	Description/Values
OUT	MessageID	String	Error Message ID- can be used to index into Dell Message registry files
OUT	Message	String	Error Message in English corresponding to MessageID is returned if the method fails to execute
OUT	MessageArguments	string[]	Substitution variables for dynamic error messages

9 Use Cases

This section contains use cases for the Dell Lifecycle Controller (LC) Management Profile.

Note that URIs in this section are in form of WBEM URIs for WinRM®.

9.1 Discovery of LC Management profile support

Use one of the two procedures below to confirm the existence of LC Management profile support

- A) GET the *DCIM_LCRegisteredProfile* instance using an *InstanceID* of DCIM:LCManagement:1.1.0. See section 3.14 for a definition of GET.

Instance URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/DCIM_LCRegisteredProfile?_cimnamespace=root/interop+InstanceID=DCIM:LCManagement:1.1.0

Results for the *InstanceID* of DCIM:LCManagement:1.1.0 shown below. If no instance is returned, the profile is not supported.

```
DCIM_LCRegisteredProfile
  AdvertiseTypeDescriptions = WS-Identify, Interop Namespace
  AdvertiseTypes = 1, 1
  InstanceID = DCIM:LCManagement:1.1.0
  OtherRegisteredOrganization = DCIM
  RegisteredName = LC Management
  RegisteredOrganization = 1
  RegisteredVersion = 1.1.0
```

- B) ENUMERATE the *CIM_RegisteredProfile* class. See section 3.13 for a definition of ENUMERATE.

Class URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_RegisteredProfile?_cimnamespace=root/interop

Then query the result for the following properties:

```
RegisteredName = LC Management, OtherRegisteredOrganization = DCIM, RegisteredVersion = 1.1.0
```

9.2 Inventory of LC Management attributes in system

ENUMERATE the *DCIM_LCEnumeration* class to view all available instances of the class

Class URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/DCIM_LCEnumeration?_cimnamespace=root/dcim

The instance information of all available LC Management attributes will be returned

9.3 Get “Collect System Inventory on Restart” (CSIOR) attribute

The URI for getting particular instance information is deterministic (i.e the *InstanceID* will be unique for each instance)

GET the *DCIM_LCEnumeration* instance using an *InstanceID* of DCIM_LCEnumeration:CCR5. See section 3.14 for a definition of GET .

Class URI:

http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_LCEnumeration?_cimnamespace=root/dcim+InstanceID=DCIM_LCEnumeration:CCR5 http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_NICAttribute?_cimnamespace=root/dcim

The instance containing the attribute will be returned.

9.4 Get “Part Firmware Update” attribute

The URI for getting particular instance information is deterministic (i.e the *InstanceID* will be unique for each instance)

GET the *DCIM_LCEnumeration* instance using an *InstanceID* of DCIM_LCEnumeration:CCR4. See section 3.14 for a definition of GET .

Class URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/DCIM_LCEnumeration?_cimnamespace=root/dcim+InstanceID=DCIM_LCEnumeration:CCR4 http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_NICAttribute?_cimnamespace=root/dcim

The instance containing the attribute will be returned.

9.5 Check VFlash license enablement

The URI for getting particular instance information is deterministic (i.e the *InstanceID* will be unique for each instance)

GET the *DCIM_LCEnumeration* instance using an *InstanceID* of DCIM_LCEnumeration:CCR1. See section 3.14 for a definition of GET .

Class URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/DCIM_LCEnumeration?_cimnamespace=root/dcim+InstanceID=DCIM_LCEnumeration:CCR1 http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_NICAttribute?_cimnamespace=root/dcim

The instance containing the attribute will be returned.

9.6 Setting attributes

- A) ENUMERATE the *DCIM_LCEnumeration* class as shown in Section 9.2 and identify the applicable instances
- B) To invoke the *SetAttribute()* or *SetAttributes()* method, extract the instance information from A) and construct the input parameters per Table 7
- C) INVOKE the *SetAttribute()* or *SetAttributes()* method

Class URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/root/dcim/DCIM_LCService?SystemCreationClassName=DCIM_ComputerSystem+CreationClassName=DCIM_LCService+SystemName=DCIM:ComputerSystem+Name=DCIM:LCService

- D) Examine output parameters per Table 6
- E) Apply the pending values per Section 9.7
- F) Repeat A) and examine the applicable instances to confirm successful execution of the method

9.7 Apply pending values

- A) To invoke the *CreateConfigJob()* method, construct input parameters per Table 9
- B) INVOKE *CreateConfigJob()* method

Class URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/root/dcim/DCIM_LCService?SystemCreationClassName=DCIM_ComputerSystem+CreationClassName=DCIM_LCService+SystemName=DCIM:ComputerSystem+Name=DCIM:LCService

- C) The job will be scheduled to run immediately, which will be followed by a reboot of the system
- D) Query the status of the *jobID* output using the job control profile methods

9.8 Set Configuration to Auto Discovery Factory Defaults

- A) To invoke the *ReinitiateDHS()* method, construct the input parameters per Table 11
- B) INVOKE the *ReinitiateDHS()* method

Class URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/root/dcim/DCIM_LCService?SystemCreationClassName=DCIM_ComputerSystem+CreationClassName=DCIM_LCService+SystemName=DCIM:ComputerSystem+Name=DCIM:LCService

- C) Examine output parameters per Table 10

- D) List LC Management inventory, per section 9.2, to confirm successful execution of the method

9.9 Clear provisioning server

- A) To invoke the ClearProvisioningServer() method, construct the input parameters per Table 13
- B) INVOKE the ClearProvisioningServer() method

Class URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/root/dcim/DCIM_LCService?SystemCreationClassName=DCIM_ComputerSystem+CreationClassName=DCIM_LCService+SystemName=DCIM:ComputerSystem+Name=DCIM:LCService

- C) Examine output parameters per Table 12

9.10 Replace auto discovery public key

- A) Replace the auto discovery Server public key using the DownloadServerPublicKey() method, construct the input parameters per Table 15
- B) INVOKE the DownloadServerPublicKey() method

Class URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/root/dcim/DCIM_LCService?SystemCreationClassName=DCIM_ComputerSystem+CreationClassName=DCIM_LCService+SystemName=DCIM:ComputerSystem+Name=DCIM:LCService

- C) A job will be scheduled to run immediately, reference to this job is returned by the INVOKE method.
- D) Query the status of the *jobID* output using the job control profile methods.

9.11 Replace auto discovery client certificate, private key and password

- A) Replace auto discovery client certificate, private key and password using the DownloadClientCerts() method, construct the input parameters per Table 17
- B) INVOKE the DownloadClientCerts() method

Class URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/root/dcim/DCIM_LCService?SystemCreationClassName=DCIM_ComputerSystem+CreationClassName=DCIM_LCService+SystemName=DCIM:ComputerSystem+Name=DCIM:LCService

- C) A job will be scheduled to run immediately, reference to this job is returned by the INVOKE method.
- D) Query the status of the *jobID* output using the job control profile methods.

9.12 Delete auto discovery public key

- A) Delete the auto discovery server public key using the DeleteAutoDiscoveryServerPublicKey() method, construct the input parameters per Table 25
- B) INVOKE the DeleteAutoDiscoveryServerPublicKey () method

Class URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/root/dcim/DCIM_LCService?SystemCreationClassName=DCIM_ComputerSystem+CreationClassName=DCIM_LCService+SystemName=DCIM:ComputerSystem+Name=DCIM:LCService

9.13 Delete auto discovery client certificate, private key and password

- A) Delete the auto discovery client certificate, private key and password using the DeleteAutoDiscoveryClientCerts() method, construct the input parameters per Table 19
- B) INVOKE the DeleteAutoDiscoveryClientCerts() method

Class URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/root/dcim/DCIM_LCService?SystemCreationClassName=DCIM_ComputerSystem+CreationClassName=DCIM_LCService+SystemName=DCIM:ComputerSystem+Name=DCIM:LCService

9.14 Replace iDRAC Web Server client certificate and private key

- A) Replace the iDRAC Web Server client certificate and private key using the SetCertificateAndPrivateKey() method, construct the input parameters per Table 21
- B) INVOKE the SetCertificateAndPrivateKey() method

Class URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/root/dcim/DCIM_LCService?SystemCreationClassName=DCIM_ComputerSystem+CreationClassName=DCIM_LCService+SystemName=DCIM:ComputerSystem+Name=DCIM:LCService

9.15 Replace iDRAC Web Server public certificate

- A) Replace the iDRAC Web Server public certificate using the SetPublicCertificate() method, construct the input parameters per Table 23
- B) INVOKE the SetPublicCertificate() method

Class URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/root/dcim/DCIM_LCService?SystemCreationClassName=DCIM_ComputerSystem+CreationClassName=DCIM_LCService+SystemName=DCIM:ComputerSystem+Name=DCIM:LCService

9.16 Insert comment into Lifecycle log

- A) To invoke the InsertCommentInLCLog() method, construct the input parameters per Table 27
- B) INVOKE the InsertCommentInLCLog() method

Class URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/root/dcim/DCIM_LCService?SystemCreationClassName=DCIM_ComputerSystem+CreationClassName=DCIM_LCService+SystemName=DCIM:ComputerSystem+Name=DCIM:LCService

- C) Examine output parameters per Table 26

9.17 Export and view the content of the Lifecycle log

- A) To invoke the ExportLCLog() method, construct the input parameters per Table 29
- B) INVOKE the ExportLCLog() method

Class URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/root/dcim/DCIM_LCService?SystemCreationClassName=DCIM_ComputerSystem+CreationClassName=DCIM_LCService+SystemName=DCIM:ComputerSystem+Name=DCIM:LCService

- C) Examine output parameters per Table 28

9.18 Export and view the current hardware inventory

- A) To invoke the ExportHWInventory() method, construct the input parameters per Table 31
- B) INVOKE the ExportHWInventory() method

Class URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/root/dcim/DCIM_LCService?SystemCreationClassName=DCIM_ComputerSystem+CreationClassName=DCIM_LCService+SystemName=DCIM:ComputerSystem+Name=DCIM:LCService

- C) Examine output parameters per Table 30

9.19 Export and view the hardware inventory as shipped from the factory

- A) To invoke the ExportFactoryConfiguration() method, construct the input parameters per Table 33
- B) INVOKE the ExportFactoryConfiguration() method

Class URI:

http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/root/dcim/DCIM_LCService?SystemCreationClassName=DCIM_ComputerSystem

[em+CreationClassName=DCIM_LCService+SystemName=DCIM:ComputerSystem+Name=DCIM:LCService](#)

C) Examine output parameters per Table 32

10 CIM Elements

Table 36 shows the instances of CIM Elements for this profile. Section 7 “Implementation Requirements” and “Methods” may impose additional requirements on these elements.

Table 36 – CIM Elements: iDRAC Attribute Profile

Element Name	Requirement	Description
Classes		
DCIM_LCAAttribute	Mandatory	See subclause section 10.1
DCIM_LCService	Mandatory	See subclause section 10.2
DCIM_LCEnumeration	Mandatory	See subclause section 10.3
DCIM_LCString	Mandatory	See subclause section 10.4
DCIM_LCRegisteredProfile	Mandatory	See subclause section 10.5
Indications		
None defined in this profile		

10.1 DCIM_LCAAttribute

DCIM_LCAAttribute is a trivial derivation of CIM_BIOSAttribute. The CIM_BIOSAttribute class is implemented to represent all LC attributes. Table 37 contains the element requirements for this class.

Table 37 – Class: DCIM_LCAAttribute

Properties	Notes	Description
InstanceID	Mandatory	Key: This element shall specify the unique identifier for an instance of this class within the Implementation namespace.
AttributeName	Mandatory	
CurrentValue	Mandatory	Current value of this attribute
DefaultValue	Optional	Contains the default value for this attribute
PendingValue	Conditional	Pending value of this attribute set via DCIM_LCService.SetAttribute or SetAttributes methods.
IsReadOnly	Mandatory	True if current value cannot be changed

10.2 DCIM_LCService

DCIM_LCService is used to provide a central class for the LC Management Profile, and to provide a place for the SetAttribute() and SetAttributes() methods that will change LC configuration attribute values.

Table 38 – Class: DCIM_LCService

Properties and Methods	Requirement	Description
SystemCreationClassName	Mandatory	Key
CreationClassName	Mandatory	Key
SystemName	Mandatory	Key
Name	Mandatory	Key
ElementName	Mandatory	This property shall have value of "LC Service".

10.3 DCIM_LCEnumeration

DCIM_LCEnumeration is derived from DCIM_LCAttribute, and also contains properties from CIM_BIOSEnumeration.

Table 39 – Class: DCIM_LCEnumeration

Properties and Methods	Requirement	Description
InstanceID	Mandatory	Key: This element shall specify the unique identifier for an instance of this class within the Implementation namespace.
AttributeName	Mandatory	Refer to Table 2 and Table 3 for more details
CurrentValue	Mandatory	Current value of this attribute
DefaultValue	Optional	Contains the default value for this attribute
PendingValue	Conditional	Pending value of this attribute set via DCIM_LCService.SetAttribute or SetAttributes methods.
IsReadOnly	Mandatory	Refer to Table 2 and Table 3 for more details
PossibleValues[]	Mandatory	Refer to Table 2 and Table 3 for more details

10.4 DCIM_LCString

DCIM_LCString is derived from DCIM_LCAttribute, and also contains properties from CIM_BIOSString.

Table 40 – Class: DCIM_LCString

Properties and Methods	Requirement	Description
InstanceID	Mandatory	Key: This element shall specify the unique identifier for an instance of this class within the Implementation namespace.
AttributeName	Mandatory	Refer to Table 2 and Table 3 for more details
CurrentValue	Mandatory	Current value of this attribute
DefaultValue	Optional	Contains the default value for this attribute
PendingValue	Conditional	Pending value of this attribute set via DCIM_LCService.SetAttribute or SetAttributes methods.
IsReadOnly	Mandatory	Refer to Table 2 and Table 3 for more details
StringType	Mandatory	Indicates the type of string value (ASCII or hex)

10.5 DCIM_LCRegisteredProfile

DCIM_LCRegisteredProfile is a trivial derivation of CIM_RegisteredProfile. The CIM_RegisteredProfile class is defined by the Profile Registration Profile. The requirements denoted in Table 41 are in addition to those mandated by the Profile Registration Profile.

Table 41 – Class: CIM_RegisteredProfile

Properties	Requirement	Description
RegisteredName	Mandatory	This property shall have a value of "LC Management".
RegisteredVersion	Mandatory	This property shall have a value of 1.1.0
RegisteredOrganization	Mandatory	This property shall have a value of 1 (Other).
OtherRegisteredOrganization	Mandatory	This property shall match "DCIM"

ANNEX A

(informative)

Related MOF Files

Dell Tech Center MOF Library:

<http://www.delltechcenter.com/page/DCIM.Library.MOF>

Related Managed Object Format (MOF) files:

DCIM_LCAttribute.mof

DCIM_LCElementConformsToProfile.mof

DCIM_LCEnumeration.mof

DCIM_LCRegisteredProfile.mof

DCIM_LCService.mof

DCIM_LCString.mof