

BIOS and Boot Management Profile

Document Number: DCIM1040
Document Type: Specification
Document Status: Published
Document Language: E
Date: 2012-12-30

Version: 1.3.0



THIS PROFILE IS FOR INFORMATIONAL PURPOSES ONLY, AND MAY CONTAIN TYPOGRAPHICAL ERRORS AND TECHNICAL INACCURACIES. THE CONTENT IS PROVIDED AS IS, WITHOUT EXPRESS OR IMPLIED WARRANTIES OF ANY KIND. ABSENT A SEPARATE AGREEMENT BETWEEN YOU AND DELL™ WITH REGARD TO FEEDBACK TO DELL ON THIS PROFILE SPECIFICATION, YOU AGREE ANY FEEDBACK YOU PROVIDE TO DELL REGARDING THIS PROFILE SPECIFICATION WILL BE OWNED AND CAN BE FREELY USED BY DELL.

© 2008 – 2012 Dell Inc. All rights reserved. Reproduction in any manner whatsoever without the express written permission of Dell, Inc. is strictly forbidden. For more information, contact Dell.

Dell and the *DELL* logo are trademarks of Dell Inc. *Microsoft* and *WinRM* are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Dell disclaims proprietary interest in the marks and names of others.

CONTENTS

1	Scope	7
2	Normative References.....	7
3	Terms and Definitions	8
	3.7	9
4	Symbols and Abbreviated Terms	10
5	Synopsis	10
6	Description	11
7	Implementation Requirements	13
	7.1 BIOS Management	13
	7.2 Boot Management.....	38
	7.3 Service for Method Invocations	43
	7.4 Profile Registration.....	44
8	Methods.....	46
	8.1 CIM_BIOSService.SetAttribute().....	46
	8.2 DCIM_BIOSService.SetAttributes()	47
	8.3 DCIM_BIOSService.ChangePassword ()	50
	8.4 DCIM_BIOSService.CreateTargetedConfigJob()	51
	8.5 DCIM_BIOSService.DeletePendingConfiguration().....	53
	8.6 DCIM_BootConfigSetting.ChangeBootSourceState().....	53
	8.7 DCIM_BootConfigSetting.ChangeBootOrderByInstanceID().....	55
9	Use Cases	56
10	CIM Elements	56
11	Privilege and License Requirement	56
	ANNEX A (informative) BIOS Attribute Changes from Version 1.1	58
	ANNEX B (informative) Change Log.....	61

Figures

Figure 1 – BIOS and Boot Management Profile: Class Diagram – BIOS Management.....	11
Figure 2 – BIOS and Boot Management Profile: Boot Management.....	12

Tables

Table 1 – Related Profiles.....	11
Table 2 – CIM Elements: BIOS and Boot Management Profile.....	13
Table 3 – DCIM_BIOSEnumeration - Operations.....	14
Table 4 – Class: DCIM_BIOSEnumeration.....	15
Table 5 – DCIM_BIOSString - Operations.....	16
Table 6 – Class: DCIM_BIOSString.....	17
Table 7 – DCIM_BIOSInteger - Operations.....	18
Table 8 – Class: DCIM_BIOSInteger.....	19
Table 9 – DCIM_BIOSPassword - Operations.....	20
Table 10 – Class: DCIM_BIOSPassword.....	21
Table 11 – DCIM_BIOSEnumeration Processor Settings.....	23
Table 12 – DCIM_BIOSString Processor Settings.....	26
Table 13 – DCIM_BIOSInteger Processor Settings.....	26
Table 14 – DCIM_BIOSEnumeration SATA Settings.....	27
Table 15 – DCIM_BIOSString SATA Settings.....	27
Table 16 – DCIM_BIOSEnumeration Boot Settings.....	29
Table 17 – DCIM_BIOSEnumeration Slot Disablement.....	29
Table 18 – DCIM_BIOSEnumeration Serial Communication.....	30
Table 19 – DCIM_BIOSEnumeration System Profile Settings.....	31
Table 20 – DCIM_BIOSEnumeration Integrated Devices.....	32
Table 21 – DCIM_BIOSEnumeration System Security.....	33
Table 22 – DCIM_BIOSPassword System Security.....	34
Table 23 – DCIM_BIOSInteger System Security.....	35
Table 24 – DCIM_BIOSEnumeration Memory Settings.....	35
Table 25 – DCIM_BIOSString Memory Settings.....	36
Table 26 – DCIM_BIOSEnumeration Miscellaneous Settings.....	37
Table 27 – DCIM_BIOSString Miscellaneous Settings.....	37
Table 28 – DCIM_BIOSString System Information.....	38
Table 29 – Boot Lists.....	38
Table 30 – DCIM_BootConfigSetting – Operations.....	39
Table 31 – Class: DCIM_BootConfigSetting.....	40
Table 32 – DCIM_BootSourceSetting – Operations.....	41
Table 33 – Class: DCIM_BootSourceSetting.....	42
Table 34 – DCIM_BIOSService – Operations.....	43
Table 35 – Class: DCIM_BIOSService.....	44
Table 36 – DCIM_LCRegisteredProfile - Operations.....	44
Table 37 – Class: DCIM_LCRegisteredProfile.....	45
Table 38 – SetAttribute() Method: Return Code Values.....	46
Table 39 – SetAttribute() Method: Parameters.....	46
Table 40 – SetAttribute() Method: Standard Messages.....	47
Table 41 – SetAttributes() Method: Return Code Values.....	48

Table 42 – SetAttributes() Method: Parameters	48
Table 43 – SetAttributes() Method: Standard Messages	48
Table 44 – SetAttribute() Method: Return Code Values.....	49
Table 45 – SetAttribute() Method: Parameters.....	49
Table 46 – ChangePassword() Method: Return Code Values	50
Table 47 – ChangePassword() Method: Parameters.....	50
Table 48 – ChangePassword() Method: Standard Messages	50
Table 49 – CreateTargetedConfigJob() Method: Return Code Values	51
Table 50 – CreateTargetedConfigJob() Method: Parameters.....	51
Table 51 – CreateTargetedConfigJob() Method: Standard Messages	52
Table 52 – DeletePendingConfiguration() Method: Return Code Values	53
Table 53 – DeletePendingConfiguration() Method: Parameters	53
Table 54 – DeletePendingConfiguration() Method: Standard Messages.....	53
Table 55 – ChangeBootSourceState() Method: Return Code Values.....	54
Table 56 – ChangeBootSourceState() Method: Parameters	54
Table 57 – ChangeBootSourceState() Method: Standard Messages	54
Table 58 – ChangeBootOrderByInstanceID() Method: Return Code Values.....	55
Table 59 – ChangeBootOrderByInstanceID() Method: Parameters.....	55
Table 60 – ChangeBootOrderByInstanceID() Method: Standard Messages	56
Table 61 – Privilege and License Requirements	56

BIOS and Boot Management Profile

1 Scope

The BIOS and Boot Management Profile extends the management capabilities of referencing profiles by adding the capability to represent the configuration of the system BIOS setup and to manage the boot of the system. The system BIOS setup is modeled with multiple attributes that allow configuration of the BIOS.

2 Normative References

Refer to the following documents for more information.

NOTE: For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies..

- DMTF DSP1033, *Profile Registration Profile 1.0.0*
- DMTF DSP1061, *Management 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*
- 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>
- *BIOS Boot Specification v1.01* (January 11, 1996), <http://www.phoenix.com/NR/rdonlyres/56E38DE2-3E6F-4743-835F-B4A53726ABED/0/specsbbs101.pdf>
- DCIM LC Management Profile 1.2.0
- *Dell Lifecycle Controller Best Practices Guide 1.0*, http://en.community.dell.com/techcenter/extras/m/white_papers/20066173.aspx
- *Dell WSMAN Licenses and Privileges 1.0*
- *Advanced Configuration and Power Interface (ACPI) Specification v4.0*, <http://www.acpi.info/DOWNLOADS/ACPIspec40a.pdf>
- Dell Tech Center MOF Library: <http://www.delltechcenter.com/page/DCIM.Library.MOF>
- Related Managed Object Format (MOF) files:

- 34 ○ DCIM_BootConfigSetting.mof
- 35 ○ DCIM_BootSourceSetting.mof
- 36 ○ DCIM_BIOSEnumeration.mof
- 37 ○ DCIM_BIOSInteger.mof
- 38 ○ DCIM_BIOSService.mof
- 39 ○ DCIM_BIOSString.mof
- 40 ○ DCIM_BIOSPassword.mof
- 41 ○ DCIM_LCElementConformsToProfile
- 42 ○ DCIM_LCRegisteredProfile

43 **3 Terms and Definitions**

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

45 **3.1**

46 **can** – used for statements of possibility and capability, whether material, physical, or causal

47 **3.2**

48 **cannot** – used for statements of possibility and capability, whether material, physical, or causal.

49 **3.3**

50 **Conditional** – Indicates requirements to be followed strictly in order to conform to the document when the
51 specified conditions are met.

52 **3.4**

53 **Mandatory** – Indicates requirements to be followed strictly in order to conform to the document and from
54 which no deviation is permitted.

55 **3.5**

56 **may** – Indicates a course of action permissible within the limits of the document.

57 **3.6**

58 **Optional** – Indicates a course of action permissible within the limits of the document.

59 **3.7**
60 **need not** – Indicates a course of action permissible within the limits of the document.

61 **3.8**
62 **referencing profile** – Indicates a profile that owns the definition of this class and can include a reference
63 to this profile in its “Related Profiles” table.

64 **3.9**
65 **shall** – Indicates requirements to be followed strictly in order to conform to the document and from which
66 no deviation is permitted.

67 **3.10**
68 **shall not** – indicates requirements to be followed strictly in order to conform to the document and from
69 which no deviation is permitted.

70 **3.11**
71 **should** – Indicates that among several possibilities, one is recommended as particularly suitable, without
72 mentioning or excluding others, or that a certain course of action is preferred but not necessarily required.

73 **3.12**
74 **should not** – Indicates that a certain possibility or course of action is deprecated but not prohibited.

75 **3.13**
76 **FQDD** – Fully Qualified Device Descriptor is used to identify a particular component in a system.

77 **3.14**
78 **Interop Namespace** – Interop Namespace is where instrumentation instantiates classes to advertise its
79 capabilities for client discovery.

80 **3.15**
81 **Implementation Namespace** – Implementation Namespace is where instrumentation instantiates
82 classes relevant to executing core management tasks.

83 **3.16**
84 **ENUMERATE** – Refers to WS-MAN `ENUMERATE` operation as described in Section 8.2 of
85 DSP0226_V1.1 and Section 9.1 of DSP0227_V1.0

86 **3.17**
87 **GET** – Refers to WS-MAN `GET` operation as defined in Section 7.3 of DSP00226_V1.1 and Section 7.1
88 of DSP0227_V1.0

89 **4 Symbols and Abbreviated Terms**

90 **4.1**

91 **CIM** – Common Information Model

92 **4.2**

93 **iDRAC** – Integrated Dell Remote Access Controller – management controller for blades and monolithic
94 servers

95 **4.3**

96 **CMC** – Chassis Manager Controller – management controller for the modular server chassis

97 **4.4**

98 **iSCSI** – Internet Small Computer System Interface, an Internet Protocol (IP)-based storage networking
99 standard for linking data storage facilities.

100 **4.5**

101 **WBEM** – Web-Based Enterprise Management

102 **4.6**

103 **IPL** – Initial Program Load, refers to the IPL list (an initial priority list of boot devices). An Initial Program
104 Load Device is any device in the system that can boot and load an operating system. In standard AT
105 machines, this is the floppy drive or hard drive. See *BIOS Boot Specification*.

106 **4.7**

107 **BCV** – A Boot Connection Vector is a pointer that points to code inside the option ROM that performs
108 device initialization, detect if a peripheral (such as a SCSI hard drive) is attached, and optionally hook INT
109 13h. The BCV resides in a PnP option ROM Expansion Header. An example of an option ROM with a
110 BCV is a PnP ISA SCSI controller. See *BIOS Boot Specification*.

111 **5 Synopsis**

112 **Profile Name:** BIOS and Boot Management

113 **Version:** 1.3.0

114 **Organization:** Dell Inc.

115 **CIM Schema Version:** 2.19.1

116 **Central Class:** DCIM_BIOSService

117 **Scoping Class:** CIM_ComputerSystem

118 The BIOS and Boot Management Profile extends the management capability of the referencing profiles
119 by adding the capability to describe BIOS attributes, each BIOS configuration item is represented by an
120 instance one of these classes DCIM_BIOSEnumeration, DCIMBIOSString, DCIM_BIOSInteger and boot
121 management where each boot list is represented by DCIM_BootConfigSetting and each boot source
122 device by DCIM_BootSourceSetting. DCIM_BIOSService shall be the Central Class.

123 CIM_ComputerSystem shall be the Scoping Class. The instance of DCIM_BIOSService shall be the
124 Central Instance. The instance of CIM_ComputerSystem shall be the Scoping Instance.

125 Table 1 lists profiles that are related to this profile.

126

Table 1 – Related Profiles

Profile Name	Organization	Version	Relationship
Profile Registration Profile	DMTF	1.0	Mandatory

127 6 Description

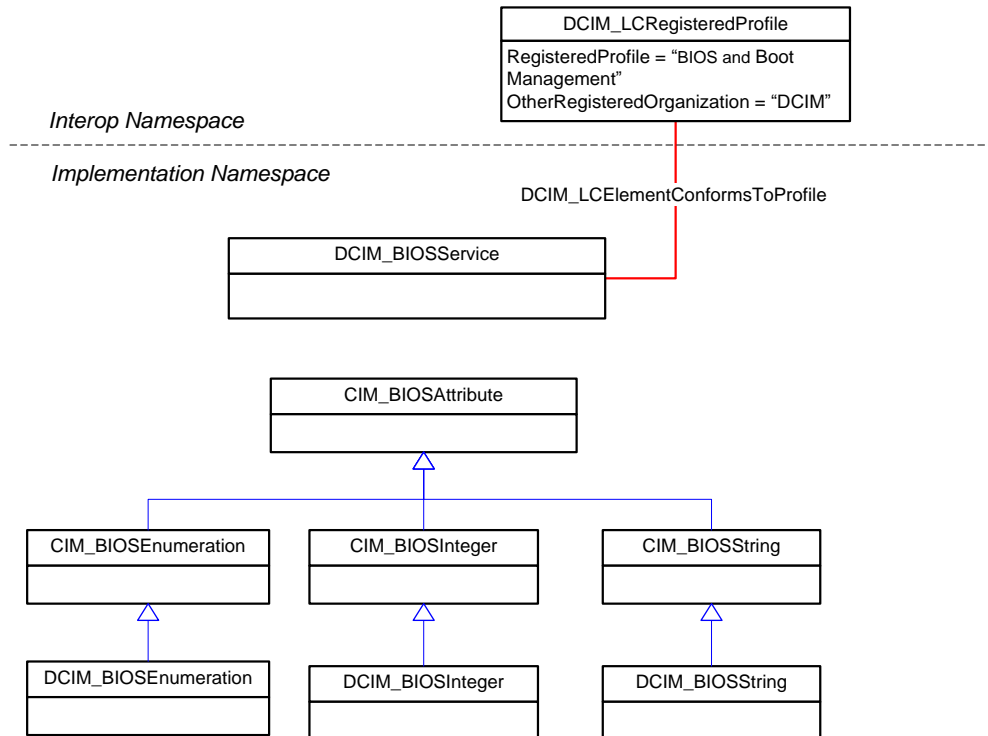
128 The BIOS and Boot Management Profile describes the BIOS setup configuration that includes boot
129 management. The profile also describes the relationship of the BIOS classes to the DMTF and Dell profile
130 version information.

131 Figure 1 shows the BIOS and Boot Management Profile.

132 Each of the CIM_BIOSAttribute sub-classes (DCIM_BIOSEnumeration, DCIM_BIOSString,
133 DCIM_BIOSInteger) represent a configurable attribute in BIOS. Depending on the data type of the
134 attribute the BIOS configuration attribute is either instantiated as DCIM_BIOSEnumeration,
135 DCIM_BIOSString, or DCIM_BIOSInteger instance.

136 The DCIM_BIOSService class is used to configure the BIOS attributes. The SetAttribute() and
137 SetAttributes() methods on the DCIM_BIOSService class configure BIOS attributes, DCIM_BIOSAttribute
138 subclass instances.

139 The BIOS and Boot Management Profile information is represented with the instance of
140 CIM_RegisteredProfile.



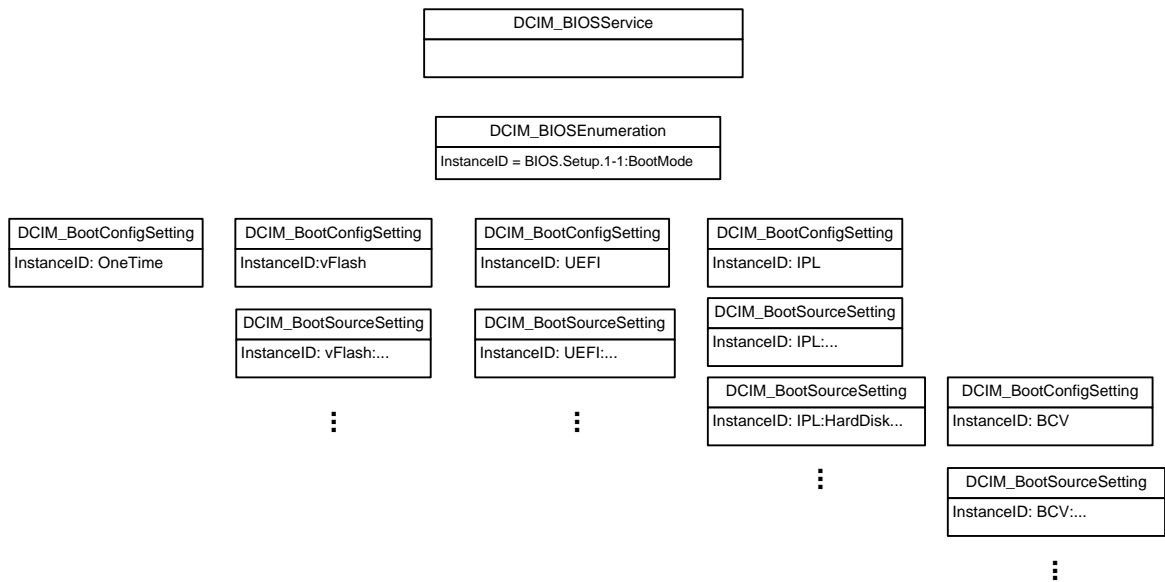
141

142 **Figure 1 – BIOS and Boot Management Profile: Class Diagram – BIOS Management**

143 Figure 2 shows the object diagram schema for the boot management feature of the BIOS and Boot
 144 Management Profile. For simplicity, the prefix CIM_ has been removed from the class names.

145 DCIM_BootConfigSetting represents each boot list. DCIM_BootSourceSetting represents each of the
 146 boot list boot devices or sources that are shown under their corresponding boot list.

147 **NOTE:** the InstanceID property value prefix of the DCIM_BootSourceSetting instance matches the InstanceID of the
 148 DCIM_BootConfigSetting. IPL boot list contains a BCV boot list. For example, IPL list may contain CDROM, Floppy
 149 and Hard Disk. Hard Disk may represent a BCV list that contains multiple BCV devices such as multiple RAID or
 150 SCSI controllers that are arranged in a boot priority list. For more details on IPL and BCV, see *BIOS Boot*
 151 *Specification*.



152

153

Figure 2 – BIOS and Boot Management Profile: Boot Management

154

155 **7 Implementation Requirements**

156 This section provides the requirements and guidelines to implement the properties of the classes.
 157 Methods are listed in section 8. Table 2 provides the instances of CIM Elements for this profile. Instances
 158 of the CIM Elements shall be implemented as described in Table 2.

159 **Table 2 – CIM Elements: BIOS and Boot Management Profile**

Element Name	Requirement	Description
Classes		
DCIM_BIOSEnumeration	Mandatory	The class shall be implemented in the <i>Implementation Namespace</i> . See section 7.1.1
DCIM_BIOSInteger	Mandatory	The class shall be implemented in the <i>Implementation Namespace</i> . See section 7.1.3
DCIM_BIOSString	Mandatory	The class shall be implemented in the <i>Implementation Namespace</i> . See section 7.1.2
DCIM_BIOSPassword	Mandatory	The class shall be implemented in the <i>Implementation Namespace</i> . See section 7.1.4
DCIM_BootConfigSetting	Mandatory	The class shall be implemented in the <i>Implementation Namespace</i> . See section 7.2.1
DCIM_BootSourceSetting	Mandatory	The class shall be implemented in the <i>Implementation Namespace</i> . See section 7.2.2
DCIM_BIOSService	Mandatory	The class shall be implemented in the <i>Implementation Namespace</i> . See section 7.3.1
DCIM_LCElementConformsToProfile	Mandatory	The class shall be implemented in the <i>Implementation Namespace</i> .
DCIM_LCElementConformsToProfile	Mandatory	The class shall be implemented in the <i>Interop Namespace</i> .
DCIM_LCRegisteredProfile	Mandatory	The class shall be implemented in the <i>Interop Namespace</i> . See section 7.4.1

160

161 **7.1 BIOS Management**

162 **7.1.1 DCIM_BIOSEnumeration**

163 This section describes the implementation of the DCIM_BIOSEnumeration class that represents an
 164 enumeration type BIOS attribute. This class shall be instantiated in the Implementation Namespace.

165 **7.1.1.1 Resource URIs for WinRM®**

166 The class resource URI shall be “http://schemas.dell.com/wbem/wscim/1/cim-
 167 schema/2/DCIM_BIOSEnumeration?__cimnamespace=root/dcim”

168 The key property shall be the InstanceID.

169 The instance Resource URI for DCIM_BIOSEnumeration instance shall be:
170 [http://schemas.dell.com/wbem/wscim/1/cim-
schema/2/DCIM_BIOSEnumeration?_cimnamespace=root/dcim+InstanceID= BIOS.Setup.1-
1:<AttributeName>](http://schemas.dell.com/wbem/wscim/1/cim-
171 schema/2/DCIM_BIOSEnumeration?_cimnamespace=root/dcim+InstanceID= BIOS.Setup.1-
172 1:<AttributeName>) ,

173 where <AttributName> is the AttributeName property value.

174 **7.1.1.2 Operations**

175 The following table details the operations implemented on the DCIM_BIOSEnumeration class

176 **Table 3 – DCIM_BIOSEnumeration - Operations**

Operation Name	Requirements	Required Input
Get	Mandatory	Instance URI
Enumerate	Mandatory	Class URI
DCIM_BIOSService.SetAttributte()	Mandatory	See section 8.1
DCIM_BIOSService.SetAttributes()	Mandatory	See section 8.2

177

178 **7.1.1.3 Properties**

179 The following table lists the properties implemented for the DCIM_BIOSEnumeration instance
180 representing a BIOS controller enumeration attribute. The “Requirements” column shall denote whether
181 the property is implemented (for requirement definitions, see section 3). The “Additional Requirements”
182 column shall denote either possible values for the property, or requirements on the value formulation.

Table 4 – Class: DCIM_BIOSEnumeration

Properties	Type	Requirements	Additional Requirements
InstanceID	String	Mandatory	The property value shall be formed as follows: "BIOS.Setup.1-1:<AttributeName property value>".
AttributeName	String	Mandatory	The property value shall be from the "AttributeName" column in Tables in section 7.1.5.
AttributeDisplayName	String	Mandatory	The property value shall be from the "AttributeDisplayName" column in Tables in section 7.1.5.
GroupID	String	Mandatory	See section 7.1.5.
GroupDisplayName	String	Mandatory	See section 7.1.5.
CurrentValue[]	String	Mandatory	The property value shall be one of the values in the "PossibleValues" column in Tables in section 7.1.5.
PendingValue[]	String	Mandatory	The property value shall be one of the values in the "PossibleValues" column in Tables in section 7.1.5.
IsReadOnly	Boolean	Mandatory	The property value shall be the value in the "IsReadOnly" column in Tables in section 7.1.5.
FQDD	String	Mandatory	The property shall be set to "BIOS.Setup.1-1".
DisplayOrder	uint16	Mandatory	The property shall represent the sequence number denoting the preferred placement of the attribute in the list of all BIOS attributes.
Dependency	String	Optional	The property shall be formatted as XML describing the attributes dependence on other attribute(s).
PossibleValues[]	String	Mandatory	The property value shall be equal to the array of the values in "PossibleValues" column at the corresponding row in in Tables in section 7.1.5.
PossibleValuesDescription[]	String	Mandatory	The array property's each value shall represent the description of the value in the PossibleValue array property at the corresponding index.

184

185 7.1.2 DCIM_BIOSString

186 This section describes the implementation for the DCIM_BIOSString class that represents a string type
187 BIOS attribute. This class shall be instantiated in the Implementation Namespace.

188 7.1.2.1 Resource URIs for WinRM®

189 The class Resource URI shall be "http://schemas.dell.com/wbem/wscim/1/cim-
190 schema/2/DCIM_BIOSString?__cimnamespace=root/dcim"

191 The key property shall be the InstanceID.

192 The instance Resource URI for DCIM_BIOSString instance shall be:

193 <http://schemas.dell.com/wbem/wscim/1/cim->
194 [schema/2/DCIM_BIOSString?__cimnamespace=root/dcim+InstanceID= BIOS.Setup.1-](http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_BIOSString?__cimnamespace=root/dcim+InstanceID=BIOS.Setup.1-1:<AttributeName>)
195 [1:<AttributeName>](http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_BIOSString?__cimnamespace=root/dcim+InstanceID=BIOS.Setup.1-1:<AttributeName>) ,

196 where <AttributeName> is the AttributeName property value.

197 7.1.2.2 Operations

198 The following table details the implemented operations on DCIM_BIOSString.

199 **Table 5 – DCIM_BIOSString - Operations**

Operation Name	Requirements	Required Input
Get	Mandatory	Instance URI
Enumerate	Mandatory	Class URI
DCIM_BIOSService.SetAttribute()	Mandatory	See section 8.1
DCIM_BIOSService.SetAttributes()	Mandatory	See section 8.2

200

201 7.1.2.3 Properties

202 The following table details the properties implemented for DCIM_BIOSString instance representing a
203 BIOS string attribute. The “Requirements” column shall denote whether the property is implemented (for
204 requirement definitions, see section 3). The “Additional Requirements” column shall denote either
205 possible values for the property, or requirements on the value formulation.

Table 6 – Class: DCIM_BIOSString

Properties	Type	Requirements	Additional Requirements
InstanceID	String	Mandatory	The property value shall be formed as follows: "BIOS.Setup.1-1:<AttributeName property value>".
AttributeName	String	Mandatory	The property value shall be from the "AttributeName" column in tables in section 7.1.5.
AttributeDisplayName	String	Mandatory	The property value shall be from the "AttributeDisplayName" column in Tables in section 7.1.5.
GroupID	String	Mandatory	See section 7.1.5.
GroupDisplayName	String	Mandatory	See section 7.1.5.
CurrentValue[]	String	Mandatory	If the ValueExpression property is non-NULL non-blank value, the the property value shall match the Regex format described in the ValueExpression property value .
PendingValue[]	String	Mandatory	If the ValueExpression property is non-NULL non-blank value, the the property value shall match the Regex format described in the ValueExpression property value .
IsReadOnly	Boolean	Mandatory	The property value shall be the value in the "IsReadOnly" column at the corresponding row in Tables in section 7.1.5.
FQDD	String	Mandatory	The property shall be set to "BIOS.Setup.1-1".
DisplayOrder	uint16	Mandatory	The property shall represent the sequence number denoting the preferred placement of the attribute in the list of all BIOS attributes.
Dependency	String	Optional	The property shall be formatted as XML describing the attributes dependence on other attribute(s). See <i>Lifecycle Controller (LC) Integration Best Practices Guide</i> for details.
MinLength	uint64	Mandatory	The property value shall be the value in the "MinLength" column at the corresponding row in tables in section 7.1.5. The omission or NULL shall denote that no known constraint exists on the CurrentValue and PendingValue properties.
MaxLength	uint64	Mandatory	The property value shall be the value in the "MaxLength" column at the corresponding row in Tables in section 7.1.5 The omission or NULL shall denote that no known constraint exists on the CurrentValue and PendingValue properties.
ValueExpression	String	Conditional	The property value shall be implemented if the IsReadOnly property has value FALSE. The property shall a Perl-compatible regular expression (PCRE) syntax to use in validating Attribute values.

208 **7.1.3 DCIM_BIOSInteger**

209 This section describes the implementation of the DCIM_BIOSInteger class that represents an integer type
210 BIOS attribute. This class shall be instantiated in the Implementation Namespace.

211 **7.1.3.1 Resource URIs for WinRM®**

212 The class resource URI shall be “http://schemas.dell.com/wbem/wscim/1/cim-
213 schema/2/DCIM_BIOSInteger?__cimnamespace=root/dcim”

214 The key property shall be the InstanceID.

215 The instance Resource URI for DCIM_BIOSInteger instance shall be:
216 “http://schemas.dell.com/wbem/wscim/1/cim-
217 schema/2/DCIM_BIOSInteger?__cimnamespace=root/dcim+InstanceID= BIOS.Setup.1-
218 1:<AttributeName>”

219 where <AttributeName> is the AttributeName property value.

220 **7.1.3.2 Operations**

221 The following table details the implemented operations on DCIM_BIOSInteger.

222 **Table 7 – DCIM_BIOSInteger - Operations**

Operation Name	Requirements	Required Input
Get	Mandatory	Instance URI
Enumerate	Mandatory	Class URI
DCIM_BIOSService.SetAttribute()	Mandatory	See section 8.1
DCIM_BIOSService.SetAttributes()	Mandatory	See section 8.2

223

224 **7.1.3.3 Properties**

225 The following table details the properties implemented for the DCIM_BIOSInteger instance representing a
226 BIOS integer attribute. The “Requirements” column shall denote whether the property is implemented (for
227 requirement definitions, see section 3). The “Additional Requirements” column shall denote either
228 possible values for the property, or requirements on the value formulation.

Table 8 – Class: DCIM_BIOSInteger

Properties	Type	Requirements	Additional Requirements
InstanceID	String	Mandatory	The property value shall be formed as follows: “BIOS.Setup.1-1:<AttributeName property value>”.
AttributeName	String	Mandatory	The property value shall be from the “AttributeName” column in Tables in section 7.1.5.
AttributeDisplayName	String	Mandatory	The property value shall be from the “AttributeDisplayName” column in Tables in section 7.1.5.
GroupID	String	Mandatory	See section 7.1.5.
GroupDisplayName	String	Mandatory	See section 7.1.5.
CurrentValue[]	String	Mandatory	The property value shall match the format described in “Value Expression” column at the corresponding row in Tables in section 7.1.5.
PendingValue[]	String	Mandatory	The property value shall match the format described in “Value Expression” column at the corresponding row in Tables in section 7.1.5.
IsReadOnly	Boolean	Mandatory	The property value shall be the value in the “IsReadOnly” column at the corresponding row in Tables in section 7.1.5.
FQDD	String	Mandatory	The property shall be set to “BIOS.Setup.1-1”.
DisplayOrder	uint16	Mandatory	The property shall represent the sequence number denoting the preferred placement of the attribute in the list of all BIOS attributes.
Dependency	String	Optional	The property shall be formatted as XML describing the attributes dependence on other attribute(s). See <i>Lifecycle Controller (LC) Integration Best Practices Guide</i> for details.
LowerBound	uint64	Mandatory	The property value shall be the value in the “LowerBound” column at the corresponding row in Tables in section 7.1.5.
UpperBound	uint64	Mandatory	The property value shall be the value in the “UpperBound” column at the corresponding row in Tables in section 7.1.5.

230 7.1.4 DCIM_BIOSPassword

231 This section describes the implementation for the DCIM_BIOSPassword class that represents a string
232 type BIOS attribute. This class shall be instantiated in the Implementation Namespace.

233 7.1.4.1 Resource URIs for WinRM®

234 The class resource URI shall be “[http://schemas.dell.com/wbem/wscim/1/cim-](http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_BIOSPassword?__cimnamespace=root/dcim)
235 [schema/2/DCIM_BIOSPassword?__cimnamespace=root/dcim](http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_BIOSPassword?__cimnamespace=root/dcim)”

236 The key property shall be the InstanceID.

237 The instance Resource URI for DCIM_BIOSPassword instance shall be:

238 <http://schemas.dell.com/wbem/wscim/1/cim->

239 [schema/2/DCIM_BIOSPassword?__cimnamespace=root/dcim+InstanceID= BIOS.Setup.1-](http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_BIOSPassword?__cimnamespace=root/dcim+InstanceID=BIOS.Setup.1-)

240 [1:<AttributeName>](http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_BIOSPassword?__cimnamespace=root/dcim+InstanceID=BIOS.Setup.1-1:<AttributeName>) , where <AttributeName> is the AttributeName property value.

241 **7.1.4.2 Operations**

242 The following table details the operations implemented on the DCIM_BIOSPassword class.

243 **NOTE:** The.SetAttribute() and SetAttributes() methods of the DCIM_BIOSService class are NOT supported for
244 DCIM_BIOSPassword class.

245 **Table 9 – DCIM_BIOSPassword - Operations**

Operation Name	Requirements	Required Input
Get	Mandatory	Instance URI
Enumerate	Mandatory	Class URI
DCIM_BIOSService.ChangeBIOSPassord()	Mandatory	See section 8.1

246

247 **7.1.4.3 Properties**

248 The following table details the properties implemented for the DCIM_BIOSPassword instance
249 representing a BIOS string attribute. The “Requirements” column shall denote whether the property is
250 implemented (for requirement definitions, see section 3). The “Additional Requirements” column shall
251 denote either possible values for the property, or requirements on the value formulation.

Table 10 – Class: DCIM_BIOSPassword

Properties	Type	Requirements	Additional Requirements
InstanceID	String	Mandatory	The property value shall be formed as follows: "BIOS.Setup.1-1:<AttributeName property value>".
AttributeName	String	Mandatory	The property value shall be from the "AttributeName" column in Tables in section 7.1.5.8.
AttributeDisplayName	String	Mandatory	The property value shall be from the "AttributeDisplayName" column in Tables in section 7.1.5.8.
GroupID	String	Mandatory	See section 7.1.5.8.
GroupDisplayName	String	Mandatory	See section 7.1.5.8.
CurrentValue[]	String	Mandatory	The property value shall match the format described in "Value Expression" column at the corresponding row in Tables in section 7.1.5.8.
PendingValue[]	String	Mandatory	The property value shall match the format described in "Value Expression" column at the corresponding row in Tables in section 7.1.5.8.
IsReadOnly	Boolean	Mandatory	The property value shall be the value in the "IsReadOnly" column at the corresponding row in Tables in section 7.1.5.8.
FQDD	String	Mandatory	The property shall be set to "BIOS.Setup.1-1".
DisplayOrder	uint16	Mandatory	The property shall represent the sequence number denoting the preferred placement of the attribute in the list of all BIOS attributes.
Dependency	String	Optional	The property shall be formatted as XML describing the attributes dependence on other attribute(s). See <i>Lifecycle Controller (LC) Integration Best Practices Guide</i> for details.
MinLength	uint64	Mandatory	The property value shall be the value in the "MinLength" column at the corresponding row in Tables in section 7.1.5.8. The omission or NULL shall denote that no known constraint exists on the CurrentValue and PendingValue properties.
MaxLength	uint64	Mandatory	The property value shall be the value in the "MaxLength" column at the corresponding row in Tables in section 7.1.5.8 The omission or NULL shall denote that no known constraint exists on the CurrentValue and PendingValue properties.
IsSet	Boolean	Mandatory	This property shall return TRUE if the PasswordState property has value 2 (Installed), otherwise this property shall be set to FALSE.

Properties	Type	Requirements	Additional Requirements
PasswordState	Uint16	Mandatory	<p>The property shall represent the current state of the password that the attribute represents.</p> <p>The property shall have one of the following values:</p> <ul style="list-style-type: none"> • 0 (Unknown) password state is not available, • 2 (Installed) password is currently set or installed, • 3 (Uninstalled) password is currently not set or is uninstalled, • 4(Hardware Disabled) password is disabled by hardware jumper.

253 **7.1.5 BIOS Attributes**

254 This section lists and describes the attributes and their logical grouping. For changes in attributes from
255 the BIOS and Boot Management Profile version 1.1 please refer to the ANNEX A.

256 **NOTE:** The BIOS attributes listed in this section may not be applicable for all Dell systems. A particular attribute is
257 applicable based on the model of a Dell system, the features available in the system and the BIOS version of the
258 system.

259 **7.1.5.1 Processor Settings**

260 This section describes the attributes for Processor Settings configuration.

261 For the DCIM_BIOSEnumeration, DCIM_BIOSString, and DCIM_BIOSInteger:

- 262 • GroupID property shall be “ProcSettings”
- 263 • GroupDisplayName property shall be “Processor Settings”

264 The following table provides the values for the DCIM_BIOSEnumeration class of this group. The column
265 headers represent the properties of the DCIM_BIOSEnumeration class. Each of the cells represent the
266 values of the properties. Each of the listed values under the PossibleValues header is an element of an
267 array.
268

Table 11 – DCIM_BIOSEnumeration Processor Settings

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues
---------------	----------------------	------------	---------------	----------------

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues
LogicalProc	Logical Processor	FALSE	301	<ul style="list-style-type: none"> Disabled Enabled
ProcHyperTransport	HyperTransport Technology	FALSE	302	<ul style="list-style-type: none"> HT1 HT3
ProcHtAssist	HT Assist	FALSE	303	<ul style="list-style-type: none"> Disabled Enabled
QpiSpeed ¹	QPI Speed	FALSE	304	MaxDataRate:,8GTps,7GTps, and 6GTps
ProcVirtualization	Virtualization Technology	FALSE	305	<ul style="list-style-type: none"> Disabled Enabled
DmaVirtualization ²	DMA Virtualization	Attribute Value Dependant ²	306	<ul style="list-style-type: none"> Disabled Enabled
ProcDramPrefetcher	DRAM Prefetcher		307	<ul style="list-style-type: none"> Disabled Enabled
ProcAdjCacheLine	Adjacent Cache Line Prefetch	FALSE	308	<ul style="list-style-type: none"> Disabled Enabled
ProcSoftwarePrefetcher	Hardware Prefetch Training on Software Prefetch		309	<ul style="list-style-type: none"> Disabled Enabled
ProcHwPrefetcher	Hardware Prefetcher	FALSE	310	<ul style="list-style-type: none"> Disabled Enabled
DcuStreamerPrefetcher	DCU Streamer Prefetcher	FALSE	311	<ul style="list-style-type: none"> Disabled Enabled
DataReuse	Data Reuse	FALSE	312	<ul style="list-style-type: none"> Disabled Enabled
QpiBandwidthPriority ¹	Intel(R) QPI Bandwidth Priority	FALSE	313	<ul style="list-style-type: none"> InputOutput Compute
ProcExecuteDisable	Execute Disable	FALSE	314	<ul style="list-style-type: none"> Disabled Enabled
ProcC1E ³	C1E	FALSE	315	<ul style="list-style-type: none"> Disabled Enabled
ProcCores	Number of Cores per Processor	FALSE	316	<ul style="list-style-type: none"> All Dual Quad 1 2 4 6 8 10 12 14 16
ProcTurboMode	Processor Turbo Mode	FALSE	317	<ul style="list-style-type: none"> Disabled Enabled

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues
ProcCStates ³	Processor C States	FALSE	318	<ul style="list-style-type: none"> • Disabled • Enabled
CorePerfBoost	Core Performance Boost	FALSE	330	<ul style="list-style-type: none"> • Disabled • Enabled

270 NOTE: 1 – Intel® QuickPath Interconnect is a point-to-point processor interconnect developed by Intel that replaces
271 the Front Side Bus (FSB).

272 NOTE: 2 – The DmaVirtualization is read-only (IsReadOnly=TRUE) and shall have value “Disabled”, if the
273 ProcVirtualization attribute is set to “Disabled”.

274 NOTE: 3 – Processor C states are used to adjust the power consumption of the processor as described by
275 Advanced Configuration and Power Interface (ACPI) Specification.

276 The following table describes the values for the DCIM_BIOSString of this group. The column headers
277 represent the properties of the DCIM_BIOSString class. Each of the cells represent the values of the
278 properties.
279

Table 12 – DCIM_BIOSString Processor Settings

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength
Proc64bit	Processor 64-bit Support	TRUE	340	0	4
ProcCoreSpeed	Processor Core Speed	TRUE	341	0	16
ProcBusSpeed	Processor Bus Speed	TRUE	342		
Proc1Id	Family-Model-Stepping	TRUE	350	0	8
Proc1Brand	Brand	TRUE	351	0	80
Proc1L2Cache	Level 2 Cache	TRUE	352	0	16
Proc1L3Cache	Level 3 Cache	TRUE	353	0	16
Proc2Id	Family-Model-Stepping	TRUE	360	0	8
Proc2Brand	Brand	TRUE	361	0	80
Proc2L2Cache	Level 2 Cache	TRUE	362	0	16
Proc2L3Cache	Level 3 Cache	TRUE	363	0	16
Proc3Id	Family-Model-Stepping	TRUE	370	0	8
Proc3Brand	Brand	TRUE	371	0	80
Proc3L2Cache	Level 2 Cache	TRUE	372	0	16
Proc3L3Cache	Level 3 Cache	TRUE	373	0	16
Proc4Id	Family-Model-Stepping	TRUE	380	0	8
Proc4Brand	Brand	TRUE	381	0	80
Proc4L2Cache	Level 2 Cache	TRUE	382	0	16
Proc4L3Cache	Level 3 Cache	TRUE	383	0	16

281 The following table describes the values for the DCIM_BIOSInteger of this group. The column headers
 282 represent the properties of the DCIM_BIOSInteger class. Each of the cells represent the values of the
 283 properties.

Table 13 – DCIM_BIOSInteger Processor Settings

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	LowerBound	UpperBound
Proc1NumCores	Number of Cores	TRUE	354	0	65535
Proc2NumCores	Number of Cores	TRUE	364	0	65535
Proc3NumCores	Number of Cores	TRUE	374	0	65535
Proc4NumCores	Number of Cores	TRUE	384	0	65535

285 **7.1.5.2 SATA Settings**

286 This section describes the attributes for SATA Settings configuration.

287 For the DCIM_BIOSEnumeration and DCIM_BIOSString:

- 288 • GroupID property shall be “SataSettings”

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength
SataPortBCapacity ¹	Capacity	TRUE	411	0	8
SataPortCModel	Model	TRUE	413	0	40
SataPortCDriveType	Drive Type	TRUE	414	0	20
SataPortCCapacity ¹	Capacity	TRUE	415	0	8
SataPortDModel	Model	TRUE	417	0	40
SataPortDDriveType	Drive Type	TRUE	418	0	20
SataPortDCapacity ¹	Capacity	TRUE	419	0	8
SataPortEModel	Model	TRUE	421	0	40
SataPortEDriveType	Drive Type	TRUE	422	0	20
SataPortECapacity ¹	Capacity	TRUE	423	0	8
SataPortFModel	Model	TRUE	425	0	40
SataPortFDriveType	Drive Type	TRUE	426	0	20
SataPortFCapacity ¹	Capacity	TRUE	427	0	8
SataPortGModel	Model	TRUE	429	0	40
SataPortGDriveType	Drive Type	TRUE	430	0	20
SataPortGCapacity ¹	Capacity	TRUE	431	0	8
SataPortHModel	Model	TRUE	433	0	40
SataPortHDriveType	Drive Type	TRUE	434	0	20
SataPortHCapacity ¹	Capacity	TRUE	435	0	8
eSataPort1Model	Model	TRUE	437	0	40
eSataPort1DriveType	Drive Type	TRUE	438	0	20
eSataPort1Capacity ¹	Capacity	TRUE	439	0	8

300 NOTE: 1 – Capacity of the of a hard-disk drive where units are embedded in the string itself.

301 7.1.5.3 Boot Settings

302 This section describes the attributes for Boot Settings configuration.

303 For the DCIM_BIOSEnumeration:

- 304 • GroupID property shall be “BootSettings”.
- 305 • GroupDisplayName property shall be “Boot Settings”.

306 The following table describes the values for the DCIM_BIOSEnumeration of this group. The column
 307 headers represent the properties of the DCIM_BIOSEnumeration class. Each of the cells represent the
 308 values of the properties. Each of the listed values under the PossibleValues header is an element of an
 309 array.

310 **Table 16 – DCIM_BIOSEnumeration Boot Settings**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues
BootMode	Boot Mode	FALSE	501	<ul style="list-style-type: none"> • Bios • Uefi
BootSeqRetry	Boot Sequence Retry	FALSE	503	<ul style="list-style-type: none"> • Disabled • Enabled

311 **7.1.5.4 Slot Disablement**

312 This section describes the attributes for Slot Disablement configuration.

313 For the DCIM_BIOSEnumeration:

- 314 • GroupID property shall be “SlotDisablement”.
- 315 • GroupDisplayName property shall be “Slot Disablement”.

316 The following table describes the values for the DCIM_BIOSEnumeration of this group. The column
 317 headers represent the properties of the DCIM_BIOSEnumeration class. Each of the cells represent the
 318 values of the properties. Each of the listed values under the PossibleValues header is an element of an
 319 array.

320 **Table 17 – DCIM_BIOSEnumeration Slot Disablement**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues
Slot1	Slot 1	TRUE	1601	<ul style="list-style-type: none"> • Disabled • Enabled
Slot2	Slot 2	TRUE	1602	<ul style="list-style-type: none"> • Disabled • Enabled
Slot3	Slot 3	TRUE	1603	<ul style="list-style-type: none"> • Disabled • Enabled
Slot4	Slot 4	TRUE	1604	<ul style="list-style-type: none"> • Disabled • Enabled
Slot5	Slot 5	FALSE	1605	<ul style="list-style-type: none"> • Disabled • Enabled
Slot6	Slot 6	FALSE	1606	<ul style="list-style-type: none"> • Disabled • Enabled
Slot7	Slot 7	FALSE	1607	<ul style="list-style-type: none"> • Disabled • Enabled

321 **7.1.5.5 Serial Communication**

322 This section describes the attributes for Serial Communication configuration.

323 For the DCIM_BIOSEnumeration:

- 324 • GroupID property shall be “SerialCommSettings”.
- 325 • GroupDisplayName property shall be “Serial Communication”.

326 The following table describes the values for the DCIM_BIOSEnumeration of this group. The column
 327 headers represent the properties of the DCIM_BIOSEnumeration class. Each of the cells represent the
 328 values of the properties. Each of the listed values under the PossibleValues header is an element of an
 329 array.

330 **Table 18 – DCIM_BIOSEnumeration Serial Communication**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues
SerialComm	Serial Communication	FALSE	1001	<ul style="list-style-type: none"> • OnNoConRedir • OnConRedirCom1 • OnConRedirCom2 • Off
SerialPortAddress	Serial Port Address	FALSE	1003	<ul style="list-style-type: none"> • Serial1Com1Serial2Com2 • Serial1Com2Serial2Com1
ExtSerialConnector	External Serial Connector	FALSE	1005	<ul style="list-style-type: none"> • Serial1 • Serial2 • RemoteAccDevice
FailSafeBaud	Failsafe Baud Rate	FALSE	1007	<ul style="list-style-type: none"> • 115200 • 57600 • 19200 • 9600
ConTermType	Remote Terminal Type	FALSE	1009	<ul style="list-style-type: none"> • Vt100Vt220 • Ansi
RedirAfterBoot	Redirection After Boot	FALSE	1011	<ul style="list-style-type: none"> • Enabled • Disabled

331

332

333 **7.1.5.6 System Profile Settings**

334 This section describes the attributes for System Profile Settings configuration.

335 For the DCIM_BIOSEnumeration:

- 336 • GroupID property shall be “SysProfileSettings”.
- 337 • GroupDisplayName property shall be “System Profile Settings”.

338 The following table describes the values for the DCIM_BIOSEnumeration of this group. The column
 339 headers represent the properties of the DCIM_BIOSEnumeration class. Each of the cells represent the
 340 values of the properties. Each of the listed values under the PossibleValues header is an element of an
 341 array.

Table 19 – DCIM_BIOSEnumeration System Profile Settings

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues
SysProfile	System Profile	FALSE	1202	<ul style="list-style-type: none"> PerfPerWattOptimizedOs PerfPerWattOptimizedDapc PerfOptimized Custom DenseCfgOptimized
ProcPwrPerf	CPU Power Management	TRUE	1203	<ul style="list-style-type: none"> MaxPerf MinPwr SysDbpm OSDbpm
MemFrequency	Memory Frequency	TRUE	1204	<ul style="list-style-type: none"> MaxPerf 1333MHz 1067MHz 800MHz
ProcTurboMode	Turbo Boost	TRUE	317	<ul style="list-style-type: none"> Disabled Enabled
ProcC1E	C1E	TRUE	315	<ul style="list-style-type: none"> Disabled Enabled
ProcCStates	C States	TRUE	318	<ul style="list-style-type: none"> Disabled Enabled
MemPwrMgmt	Memory Power Management	TRUE	1205	<ul style="list-style-type: none"> Enabled Disabled
MemPatrolScrub	Memory Patrol Scrub	TRUE	1206	<ul style="list-style-type: none"> Extended Standard Disabled
PowerDelivery	Power Delivery	TRUE	1207	<ul style="list-style-type: none"> MaxReliability MinPwr
MemRefreshRate	Memory Refresh Rate	TRUE	1208	<ul style="list-style-type: none"> 1x 2x

343 **7.1.5.7 Integrated Devices**

344 This section describes the attributes for Integrated Devices configuration.

345 For the DCIM_BIOSEnumeration:

- 346 • GroupID property shall be “IntegratedDevices”.
- 347 • GroupDisplayName property shall be “Integrated Devices”.

348 The following table describes the values for the DCIM_BIOSEnumeration of this group. The column
 349 headers represent the properties of the DCIM_BIOSEnumeration class. Each of the cells represent the
 350 values of the properties. Each of the listed values under the PossibleValues header is an element of an
 351 array.

Table 20 – DCIM_BIOSEnumeration Integrated Devices

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues
IntegratedRaid	Integrated RAID Controller	FALSE	903	<ul style="list-style-type: none"> Disabled Enabled
UsbPorts	User Accessible USB Ports	FALSE	905	<ul style="list-style-type: none"> AllOn OnlyBackPortsOn AllOff
InternalUsb1	Internal USB Port 1	FALSE	907	<ul style="list-style-type: none"> On Off
InternalUsb2	Internal USB Port 2	FALSE	909	<ul style="list-style-type: none"> On Off
InternalUsb	Internal USB Port	FALSE	906	<ul style="list-style-type: none"> On Off
OsWatchdogTimer	OS Watchdog Timer	FALSE	921	<ul style="list-style-type: none"> Disabled Enabled
EmbVideo	Embedded Video Controller	Feature Dependant ¹	923	<ul style="list-style-type: none"> Disabled Enabled
SriovGlobalEnable ²	SR-IOV Global Enable	FALSE ²	924	<ul style="list-style-type: none"> Disabled Enabled
IntegratedSas	Integrated SAS Controller	FALSE	901	<ul style="list-style-type: none"> Enabled Disabled
InternalSdCard	Internal SD Card Port	Feature Dependant ³	911	<ul style="list-style-type: none"> On Off
InternalSdCardRedundancy	Internal SD Card Redundancy	Attribute Value Dependant ³	912	<ul style="list-style-type: none"> Mirror Disabled
EmbNic1Nic2	Embedded NIC1 and NIC2	FALSE	915	<ul style="list-style-type: none"> Enabled DisabledOs Disabled
EmbNic1	Embedded Gb NIC1	FALSE	916	<ul style="list-style-type: none"> Enabled EnabledPxe EnablediScsi Disabled
EmbNic2	Embedded Gb NIC2	FALSE	917	<ul style="list-style-type: none"> Enabled EnabledPxe EnablediScsi Disabled
EmbNic3Nic4	Embedded NIC3 and NIC4	FALSE	918	<ul style="list-style-type: none"> Enabled DisabledOs

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues
				<ul style="list-style-type: none"> Disabled
EmbNic3	Embedded Gb NIC3	FALSE	919	<ul style="list-style-type: none"> Enabled EnabledPxe EnablediScsi Disabled
EmbNic4	Embedded Gb NIC4	FALSE	920	<ul style="list-style-type: none"> Enabled EnabledPxe EnablediScsi Disabled
IntegratedNetwork1	Integrated Network 1	FALSE	913	<ul style="list-style-type: none"> DisabledOs Enabled
IntegratedNetwork2	Integrated Network 2	FALSE	914	<ul style="list-style-type: none"> DisabledOs Enabled

353 NOTE: 1 – The attribute’s read-only status (IsReadOnly property value) depends on the particular platform model,
354 or platform features, or the platform’s bios version.

355 NOTE: 2 – Single Root I/O Virtualization.

356 NOTE: 3 – The InternalSdCardRedundancy is read-only (IsReadOnly=TRUE) and shall have value “Disabled”, if the
357 InternalSdCard attribute is set to “Disabled”.

358 7.1.5.8 System Security

359 This section describes the attributes for System Security configuration.

360 For the DCIM_BIOSEnumeration, DCIM_BIOSPassword, and DCIM_BIOSInteger:

- 361 • GroupID property shall be “SysSecurity”.
- 362 • GroupDisplayName property shall be “System Security”.

363 The following table describes the values for the DCIM_BIOSEnumeration of this group. The column
364 headers represent the properties of the DCIM_BIOSEnumeration class. Each of the cells represent the
365 values of the properties. Each of the listed values under the PossibleValues header is an element of an
366 array.

367 **Table 21 – DCIM_BIOSEnumeration System Security**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues
IntelTxtResetAux ¹	Intel TXT Reset Aux	TRUE		<ul style="list-style-type: none"> NoResetAuxReq ResetAuxReq ResetAuxPreqAttempted
IntelTxt	Intel(R) TXT	TRUE	1319	<ul style="list-style-type: none"> On Off
PasswordStatus	Password Status	FALSE	1304	<ul style="list-style-type: none"> Unlocked Locked
TpmSecurity	TPM Security	FALSE	1307	<ul style="list-style-type: none"> Off OnPbm

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues
				<ul style="list-style-type: none"> OnNoPbm
TpmActivation	TPM Activation	TRUE	1309	<ul style="list-style-type: none"> NoChange Activate Deactivate
TpmClear	TCM Clear	TRUE	1311	<ul style="list-style-type: none"> Yes No
TcmSecurity	TCM Security	FALSE	1314	<ul style="list-style-type: none"> Off OnPbm OnNoPbm
TcmActivation	TCM Activation	Attribute Value Dependant ^{2,3}	1316	<ul style="list-style-type: none"> NoChange Activate Deactivate
TcmClear	TPM Clear	Attribute Value Dependant ^{2,4}	1318	<ul style="list-style-type: none"> Yes No
PwrButton	Power Button	FALSE	1320	<ul style="list-style-type: none"> Disabled Enabled
NmiButton	NMI Button	Attribute Value Dependant ^{5,6}	1322	<ul style="list-style-type: none"> Disabled Enabled
AcPwrRcvry	AC Power Recovery	Attribute Value Dependant ^{5,7}	1326	<ul style="list-style-type: none"> Last On Off
AcPwrRcvryDelay	AC Power Recovery Delay	FALSE	1327	<ul style="list-style-type: none"> Immediate Random User

- 368 NOTE: 1 – Intel© Trusted Execution Technology.
- 369 NOTE: 2 – The TpmActivation, TpmClear attributes are settable (IsReadOnly=FALSE), if the TpmSecurity attribute is NOT set to “Off”; otherwise those attributes are read-only (IsReadOnly=TRUE).
- 370
- 371 NOTE: 3 – The TpmActivation shall have value “NoChange”, if TpmSecurity is set to “Off”.
- 372 NOTE: 4 – The TpmClear shall have value “No”, if TpmSecurity is set to “Off”.
- 373 NOTE: 5 – The TcmActivation, TcmClear attributes are settable (IsReadOnly=FALSE), if the SysProfile attribute is set to “Custom”; otherwise those attributes are read-only (IsReadOnly=TRUE).
- 374
- 375 NOTE: 6 – The TcmActivation shall have value “NoChange”, if TcmSecurity is set to “Off”.
- 376 NOTE: 7 – The TcmClear shall have value “No”, if TcmSecurity is set to “Off”.

377 The following table describes the values for the DCIM_BIOSPassword of this group. The column headers
 378 represent the properties of the DCIM_BIOSPassword class. Each of the cells represent the values of the
 379 properties.

380 **Table 22 – DCIM_BIOSPassword System Security**

AttributeName	AttributeDisplayName	IsReadOnly	MinLength	MaxLength
SysPassword	System Password	TRUE (but may be changed through the DCIM_BIOSService.ChangePassword() method.	0	32

AttributeName	AttributeDisplayName	IsReadOnly	MinLength	MaxLength
SetupPassword	Setup Password	TRUE (but may be changed through the DCIM_BIOSService.ChangePassword() method.	0	32

381 The following table describes the values for the DCIM_BIOSInteger of this group. The column headers
382 represent the properties of the DCIM_BIOSInteger class. Each of the cells represent the values of the
383 properties.

384 **Table 23 – DCIM_BIOSInteger System Security**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	LowerBound	UpperBound
AcPwrRcvryUserDelay	User Defined Delay (30s to 240s)	TRUE	1437	30	240

385

386 7.1.5.9 Memory Settings

387 This section describes the attributes for Memory Settings configuration.

388 For the DCIM_BIOSEnumeration and DCIM_BIOSString:

- 389 • GroupID property shall be “MemSettings”.
- 390 • GroupDisplayName property shall be “Memory Settings”.

391 The following table describes the values for the DCIM_BIOSEnumeration of this group. The column
392 headers represent the properties of the DCIM_BIOSEnumeration class. Each of the cells represent the
393 values of the properties. Each of the listed values under the PossibleValues header is an element of an
394 array.

395 **Table 24 – DCIM_BIOSEnumeration Memory Settings**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues
MemTest	System Memory Testing	FALSE	206	<ul style="list-style-type: none"> • Disabled • Enabled
MemOptimizer	Memory Optimizer Technology	Feature Dependant1	207	<ul style="list-style-type: none"> • Disabled • Enabled
MemOpMode	Memory Operating Mode	TRUE	208	<ul style="list-style-type: none"> • OptimizerMode • AdvEccMode • SpareMode • MirrorMode

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues
RedundantMem	Redundant Memory	TRUE	209	<ul style="list-style-type: none"> • Disabled • Mirror • IntraNodeMirror • DimmSpare • Dddc
SnoopFilter	Snoop Filter	FALSE	210	<ul style="list-style-type: none"> • Enabled • Disabled
NodeInterleave	Node Interleaving	Feature Dependant ¹	211	<ul style="list-style-type: none"> • Disabled • Enabled
MemLowPower	Low Power Mode	TRUE	212	<ul style="list-style-type: none"> • Disabled • Enabled
MemVolt	Memory Operating Voltage	TRUE	213	<ul style="list-style-type: none"> • AutoVolt • Volt135V • Volt15V
MemOpVoltage	Memory Operating Voltage	TRUE	214	<ul style="list-style-type: none"> • AutoVolt • Volt15V
RedundantMemInUse	Redundant Memory Configuration In Use	TRUE	218	<ul style="list-style-type: none"> • NotInUse • InUse
RedundantMemCfgValid	Redundant Memory Configuration Valid	TURE	220	<ul style="list-style-type: none"> • Invalid • Valid

396 NOTE: 1 – The attribute's read-only status (IsReadOnly property value) depends on the particular platform model,
397 or platform features, or the platform's bios version.

398

399 The following table describes the values for the DCIM_BIOSString of this group. The column headers
400 represent the properties of the DCIM_BIOSString class. Each of the cells represent the values of the
401 properties.

402 **Table 25 – DCIM_BIOSString Memory Settings**

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength
SysMemSize	System Memory Size	TRUE	201	0	20
SysMemType	System Memory Type	TRUE	202	0	16
SysMemSpeed	System Memory Speed	TRUE	203	0	16

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength
SysMemVolt	System Memory Voltage	TRUE	204	0	8
VideoMem	Video Memory	TRUE	205	0	16

403 **7.1.5.10 Miscellaneous Settings**

404 This section describes the attributes for miscellaneous settings configuration.

405 For the DCIM_BIOSEnumeration and DCIM_BIOSString:

- 406 • GroupID property shall be “MiscSettings”.
- 407 • GroupDisplayName property shall be “Miscellaneous Settings”.

408 The following table describes the values for the DCIM_BIOSEnumeration of this group. The column
 409 headers represent the properties of the DCIM_BIOSEnumeration class. Each of the cells represent the
 410 values of the properties. Each of the listed values under the PossibleValues header is an element of an
 411 array.

412 **Table 26 – DCIM_BIOSEnumeration Miscellaneous Settings**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues
NumLock	Keyboard NumLock	FALSE	1506	"On", "Off"
ReportKbdErr	Report Keyboard Errors	FALSE	1508	"Report", "NoReport"
ErrPrompt	F1/F2 Prompt on Error	FALSE	1510	“Disabled”, “Enabled”
SystemUefiShell	System UEFI Shell	FALSE	1512	“Disabled”, “Enabled”

413 The following table describes the values for the DCIM_BIOSString of this group. The column headers
 414 represent the properties of the DCIM_BIOSString class. Each of the cells represent the values of the
 415 properties..

416 **Table 27 – DCIM_BIOSString Miscellaneous Settings**

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength
AssetTag	Asset Tag	FALSE	1504	0	10

417 **7.1.5.1 System Information**

418 This section describes the attributes for System Information.

419 For the DCIM_BIOSString:

- 420 • GroupID property shall be “SysInformation”.
- 421 • GroupDisplayName property shall be “System Information”.

422 The following table describes the values for the DCIM_BIOSString of this group. The column headers
 423 represent the properties of the DCIM_BIOSString class. Each of the cells represent the values of the
 424 properties.

425 **Table 28 – DCIM_BIOSString System Information**

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength
SystemModelName	System Model Name	TRUE	1701		
SystemBiosVersion	System BIOS Version	TRUE	1702		
SystemServiceTag	System Service Tag	TRUE	1703		
SystemManufacturer	System Manufacturer	TRUE	1704		
SysMfrContactInfo	System Manufacturer Contact Information	TRUE	1705		

426

427

428 **7.2 Boot Management**

429 Each of DCIM_BootConfigSetting instances shall represent a boot list, and each boot list can be enabled
 430 to be used in the next boot using the algorithm in “Boot State Enablement” column. The following boot
 431 lists shall be implemented:

432 **Table 29 – Boot Lists**

Boot Lists	DCIM_BootConfig Setting.InstanceID	Boot State Enablement	Description
IPL/BIOS	IPL	SetAttribute() or SetAttributes() method with AttributeName “BootMode” and AttributeValue “Bios”	IPL, that is defined in the BIOS Boot Specification, lists the traditional BIOS boot sources.
BCV	BCV	SetAttribute() or SetAttributes() method with AttributeName “BootMode” and AttributeValue “Bios”	BCV, that is defined in the BIOS Boot Specification, usually lists the storage controllers for booting from a particular hard drive. NOTE: BCV is nested within the IPL. Selecting “Hard drive C” in IPL, selects the BCV list for booting. NOTE: The BCV list corresponds to an IPL boot device represented with DCIM_BootSourceSetting.InstanceID property value “IPL:HardDisk”.
UEFI	UEFI	SetAttribute() or SetAttributes() method with AttributeName “BootMode” and AttributeValue “Uefi”	List of UEFI devices for boot.
vFlash Partition	vFlash	ChangeBootOrderByInstanceID() on DCIM_BootConfigSetting with InstanceID “OneTime” and source[] containing a single vFlash DCIM_BootSourSetting InstanceID	vFlash partitions to boot from.
One	OneTime	ChangeBootOrderByInstanceID()	One time boot list contains a single

Time Boot		on DCIM_BootConfigSetting with InstanceID "OneTime" and source[] containing a single DCIM_BootSourceSetting InstanceID from any boot list.	boot device selected for one time boot. After the reboot, the boot list reverts to the original boot list.
-----------	--	--	--

433 DCIM_BootConfigSetting shall represent a collection of DCIM_BootSourceSetting instances; where the
434 DCIM_BootSourceSetting.InstanceID substring that prefixes the first colon shall match the
435 DCIM_BootConfigSetting.InstanceID value. For more information, see Figure 2.

436 For example, DCIM_BootSourceSetting.InstanceID with value of "vFlash:LABEL1:1" belongs to
437 DCIM_BootConfigSetting boot list with InstanceID "vFlash".

438 All the boot devices within the list may be sorted using the ChangeBootOrderByInstanceID() method
439 (section 8.7) and may be enabled or disabled using the ChangeBootSourceState() method (see section
440 8.6).

441 The state of the boot list for the next boot shall be changed through the DCIM_BIOSEnumeration with
442 AttributeName "BootMode" (section 7.1.5.3) or through execution of ChangeBootOrderByInstanceID()
443 method on the DCIM_BootConfigSetting instance with InstanceID "OneTime" with the source[] parameter
444 having a single DCIM_BootSourceSetting InstanceID from any of the lists including vFlash.

445 Each boot list contains boot devices that shall be represented by DCIM_BootSourceSetting.

446 7.2.1 DCIM_BootConfigSetting

447 This section describes the implementation for the DCIM_BootConfigSetting class that represents a
448 particular boot list.

449 This class shall be instantiated in the Implementation Namespace.

450 7.2.1.1 Resource URIs for WinRM®

451 The class Resource URI shall be "http://schemas.dell.com/wbem/wscim/1/cim-
452 schema/2/DCIM_BootConfigSetting?__cimnamespace=root/dcim"

453 The key property shall be the InstanceID.

454 The instance Resource URI for DCIM_BootConfigSetting instance shall be:
455 "http://schemas.dell.com/wbem/wscim/1/cim-
456 schema/2/DCIM_BootConfigSetting?__cimnamespace=root/dcim+InstanceID=<a value from Table 29
457 DCIM_BootConfigSetting.InstanceID column>"

458 7.2.1.2 Operations

459 The following table details the implemented operations on DCIM_BootConfigSetting.

460 **Table 30 – DCIM_BootConfigSetting – Operations**

Operation Name	Requirements	Required Input
Get	Mandatory	Instance URI
Enumerate	Mandatory	Class URI
Invoke	Mandatory	Instance URI
DCIM_BIOSService.SetAttribute()	Mandatory	See section 8.1 with AttributeName = "BootMode"
DCIM_BIOSService.SetAttributes()	Mandatory	See section 8.2 with AttributeName = "BootMode"

461

462 **7.2.1.3 Properties**

463 The table lists the properties implemented for DCIM_BootConfigSetting. The “Requirements” column shall
 464 denote whether the property is implemented (for requirement definitions, see section 3). The “Additional
 465 Requirements” column shall denote either possible values for the property, or requirements on the value
 466 formulation.

467 **Table 31 – Class: DCIM_BootConfigSetting**

Properties	Type	Requirement	Additional Requirements
InstanceID	string	Mandatory	The property value shall be from Table 29 “DCIM_BootConfigSetting.InstanceID” column.
ElementName	string	Mandatory	
IsCurrent	uint8	Mandatory	Values of: <ul style="list-style-type: none"> • 1 = Is Current (Is the current boot configuration), • 2 = Is Not Current (Is not the current boot configuration)
IsDefault	uint8	Mandatory	The property shall have Is Not Default (is not the default boot configuration). No default boot configurations are supported.
IsNext	uint8	Mandatory	Values of: <ul style="list-style-type: none"> • 1 = Is Next (is the next boot configuration the system will use for booting) • 2 = Is Not Next (is not the next boot configuration the system will use for booting) • 3= Is Next For Single Use (is the next boot configuration the system will use for booting for single use, one time boot only)

468 The DCIM_BootConfigSetting.IsCurrent, IsNext and IsDefault properties shall represent the current state
 469 of the boot list.

- 470 • The IsNext property set to 1(Is Next) shall represents that the boot list is configured to be used for
 471 the next boot. vFlash boot list shall not have this value.
- 472 • The IsNext property set to 3(Is Next for Single Use) shall represent that the boot list is configured
 473 to be used ONLY for the next boot. Only the OneTime boot list may have this value for the IsNext
 474 property.

475 **7.2.2 DCIM_BootSourceSetting**

476 This section describes the implementation for the DCIM_BootSourceSetting class that represents a boot
 477 device.

478 This class shall be instantiated in the Implementation Namespace.

479 **7.2.2.1 Resource URIs for WinRM®**

480 The class Resource URI shall be “http://schemas.dell.com/wbem/wscim/1/cim-
 481 schema/2/DCIM_BootSourceSetting?__cimnamespace=root/dcim”

482 The key property shall be the InstanceID.

483 The instance Resource URI for DCIM_BootSourceSetting instance shall be:
 484 "http://schemas.dell.com/wbem/wscim/1/cim-
 485 schema/2/DCIM_BootSourceSetting?__cimnamespace=root/dcim+InstanceID=<InstanceID see Table
 486 33>"

487 **7.2.2.2 Operations**

488 The following table lists the operations implemented on DCIM_BootSourceSetting.

489 **Table 32 – DCIM_BootSourceSetting – Operations**

Operation Name	Requirements	Required Input
Get	Mandatory	Instance URI
Enumerate	Mandatory	Class URI
DCIM_BootConfigSetting. ChangeBootSourceState()	Mandatory	See section 8.6.
DCIM_BootConfigSetting. ChangeBootOrderByInstanceID	Mandatory	See section 8.7.

490 **7.2.2.3 Properties**

491 The following table lists the properties implemented for DCIM_BootSourceSetting. The table lists the
 492 properties implemented for DCIM_BootSourceSetting. The "Requirements" column shall denote whether
 493 the property is implemented (for requirement definitions, see section 3). The "Additional Requirements"
 494 column shall denote either possible values for the property, or requirements on the value formulation.

Table 33 – Class: DCIM_BootSourceSetting

Properties	Type	Requirement	Additional Requirements
InstanceID	string	Mandatory	<p>The property value shall have prefix from Table 29 “DCIM_BootConfigSetting.InstanceID” column followed by a unique ID representing the boot source. For example:</p> <ul style="list-style-type: none"> • UEFI:Disk.USBFront.2-1:3156051d1529b8f4f88c99f54b895350 (boot source belongs to UEFI bootlist) • IPL:NIC.Slot.4-2:d0f2c6c736adb8c2238153293a0c026c (boot source belongs to IPL bootlist) • BCV:RAID.Integrated.1-1:b84a10539d2ccaca5e86b7de3cae08a8 (boot source belongs to BCV bootlist)
BIOSBootString	string	Mandatory	The property shall represent the boot source name
BootString	string	Mandatory	The property shall represent the boot source name
BootSourceType	string	Mandatory	The property shall represent the boot configuration that the boot source belongs to, and shall match the values in Table 29 “DCIM_BootConfigSetting.InstanceID” column.
PendingAssignedSequence	uint8	Mandatory	The property value shall be set through the successful execution of the ChangeBootOrderByInstanceID() method, and shall indicate the pending assigned sequence of the boot source.
CurrentAssignedSequence	uint8	Mandatory	The property shall represent the boot order in the zero-based indexed boot sequence.
PendingEnabledStatus	uint8	Mandatory	<p>The property value shall be set through the successful execution of the ChangeBootSourceState () method, and shall indicate the pending enabled status of the boot source. The property shall have one of the following values:</p> <ul style="list-style-type: none"> • 0 = Disabled • 1 = Enabled
CurrentEnabledStatus		Mandatory	<p>The property shall represent the current status of the boot source. If the property value is 0 (Disabled), the boot source shall not be used during boot. The property shall have one of the following values:</p> <ul style="list-style-type: none"> • 0 = Disabled • 1 = Enabled
ElementName		Mandatory	

Properties	Type	Requirement	Additional Requirements
FailThroughSupported		Mandatory	<p>The property shall indicate the behavior of the boot source failure. The property shall have one of the following values:</p> <ul style="list-style-type: none"> • 0 = Unknown • 1 = Is Supported indicates that the next boot source in the boot order shall be used. • 2 = Is Not Supported indicates that the boot order is terminated and no other boot sources shall be used.

496 7.3 Service for Method Invocations

497 7.3.1 DCIM_BIOSService

498 This section describes the implementation for the DCIM_BIOSService class that represents the BIOS and
499 boot management service.

500 This class shall be instantiated in the Implementation Namespace.

501 The DCIM_LCElementConformsToProfile association(s) shall reference the DCIM_BIOSService
502 instance(s).

503 7.3.1.1 Resource URIs for WinRM®

504 The class Resource URI shall be “http://schemas.dell.com/wbem/wscim/1/cim-
505 schema/2/DCIM_BIOSService?__cimnamespace=root/dcim”

506 The key properties shall be SystemCreationClassName, CreationClassName, SystemName and Name.

507 The instance Resource URI for DCIM_BIOSService instance shall be:

508 “http://schemas.dell.com/wbem/wscim/1/cim-
509 schema/2/DCIM_BIOSService?__cimnamespace=root/dcim+SystemCreationClassName=DCIM_ComputerSy-
510 stem+CreationClassName=DCIM_BIOSService+
511 SystemName=DCIM:ComputerSystem+Name=DCIM:BIOSService”

512 7.3.1.2 Operations

513 The following table lists the operations implemented on DCIM_BIOSService.

514 **Table 34 – DCIM_BIOSService – Operations**

Operation Name	Requirements	Required Input
Get	Mandatory	Instance URI
Enumerate	Mandatory	Class URI
Invoke	Mandatory	Instance URI

515

516 7.3.1.3 Properties

517 The following table lists the implemented properties for DCIM_BIOSService instance representing a
518 system in a system. The “Requirements” column shall denote whether the property is implemented (for
519 requirement definitions, see section 3). The “Additional Requirements” column shall denote either
520 possible values for the property, or requirements on the value formulation.

521

Table 35 – Class: DCIM_BIOSService

Properties	Type	Requirement	Description
SystemCreationClassName	string	Mandatory	The property value shall be "DCIM_ComputerSystem".
CreationClassName	string	Mandatory	The property value shall be "DCIM_BIOSService".
SystemName	string	Mandatory	The property value shall be "DCIM:ComputerSystem".
Name	string	Mandatory	The property value shall be "DCIM:BIOSService"
ElementName	string	Mandatory	The property value shall be "BIOS Service".

522 **7.4 Profile Registration**

523 **7.4.1 BIOS and Boot Management Profile Registration**

524 This section describes the implementation for the DCIM_LCRegisteredProfile class.

525 This class shall be instantiated in the Interop Namespace.

526 The DCIM_ElementConformsToProfile association(s) shall reference the DCIM_LCRegisteredProfile
527 instance.

528 **7.4.1.1 Resource URIs for WinRM®**

529 The class Resource URI shall be "http://schemas.dmtf.org/wbem/wscim/1/cim-
530 schema/2/CIM_RegisteredProfile?__cimnamespace=root/interop"

531 The key property shall be the InstanceID property.

532 The instance Resource URI shall be: "http://schemas.dell.com/wbem/wscim/1/cim-
533 schema/2/DCIM_LCRegisteredProfile?__cimnamespace=root/interop+InstanceID=DCIM:BIOSandBootM
534 anagement:1.0.0"

535 **7.4.1.2 Operations**

536 The following table details the operations implemented on DCIM_LCRegisteredProfile.

537 **Table 36 – DCIM_LCRegisteredProfile - Operations**

Operation Name	Requirements	Required Input
Get	Mandatory	Instance URI
Enumerate	Mandatory	Class URI

538

539 **7.4.1.3 Properties**

540 The following table details the implemented properties for DCIM_LCRegisteredProfile instance
 541 representing BIOS and Boot Management Profile implementation. The “Requirements” column shall
 542 denote whether the property is implemented (for requirement definitions, see section 3.3, 3.4, and 3.6).
 543 The “Additional Requirements” column shall denote either possible values for the property, or
 544 requirements on the value formulation.

545 **Table 37 – Class: DCIM_LCRegisteredProfile**

Properties	Requirement	Type	Additional Requirements
InstanceID	Mandatory	String	The property value shall be "DCIM:BIOSandBootManagement:1.0.0".
RegisteredName	Mandatory	String	This property shall have a value of “BIOS and Boot Management”.
RegisteredVersion	Mandatory	String	This property shall have a value of “1.3.0”.
RegisteredOrganization	Mandatory	String	This property shall have a value of 1 (Other).
OtherRegisteredOrganization	Mandatory	String	This property shall match “DCIM”
AdvertisedTypes[]	Mandatory	Uint16	This property array shall contain [1(Other), 1 (Other)].
AdvertiseTypeDescriptions[]	Mandatory	String	This property array shall contain ["WS-Identify", "Interop Namespace"].

546
 547

548 **8 Methods**

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

551 **8.1 CIM_BIOSService.SetAttribute()**

552 The SetAttribute() method is used to set or change the value of a BIOS attribute.

553 Invoking the SetAttribute() method shall change the value of the attribute's CurrentValue or attribute's
 554 PendingValue property to the value specified by the AttributeValue parameter if the attribute's
 555 IsReadOnly property is FALSE. Invoking this method when the attribute's IsReadOnly property is TRUE
 556 shall result in no change to the value of the attribute's CurrentValue property. The results of changing this
 557 value are described with the SetResult parameter.

558 Return code values for the SetAttribute() method are specified in Table 38 and parameters are specified
 559 in Table 39.

560 **NOTE:** Invoking the SetAttribute() method multiple times can result in the earlier requests being
 561 overwritten or lost.

562 **Table 38 – SetAttribute() Method: Return Code Values**

Value	Description
0	Completed with no error
2	Failed

563 **Table 39 – SetAttribute() Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN, REQ	Target	String	Shall be set to "BIOS.Setup.1-1"
IN, REQ	AttributeName	String	Shall contain the AttributeName property value for the attribute to be modified.
IN, REQ	AttributeValue[]	String	Shall contain the desired attribute value. If the value is valid, the CurrentValue or PendingValue property of the specified attribute shall be modified.
OUT	SetResult	String	Returns: <ul style="list-style-type: none"> • "Set CurrentValue" when the attribute's current value is set. • "Set PendingValue" when the attribute's pending value is set.
OUT	RebootRequired	String	Returns: <ul style="list-style-type: none"> • "Yes" if reboot is required. • "No" if reboot is not required.
OUT	MessageID	String	Error MessageID
OUT	Message	String	Error Message
OUT	MessageArguments[]	String	Error MessageArguments

Table 40 – SetAttribute() Method: Standard Messages

MessageID (OUT parameter)	Message	MessageArguments[]
BIOS001	The command was successful	
BIOS002	Resource allocation failure	
BIOS003	Missing required parameter	
BIOS004	Invalid parameter value for <parameter name>	Parameter
BIOS005	Mismatch in AttributeName and AttributeValue count	
BIOS006	Configuration job already created, cannot set attribute on specified target until existing job is completed or is cancelled	
BIOS007	Configuration job already created, cannot create another config job on specified target until existing job is completed or is cancelled	
BIOS008	No pending data is present to create a Configuration job	
BIOS009	System Services is currently in use, cannot create Configuration job	
BIOS010	System Services is disabled, cannot create Configuration job	
BIOS011	Configuration job already created, pending data cannot be deleted	
BIOS012	No pending data present to delete	
BIOS013	Invalid AttributeName %s	Attribute Name
BIOS014	Invalid AttributeValue for AttributeName %s	Attribute Name
BIOS015	AttributeValue cannot be changed for ReadOnly AttributeName %s	Attribute Name
BIOS016	AttributeValue cannot be changed for Disabled AttributeName %s	Attribute Name
BIOS017	Unable to delete vFlash pending one-time boot configuration	
LC062	An instance of Export or Import System Configuration is already running.	

565

566 8.2 DCIM_BIOSService.SetAttributes()

567 The SetAttributes() method is used to set or change the values of a group of attributes.

568 Invoking the SetAttributes() method shall change the values of the attribute's CurrentValue or
 569 PendingValue properties that correspond to the names specified by the AttributeName parameter and the
 570 values specified by the AttributeValue parameter if the respective attribute's IsReadOnly property is
 571 FALSE. Invoking this method when the respective attribute's IsReadOnly property is TRUE shall result in
 572 no change to the corresponding value of the attribute's CurrentValue property.

573 Return code values for the SetAttributes() method are specified in Table 41, and parameters are
 574 specified in Table 42.

575 **NOTE:** Invoking the SetAttributes() method multiple times can result in the earlier requests being
 576 overwritten or lost.

577 **Table 41 – SetAttributes() Method: Return Code Values**

Value	Description
0	Completed with no error
2	Failed

578 **Table 42 – SetAttributes() Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN, REQ	Target	String	Shall be set to "BIOS.Setup.1-1"
IN, REQ	AttributeName[]	String	The array parameter shall contain the AttributeName property values for the attributes to be modified.
IN, REQ	AttributeValue[]	String	The array parameter shall contain the desired attribute values. If the value is valid, the CurrentValue or PendingValue property of the specified attribute will be modified.
OUT	SetResult[]	String	Returns: <ul style="list-style-type: none"> • "Set CurrentValue" when the attribute's current value is set. • "Set PendingValue" when the attribute's pending value is set.
OUT	RebootRequired[]	String	Returns: <ul style="list-style-type: none"> • "Yes" if reboot is required. • "No" if reboot is not required.
OUT	MessageID[]	String	Error MessageID
OUT	Message[]	String	Error Message
OUT	MessageArguments[]	String	Error MessageArguments

579 **Table 43 – SetAttributes() Method: Standard Messages**

MessageID (OUT parameter)	Message	MessageArguments[]
BIOS001	The command was successful	
BIOS002	Resource allocation failure	
BIOS003	Missing required parameter	
BIOS004	Invalid parameter value for <parameter name>	Parameter
BIOS005	Mismatch in AttributeName and AttributeValue count	
BIOS013	Invalid AttributeName %s	Attribute Name
BIOS014	Invalid AttributeValue for AttributeName %s	Attribute Name
BIOS015	AttributeValue cannot be changed for ReadOnly AttributeName %s	Attribute Name

MessageID (OUT parameter)	Message	MessageArguments[]
BIOS016	AttributeValue cannot be changed for Disabled AttributeName %s	Attribute Name
LC062	An instance of Export or Import System Configuration is already running.	

580

581 The SetAttribute() method is used to set or change the value of a BIOS attribute.

582 Invoking the SetAttribute() method shall change the value of the attribute's CurrentValue or attribute's
583 PendingValue property to the value specified by the AttributeValue parameter if the attribute's
584 IsReadOnly property is FALSE. Invoking this method when the attribute's IsReadOnly property is TRUE
585 shall result in no change to the value of the attribute's CurrentValue property. The results of changing this
586 value are described with the SetResult parameter.

587 Return code values for the SetAttribute() method are specified in Table 44 and parameters are specified
588 in Table 45.

589 **NOTE:** Invoking the SetAttribute() method multiple times can result in the earlier requests being
590 overwritten or lost.

591 **Table 44 – SetAttribute() Method: Return Code Values**

Value	Description
0	Completed with no error
2	Failed

592

Table 45 – SetAttribute() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN, REQ	Target	String	Shall be set to "BIOS.Setup.1-1"
IN, REQ	AttributeName	String	Shall contain the AttributeName property value for the attribute to be modified.
IN, REQ	AttributeValue[]	String	Shall contain the desired attribute value. If the value is valid, the CurrentValue or PendingValue property of the specified attribute will be modified.
OUT	SetResult	String	Returns: <ul style="list-style-type: none"> • "Set CurrentValue" when the attribute's current value is set. • "Set PendingValue" when the attribute's pending value is set.
OUT	RebootRequired	String	Returns: <ul style="list-style-type: none"> • "Yes" if reboot is required. • "No" if reboot is not required.
OUT	MessageID	String	Error MessageID
OUT	Message	String	Error Message
OUT	MessageArguments[]	String	Error MessageArguments

593 **8.3 DCIM_BIOSService.ChangePassword ()**

594 The ChangePassword() method is used to set or change the value of a BIOS attribute.

595 Invoking the ChangePassword() method shall change the value of the password attribute's PendingValue
596 property to the value specified by the AttributeValue.

597 Return code values for the ChangePassword() method are specified in Table 46 and parameters are
598 specified in Table 47.

599 **NOTE:** Invoking the ChangePassword() method multiple times can result in the earlier requests being
600 overwritten or lost.

601 **Table 46 – ChangePassword() Method: Return Code Values**

Value	Description
0	Completed with no error
2	Failed

602 **Table 47 – ChangePassword() Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN, REQ	Target	String	Shall be set to "BIOS.Setup.1-1"
IN, REQ	PasswordType	Uint16	Shall be one of the following values: <ul style="list-style-type: none"> • 1 = System Password • 2 = Setup Password
IN, REQ	OldPassword	String	Shall contain the old password string: If the PasswordType parameter has the value 1(System Password) , the OldPassword shall have the current value of SysPassword attribute or SetupPassword attribute, else the method shall return 2(Failed). If the PasswordType parameter has the value 2(Setup Password) , the OldPassword shall have the current value of SetupPassword attribute, else the method shall return 2(Failed).
IN, REQ	NewPassword	String	Shall be set to new password string. NewPassword may be set to NULL (or omitted) in order to clear the old password. Clearing the password may succeed even if the password was previously cleared.
OUT	MessageID	String	Error MessageID
OUT	Message	String	Error Message
OUT	MessageArguments[]	String	Error MessageArguments

603

604 **Table 48 – ChangePassword() Method: Standard Messages**

MessageID (OUT parameter)	Message	MessageArguments[]
BIOS001	The command was successful	
BIOS002	Resource allocation failure	
BIOS003	Missing required parameter	
BIOS004	Invalid parameter value for	Parameter

MessageID (OUT parameter)	Message	MessageArguments[]
	<parameter name>	
BIOS024	BIOS password authentication failed	
BIOS025	Unable to set BIOS password. Password is disabled by Jumper	

605 **8.4 DCIM_BIOSService.CreateTargetedConfigJob()**

606 The CreateTargetedConfigJob() method is used to apply the pending values created by the SetAttribute,
607 SetAttributes, ChangePassword, ChangeBootSourceState, and ChangeBootOrderByInstanceID methods.
608 The successful execution of this method creates a job for application of pending values.

609 NOTE: This method only creates the RebootJob and does not schedule it.

610 **NOTE:** If CreateTargetedConfigJob method is executed without the three optional input parameters, configuration job
611 is created but not scheduled. However, you can schedule this configuration job later using the
612 DCIM_JobService.SetupJobQueue () method from the “Job Control Profile”. You can run the
613 DCIM_JobService.SetupJobQueue () to schedule several configuration jobs including the reboot job. Refer to “Job
614 Control Profile” for more details.

615 Return code values for the CreateTargetedConfigJob() method are specified in Table 49, and parameters
616 are specified in Table 50.

617 Subsequent calls to CreateTargetedConfigJob after the first CreateTargetedConfigJob will result in error
618 until the first job is completed."

619 **Table 49 – CreateTargetedConfigJob() Method: Return Code Values**

Value	Description
2	Failed
4096 ¹	Job Created ¹

620 **Table 50 – CreateTargetedConfigJob() Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN, REQ	Target	String	Shall be set to “BIOS.Setup.1-1”
IN	RebootJobType	Uint16	Shall contain the requested reboot type: 1 - PowerCycle 2 - Graceful Reboot without forced shutdown 3 - Graceful Reboot with forced shutdown.
IN	ScheduledStartTime	String	Schedules the “configuration job” and the optional “reboot job” at the specified start time in the format: yyyyymmddhhmmss. A special value of “TIME_NOW” schedules the job(s) immediately.

Qualifiers	Name	Type	Description/Values
IN	UntilTime	String	End time for the job execution in format: yyyyymmddhhmmss. : If this parameter is not NULL, then ScheduledStartTime parameter shall also be specified. NOTE: This parameter has a dependency on "ScheduledStartTime" parameter. Both "ScheduledStartTime" and "UntilTime" parameters define a time window for scheduling the job(s). After scheduling, jobs are executed within the time window.
OUT	Job ¹	CIM_ConcreteJob REF	Reference to the newly created pending value application job. ¹
OUT	MessageID	String	Error MessageID
OUT	Message	String	Error Message
OUT	MessageArguments[]	String	Error MessageArguments

621 NOTE: 1 – If return code is 4096 (Job Created), the newly created job does not execute if the LC core services are
622 not running. Verify that DCIM_LCEnumeration with AttributeName equal to "LifecycleControllerState" has the
623 CurrentValue property equal to "Enabled". For more information, see DCIM LC Management Profile.

624

Table 51 – CreateTargetedConfigJob() Method: Standard Messages

MessageID (OUT parameter)	Message	MessageArguments[]
BIOS001	The command was successful	
BIOS002	Resource allocation failure	
BIOS003	Missing required parameter	
BIOS004	Invalid parameter value for <parameter name>	Parameter
BIOS007	Configuration job already created, cannot create another config job on specified target until existing job is completed or is cancelled	
BIOS008	No pending data is present to create a Configuration job	
BIOS009	System Services is currently in use, cannot create Configuration job	
BIOS010	System Services is disabled, cannot create Configuration job	
BIOS011	Configuration job already created, pending data cannot be deleted	
BIOS012	No pending data present to delete	
BIOS017	Unable to delete vFlash pending one-time boot configuration	
LC062	An instance of Export or Import System Configuration is already running.	

625

626 **8.5 DCIM_BIOSService.DeletePendingConfiguration()**

627 The DeletePendingConfiguration() method is used to cancel the pending values created by the
628 SetAttribute and SetAttributes methods. The DeletePendingConfiguration() method cancels the pending
629 configuration changes made before the configuration job is created with CreateTargetedConfigJob(). This
630 method only operates on the pending changes prior to CreateTargetedConfigJob() being called. After the
631 configuration job is created, use the DeleteJobQueue() method in the Job Control profile to cancel the
632 pending changes.

633 Return code values for the DeletePendingConfiguration() method are specified in Table 52, and
634 parameters are specified in Table 53.

635 **Table 52 – DeletePendingConfiguration() Method: Return Code Values**

Value	Description
0	Completed with no error
2	Failed

636 **Table 53 – DeletePendingConfiguration() Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN, REQ	Target	String	FQDD of the BIOS
OUT	MessageID	String	Error MessageID
OUT	Message	String	Error Message
OUT	MessageArguments[]	String	Error MessageArguments

637 **Table 54 – DeletePendingConfiguration() Method: Standard Messages**

MessageID (OUT parameter)	Message	MessageArguments[]
BIOS001	The command was successful	
BIOS002	Resource allocation failure	
BIOS003	Missing required parameter	
BIOS004	Invalid parameter value for <parameter name>	Parameter
BIOS011	Configuration job already created, pending data cannot be deleted	
BIOS012	No pending data present to delete	
BIOS017	Unable to delete vFlash pending one- time boot configuration	
LC062	An instance of Export or Import System Configuration is already running.	

638

639 **8.6 DCIM_BootConfigSetting.ChangeBootSourceState()**

640 The ChangeBootSourceState() method is used change the enabled or disabled state of a single or
641 multiple boot devices.

642 Invoking the ChangeBootSourceState() method shall change the boot sources state and affect
 643 DCIM_BootSourceSetting.PendingEnabledStatus properties. Upon the successful invocation, the
 644 DCIM_BootSourceSetting.PendingEnabledStatus shall have the value specified by the EnabledState
 645 parameter for the DCIM_BootSourceSetting instances with the InstanceID property matching the
 646 InstanceID parameter value(s).

647 **NOTE:** Invoking the ChangeBootSourceState() method multiple times can result in the earlier requests
 648 being overwritten or lost.

649 Upon the successful completion of the returned job, the CurrentEnabledStatus shall have the same value
 650 as the PendingEnabledStatus.

651 Return code values for the ChangeBootSourceState() method are specified in Table 55 and parameters
 652 are specified in Table 56.

653 **Table 55 – ChangeBootSourceState() Method: Return Code Values**

Value	Description
0	Completed with no error
2	Failed

654 **Table 56 – ChangeBootSourceState() Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN, REQ	EnabledState	String	Shall contain the requested state for the boot device.
IN, REQ	source[]	String	Shall contain the InstanceID value(s) for DCIM_BootSourceSetting instances to be affected.
OUT	MessageID	String	Error MessageID
OUT	Message	String	Error Message
OUT	MessageArguments[]	String	Error MessageArguments

655 **Table 57 – ChangeBootSourceState() Method: Standard Messages**

MessageID (OUT parameter)	Message	MessageArguments[]
BOOT001	The command was successful	
BOOT002	Resource allocation failure	
BOOT003	Method not supported	
BOOT004	Invalid number of Boot Source arguments	
BOOT005	Missing required parameter	
BOOT006	Invalid Boot Source InstanceID	
BOOT007	Boot Source does not belong to specified Boot Configuration	
BOOT008	Source argument contains more devices than are present on the system	
BOOT009	Boot Sources cannot be found for this Boot Configuration	

656 **8.7 DCIM_BootConfigSetting.ChangeBootOrderByInstanceID()**

657 The ChangeBootOrderByInstanceID() method is used to change the order of boot devices within the boot
658 list.

659 Invoking the ChangeBootOrderByInstanceID() method shall order the boot devices in the list in
660 accordance to the corresponding array element in the Source parameter array. The omitted boot devices
661 in the Source parameter array shall be omitted in the boot list ordering.

662 Each element of the Source parameter array shall have value of a DCIM_BootSourceSetting.InstanceID
663 property.

664 Upon successful completion of this method, the value of the PendingAssignedSequence property on each
665 instance of CIM_BootSourceSetting shall be updated such that the values are monotonically increasing in
666 correlation with the position the “source” input parameter array. That is, the first position in the array shall
667 have the lowest non-zero value for PendingAssignedSequence. The second position will have the second
668 lowest value, and so on.

669 Upon successful completion of this method, the value of the PendingAssignedSequence property on each
670 instance of DCIM_BootSourceSetting, that relates to the target DCIM_BootConfigSetting instance that is
671 not present in the input array, shall be assigned a value of 0.

672 **NOTE:** Invoking the ChangeBootOrderByInstanceID() method multiple times can result in the earlier
673 requests being overwritten or lost.

674 Upon the successful completion of the returned job, the CurrentAssignedSequence shall have the same
675 value as the PendingAssignedSequence.

676 Return code values for the ChangeBootOrderByInstanceID() method are specified in Table 58 and
677 parameters are specified in Table 59.

678 **Table 58 – ChangeBootOrderByInstanceID() Method: Return Code Values**

Value	Description
0	Completed with no error
1	Not Supported
2	Failed
4096 ¹	Job Created ¹

679 **Table 59 – ChangeBootOrderByInstanceID() Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN, REQ	source[]	String	Shall contain the InstanceID value(s) for DCIM_BootSourceSetting instances to change the order of.
OUT	MessageID	String	Error MessageID
OUT	Message	String	Error Message
OUT	MessageArguments[]	String	Error MessageArguments

680 NOTE: 1 – 4096(Job Created) shall be returned, only and only if the soure parameter array contains boot source
681 reference for an unattached vFlash partition. If return code is 4096 (Job Created), the newly created job does not
682 execute if the LC core services are not running. Verify that DCIM_LCEnumeration with AttributeName equal to
683 “LifecycleControllerState” has the CurrentValue property equal to “Enabled”. For more information, see DCIM LC
684 Management Profile.

685

686

Table 60 – ChangeBootOrderByInstanceID() Method: Standard Messages

MessageID (OUT parameter)	Message	MessageArguments[]
BOOT001	The command was successful	
BOOT002	Resource allocation failure	
BOOT003	Method not supported	
BOOT004	Invalid number of Boot Source arguments	
BOOT005	Missing required parameter	
BOOT006	Invalid Boot Source InstanceID	
BOOT007	Boot Source does not belong to specified Boot Configuration	
BOOT008	Source argument contains more devices than are present on the system	
BOOT009	Boot Sources cannot be found for this Boot Configuration	
BOOT010	Could not locate vFlash partition index	
BOOT011	Failed to set vFlash partition for one time boot	
BOOT012	Job started to attach and set vFlash partition for one time boot	
BOOT014	Virtual media not ready	
BOOT015	Job to attach and set vFlash partition for one time boot completed successfully	

687

688 **9 Use Cases**

689 See *Lifecycle Controller (LC) Integration Best Practices Guide*.

690 **10 CIM Elements**

691 No additional requirements are specified.

692 **11 Privilege and License Requirement**

693 The following table describes the privilege and license requirements for the listed operations . For the
 694 detailed explanation of the privileges and licenses, refer to the Dell WSMAN Licenses and Privileges
 695 specification.

696 **Table 61 – Privilege and License Requirements**

Class and Method	Operation	User Privilege Required	License Required
DCIM_BIOSService	ENUMERATE, GET	Login	None.

Class and Method	Operation	User Privilege Required	License Required
DCIM_BIOSPassword	ENUMERATE, GET	Login, Server Control	LM_REMOTE_CONFIGUR RATION
DCIM_BIOSService.SetAttribute()	INVOKE	Login, Server Control	LM_REMOTE_CONFIGUR RATION
DCIM_BIOSService.SetAttributes()	INVOKE	Login, Server Control	LM_REMOTE_CONFIGUR RATION
DCIM_BIOSService. CreateTargetedConfigJob()	INVOKE	Login, Server Control	LM_REMOTE_CONFIGUR RATION
DCIM_BIOSService. DeletePendingConfiguration()	INVOKE	Login, Server Control	LM_REMOTE_CONFIGUR RATION
DCIM_BIOSService. ChangePassword()	INVOKE	Login, Server Control	LM_REMOTE_CONFIGUR RATION
DCIM_BIOSEnumeration	ENUMERATE, GET	Login	LM_REMOTE_CONFIGUR RATION
DCIM_BIOSInteger	ENUMERATE, GET	Login	LM_REMOTE_CONFIGUR RATION
DCIM_BIOSString	ENUMERATE, GET	Login	LM_REMOTE_CONFIGUR RATION
DCIM_BootSourceSetting	ENUMERATE, GET	Login	LM_REMOTE_CONFIGUR RATION, LM_VIRTUAL_FLASH_PA RTITIONS ¹
DCIM_BootConfigSetting	ENUMERATE, GET	Login	LM_REMOTE_CONFIGUR RATION, LM_VIRTUAL_FLASH_PA RTITIONS ¹
DCIM_BootConfigSetting. ChangeBootOrderByInstanceID()	INVOKE	Login, Server Control	LM_REMOTE_CONFIGUR RATION, LM_VIRTUAL_FLASH_PA RTITIONS ¹
DCIM_BootConfigSetting. ChangeBootSourceState()	INVOKE	Login, Server Control	LM_REMOTE_CONFIGUR RATION, LM_VIRTUAL_FLASH_PA RTITIONS ¹
DCIM_LCElementConformsToProfile	ENUMERATE, GET	Login	None.
DCIM_LCRegisteredProfile	ENUMERATE, GET	Login	None.

697 NOTE: 1 – For vFlash boot representation and configuration the requester needs to have
698 LM_VIRTUAL_FLASH_PARTITIONS license. For NON-vFlash boot representation and configuration,
699 LM_VIRTUAL_FLASH_PARTITIONS is NOT necessary.

700 **ANNEX A**
701 (informative)

702 **BIOS Attribute Changes from Version 1.1**
703

704 **A.1 BIOS Change Categories**

705 Changes to BIOS attributes in this version loosely fall into the following categories:

- 706 • Power Profiles Depreciated; replaced by System Profiles
- 707 • New System Profile values are:
 - 708 ○ Performance Per Watt Optimized (DAPC),
 - 709 ○ Performance Per Watt Optimized (OS),
 - 710 ○ Performance Optimized,
 - 711 ○ Dense Configuration Optimized,
 - 712 ○ Custom.
- 713 • Additional sub knobs for System Profile like Memory Patrol Scrub, Memory Refresh Rate
- 714 • Turbo, C1E and C states moved to System Profile group.
- 715 • Removed the Fan Control settings in BIOS setup.
- 716 • Added capability to allow PCI slot enable/disable.
- 717 • QPI frequency selection
- 718 • Network Daughter Cards (NDCs) replace LOMS on most of our newest generation systems
- 719 • Fron panel LCD management is moved completely to iDRAC

720
721 **A.2 Table of Specific Attribute Changes**

722 The following table uses the programmatic attribute name and not the attribute display name to identify
723 specific BIOS attributes. Refer to the BIOS Attribute Registry (TBD: link to the attribute registry site) for
724 individual attribute display name, possible value, and other attribute meta-data. For the complete list of
725 BIOS attributes, see section 7.1.5 BIOS Attributes
726

Attribute	FQDD	Notes
<i>Deleted in this version.</i>		
PowerMgmt	BIOS.Setup.1	Changed to SysProfile in this version.
FanPwrPerf	BIOS.Setup.1	Fan management removed from BIOS
MemDynamicPwr	BIOS.Setup.1	This attribute is specific to iDPT (Monroe Technology) on Nehalem EX - 4 socket platforms (eg McCave)
MemPwrPerf	BIOS.Setup.1	Changed to several memory related attributes in this version.
<i>Changed in this version.</i>		
FrontLcd	System.Embedded.1	Changed FQDD from BIOS.Setup.1 to System.Embedded.1
UserLcdStr	System.Embedded.1	Changed FQDD from BIOS.Setup.1 to System.Embedded.1
ProcTurboMode	BIOS.Setup.1	Changed Group = SysProfileSettings
ProcCStates	BIOS.Setup.1	Changed Group = SysProfileSettings
ProcC1E	BIOS.Setup.1	Changed Group = SysProfileSettings
<i>Added in this version.</i>		
MemPatrolScrub	BIOS.Setup.1	Group = SysProfileSettings
MemRefreshRate	BIOS.Setup.1	Group = SysProfileSettings
SysProfile	BIOS.Setup.1	Group = SysProfileSettings
MemFrequency	BIOS.Setup.1	Group = SysProfileSettings
MemPwrMgmt	BIOS.Setup.1	Group = SysProfileSettings
PowerDelivery	BIOS.Setup.1	Group = SysProfileSettings
Slot1	BIOS.Setup.1	Group = SlotDisablement

Attribute	FQDD	Notes
Slot2	BIOS.Setup.1	Group = SlotDisablement
Slot3	BIOS.Setup.1	Group = SlotDisablement
Slot4	BIOS.Setup.1	Group = SlotDisablement
Slot5	BIOS.Setup.1	Group = SlotDisablement
Slot6	BIOS.Setup.1	Group = SlotDisablement
Slot7	BIOS.Setup.1	Group = SlotDisablement
QPISpeed	BIOS.Setup.1	Group = ProcSettings
IntegratedNetwork1	BIOS.Setup.1	Group = IntegratedDevices
IntegratedNetwork2	BIOS.Setup.1	Group = IntegratedDevices

728
729
730
731
732

ANNEX B (informative)

Change Log

Version	Date	Description
1.3.0		Added LC062 error message to the SetAttribute(), SetAttributes(), CreateTargetedConfigJob(), and DeletePendingConfiguration() methods.
1.3.0	9/28/2012	Correct privilege of BIOSPassword(Enum/Get) to Login, Server Control

733
734
735