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Document Number: DSP1005

Date: 2010-04-22

Version: 1.0.1

5

Command Line Protocol Service Profile

6

Document Type: Specification

7

Document Status: DMTF Standard

8

Document Language: US-en

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182

184

Foreword

185 The *Command Line Protocol Service Profile* (DSP1005) was prepared by the Physical Platform Profiles
186 Working Group and the Server Management Working Group of the DMTF.

187 DMTF is a not-for-profit association of industry members dedicated to promoting enterprise and systems
188 management and interoperability. For information about the DMTF, see <http://www.dmtf.org>.

189 Acknowledgments

190 The authors wish to acknowledge the following people.

191 Editors:

- 192 • Aaron Merkin – IBM
- 193 • Jeff Hilland – HP

194 Contributors from the DMTF:

- 195 • Jon Hass – Dell
- 196 • Khachatur Papanyan – Dell
- 197 • Enoch Suen – Dell
- 198 • Jeff Hilland – HP
- 199 • Christina Shaw – HP
- 200 • Perry Vincent – Intel
- 201 • John Leung – Intel

202

203

Introduction

204 The information in this specification should be sufficient for a provider or consumer of this data to identify
205 unambiguously the classes, properties, methods, and values that shall be instantiated and manipulated to
206 represent and manage a CLP service, its associated configuration information, and any active
207 connections.

208 The target audience for this specification is implementers who are writing CIM-based providers or
209 consumers of management interfaces that represent the component described in this document.

210

Command Line Protocol Service Profile

211 1 Scope

212 The *Command Line Protocol Service Profile* extends the management capability of referencing profiles by
213 adding the capability to represent a CLP service and its associated sessions. A CLP service is logical
214 entity that provides management access through the *Server Management Command Line Profile* defined
215 in the [Server Management Command Line Protocol Specification](#).

216 2 Normative References

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

220 DMTF DSP0004, *CIM Infrastructure Specification 2.5*,
221 http://www.dmtf.org/standards/published_documents/DSP0004_2.5.pdf

222 DMTF DSP0200, *CIM Operations over HTTP 1.3*,
223 http://www.dmtf.org/standards/published_documents/DSP0200_1.3.pdf

224 DMTF DSP0214, *Server Management Command Line Protocol Specification 1.0*,
225 http://www.dmtf.org/standards/published_documents/DSP0214_1.0.pdf

226 DMTF DSP1001, *Management Profile Specification Usage Guide 1.0*,
227 http://www.dmtf.org/standards/published_documents/DSP1001_1.0.pdf

228 DMTF DSP1004, *Base Server Profile 1.0*,
229 http://www.dmtf.org/standards/published_documents/DSP1004_1.0.pdf

230 DMTF DSP1007, *SM CLP Admin Domain Profile 1.0*,
231 http://www.dmtf.org/standards/published_documents/DSP1007_1.0.pdf

232 DMTF DSP1016, *Telnet Service Profile 1.0*,
233 http://www.dmtf.org/standards/published_documents/DSP1016_1.0.pdf

234 DMTF DSP1017, *SSH Service Profile 1.0*,
235 http://www.dmtf.org/standards/published_documents/DSP1017_1.0.pdf

236 DMTF DSP1033, *Profile Registration Profile 1.0*,
237 http://www.dmtf.org/standards/published_documents/DSP1033_1.0.pdf

238 DMTF DSP1034, *Simple Identity Management Profile 1.0*,
239 http://www.dmtf.org/standards/published_documents/DSP1034_1.0.pdf

240 DMTF DSP1039, *Role Based Authorization Profile 1.0*,
241 http://www.dmtf.org/standards/published_documents/DSP1039_1.0.pdf

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

244 3 Terms and Definitions

245 In this document, some terms have a specific meaning beyond the normal English meaning. Those terms
246 are defined in this clause.

247 The terms "shall" ("required"), "shall not," "should" ("recommended"), "should not" ("not recommended"),
248 "may," "need not" ("not required"), "can" and "cannot" in this document are to be interpreted as described
249 in [ISO/IEC Directives, Part 2](#), Annex H. The terms in parenthesis are alternatives for the preceding term,
250 for use in exceptional cases when the preceding term cannot be used for linguistic reasons. Note that
251 [ISO/IEC Directives, Part 2](#), Annex H specifies additional alternatives. Occurrences of such additional
252 alternatives shall be interpreted in their normal English meaning.

253 The terms "clause," "subclause," "paragraph," and "annex" in this document are to be interpreted as
254 described in [ISO/IEC Directives, Part 2](#), Clause 5.

255 The terms "normative" and "informative" in this document are to be interpreted as described in [ISO/IEC](#)
256 [Directives, Part 2](#), Clause 3. In this document, clauses, subclauses, or annexes labeled "(informative)" do
257 not contain normative content. Notes and examples are always informative elements.

258 The terms defined in [DSP0004](#), [DSP0200](#), [DSP1001](#), and [DSP1033](#) apply to this document.

259 4 Symbols and Abbreviated Terms

260 The following symbols and abbreviations are used in this document.

261 4.1

262 CIM

263 Common Information Model

264 4.2

265 CLP

266 Command Line Protocol

267 4.3

268 IP

269 Internet Protocol

270 4.4

271 TCP

272 Transmission Control Protocol

273 5 Synopsis

274 **Profile Name:** Command Line Protocol Service

275 **Version:** 1.0.1

276 **Organization:** DMTF

277 **CIM Schema Version:** 2.22

278 **Central Class:** CIM_ProtocolService

279 **Scoping Class:** CIM_ComputerSystem

280 The *Command Line Protocol Service Profile* extends the management capability of referencing profiles by
281 adding the capability to represent a CLP service in a managed system. This profile includes a
282 specification of the CLP service, its associated configuration, and any active sessions.

283 Table 1 identifies profiles on which this profile has a dependency.

284

Table 1 – Referenced Profiles

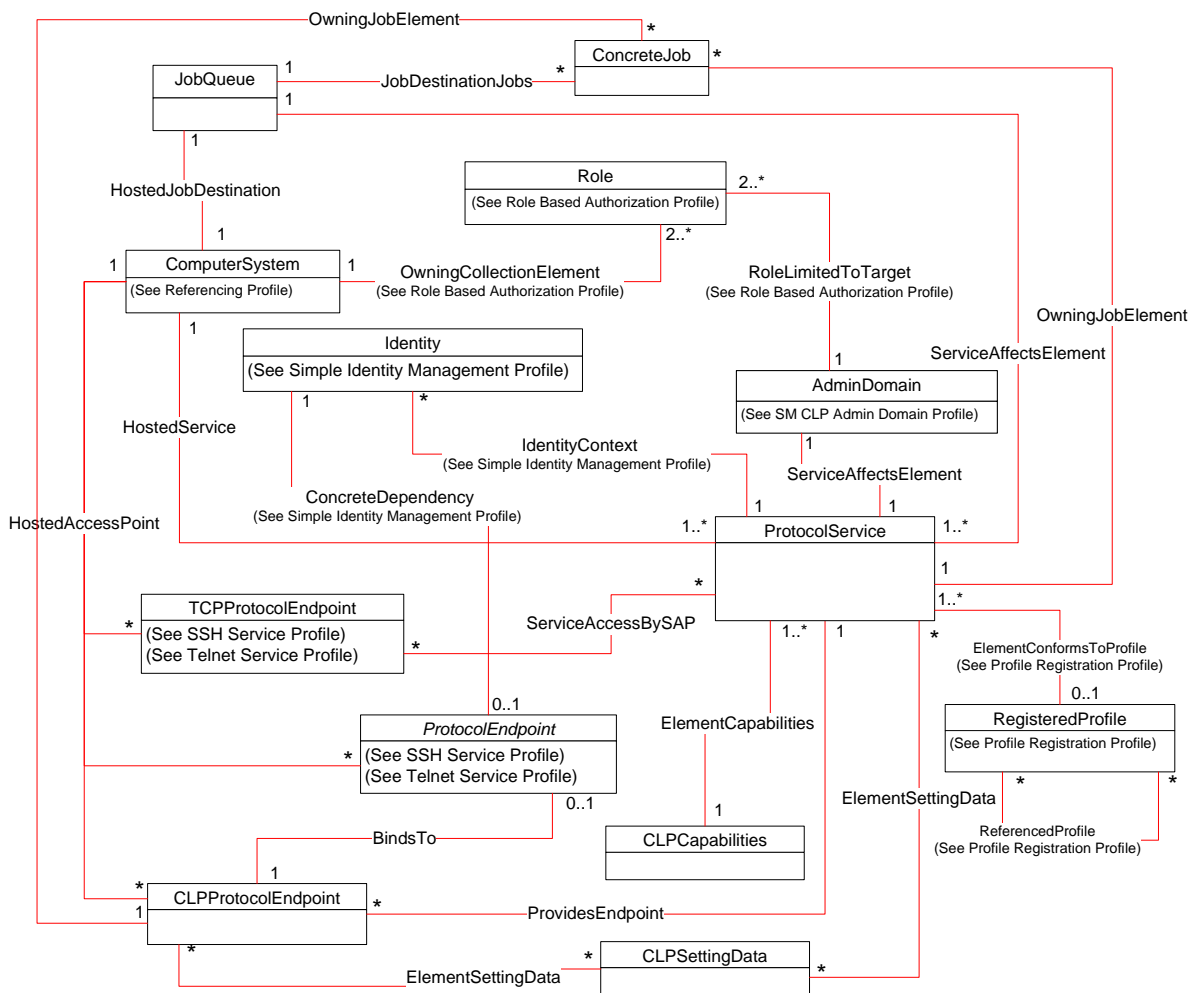
Profile Name	Organization	Version	Relationship	Behavior
Simple Identity Management	DMTF	1.0	Mandatory	See 7.5.
Profile Registration	DMTF	1.0	Mandatory	None
Role Based Authorization	DMTF	1.0	Mandatory	See 7.5.
SM CLP Admin Domain	DMTF	1.0	Mandatory	See 7.4.
SSH Service	DMTF	1.0	Optional	See 7.3.
Telnet Service	DMTF	1.0	Optional	See 7.3.

285 The Central Class for the *Command Line Protocol Service Profile* shall be the CIM_ProtocolService class.
 286 The Central Instance of the *Command Line Protocol Service Profile* shall be an instance of
 287 CIM_ProtocolService. The Scoping Class for the *Command Line Protocol Service Profile* shall be
 288 CIM_ComputerSystem. The Scoping Instance of the *Command Line Protocol Service Profile* shall be the
 289 instance of CIM_ComputerSystem to which the Central Instance is associated through an instance of the
 290 CIM_HostedService association.

291 **6 Description**

292 The *Command Line Protocol Service Profile* describes a CLP service, its associated configuration, and
 293 active sessions. A CLP Service is a conceptual entity that supports the protocol specified in *Server*
 294 *Management Command Line Protocol Specification (DSP0214)*. [DSP0214](#) identifies numerous
 295 requirements for configuration and management functionality of the CLP service itself. The *Command*
 296 *Line Protocol Service Profile* specifies how to satisfy these requirements through representation and
 297 manipulation of CIM elements.

298 Figure 1 represents the class schema for the *Command Line Protocol Service Profile*.



299

300

Figure 1 – Command Line Protocol Service Profile: Class Diagram

301 The *Command Line Protocol Service Profile* extends the management capability of referencing profiles by
 302 adding the capability to represent a CLP service hosted on a managed system. Functionality within the
 303 scope of this profile includes:

- 304 • representation of the CLP service
- 305 • representation of active CLP sessions at the CLP server
- 306 • configuration of the CLP service
- 307 • configuration of the CLP sessions from the CLP server

308 Functionality explicitly excluded from the scope of this profile includes modeling of the CLP session at the
 309 CLP client.

310 This profile represents the capabilities of the CLP service, the current configuration of the CLP service,
 311 active sessions, and the default settings when new sessions are activated. The CLP service is
 312 represented by an instance of CIM_ProtocolService. The capabilities of the CLP service are represented
 313 by an instance of CIM_CLPCapabilities. The current configuration of the CLP service is modeled with the
 314 properties from the instance of CIM_ProtocolService. Each active session with the CLP service is
 315 represented by an instance of CIM_CLPProtocolEndpoint. The current configuration of an active session
 316 is reflected in the values of the properties from the CIM_CLPProtocolEndpoint. CIM_CLPSettingData

317 represents a complete configuration that a CLP session could have. When associated with
318 CIM_ProtocolService, an instance of CIM_CLPSettingData contains a configuration that could be in effect
319 for a CLP session when it is first established. When associated with a CIM_CLPProtocolEndpoint, an
320 instance of CIM_CLPSettingData contains the configuration that was in effect when the CLP session was
321 established.

322 [DSP0214](#) specifies requirements for the management of CLP operations. CLP operations and the job
323 queue are modeled using CIM_ConcreteJob and CIM_JobQueue respectively. See 7.6.

324 **6.1 CLP Session Lifecycle**

325 When a CLP session is established with the CLP service, an instance of CIM_CLPProtocolEndpoint is
326 created. The CIM_CLPProtocolEndpoint instance exists for the duration of the CLP session that it
327 represents. When the CLP session is ended, the CIM_CLPProtocolEndpoint will be removed. When the
328 CIM_CLPProtocolEndpoint is explicitly deleted through an intrinsic DeleteInstance operation, the CLP
329 session is ended.

330 **7 Implementation Requirements**

331 This clause details the requirements related to the arrangement of instances and properties of instances
332 for implementations of this profile.

333 **7.1 Representing a CLP Service**

334 An instance of CIM_ProtocolService shall represent the CLP service being modeled.

335 **7.1.1 CIM_ProtocolService.Protocol**

336 The Protocol property of the CIM_ProtocolService instance shall have a value of 4 (CLP).

337 **7.1.2 CLP Service Capabilities**

338 An instance of CIM_CLPCapabilities shall be associated with the CIM_ProtocolService instance through
339 an instance of CIM_ElementCapabilities. This instance of CIM_CLPCapabilities shall represent the
340 capabilities of the CLP service.

341 **7.1.2.1 Maximum Number of Sessions Supported**

342 A value of zero for the CIM_CLPCapabilities.MaxConnections property shall indicate that the CLP service
343 does not enforce a limit on the number of concurrent sessions supported. The underlying transport
344 protocol may enforce a limit on the number of concurrent session which would in turn result in a restriction
345 in the number of concurrent CLP sessions. When the optional behavior of modeling the underlying
346 transport is implemented (see 7.3), the CIM_ProtocolServiceCapabilities.MaxConnections property for the
347 CIM_ProtocolService instance representing the transport will indicate the maximum number of concurrent
348 sessions for the transport.

349 **7.1.3 Managing the CLP Service's State**

350 This clause describes the usage of the RequestedState and EnabledState properties to represent the
351 state of an instance of CIM_ProtocolService.

352 **7.1.3.1 State Management Supported**

353 Exactly one instance of CIM_CLPCapabilities shall be associated with an instance of
354 CIM_ProtocolService, which indicates support for managing the state of the CLP service.

355 Support for managing the state of the CLP service is conditional behavior. This clause describes the CIM
356 elements and behaviors that shall be implemented when this behavior is supported.

357 **7.1.3.2 CIM_ProtocolService.RequestStateChange() Supported**

358 When the CIM_CLPCapabilities.RequestedStatesSupported property contains at least one value, the
359 CIM_ProtocolService.RequestStateChange() method shall be implemented and supported. The
360 CIM_ProtocolService.RequestStateChange() method shall not return a value of 1 (Unspecified).

361 **7.1.3.3 CIM_ProtocolService.RequestedState**

362 When state management is supported, the RequestedState property shall be supported. When state
363 management is Unspecified, the RequestedState property may be supported.

364 Upon successful invocation of the CIM_ProtocolService.RequestStateChange() method, the value of the
365 RequestedState property shall be the value of the RequestedState parameter. If the method is not
366 successfully invoked, the value of the RequestedState property is indeterminate. When the
367 RequestedStatesSupported property of the associated instance of CIM_CLPCapabilities contains one or
368 more values, the RequestedState property shall have one of the values specified or 5 (No Change).
369 When the RequestedStatesProperty of the associated instance of
370 CIM_EnabledLogicalElementCapabilities does not contain any values, the RequestedState property shall
371 have the value of 12 (Not Applicable).

372 **7.1.3.4 EnabledState**

373 When the RequestedState parameter has a value of 2 (Enabled) or 3 (Disabled), upon successful
374 completion of the CIM_ProtocolService.RequestStateChange() method, the value of the EnabledState
375 property shall equal the value of the RequestedState property. If the method does not complete
376 successfully, the value of the EnabledState property is indeterminate. The EnabledState property shall
377 have the value 2 (Enabled), 3 (Disabled), or 5 (Not Applicable).

378 **7.1.3.5 Indicating State Management Support with CIM_CLPCapabilities**

379 When state management is supported, the RequestedStatesSupported property of the
380 CIM_CLPCapabilities instance associated with the CIM_ProtocolService instance via an instance of
381 CIM_ElementCapabilities shall contain at least one value. The RequestedStatesSupported property may
382 have zero or more of the following values: 2 (Enabled), 3 (Disabled), or 11 (Reset).

383 **7.1.4 CIM_ProtocolService ElementName Constraints**

384 The ElementName property of CIM_ProtocolService may be modifiable by a client or it may have a fixed
385 value.

386 **7.1.4.1 ElementName Is Not Modifiable**

387 When an implementation does not support modification of the ElementName property by a client, the
388 ElementName property shall be formatted as a free-form string of variable length (pattern ".*").

389 **7.1.4.2 ElementName Is Modifiable**

390 The CIM_ProtocolService.ElementName property may be modified by a client. This is conditional
391 behavior. This clause describes the CIM elements and behavioral requirements when an implementation
392 supports client modification of the CIM_ProtocolService.ElementName property.

393 **7.1.4.2.1 CIM_CLPCapabilities.ElementNameEditSupported**

394 This property shall have a value of TRUE when the implementation supports client modification of the
395 CIM_ProtocolService.ElementName property.

396 **7.1.4.2.2 CIM_CLPCapabilities.MaxElementNameLen**

397 The MaxElementNameLen property shall be implemented when the ElementNameEditSupported
398 property has a value of TRUE. The MaxElementNameLen property shall indicate the maximum length of
399 a string that the implementation will accept as a value for the ElementName property of the associated
400 CIM_ProtocolService instance.

401 **7.2 Representing a CLP Session**

402 Each active session with the CLP service shall be represented with an instance of
403 CIM_CLPProtocolEndpoint.

404 **7.2.1 Relationship with Service**

405 An instance of CIM_ProvidesEndpoint shall associate the CIM_ProtocolService with the
406 CIM_CLPProtocolEndpoint.

407 **7.2.2 Specification Default Configuration**

408 [DSP0214](#) defines default values for each session attribute that is required to be maintained. This is the
409 specification default configuration and shall be represented by an instance of CIM_CLPSettingData
410 implemented as specified in 10.4. This instance of CIM_CLPSettingData shall be associated with the
411 Central Instance through the CIM_ElementSettingData association where the IsDefault property of the
412 CIM_ElementSettingData instance has the value 1 (Is Default).

413 **7.2.3 Session Default Configuration**

414 When a CLP session is created, it will have an initial configuration. Implementations can indicate to
415 clients the configuration that will be assigned to a session. An implementation can also indicate to clients
416 the configuration that an active session had when the session was first established. This specification
417 does not identify requirements for representing the configuration that will be utilized when a specific user
418 establishes a session.

419 **7.2.3.1 Configuration that Will Be Assigned (Optional)**

420 The same initial configuration may be assigned for all CLP sessions spawned. This is optional behavior.
421 When the implementation assigns the same initial configuration for all CLP sessions, the configuration
422 that a session will have when it is established shall be represented by an instance of
423 CIM_CLPSettingData associated with the CIM_ProtocolService through an instance of
424 CIM_ElementSettingData where the IsNext property of the CIM_ElementSettingData instance has a value
425 of 1 (Is Next).

426 **7.2.3.2 Initial Configuration of a Session (Optional)**

427 The initial configuration of a session may be modeled. This is optional behavior. When the configuration
428 that a session had when it was established is modeled, it shall be represented by an instance of
429 CIM_CLPSettingData associated with the CIM_CLPProtocolEndpoint through an instance of
430 CIM_ElementSettingData where the IsCurrent property of the CIM_ElementSettingData instance has a
431 value of 1 (Is Current).

432 It is not necessary that there be a discrete copy of CIM_CLPSettingData for each active session. It is only
433 necessary that the CIM_CLPSettingData associated with the CIM_CLPProtocolEndpoint accurately
434 reflect the initial configuration of the session.

435 7.3 Relationship with Transport Services (Optional)

436 [DSP0214](#) indicates support for accessing the CLP using either SSH or Telnet as the transport protocol.
437 The ability to access the CLP through SSH or Telnet may be modeled. When the ability to access the
438 CLP over SSH is modeled, the [SSH Service Profile](#) shall be implemented. When the ability to access the
439 CLP over Telnet is modeled, the [Telnet Service Profile](#) shall be implemented. When the ability to access
440 the CLP through a transport protocol is modeled, the behavior in the following clauses shall be
441 implemented.

442 7.3.1 Access via SSH

443 A CLP implementation may be accessible via SSH. When the SSH service underlying the CLP service is
444 modeled the requirements in this clause shall be met.

445 The [SSH Service Profile](#) shall be implemented. The optional behavior specified in clause 7.1.5.1.1 of the
446 [SSH Service Profile](#) should be implemented. After a CLP session has been established through an SSH
447 session, there shall be an instance of CIM_BindsTo that associates the CIM_CLPProtocolEndpoint
448 representing the CLP session with the CIM_SSHProtocolEndpoint representing the SSH session.

449 7.3.2 Access via Telnet

450 A CLP implementation may be accessible via Telnet. When the Telnet service underlying the CLP service
451 is modeled the requirements in this clause shall be met.

452 The [Telnet Service Profile](#) shall be implemented. The optional behavior specified in clause 7.2.2.1 of
453 [Telnet Service Profile](#) should be implemented. After a CLP session has been established through a
454 Telnet session, there shall be an instance of CIM_BindsTo that associates the CIM_CLPProtocolEndpoint
455 representing the CLP session with the CIM_TelnetProtocolEndpoint representing the Telnet session.

456 7.3.3 Port(s) Through Which the CLP Can Be Accessed

457 When the optional behavior specified in clause 7.1.5.1.1 of [SSH Service Profile](#) or the optional behavior
458 specified in clause 7.2.2.1 of [Telnet Service Profile](#) is implemented, there will be at least one instance of
459 CIM_TCPProtocolEndpoint.

460 For each instance of CIM_TCPProtocolEndpoint, if establishing a connection to the transport protocol
461 through the port represented by the instance of CIM_TCPProtocolEndpoint will establish, or enable the
462 establishment of, a CLP session, the Central Instance shall be associated to the instance of
463 CIM_TCPProtocolEndpoint through an instance of CIM_ServiceAccessBySAP.

464 7.4 SM CLP Admin Domain

465 The *SM CLP Admin Domain Profile* shall be implemented. There shall be an instance of
466 CIM_ServiceAffectsElement that associates the Central Instance of this profile with the Central Instance
467 of the *SM CLP Admin Domain Profile*.

468 7.5 CLP User Account Management (Mandatory)

469 This clause describes the requirements for representing CLP groups and authorization. The [Simple](#)
470 [Identify Management Profile](#) and the [Role Based Authorization Profile](#) shall be implemented.

471 7.5.1 Constraining Role Usage

472 This clause details constraints on associations defined in the [Role Based Authorization Profile](#) that are
473 used to indicate the scope of an instance of CIM_Role.

474 7.5.1.1 Role Scope

475 Each instance of CIM_Role implemented as defined in 7.5.2.1, 7.5.3.1, and 7.5.4.1 shall be associated
476 with the CIM_AdminDomain instance specified in 7.4 through the CIM_RoleLimitedToTarget association.

477 7.5.1.2 Role Ownership

478 Each instance of CIM_Role implemented as defined in 7.5.2.1, 7.5.3.1, and 7.5.4.1 shall be associated
479 with the Scoping Instance through the CIM_OwningCollectionElement association.

480 7.5.2 Representing the CLP Administrator Role and Privileges

481 This clause details the requirements for representing an SM CLP Administrator Role.

482 7.5.2.1 Administrator Role

483 There shall be an instance of CIM_Role implemented as specified in 10.27.

484 7.5.2.2 Administrator Privileges

485 There shall be an instance of CIM_Privilege associated with the instance of CIM_Role defined in 7.5.2.1
486 through the CIM_MemberOfCollection association. There shall not be any other instances of
487 CIM_Privilege associated with instance of CIM_Role defined in 7.5.2.1. The instance of CIM_Privilege
488 shall be implemented as specified in 10.21.

489 7.5.2.2.1 CIM_Privilege.Activities

490 For each array index of the CIM_Privilege.ActivityQualifiers property that contains a value, the
491 corresponding index of the CIM_Privilege.Activities property shall contain the value 7 (Execute).

492 7.5.2.2.2 CIM_Privilege.ActivityQualifiers

493 The CIM_Privilege.ActivityQualifiers property shall contain the values {"cd", "exit", "help", "show", "version",
494 "reset", "start", "stop", "set", "load", "dump", "create", "delete"} and may contain additional values.

495 7.5.3 Representing the CLP Operator Role and Privileges (Optional)

496 This clause details the requirements for representing an SM CLP User Role.

497 7.5.3.1 Operator Role

498 There shall be an instance of CIM_Role implemented as specified in 10.28.

499 7.5.3.2 Operator Privileges

500 There shall be an instance of CIM_Privilege associated with the instance of CIM_Role defined in 7.5.3.1
501 through the CIM_MemberOfCollection association. There shall not be any other instances of
502 CIM_Privilege associated with instance of CIM_Role defined in 7.5.3.1. The instance of CIM_Privilege
503 shall be implemented as specified in 10.22.

504 7.5.3.2.1 CIM_Privilege.Activities

505 For each array index of the CIM_Privilege.ActivityQualifiers property that contains a value, the
506 corresponding index of the CIM_Privilege.Activities property shall contain the value 7 (Execute).

507 **7.5.3.2.2 CIM_Privilege.ActivityQualifiers**

508 The CIM_Privilege.ActivityQualifiers property shall contain the values {"cd", "exit", "help", "show", "version",
509 "reset", "start", "stop", "set", "load", "dump"}. The CIM_Privilege.ActivityQualifiers property shall not contain
510 the values {"create", "delete"}. The CIM_Privilege.ActivityQualifiers property may contain additional
511 values.

512 **7.5.4 Representing the CLP Read Only Role and Privileges**

513 This clause details the requirements for representing an SM CLP Read Only Role.

514 **7.5.4.1 Read Only Role**

515 There shall be an instance of CIM_Role implemented as specified in 10.29.

516 **7.5.4.2 Read Only Privileges**

517 There shall be an instance of CIM_Privilege associated with the instance of CIM_Role defined in 7.5.4.1
518 through the CIM_MemberOfCollection association. There shall not be any other instances of
519 CIM_Privilege associated with instance of CIM_Role defined in 7.5.4.1. The instance of CIM_Privilege
520 shall be implemented as specified in 10.23.

521 **7.5.4.2.1 CIM_Privilege.Activities**

522 For each array index of the CIM_Privilege.ActivityQualifiers property that contains a value, the
523 corresponding index of the CIM_Privilege.Activities property shall contain the value 7 (Execute).

524 **7.5.4.2.2 CIM_Privilege.ActivityQualifiers**

525 The CIM_Privilege.ActivityQualifiers property shall contain the values {"cd", "exit", "help", "show",
526 "version"}. The CIM_Privilege.ActivityQualifiers property shall not contain the values {"reset", "start",
527 "stop", "set", "load", "dump", "create", "delete"}. The CIM_Privilege.ActivityQualifiers property may contain
528 additional values.

529 **7.5.5 CLP Security Principals**

530 An instance of CIM_Identity representing the security principal of the CLP user shall exist or be
531 instantiated when a CLP session is established and a CLP user has been authorized.

532 **7.5.5.1 Identity Context**

533 An instance of CIM_Identity that represents the security principal of a CLP User shall be associated with
534 the Central Instance of this profile through the CIM_IdentityContext association.

535 **7.5.5.2 Security Principal for Session — Optional**

536 When the optional behavior specified in 7.3 is implemented, the instance of CIM_Identity that
537 corresponds to the security principal that was authenticated when the transport session underlying the
538 CLP session was established shall be associated with the instance of CIM_TelnetProtocolEndpoint or
539 CIM_SSHProtocolEndpoint that represents the transport session through the CIM_ConcreteDependency
540 association. The value of the CIM_ConcreteDependency.Antecedent property shall be a reference to the
541 instance of CIM_SSHProtocolEndpoint or CIM_TelnetProtocolEndpoint.

542 **7.5.6 CLP Authorized Role Management**

543 There shall be an instance of CIM_RoleBasedAuthorizationService associated to each instance of
544 CIM_Role implemented as defined in 7.5.2, 7.5.3, and 7.5.4 through the CIM_ServiceAffectsElement
545 association.

546 The instance of CIM_RoleBasedManagementCapabilities associated with the instance of
547 CIM_RoleBasedAuthorizationService shall follow these requirements:

- 548 • The CIM_RoleBasedManagementCapabilities.SharedPrivilegeSupported property shall be set
549 FALSE.
- 550 • The CIM_RoleBasedManagementCapabilities.ActivitiesSupported property shall have value of
551 {7(Execute), 7(Execute), 7(Execute), 7(Execute), 7(Execute), 7(Execute), 7(Execute),
552 7(Execute), 7(Execute), 7(Execute), 7(Execute), 7(Execute), 7(Execute)}.
- 553 • The CIM_RoleBasedManagementCapabilities.ActivityQualifiersSupported property shall have
554 value {"cd", "exit", "help", "show", "version", "reset", "start", "stop", "set", "load", "dump", "create",
555 "delete"}.
- 556 • The CIM_RoleBasedManagementCapabilities.QualifierFormatsSupported property shall have
557 value {9 (Command Line Instruction), 9 (Command Line Instruction), 9 (Command Line
558 Instruction), 9 (Command Line Instruction), 9 (Command Line Instruction), 9 (Command Line
559 Instruction), 9 (Command Line Instruction), 9 (Command Line Instruction), 9 (Command Line
560 Instruction), 9 (Command Line Instruction), 9 (Command Line Instruction), 9 (Command Line
561 Instruction), 9 (Command Line Instruction)}.
- 562 • The SupportedMethods property shall be a zero length array.

563 7.5.6.1 OEM Extensions

564 The CIM_RoleBasedManagementCapabilities.ActivityQualifiersSupported property shall contain a value
565 that corresponds to each OEM SM CLP verb supported. The corresponding array index of the
566 CIM_RoleBasedManagementCapabilities.ActivitiesSupported property shall have a value of {7(Execute)
567 and the corresponding array index of the
568 CIM_RoleBasedManagementCapabilities.QualifierFormatsSupported property shall have a value {9
569 (Command Line Instruction)}.

570 7.6 CLP Operations and Queue

571 This clause describes the requirements for modeling the CLP job queue and operations.

572 7.6.1 Job Queue

573 There shall be exactly one instance of CIM_JobQueue associated with the Scoping Instance through the
574 CIM_HostedJobDestination. The Central Instance shall be associated with the CIM_JobQueue instance
575 through the CIM_ServiceAffectsElement association.

576 7.6.2 Representing a CLP Operation

577 Each CLP command job shall be modeled with an instance of CIM_ConcreteJob. The instance of
578 CIM_ConcreteJob shall be associated with the instance of CIM_JobQueue through the
579 CIM_JobDestinationJobs association.

580 When an instance of CIM_ConcreteJob is created to represent a CLP operation, the initial value of the
581 CIM_ConcreteJob.TimeBeforeRemoval property shall be the datetime representation of the value of the
582 CIM_CLPProtocolEndpoint.KeepTime property of the instance of CIM_CLPProtocolEndpoint that
583 represents the session through which the CLP command that resulted in the CLP operation was received.

584 The killing of a job may be supported; this is job and implementation specific. See 8.2.

585 **7.6.2.1 CIM_ConcreteJob.JobState**

586 When a CIM_ConcreteJob is created the JobState property shall have the value 4 (Running). When a
587 CLP operation completes successfully, the JobState property shall have the value 7 (Completed). When a
588 CLP operation fails, the JobState property shall have the value 10 (Exception). When a CLP Operation is
589 killed using the CIM_ConcreteJob.RequestStateChange() method where the RequestedState parameter
590 has the value 5 (Kill), the JobState property shall have the value 9 (Killed). When a CLP Operation is
591 terminated using the CIM_ConcreteJob.RequestStateChange() method where the RequestedState
592 parameter has the value 4 (Terminate), the JobState property shall have the value 8 (Terminated).

593 **7.6.2.2 CIM_ConcreteJob.ElementName**

594 The ElementName property of an instance of CIM_ConcreteJob shall contain the Job Id for the modeled
595 CLP operation. The property shall contain one or more digits matching the pattern "(1234567890)+".

596 **7.6.3 Representing a CLP Operation Error**

597 When a CLP operation fails, the CIM_ConcreteJob.JobState property of the CIM_ConcreteJob that
598 represents the operation shall have the value 10 (Exception). The CIM_ConcreteJob.OperationalStatus
599 property shall have a value other than 2 (Ok). The CIM_ConcreteJob.GetError() method can be used to
600 retrieve an instance of CIM_Error detailing the cause of the operation failure. See 8.3 for information on
601 CIM_ConcreteJob.GetError().

602 **7.6.3.1 Representing a Message (Optional)**

603 An instance of CIM_Error may convey a Standard Message or vendor defined message. When an
604 instance of CIM_Error is used to convey a message, the OwningEntity, MessageID, and Message
605 properties shall be implemented and the MessageArguments property may be implemented. When an
606 instance of CIM_Error is not used to convey a message, the OwningEntity, MessageID, Message, and
607 MessageArguments properties shall not be implemented.

608 **8 Methods**

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

611 **8.1 CIM_ProtocolService.RequestStateChange()**

612 CIM_ProtocolService.RequestStateChange() method invocation will change the element's state to the
613 value specified in the RequestedState parameter. The Enabled and Disabled values of the
614 RequestedState parameter correspond to enabling or disabling the functionality represented by the
615 instance of CIM_ProtocolService. A value of 2 (Enabled) shall correspond to a request to enable the
616 functionality. A value of 3 (Disabled) shall correspond to a request to disable the functionality. A value of
617 11 (Reset) shall initiate a reset of the CLP service.

618 See 7.1.3 for information about the effect of this method on the RequestedState property.

619 The method shall be considered successful if the availability of the functionality upon completion of the
620 method corresponds to the desired availability indicated by the RequestedState parameter. It is not
621 necessary that an actual change in state occur for the method to be considered successful. It is sufficient
622 that the resultant state be equal to the requested state. Upon successful completion of the method, the
623 Return Value shall be zero.

624 See 7.1.3.4 for information about the effect of this method on the EnabledState property.

625 Detailed requirements of the RequestStateChange() method are specified in Table 2 and Table 3.

626 No standard messages are defined.

627 Invoking the CIM_ProtocolService.RequestStateChange() method multiple times could result in earlier
 628 requests being overwritten or lost.

629 **Table 2 – CIM_ProtocolService.RequestStateChange() Method: Return Code Values**

Value	Description
0	Request was successfully executed.
1	Method is unsupported in the implementation.
2	Error occurred.
0x1000	Job started: REF returned to started CIM_ConcreteJob.

630 **Table 3 – CIM_ProtocolService.RequestStateChange() Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN,	RequestedState	uint16	Valid state values : 2 (Enabled) 3 (Disabled) 11 (Reset)
OUT	Job	CIM_ConcreteJob REF	Returned if job started
IN	TimeoutPeriod	datetime	Client specified maximum amount of time the transition to a new state is supposed to take: 0 or NULL – No time requirements <interval> – Maximum time allowed

631 **8.1.1 CIM_ProtocolService.RequestStateChange() ConditionalSupport**

632 When the CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported property contains at least
 633 one value, the CIM_ProtocolService.RequestStateChange() method shall be implemented and
 634 supported. The CIM_ProtocolService.RequestStateChange() method shall not return a value of 1
 635 (Unsupported).

636 **8.2 CIM_ConcreteJob.RequestStateChange()**

637 The CIM_ConcreteJob.RequestStateChange() may be used to request that the CLP operation modeled
 638 by the CIM_ConcreteJob instance is terminated. See 7.6.2.1 for the effect of this method on the JobState
 639 property.

640 Return code values for the CIM_ConcreteJob.RequestStateChange() method are specified in Table 4.
 641 Parameters for the CIM_ConcreteJob.RequestStateChange() method are specified in Table 5.

642 No standard messages are defined.

643 **Table 4 – CIM_ConcreteJob.RequestStateChange() Method: Return Code Values**

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

644 **Table 5 – CIM_ConcreteJob.RequestStateChange() Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN, REQ	RequestedState	uint16	Valid state values : 5 (Kill) 4 (Terminate)

645 The use of the TimeoutPeriod parameter is not supported.

646 **8.3 CIM_ConcreteJob.GetError()**

647 The GetError() method is used to retrieve the instance of CIM_Error that contains details of why the
648 operation failed if it did. This method shall be supported when the CIM_ConcreteJob.JobStatus has the
649 value 10 (Exception) and shall not return a value of 1.

650 Return code values for the CIM_ConcreteJob.GetError() method are specified in Table 6. Parameters for
651 the CIM_ConcreteJob.GetError() method are specified in Table 7.

652 No standard messages are defined.

653 **Table 6 – CIM_ConcreteJob.GetError() Method: Return Code Values**

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

654 **Table 7 – CIM_ConcreteJob.GetError() Method: Parameters**

Qualifiers	Name	Type	Description/Values
OUT	Error	String	Embedded instance of CIM_Error

655 **8.4 Profile Conventions for Operations**

656 For each profile class (including associations), the implementation requirements for operations, including
657 those in the following default list, are specified in class-specific subclauses of this clause.

658 The default list of operations is as follows:

- 659 • GetInstance
- 660 • Associators
- 661 • AssociatorNames
- 662 • References
- 663 • ReferenceNames
- 664 • EnumerateInstances
- 665 • EnumerateInstanceNames

666 8.5 CIM_BindsTo

667 Table 8 lists implementation requirements for operations. If implemented, these operations shall be
 668 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 8, all operations in
 669 the default list in 8.4 shall be implemented as defined in [DSP0200](#).

670 NOTE: Related profiles may define additional requirements on operations for the profile class.

671 **Table 8 – Operations: CIM_BindsTo**

Operation	Requirement	Description
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

672 8.6 CIM_CLPCapabilities

673 All operations in the default list in 8.4 shall be implemented as defined in [DSP0200](#).

674 NOTE: Related profiles may define additional requirements on operations for the profile class.

675 8.7 CIM_CLPSettingData

676 Table 9 lists implementation requirements for operations. If implemented, these operations shall be
 677 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 9, all operations in
 678 the default list in 8.4 shall be implemented as defined in [DSP0200](#).

679 NOTE: Related profiles may define additional requirements on operations for the profile class.

680 **Table 9 – Operations: CIM_CLPSettingData**

Operation	Requirement	Messages
ModifyInstance	Optional. See 8.7.1.	None

681 8.7.1 CIM_CLPSettingData — ModifyInstance

682 When the CIM_CLPSettingData instance is associated with the CIM_ProtocolService instance through an
 683 instance of CIM_ElementSettingData and the value of the IsDefault property of the
 684 CIM_ElementSettingData instance that associates the CIM_CLPSettingData with the
 685 CIM_ProtocolService has a value of 1 (Is Default), the ModifyInstance operation shall not be supported.

686 When the CIM_CLPSettingData instance is not associated with an instance of CIM_ProtocolService
 687 through an instance of CIM_ElementSettingData where the IsDefault property has a value of 1 (Is
 688 Default), the ModifyInstance operation may be supported for the CIM_CLPSettingData instance.

689 8.8 CIM_CLPProtocolEndpoint

690 Table 10 lists implementation requirements for operations. If implemented, these operations shall be
 691 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 10, all operations
 692 in the default list in 8.4 shall be implemented as defined in [DSP0200](#).

693 NOTE: Related profiles may define additional requirements on operations for the profile class.

694

Table 10 – Operations: CIM_CLPProtocolEndpoint

Operation	Requirement	Messages
ModifyInstance	Optional. See 8.8.1.	None
DeletelInstance	Optional. See 8.8.2.	None

695 8.8.1 ModifyInstance

696 The ModifyInstance operation may be supported for an instance of CIM_CLPProtocolEndpoint. When the
697 ModifyInstance operation is supported for a CIM_CLPProtocolEndpoint instance, the ModifyInstance
698 operation shall not modify the following properties:

- 699 • NameFormat
- 700 • ProtocolIFType
- 701 • OtherTypeDescription

702 8.8.2 DeletelInstance

703 The DeletelInstance operation may be supported for instances of CIM_CLPProtocolEndpoint. When the
704 DeletelInstance operation is invoked against an instance, the corresponding CLP session shall be
705 terminated prior to deleting the CIM_CLPProtocolEndpoint instance. The implementation shall also
706 remove any association instances that reference the CIM_CLPProtocolEndpoint.

707 8.9 CIM_ConcreteJob

708 Table 11 lists implementation requirements for operations. If implemented, these operations shall be
709 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 11, all operations
710 in the default list in 8.4 shall be implemented as defined in [DSP0200](#).

711 NOTE: Related profiles may define additional requirements on operations for the profile class.

712

Table 11 – Operations: CIM_ConcreteJob

Operation	Requirement	Messages
ModifyInstance	Optional. See 8.9.1.	None
DeletelInstance	Optional. See 8.9.2.	None

713 8.9.1 ModifyInstance

714 The ModifyInstance operation may be supported for an instance of CIM_ConcreteJob. When the
715 ModifyInstance operation is supported, the TimeBeforeRemoval and DeleteOnCompletion properties
716 shall be writable.

717 8.9.2 DeletelInstance

718 The DeletelInstance operation may be supported for an instance of CIM_ConcreteJob. When the
719 DeletelInstance operation is supported, the DeletelInstance operation shall fail when the
720 CIM_ConcreteJob.JobStatus property has the value 4 (Running).

721 8.10 CIM_ElementCapabilities

722 Table 12 lists implementation requirements for operations. If implemented, these operations shall be
 723 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 12, all operations
 724 in the default list in 8.4 shall be implemented as defined in [DSP0200](#).

725 NOTE: Related profiles may define additional requirements on operations for the profile class.

726 **Table 12 – Operations: CIM_ElementCapabilities**

Operation	Requirement	Description
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

727 8.11 CIM_ElementSettingData

728 Table 13 lists implementation requirements for operations. If implemented, these operations shall be
 729 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 13, all operations
 730 in the default list in 8.4 shall be implemented as defined in [DSP0200](#).

731 NOTE: Related profiles may define additional requirements on operations for the profile class.

732 **Table 13 – Operations: CIM_ElementSettingData**

Operation	Requirement	Messages
ModifyInstance	Optional. See 8.11.1.	None
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

733 8.11.1 CIM_ElementSettingData — ModifyInstance

734 When an instance of CIM_ElementSettingData associates an instance of CIM_CLPSettingData with an
 735 instance of CIM_CLPProtocolEndpoint, the following rules shall govern the behavior of the
 736 ModifyInstance operation:

- 737 • The ModifyInstance operation shall not allow the IsDefault property to be modified.
- 738 • The ModifyInstance operation shall not allow the IsCurrent property to be modified.
- 739 • When the ModifyInstance operation is used to modify the IsNext property to have a value of 1
 740 (Is Next), the ModifyInstance operation shall implement the following behavior:
 - 741 – The ModifyInstance operation shall find all other instances of CIM_ElementSettingData
 742 that associate a CIM_CLPSettingData instance with the CIM_CLPProtocolEndpoint
 743 instance referenced by the target instance of CIM_ElementSettingData.
 - 744 – For each instance of CIM_ElementSettingData found, the ModifyInstance operation shall
 745 modify the value of its IsNext property to have a value of 2 (Is Not Next).

746 8.12 CIM_Error

747 The sole usage of CIM_Error in this profile is as a template for an embedded instance. Therefore, none of
748 the operations in the default list in 8.4 shall be supported as described by [DSP0200](#).

749 8.13 CIM_HostedAccessPoint

750 Table 14 lists implementation requirements for operations. If implemented, these operations shall be
751 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 14, all operations
752 in the default list in 8.4 shall be implemented as defined in [DSP0200](#).

753 NOTE: Related profiles may define additional requirements on operations for the profile class.

754 **Table 14 – Operations: CIM_HostedAccessPoint**

Operation	Requirement	Description
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

755 8.14 CIM_HostedJobDestination

756 Table 15 lists implementation requirements for operations. If implemented, these operations shall be
757 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 15, all operations
758 in the default list in 8.4 shall be implemented as defined in [DSP0200](#).

759 NOTE: Related profiles may define additional requirements on operations for the profile class.

760 **Table 15 – Operations: CIM_HostedJobDestination**

Operation	Requirement	Description
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

761 8.15 CIM_HostedService

762 Table 16 lists implementation requirements for operations. If implemented, these operations shall be
763 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 16, all operations
764 in the default list in 8.4 shall be implemented as defined in [DSP0200](#).

765 NOTE: Related profiles may define additional requirements on operations for the profile class.

766

Table 16 – Operations: CIM_HostedService

Operation	Requirement	Description
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

767

8.16 CIM_JobDestinationJobs

768

Table 17 lists implementation requirements for operations. If implemented, these operations shall be implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 17, all operations in the default list in 8.4 shall be implemented as defined in [DSP0200](#).

769

770

771

NOTE: Related profiles may define additional requirements on operations for the profile class.

772

Table 17 – Operations: CIM_JobDestinationJobs

Operation	Requirement	Description
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

773

8.17 CIM_JobQueue

774

All operations in the default list in 8.4 shall be implemented as defined in [DSP0200](#).

775

NOTE: Related profiles may define additional requirements on operations for the profile class.

776

8.18 CIM_OwningJobElement

777

Table 18 lists implementation requirements for operations. If implemented, these operations shall be implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 18, all operations in the default list in 8.4 shall be implemented as defined in [DSP0200](#).

778

779

780

NOTE: Related profiles may define additional requirements on operations for the profile class.

781

Table 18 – Operations: CIM_OwningJobElement

Operation	Requirement	Description
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

782 8.19 CIM_ProtocolService

783 Table 19 lists implementation requirements for operations. If implemented, these operations shall be
 784 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 19, all operations
 785 in the default list in 8.4 shall be implemented as defined in [DSP0200](#).

786 NOTE: Related profiles may define additional requirements on operations for the profile class.

787 **Table 19 – Operations: CIM_ProtocolService**

Operation	Requirement	Messages
ModifyInstance	Optional. See 8.19.1.	None

788 8.19.1 CIM_ProtocolService — ModifyInstance

789 When the ElementNameEditSupported property of the CIM_CLPCapabilities has a value of TRUE, the
 790 ModifyInstance operation shall allow the value of the ElementName property of the CIM_ProtocolService
 791 instance to be modified. The ModifyInstance operation shall enforce the length restriction specified in the
 792 MaxElementNameLen property of the CIM_CLPCapabilities.

793 When the ElementNameEditSupported property of the CIM_CLPCapabilities has a value of FALSE, the
 794 ModifyInstance operation shall not change the value of the ElementName property of the
 795 CIM_ProtocolService instance.

796 8.20 CIM_ProvidesEndpoint

797 Table 20 lists implementation requirements for operations. If implemented, these operations shall be
 798 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 20, all operations
 799 in the default list in 8.4 shall be implemented as defined in [DSP0200](#).

800 NOTE: Related profiles may define additional requirements on operations for the profile class.

801 **Table 20 – Operations: CIM_ProvidesEndpoint**

Operation	Requirement	Description
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

802 8.21 CIM_ServiceAccessBySAP

803 Table 21 lists implementation requirements for operations. If implemented, these operations shall be
 804 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 21, all operations
 805 in the default list in 8.4 shall be implemented as defined in [DSP0200](#).

806 NOTE: Related profiles may define additional requirements on operations for the profile class.

807

Table 21 – Operations: CIM_ServiceAccessBySAP

Operation	Requirement	Description
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

808 **8.22 ServiceAffectsElement**

809 Table 22 lists implementation requirements for operations. If implemented, these operations shall be
 810 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 22, all operations
 811 in the default list in 8.4 shall be implemented as defined in [DSP0200](#).

812 NOTE: Related profiles may define additional requirements on operations for the profile class.

813

Table 22 – Operations: CIM_ServiceAffectsElement

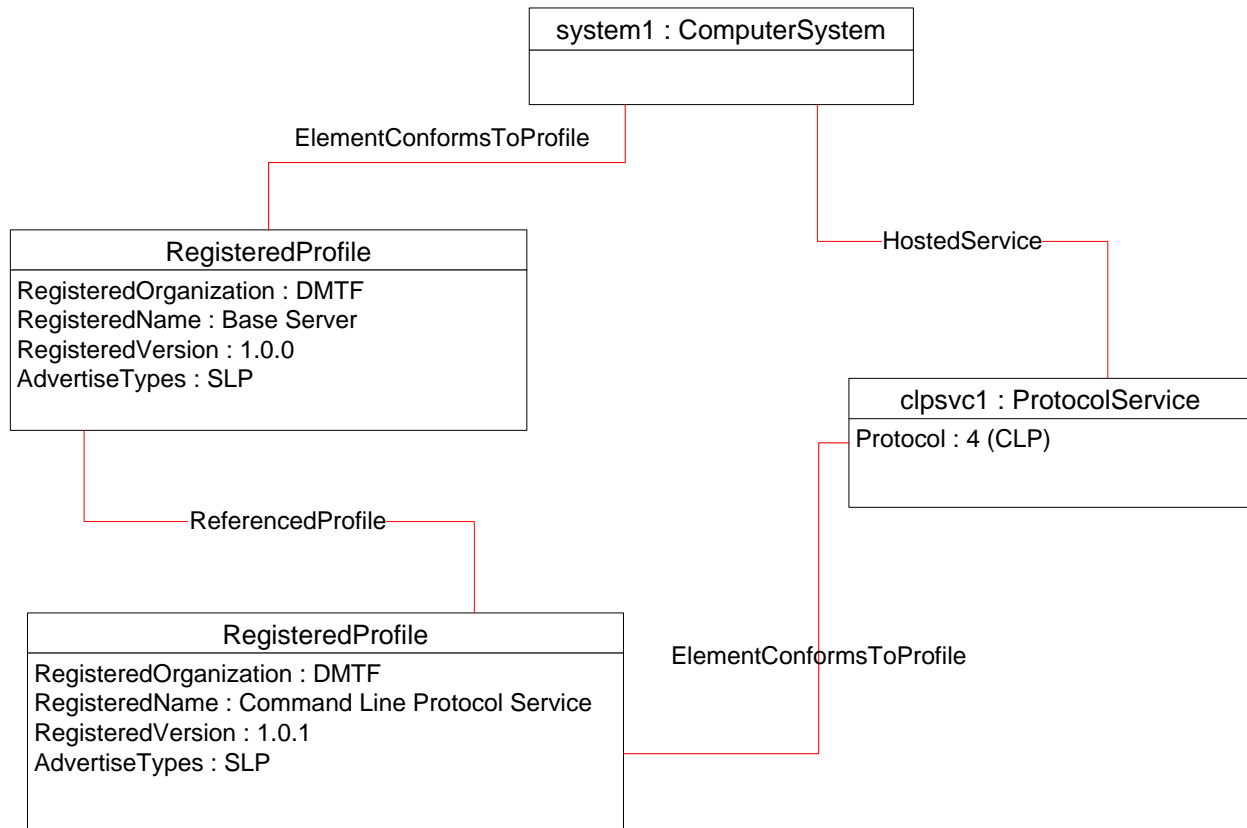
Operation	Requirement	Description
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

814 **9 Use Cases**

815 The following clauses outline common use cases for client interaction with the *Command Line Protocol*
 816 *Service Profile*.

817 **9.1 Object Diagrams**

818 The object diagram in Figure 2 shows how instances of CIM_RegisteredProfile are used to identify the
 819 version of the *Command Line Protocol Service Profile* with which an instance of CIM_ProtocolService and
 820 its associated instances are conformant. An instance of CIM_RegisteredProfile exists for each profile that
 821 is instrumented in the system. One instance of CIM_RegisteredProfile identifies the “DMTF *Base Server*
 822 *Profile* version 1.0”. The other instance identifies the “DMTF *Command Line Protocol Service Profile*
 823 version 1.0”. The CIM_ProtocolService instance is scoped to an instance of CIM_ComputerSystem. This
 824 instance of CIM_ComputerSystem is conformant with the DMTF [Base Server Profile](#) version 1.0 as
 825 indicated by the CIM_ElementConformsToProfile association to the CIM_RegisteredProfile instance. This
 826 implementation is using the Central Class Methodology. The CIM_ProtocolService instance is conformant
 827 with this profile as indicated by the CIM_ElementConformsToProfile association between the instance
 828 and the instance of CIM_RegisteredProfile that identifies this profile.

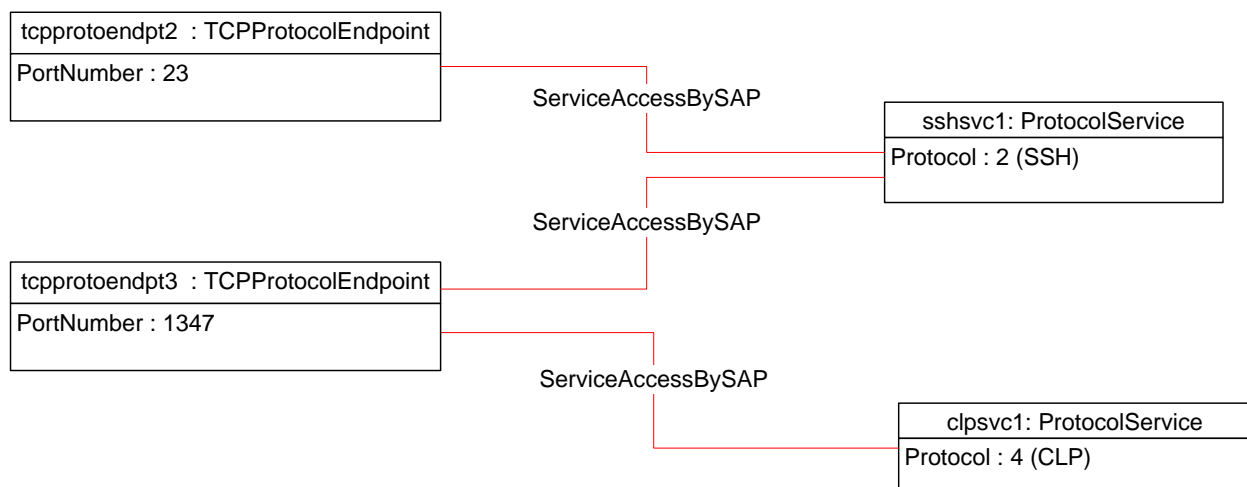


829

830

Figure 2 – Registered Profile

831 Figure 3 is an object diagram illustrating a CLP service accessible through SSH. The SSH service is
 832 listening on ports 23 and 1347. The CLP service is accessible through SSH sessions established by
 833 connecting to port 1347. This is indicated by the CIM_ServiceAccessBySAP between the clpsvc1 and
 834 tcpprotoendpt3. The object diagram does not indicate whether the CLP session is automatically
 835 initiated upon establishment of the SSH session or requires a manual step on the part of the user.

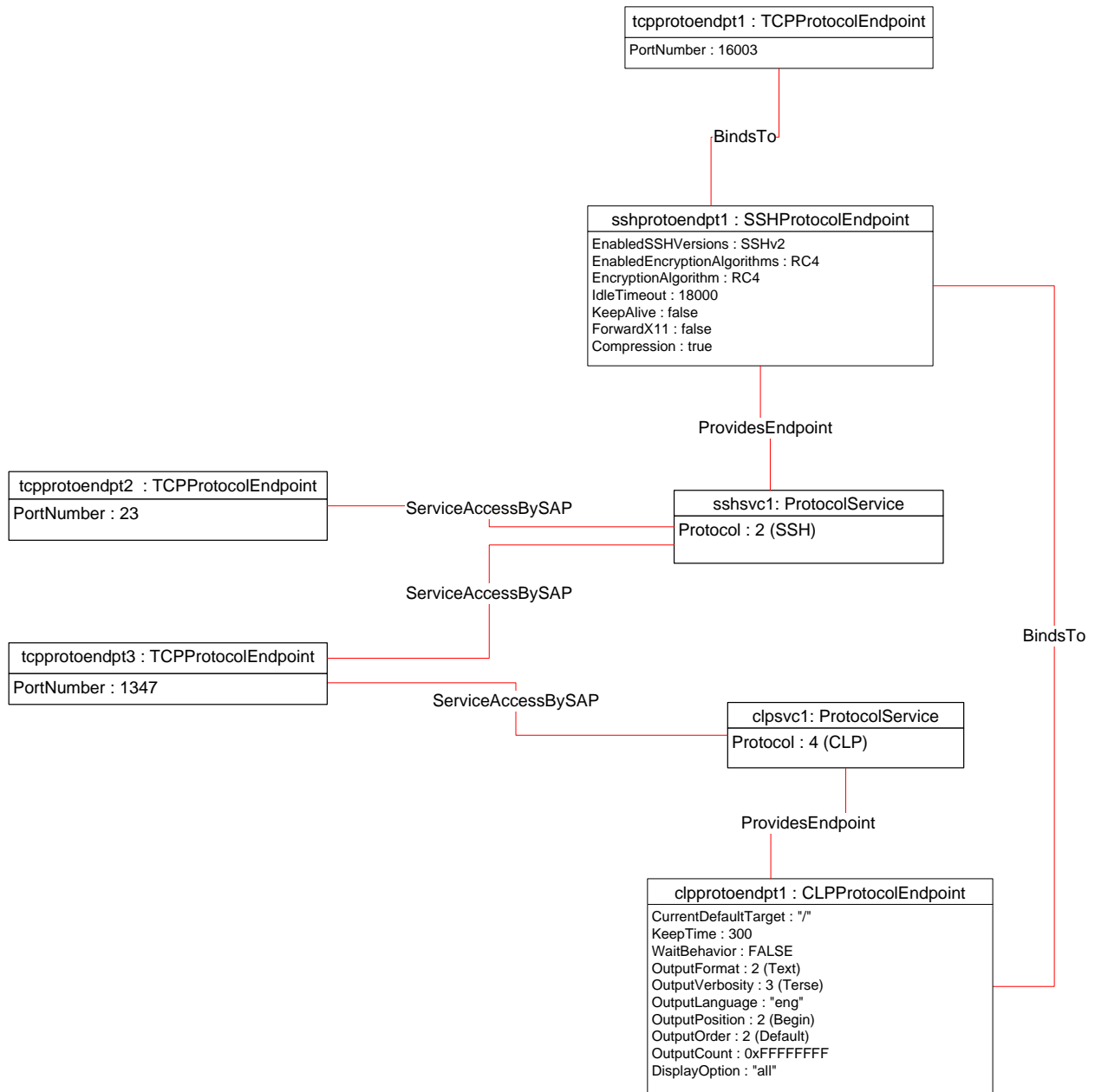


836

837

Figure 3 – CLP Service Accessible via SSH

838 Figure 4 illustrates a single CLP session (clpprotoendpt1) established through an SSH session
 839 (sshprotoendpt1). This is indicated by the CIM_BindsTo association that references the two instances.

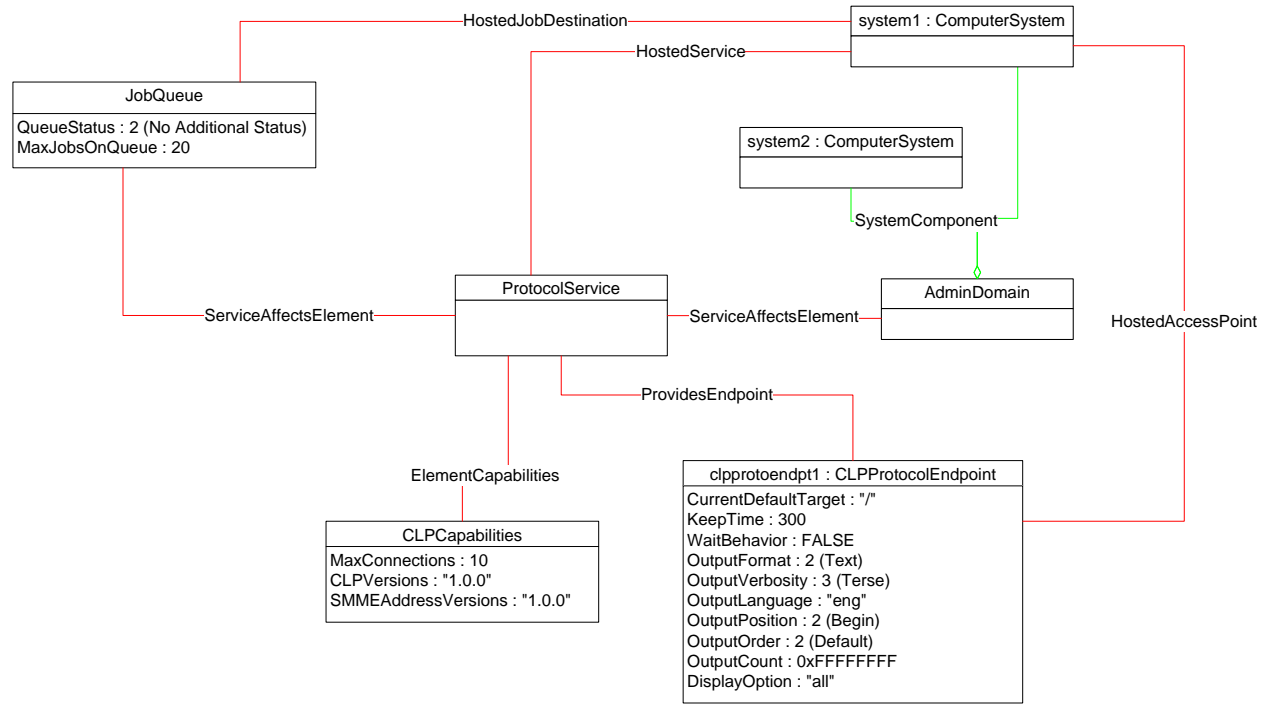


840

841

Figure 4 – One Active Session

842 The object diagram in Figure 5 provides a more complete view of a CLP implementation that is capable of
 843 managing two systems. The manageable systems are each represented by an instance of
 844 CIM_ComputerSystem aggregated into the CIM_AdminDomain instance. The
 845 CIM_ServiceAffectsElement association identifies the CIM_AdminDomain as the management domain of
 846 this CLP service. A single CLP session is active and there are no CLP operations currently executing.

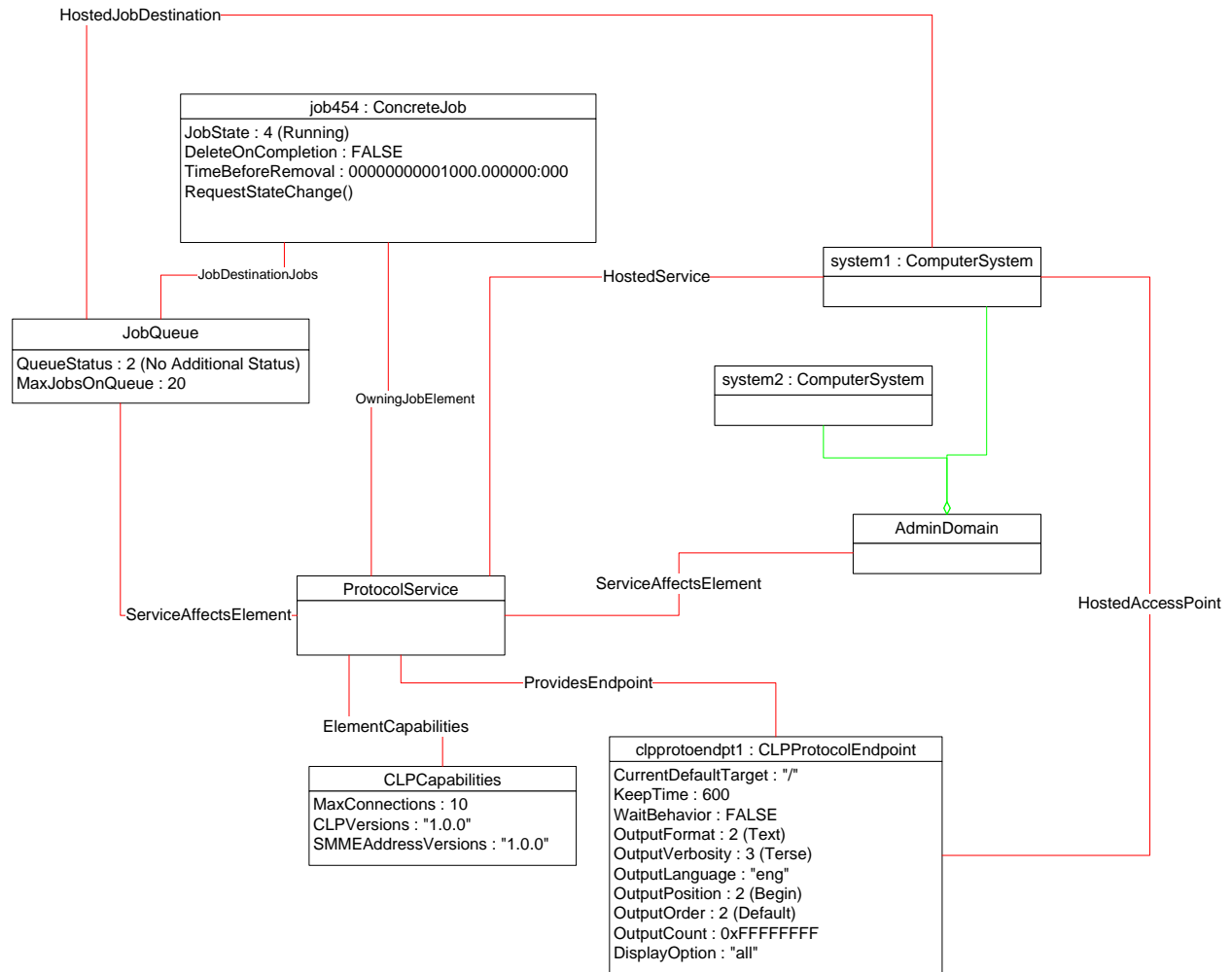


847

848

Figure 5 – Session with Admin Domain and Job Queue

849 Figure 6 is an object diagram for the same CLP service as in Figure 5. Notice that the KeepTime property
 850 on clpprotoendpt1 has been changed from the specification default value of 300 seconds to a new
 851 value of 600 seconds prior to the initiation of the CLP operation which is modeled by job454. The CLP
 852 operation represented by job454 is currently executing as indicated by the value of the JobState
 853 property.

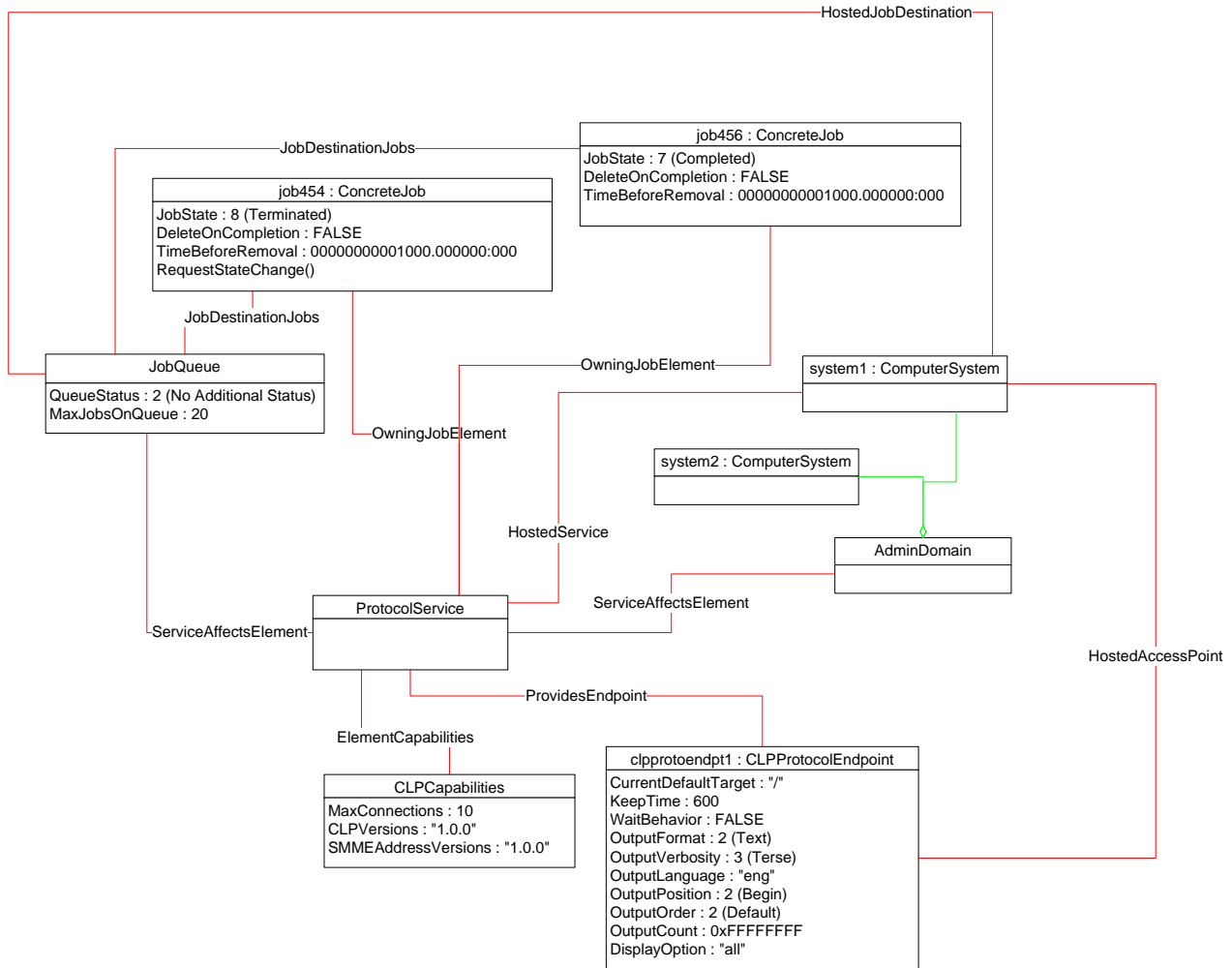


854

855

Figure 6 – Single Operation Executing

856 Figure 7 is an object diagram for the same CLP service as in Figure 6. Prior to the completion of the CLP
 857 operation represented by job454 another CLP command was issued to terminate the first operation. The
 858 latter CLP command resulted in the CLP operation modeled by job456. This operation successfully
 859 completed as indicated by the value of 7 (Completed) for its JobState property. The previously initiated
 860 CLP operation is reflected by a value of 8 (Terminated) for the JobState property of job454.

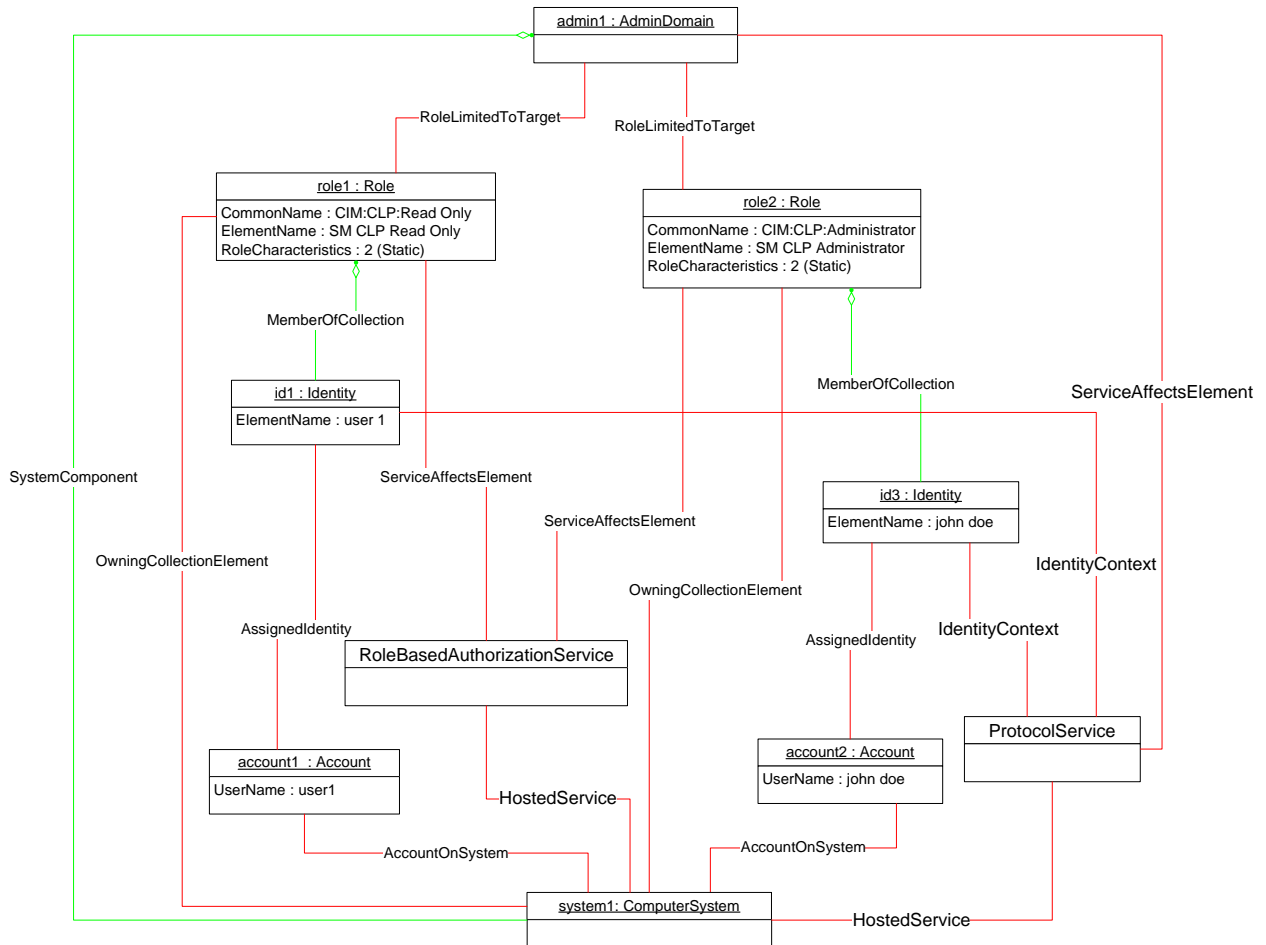


861

862

Figure 7 – CLP Command Used to Terminate Running CLP Operation

863 Figure 8 is an object diagram showing a subset of an implementation related to management of CLP
 864 roles. There are two instances of CIM_Role representing the Administrator and Read Only roles. There
 865 are two accounts on the system. Each account has a corresponding security principal represented by
 866 CIM_Identity whose context includes usage by the CLP service.

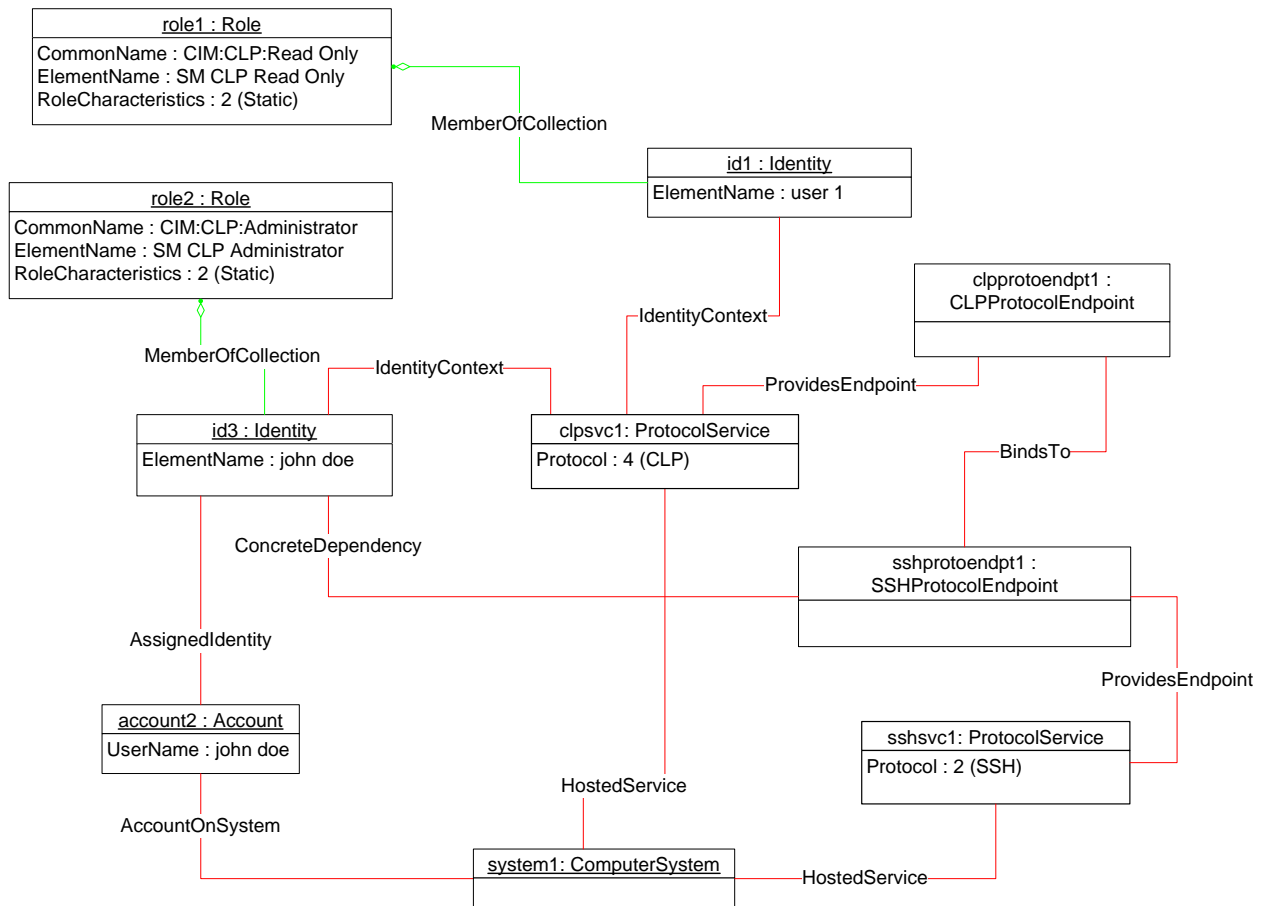


867

868

Figure 8 – CLP Roles

869 Figure 9 is an object diagram showing an active CLP session that has been established over SSH. `id3`
 870 is the corresponding security principal that resulted from the credentials provided when the SSH session
 871 was established. This is indicated by the `CIM_ConcreteDependency` association between the
 872 `sshprotoendpt1` and `id3`. The credentials provided correspond to `account2`. This is indicated by the
 873 `CIM_AssignedIdentity` instance that associated `id3` with `account2`. The user of the CLP session has
 874 Administrator rights. This is determined by association traversal from `clpprotoendpt1` to
 875 `sshprotoendpt1` through the `CIM_BindsTo` association, then to `id3` across the
 876 `CIM_ConcreteDependency` association, then to `role2` through the `CIM_MemberOfCollection`
 877 association. The account for `id1` is not shown.



878

879 **Figure 9 – Active Session with Security Principal**

880 **9.2 Modifying Active Session Settings**

881 A user can find the active sessions for a CLP service and modify their configuration as follows:

- 882 1) Find an instance of `CIM_CLPProtocolEndpoint` associated with the `CIM_ProtocolService`
- 883 through an instance of `CIM_ProvidesEndpoint`.
- 884 2) Modify the properties of the `CIM_CLPProtocolEndpoint` as desired.

885 **9.3 Disabling the CLP Service**

886 If an implementation supports disabling the CLP service, a user can disable the CLP service by invoking
 887 the RequestStateChange() method on CIM_ProtocolService instance with a value of Disabled for the
 888 RequestedState parameter.

889 **9.4 Determining the CLP Service Capabilities**

890 A user can determine the capabilities of the CLP service as follows:

- 891 1) Find the instance of CIM_CLPCapabilities associated with the CIM_ProtocolService through an
 892 instance of CIM_ElementCapabilities.
- 893 2) View the properties of the CIM_CLPCapabilities instance to see the supported function.

894 **9.5 Determining If ElementName Can Be Modified**

895 For a given instance of CIM_ProtocolService, a client can determine whether it can modify the
 896 ElementName as follows:

- 897 1) Find the CIM_CLPCapabilities instance that is associated with the target instance.
- 898 2) Query the value of the ElementNameEditSupported property of the CIM_CLPCapabilities
 899 instance. If the value is TRUE, the client can modify the ElementName property of the target
 900 instance.

901 **9.6 Determining If State Management Is Supported**

902 For a given instance of CIM_ProtocolService, a client can determine whether state management is
 903 supported as follows:

- 904 1) Find the CIM_EnabledLogicalElementCapabilities instance that is associated with the
 905 CIM_LANEndpoint instance.
- 906 2) Query the value of the RequestedStatesSupported property. If at least one value is specified,
 907 state management is supported.

908 **10 CIM Elements**

909 Table 23 shows the instances of CIM Elements for this profile. Instances of these CIM Elements shall be
 910 implemented as described in Table 23. Clause 7 may impose additional requirements on these elements.

911 **Table 23 – CIM Elements: Command Line Protocol Service Profile**

Element Name	Requirement	Notes
Classes		
CIM_BindsTo	Optional	See 10.1.
CIM_CLPCapabilities	Mandatory	See 10.2.
CIM_CLPProtocolEndpoint	Mandatory	See 10.3
CIM_CLPSettingData	Optional	See 10.4 and 10.5.
CIM_ConcreteDependency	Optional	See 10.6.
CIM_ConcreteJob	Mandatory	See 10.7.
CIM_ElementCapabilities	Mandatory	See 10.8.
CIM_ElementSettingData	Optional	See 10.9 and 10.10.
CIM_Error	Mandatory	See 10.11.

Element Name	Requirement	Notes
CIM_HostedAccessPoint	Mandatory	See 10.12.
CIM_HostedJobDestination	Mandatory	See 10.13.
CIM_HostedService	Mandatory	See 10.14.
CIM_JobDestinationJobs	Conditional	See 10.15.
CIM_JobQueue	Mandatory	See 10.17.
CIM_OwningCollectionElement	Mandatory	See 10.18.
CIM_OwningJobElement	Conditional	See 10.19 and 10.20.
CIM_Privilege	Mandatory	See 10.21, 10.22, and 10.23.
CIM_ProtocolService	Mandatory	See 10.24.
CIM_ProvidesEndpoint	Mandatory	See 10.25.
CIM_RegisteredProfile	Mandatory	See 10.26.
CIM_Role	Mandatory	See 10.27, 10.28, and 10.29.
CIM_RoleLimitedToTarget	Mandatory	See 10.30.
CIM_ServiceAccessBySAP	Optional	See 10.31.
CIM_ServiceAffectsElement	Mandatory	See 10.32 and 10.33.
Indications		
None defined in this profile		

912 **10.1 CIM_BindsTo**

913 CIM_BindsTo is used to relate the CIM_CLPProtocolEndpoint instance with the
 914 CIM_SSHProtocolEndpoint or CIM_TelnetProtocolEndpoint instance on which it is dependent. Table 24
 915 contains the requirements for elements of this class.

916 **Table 24 – Class: CIM_BindsTo**

Properties	Requirement	Notes
Antecedent	Mandatory	Key shall be a reference to an instance of CIM_SSHProtocolEndpoint or CIM_TelnetProtocolEndpoint. Cardinality 0..1
Dependent	Mandatory	Key The value of this property shall be a reference to an instance of CIM_CLPProtocolEndpoint. Cardinality 1

917 **10.2 CIM_CLPCapabilities**

918 CIM_CLPCapabilities represents the capabilities of a CLP service. Table 25 contains the requirements for
 919 elements of the CIM_CLPCapabilities class.

920 **Table 25 – Class: CIM_CLPCapabilities**

Properties	Requirement	Notes
InstanceID	Mandatory	Key
ElementName	Mandatory	(pattern ".*")
RequestedStatesSupported	Mandatory	See 7.1.3.2.
ElementNameEditSupported	Mandatory	See 7.1.4.2.1.
MaxElementNameLen	Conditional	See 7.1.4.2.2.
MaxConnections	Mandatory	See 7.1.2.1.
CLPVersions	Mandatory	Shall contain one or more occurrences pattern ([0123456789] "\." [0123456789] "\." [0123456789]?)
SMMEAddressVersions	Mandatory	Shall contain one or more occurrences pattern ([0123456789] "\." [0123456789] "\." [0123456789]?)

921 **10.3 CIM_CLPProtocolEndpoint**

922 CIM_CLPProtocolEndpoint represents a session established with the CLP service. There shall be an
 923 instance of CLPProtocolEndpoint for each remote access point provided by the CLP Service to a Client.

924 Table 26 contains the requirements for elements of the CIM_CLPProtocolEndpoint class.

925 **Table 26 – Class: CIM_CLPProtocolEndpoint**

Properties	Requirement	Notes
SystemCreationClassName	Mandatory	Key
CreationClassName	Mandatory	Key
SystemName	Mandatory	Key
Name	Mandatory	Key
NameFormat	Mandatory	pattern ".*"
ProtocolIFTType	Mandatory	Matches 1 (Other)
OtherTypeDescription	Mandatory	Matches "CLP"
ElementName	Mandatory	pattern ".*"
CurrentDefaultTarget	Mandatory	pattern ".+"
KeepTime	Mandatory	None
WaitBehavior	Mandatory	None
OutputFormat	Mandatory	None
OutputVerbosity	Mandatory	None
OutputLanguage	Mandatory	None
OutputPosition	Mandatory	None
OutputOrder	Mandatory	None
OutputCount	Mandatory	None
DisplayOption	Mandatory	pattern ".+"

926 10.4 CIM_CLPSettingData — Specification Default Configuration

927 CIM_CLPSettingData represents settings which can be applied to a CLP session. Table 27 contains the
928 requirements for elements of this class.

929 **Table 27 – Class: CIM_CLPSettingData**

Properties	Requirement	Notes
Instanceld	Mandatory	Key
ElementName	Mandatory	Matches "Specification Defaults"
CommandDefaultTarget	Mandatory	Matches "/"
KeepTime	Mandatory	Matches 300
WaitBehavior	Mandatory	Matches FALSE
OutputFormat	Mandatory	Matches 2 (Text)
OutputVerbosity	Mandatory	Matches 3 (Terse)
OutputLanguage	Mandatory	Matches "eng"
OutputPosition	Mandatory	Matches 2 (Begin)
OutputOrder	Mandatory	Matches 2 (Default)
OutputCount	Mandatory	Matches 0xFFFFFFFF
DisplayOption	Mandatory	Matches "all"

930 10.5 CIM_CLPSettingData

931 CIM_CLPSettingData represents settings which can be applied to a CLP session. There shall be one
932 default CLPSettingData instance containing the default settings for the configurable properties of the CLP
933 Service. There may be other CLPSettingData instances describing optional configurations.

934 Table 28 contains the requirements for elements of the CIM_CLPSettingData class.

935 **Table 28 – Class: CIM_CLPSettingData**

Properties	Requirement	Notes
Instanceld	Mandatory	Key
ElementName	Mandatory	pattern ".*"
CommandDefaultTarget	Mandatory	pattern ".*"
KeepTime	Mandatory	None
WaitBehavior	Mandatory	None
OutputFormat	Mandatory	None
OutputVerbosity	Mandatory	None
OutputLanguage	Mandatory	None
OutputPosition	Mandatory	None
OutputOrder	Mandatory	None
OutputCount	Mandatory	None
DisplayOption	Mandatory	pattern ".*"

936 **10.6 CIM_ConcreteDependency — (Access Ingress)**

937 Table 29 details the constraints for instances of CIM_ConcreteDependency beyond those specified in the
 938 [Simple Identity Management Profile](#).

939 **Table 29 – Class: CIM_ConcreteDependency — (Access Ingress)**

Elements	Requirement	Notes
Antecedent	Mandatory	See 7.5.5.2.

940 **10.7 CIM_ConcreteJob**

941 CIM_ConcreteJob represents a single CLP command job. Table 30 contains the requirements for
 942 elements of the CIM_ConcreteJob class.

943 **Table 30 – Class: CIM_ConcreteJob**

Properties	Requirement	Notes
ElementName	Mandatory	See 7.6.2.2.
InstanceId	Mandatory	Key
JobState	Mandatory	Matches 4 7 8 9 10 (Running Completed Terminated Killed Exception). See 7.6.2.1.
DeleteOnCompletion	Mandatory	Matches TRUE
TimeBeforeRemoval	Mandatory	See 7.6.2.
RequestStateChange()	Mandatory	See 8.2.
GetError()	Conditional	See 8.3.
OperationalStatus	Mandatory	See 7.6.3.

944 **10.8 CIM_ElementCapabilities**

945 CIM_ElementCapabilities is used to associate an instance of CIM_CLPCapabilities with the
 946 CIM_ProtocolService. Table 31 contains the requirements for elements of the CIM_ElementCapabilities
 947 class.

948 **Table 31 – Class: CIM_ElementCapabilities**

Properties	Requirement	Notes
ManagedElement	Mandatory	Key This property shall be a reference to the Central Instance. Cardinality 1..*
Capabilities	Mandatory	Key This property shall be a reference to the CIM_CLPCapabilities instance. Cardinality 1

949 **10.9 CIM_ElementSettingData — CLP Service**

950 CIM_ElementSettingData is used to associate instances of CIM_CLPSettingData with instances of
 951 CIM_ProtocolService. Table 32 contains the requirements for elements of this class.

952 **Table 32 – Class: CIM_ElementSettingData (CLP Service)**

Properties	Requirement	Notes
ManagedElement	Mandatory	Key This property shall be a reference to the Central Instance. Cardinality *
Setting	Mandatory	Key This property shall be a reference to an instance of CIM_CLPSettingData. Cardinality *
IsDefault	Mandatory	Matches 1 (Is Default) or 2 (Is Not Default)
IsNext	Mandatory	Matches 1 (Is Next) or 2 (Is Not Next)

953 **10.10 CIM_ElementSettingData — CLP Session**

954 CIM_ElementSettingData is used to associate instances of CIM_CLPSettingData with instances of
 955 CIM_CLPProtocolEndpoint. Table 33 contains the requirements for elements of the
 956 CIM_ElementSettingData class.

957 **Table 33 – Class: CIM_ElementSettingData (CLP Session)**

Properties	Requirement	Notes
ManagedElement	Mandatory	Key This property shall be a reference to an instance of CIM_CLPProtocolEndpoint. Cardinality *
Setting	Mandatory	Key This property shall be a reference to an instance of CIM_CLPSettingData. Cardinality *
IsCurrent	Mandatory	Matches 1 (Is Current) or 2 (Is Not Current)

958 **10.11 CIM_Error**

959 CIM_Error is returned by the CIM_ConcreteJob.GetError() method when a CLP operation fails. Table 34
 960 contains the requirements for elements of the CIM_Error class.

961 **Table 34 – Class: CIM_Error**

Properties	Requirement	Notes
ErrorType	Mandatory	None
OwningEntity	Conditional	See 7.6.3.1.
MessageID	Conditional	See 7.6.3.1.
Message	Conditional	See 7.6.3.1.
MessageArguments	Conditional	See 7.6.3.1.
PerceivedSeverity	Mandatory	None
ProbableCause	Mandatory	None
RecommendedActions	Optional	None

Properties	Requirement	Notes
ErrorSource	Mandatory	None
ErrorSourceFormat	Mandatory	None
CIMStatusCode	Mandatory	None

962 **10.12 CIM_HostedAccessPoint**

963 CIM_HostedAccessPoint is used to relate the CIM_CLPProtocolEndpoint and CIM_TCPProtocolEndpoint
 964 instances to their scoping CIM_ComputerSystem instance. Table 35 contains the requirements for
 965 elements of the CIM_HostedAccessPoint class.

966 **Table 35 – Class: CIM_HostedAccessPoint**

Properties	Requirement	Notes
Antecedent	Mandatory	Key This property shall be a reference to an instance of CIM_ComputerSystem. Cardinality 1
Dependent	Mandatory	Key This property shall be a reference to an instance of CIM_CLPProtocolEndpoint or CIM_TCPProtocolEndpoint. Cardinality *

967 **10.13 CIM_HostedJobDestination**

968 CIM_HostedJobDestination is used to associate the single instance of CIM_JobQueue with hosting
 969 CIM_ComputerSystem instance. Table 36 contains the requirements for elements of the
 970 CIM_HostedJobDestination class.

971 **Table 36 – Class: CIM_HostedJobDestination**

Properties	Requirement	Notes
Antecedent	Mandatory	Key This property shall be a reference to the hosting CIM_ComputerSystem. Cardinality 1
Dependent	Mandatory	Key This property shall be a reference to the hosted CIM_JobQueue. Cardinality 1

972 **10.14 CIM_HostedService**

973 CIM_HostedService is used to relate the CIM_ProtocolService to its scoping CIM_ComputerSystem
 974 instance. Table 37 contains the requirements for elements of the CIM_HostedService class.

975 **Table 37 – Class: CIM_HostedService**

Properties	Requirement	Notes
Antecedent	Mandatory	Key This property shall be a reference to the Scoping Instance. Cardinality 1
Dependent	Mandatory	Key This property shall be a reference to the Central Instance. Cardinality 1..*

976 **10.15 CIM_IdentityContext**

977 Table 38 details the constraints for instances of CIM_IdentityContext beyond those specified in [Simple](#)
 978 [Identity Management Profile](#).

979 **Table 38 – Class: CIM_IdentityContext**

Elements	Requirement	Notes
ElementProvidingContext	Mandatory	This property shall be a reference to the Central Instance. Cardinality 1

980 **10.16 CIM_JobDestinationJobs**

981 CIM_JobDestinationJobs is used to associate instances of CIM_JobQueue with instances of
 982 CIM_ConcreteJob. Table 39 contains the requirements for elements of the CIM_JobDestinationJobs
 983 class.

984 **Table 39 – Class: CIM_JobDestinationJobs**

Properties	Requirement	Notes
Antecedent	Mandatory	Key This property shall be a reference to the CIM_JobQueue. Cardinality 1
Dependent	Mandatory	Key This property shall be a reference to the CIM_ConcreteJob. Cardinality *

985 **10.17 CIM_JobQueue**

986 CIM_JobQueue represents the CLP Service's operations queue. Table 40 contains the requirements for
 987 elements of the CIM_JobQueue class.

988 **Table 40 – Class: CIM_JobQueue**

Properties	Requirement	Notes
SystemCreationClassName	Mandatory	Key
SystemName	Mandatory	Key
CreationClassName	Mandatory	Key
Name	Mandatory	Key
OperationalStatus	Mandatory	None
HealthState	Mandatory	None
ElementName	Mandatory	(pattern ".*")
MaxJobsOnQueue	Mandatory	A value of 0 (zero) shall indicate the maximum number of jobs is unknown or unenforced.
QueueStatus	Mandatory	None
QueueStatusInfo	Mandatory	None

989 **10.18 CIM_OwningCollectionElement**

990 Table 41 details the constraints for properties of CIM_OwningCollectionElement beyond those specified
 991 in the [Role Based Authorization Profile](#).

992 **Table 41 – Class: CIM_OwningCollectionElement**

Properties and Methods	Requirement	Description
OwningElement	Mandatory	See 7.5.1.2.

993 **10.19 CIM_OwningJobElement — CLP Service**

994 CIM_OwningJobElement is used to associate instances of CIM_ConcreteJob with the instance of
 995 CIM_ProtocolService representing the CLP Service. Table 42 contains the requirements for elements of
 996 the CIM_OwningJobElement class.

997 **Table 42 – Class: CIM_OwningJobElement**

Properties	Requirement	Notes
Antecedent	Mandatory	Key This property shall be a reference to the hosting CIM_ProtocolService Cardinality 1
Dependent	Mandatory	Key This property shall be a reference to the hosted CIM_ConcreteJob. Cardinality *

998 **10.20 CIM_OwningJobElement — CLP Session**

999 CIM_OwningJobElement is used to associate instances of CIM_ConcreteJob with the instance of
 1000 CIM_CLPProtocolEndpoint representing the CLP session where the CLP operation was initiated. Table
 1001 43 contains the requirements for elements of the CIM_OwningJobElement class.

1002 **Table 43 – Class: CIM_OwningJobElement**

Properties	Requirement	Notes
Antecedent	Mandatory	Key This property shall be a reference to the hosting CIM_CLPProtocolEndpoint Cardinality 1
Dependent	Mandatory	Key This property shall be a reference to the hosted CIM_ConcreteJob. Cardinality *

1003 **10.21 CIM_Privilege (Administrator)**

1004 An instance of CIM_Privilege is used to represent the privileges of the SM CLP Administrator Role.
 1005 Table 44 details the constraints for properties of CIM_Privilege beyond those specified in the [Role Based](#)
 1006 [Authorization Profile](#) when it is used to model the privileges of the SM CLP Administrator Role.

1007 **Table 44 – Class: CIM_Privilege (Administrator)**

Properties and Methods	Requirement	Description
PrivilegeGranted	Mandatory	Matches TRUE

Properties and Methods	Requirement	Description
Activities	Mandatory	See 7.5.2.2.1.
ActivityQualifiers	Mandatory	See 7.5.2.2.2.
ElementName	Mandatory	Matches "SM CLP Administrator Privilege"

1008 10.22 CIM_Privilege (Operator)

1009 An instance of CIM_Privilege is used to represent the privileges of the SM CLP Operator Role. Table 45
 1010 details the constraints for properties of CIM_Privilege beyond those specified in the [Role Based](#)
 1011 [Authorization Profile](#) when it is used to model the privileges of the SM CLP Operator Role.

1012 **Table 45 – Class: CIM_Privilege (Operator)**

Properties and Methods	Requirement	Description
PrivilegeGranted	Mandatory	Matches TRUE
Activities	Mandatory	See 7.5.3.2.1.
ActivityQualifiers	Mandatory	See 7.5.3.2.2.
ElementName	Mandatory	Matches "SM CLP Operator Privilege"

1013 10.23 CIM_Privilege (Read Only)

1014 An instance of CIM_Privilege is used to represent the privileges of the SM CLP Read Only Role. Table 46
 1015 details the constraints for properties of CIM_Privilege beyond those specified in the [Role Based](#)
 1016 [Authorization Profile](#) when it is used to model the privileges of the SM CLP Read Only Role.

1017 **Table 46 – Class: CIM_Privilege (Read Only)**

Properties and Methods	Requirement	Description
PrivilegeGranted	Mandatory	Matches TRUE
Activities	Mandatory	See 7.5.4.2.1.
ActivityQualifiers	Mandatory	See 7.5.4.2.2.
ElementName	Mandatory	Matches "SM CLP Read Only Privilege"

1018 10.24 CIM_ProtocolService

1019 CIM_ProtocolService represents the CLP service. Table 47 contains the requirements for elements of the
 1020 CIM_ProtocolService class.

1021 **Table 47 – Class: CIM_ProtocolService**

Properties	Requirement	Notes
SystemCreationClassName	Mandatory	Key
CreationClassName	Mandatory	Key
SystemName	Mandatory	Key
Name	Mandatory	Key
Protocol	Mandatory	See 7.1.1.
MaxConnections	Mandatory	A value of 0 (zero) shall indicate unknown.
RequestedState	Mandatory	See 7.1.3.

Properties	Requirement	Notes
EnabledState	Mandatory	See 7.1.3.
ElementName	Mandatory	See 7.1.4.
OperationalStatus	Mandatory	None
HealthState	Mandatory	None
RequestStateChange()	Conditional	See 8.1.

1022 **10.25 CIM_ProvidesEndpoint**

1023 CIM_ProvidesEndpoint is used to associate the instance of CIM_ProtocolService with an instance of
 1024 CIM_CLPProtocolEndpoint representing a session with the service. Table 48 contains the requirements
 1025 for elements of the CIM_ProvidesEndpoint class.

1026 **Table 48 – Class: CIM_ProvidesEndpoint**

Properties	Requirement	Notes
Antecedent	Mandatory	Key This property shall be a reference to the instance of CIM_ProtocolService. Cardinality 1
Dependent	Mandatory	Key This property shall be a reference to an instance of CIM_CLPProtocolEndpoint. Cardinality *

1027 **10.26 CIM_RegisteredProfile**

1028 CIM_RegisteredProfile identifies the *Command Line Protocol Service Profile*. The CIM_RegisteredProfile
 1029 class is defined by the [Profile Registration Profile](#). With the exception of the mandatory values specified
 1030 for the properties in Table 49, the behavior of the CIM_RegisteredProfile instance is in accordance with
 1031 the constraints specified in the [Profile Registration Profile](#).

1032 **Table 49 – Class: CIM_RegisteredProfile**

Properties	Requirement	Notes
RegisteredName	Mandatory	This property shall have a value of "Command Line Protocol Service".
RegisteredVersion	Mandatory	This property shall have a value of "1.0.1".
RegisteredOrganization	Mandatory	This property shall have a value of 2 ("DMTF").

1033 NOTE: Previous versions of this document included the suffix "Profile" for the RegisteredName value. If
 1034 implementations querying for the RegisteredName value find the suffix "Profile", they should ignore the suffix, with
 1035 any surrounding white spaces, before any comparison is done with the value as specified in this document.

1036 **10.27 CIM_Role (Administrator)**

1037 An instance of CIM_Role is used to model the CLP Administrator Role. Table 50 details the constraints
 1038 for properties of CIM_Role beyond those specified in the [Role Based Authorization Profile](#) when it is used
 1039 to model the CLP Administrator Role.

1040 **Table 50 – Class: CIM_Role (Administrator)**

Properties and Methods	Requirement	Notes
RoleCharacteristics	Mandatory	Shall contain 2 (Static)
CommonName	Mandatory	Matches "CIM:CLP:Administrator"
ElementName	Mandatory	Matches "SM CLP Administrator"

1041 **10.28 CIM_Role (Operator)**

1042 An instance of CIM_Role is used to model the CLP Operator Role. Table 51 details the constraints for
 1043 properties of CIM_Role beyond those specified in the [Role Based Authorization Profile](#) when it is used to
 1044 model the CLP Operator Role.

1045 **Table 51 – Class: CIM_Role (Operator)**

Properties and Methods	Requirement	Notes
RoleCharacteristics	Mandatory	Shall contain 2 (Static)
CommonName	Mandatory	Matches "CIM:CLP:Operator"
ElementName	Mandatory	Matches "SM CLP Operator"

1046 **10.29 CIM_Role (Read Only)**

1047 An instance of CIM_Role is used to model the CLP Read Only Role. Table 52 details the constraints for
 1048 properties of CIM_Role beyond those specified in the [Role Based Authorization Profile](#) when it is used to
 1049 model the CLP Read Only Role.

1050 **Table 52 – Class: CIM_Role (Read Only)**

Properties and Methods	Requirement	Notes
RoleCharacteristics	Mandatory	Shall contain 2 (Static)
CommonName	Mandatory	Matches "CIM:CLP:Read Only"
ElementName	Mandatory	Matches "SM CLP Read Only"

1051 **10.30 CIM_RoleLimitedToTarget**

1052 Table 53 details the constraints for properties of CIM_RoleLimitedToTarget beyond those specified in the
 1053 [Role Based Authorization Profile](#).

1054 **Table 53 – Class: CIM_RoleLimitedToTarget**

Properties and Methods	Requirement	Description
TargetElement	Mandatory	See 7.5.1.1. Cardinality 1

1055 **10.31 CIM_ServiceAccessBySAP**

1056 CIM_ServiceAccessBySAP is used to associate the instance of CIM_ProtocolService with an instance of
 1057 CIM_TCPProtocolEndpoint over which a session with the service can be established. Table 54 contains
 1058 the requirements for elements of the CIM_ServiceAccessBySAP class.

1059 **Table 54 – Class: CIM_ServiceAccessBySAP**

Properties	Requirement	Notes
Antecedent	Mandatory	Key This property shall be a reference to the instance of CIM_ProtocolService. Cardinality 1..*
Dependent	Mandatory	Key This property shall be a reference to an instance of CIM_TCPProtocolEndpoint. Cardinality *

1060 **10.32 CIM_ServiceAffectsElement — AdminDomain**

1061 CIM_ServiceAffectsElement associates an instance of CIM_ProtocolService with an instance of
 1062 CIM_AdminDomain representing the management domain of the CLP service. Table 55 contains the
 1063 requirements for elements of the CIM_ServiceAffectsElement class.

1064 **Table 55 – Class: CIM_ServiceAffectsElement**

Properties	Requirement	Notes
ServiceProvided	Mandatory	Key This property shall be a reference to the Central Instance of the profile. Cardinality 1
UserOfService	Mandatory	Key shall be a reference to the Central Instance defined in the SM CLP Admin Domain Profile . Cardinality 1
ElementAffects	Mandatory	Matches 5 (Manages)

1065 **10.33 CIM_ServiceAffectsElement — Job Queue**

1066 CIM_ServiceAffectsElement associates an instance of CIM_ProtocolService with the instance of
 1067 CIM_JobQueue where CLP operations are executed. Table 56 contains the requirements for elements of
 1068 this class.

1069 **Table 56 – Class: CIM_ServiceAffectsElement**

Properties	Requirement	Notes
ServiceProvided	Mandatory	Key This property shall be a reference to the Central Instance of the profile. Cardinality 1
UserOfService	Mandatory	Key shall be a reference to CIM_JobQueue. Cardinality 1
ElementAffects	Mandatory	Shall contain the values 5 (Manages) and 6 (Consumes)

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ANNEX A (informative)

Change Log

Version	Date	Description
1.0.0a	2006-10-10	Preliminary Standard
1.0.0	2009-06-17	DMTF Standard Release
1.0.1	2010-04-22	DMTF Standard Release – Fixed erroneous state in 7.6.2.1

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