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5 **KVM Redirection Profile**

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145

Foreword

146 The *KVM Redirection Profile* (DSP1076) was prepared by the Server Management Working Group and
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148 DMTF is a not-for-profit association of industry members dedicated to promoting enterprise and systems
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162

163

Introduction

164 The information in this specification and referenced specifications is intended to be sufficient for a
165 provider or consumer of this data to identify unambiguously the classes, properties, methods, and values
166 that shall be instantiated and manipulated using the DMTF CIM core and common model definitions.

167 The target audience for this specification is implementers who are writing CIM based providers or
168 consumers of management interfaces representing the components described in this document.

169

KVM Redirection Profile

170 1 Scope

171 The *KVM Redirection Profile* extends the management capabilities of referencing profiles and providing
172 the capability to manage KVM (Keyboard, Video and Mouse) console redirections provided by the
173 system.

174 2 Normative References

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

178 2.1 Approved References

179 DMTF DSP0004, *CIM Infrastructure Specification 2.3*,
180 http://www.dmtf.org/standards/published_documents/DSP0004_2.3.pdf

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

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

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

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

189 DMTF DSP1077, *USB Redirection Profile 1.0*,
190 http://www.dmtf.org/standards/published_documents/DSP1077_1.0.pdf

191 2.2 Other References

192 IETF RFC 5234, *Augmented BNF for Syntax Specifications: ABNF* <http://www.ietf.org/rfc/rfc5234.txt>

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

195 3 Terms and Definitions

196 3.1

197 can

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

199 3.2

200 cannot

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

- 202 **3.3**
203 **conditional**
204 used to indicate requirements strictly to be followed, in order to conform to the document when the
205 specified conditions are met
- 206 **3.4**
207 **mandatory**
208 used to indicate requirements strictly to be followed, in order to conform to the document and from which
209 no deviation is permitted
- 210 **3.5**
211 **may**
212 used to indicate a course of action permissible within the limits of the document
- 213 **3.6**
214 **need not**
215 used to indicate a course of action permissible within the limits of the document
- 216 **3.7**
217 **optional**
218 used to indicate a course of action permissible within the limits of the document
- 219 **3.8**
220 **referencing profile**
221 indicates a profile which owns the definition of this class and can include a reference to this profile in its
222 Related Profiles section
- 223 **3.9**
224 **shall**
225 used to indicate requirements strictly to be followed, in order to conform to the document and from which
226 no deviation is permitted
- 227 **3.10**
228 **shall not**
229 used to indicate requirements strictly to be followed, in order to conform to the document and from which
230 no deviation is permitted
- 231 **3.11**
232 **should**
233 used to indicate that among several possibilities, one is recommended as particularly suitable, without
234 mentioning or excluding others, or that a certain course of action is preferred but not necessarily required
- 235 **3.12**
236 **should not**
237 used to indicate that a certain possibility or course of action is deprecated but not prohibited
- 238 **3.13**
239 **Original Destination**
240 the destination of a KVM console flow prior to it being redirected. The Original Destination is modeled as
241 instances of CIM_Keyboard, CIM_DisplayController and CIM_PointingDevice in this profile but could be
242 potentially another type of logical device.
- 243 **3.14**
244 **Session**
245 a KVM Console Redirection Session

- 246 **3.15**
247 **Service**
248 a KVM Console Redirection Service
- 249 **3.16**
250 **Singular KVM Redirection**
251 a KVM Redirection in which the MaxCurrentEnabledSAPs property of the CIM_RedirectionService
252 instance has a value of 1
- 253 **3.17**
254 **KVM Console Flow**
255 a KVM console flow is the bidirectional KVM console stream which original flows to the Original
256 Destination. The KVM console flow may be redirected to a new KVM Console Flow destination, which
257 modeled as an instance of CIM_ProtocolEndpoint.
- 258 **3.18**
259 **KVM Redirection**
260 composed of an instance of CIM_RedirectionService, an instance of CIM_KVMRedirectionSAP and the
261 instance of the CIM_ServiceAccessBySAP between the two.
- 262 **3.19**
263 **KVM Redirection Session**
264 the instance of CIM_KVMRedirectionSAP which is part of a KVM Redirection
- 265 **3.20**
266 **KVM Redirection Service**
267 the instance of CIM_RedirectionService which is part of a KVM Redirection
- 268 **3.21**
269 **Session**
270 a KVM Redirection Session
- 271 **3.22**
272 **Service**
273 a KVM Redirection Service

274 **4 Symbols and Abbreviated Terms**

- 275 **4.1 Abbreviated Terms**
276 **KVM**
277 Keyboard, Video and Mouse

278 **5 Synopsis**

- 279 **Profile Name:** KVM Redirection
280 **Version:** 1.0.0
281 **Organization:** DMTF
282 **CIM Schema Version:** 2.22
283 **Central Class:** CIM_RedirectionService
284 **Scoping Class:** CIM_ComputerSystem

285 The *KVM Redirection Profile* extends the management capability of the referencing profiles by adding the
286 capability to describe KVM Redirections information.

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

288 CIM_RedirectionService shall be the Central Class of this profile. The instance of
289 CIM_RedirectionService shall be the Central Instance of this profile.

290 CIM_ComputerSystem shall be the Scoping Class of this profile. The instance of CIM_ComputerSystem
291 with which the Central Instance is associated via an instance of CIM_HostedService shall be the Scoping
292 Instance of this profile.

293

Table 1 – Related Profiles

Profile Name	Organization	Version	Relationship	Behavior
Profile Registration	DMTF	1.0	Mandatory	

294 6 Description

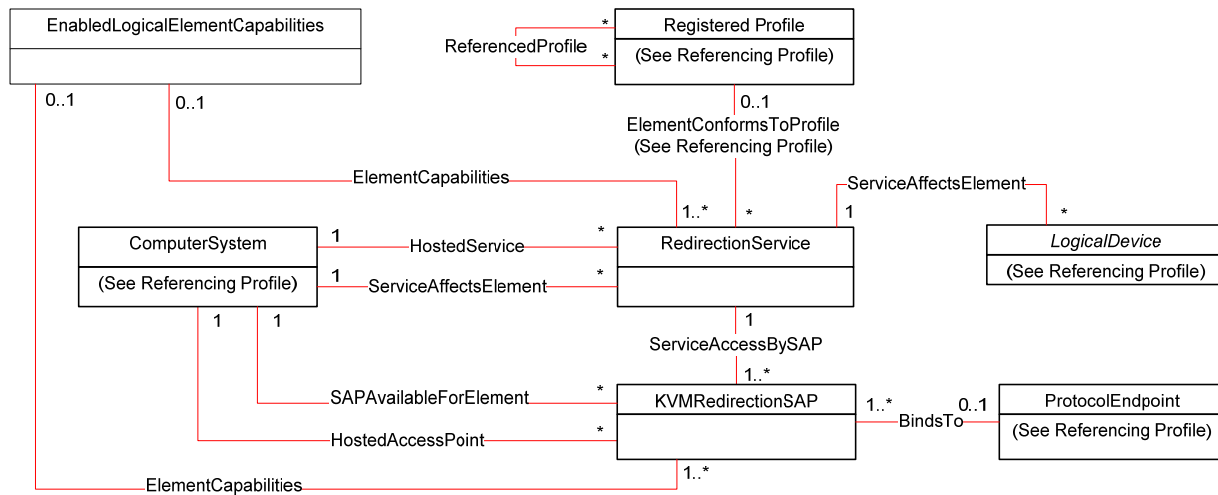
295 The *KVM Redirection Profile* describes the necessary elements needed to provide the capability to
296 manage the redirection of a keyboard, video and mouse (KVM) console flow. The following describes
297 KVM redirection capabilities of typical computer systems which the profile could manage.

- 298 • Systems can have multiple sources of bidirectional KVM console flows which can be redirected.
299 These include keyboards, pointing devices, display controllers or other representations of KVM
300 Logical Devices.
- 301 • Prior to being redirected, the console flow has an Original Destination. This is typically a local
302 keyboard, display controller and pointing device to which a terminal is connected in order to
303 access the KVM console flow.
- 304 • A KVM console flow can be redirected to one or more destinations. A destination can be a
305 network port. The network port facilitates remote access to the KVM console.
- 306 • The redirection of a KVM console flow can be accomplished while still delivering the KVM
307 console flow to its Original Destination.
- 308 • This profile does not represent the state of the underlying session that facilitates the redirection.
309 The representation of the underlying session is beyond the scope of this specification.

310 If the KVM devices are USB Devices and you wish to model them as such, you may use the [USB](#)
311 [Redirection Profile](#) to manage their redirection instead of this profile.

312 Note that a redirected KVM console flow can be terminated by severing the connection over the transport
313 protocol.

314 Figure 1 presents the class diagram for the *KVM Redirection Profile*. For simplicity, the prefix CIM_ has
315 been removed from the name of the classes.



316
317

Figure 1 – KVM Redirection Profile Class Diagram

318 A KVM Redirection comprises a KVM Redirection Service, a KVM Redirection Session, and the
319 relationship between them.

- 320 • The KVM Redirection Service, also referred to as Service in this profile, is represented by an
321 instance of CIM_RedirectionService.
- 322 • The KVM Redirection Session, also referred to as Session in this profile, is represented by an
323 instance of CIM_KVMRedirectionSAP.
- 324 • The relationship between the Service and the Session is represented by an instance of
325 CIM_ServiceAccessBySAP.

326 A KVM Redirection can be in an active, inactive or available state. When the KVM Redirection is active,
327 the KVM Console Flow is being actively redirected to a remote console.

328 The state management of the KVM Redirection can be performed using one of two mechanisms. The first
329 mechanism is via state management of the Session only. The second mechanism is via state
330 management of both the Service and the Session.

331 When state management of the Service is possible, the Service can be in an enabled or disabled state.
332 When state management of the Session is possible, the Session can be in an enabled, disabled, or
333 enabled but offline state.

334 An instance of CIM_RedirectionService can be associated to an instance of a concrete subclass of
335 CIM_LogicalDevice which represents the Original Destination of the redirected KVM Console Flow.
336 Examples of Original Destinations are keyboards, display controllers and pointing devices.

337 An instance of CIM_KVMRedirectionSAP can be associated to an instance of CIM_ProtocolEndpoint
338 which represents the endpoint where the redirected KVM console flow can be accessed.

339 7 Implementation Requirements

340 This section describes the classes required by the profile and the class properties required by the profile.
341 Section 8 describes the class methods required by the profile.

342 **7.1 Representing a KVM Redirection**

343 A KVM Redirection comprises an instance of CIM_RedirectionService, an instance of
344 CIM_KVMRedirectionSAP and an instance of the CIM_ServiceAccessBySAP association.

345 An instance of CIM_ServiceAccessBySAP shall be used to associate the instance of
346 CIM_RedirectionService to the instance of CIM_KVMRedirectionSAP.

347 The CIM_ServiceAccessBySAP association's Antecedent property shall reference the
348 CIM_RedirectionService instance and its Dependent property shall reference the
349 CIM_KVMRedirectionSAP instance.

350 **7.2 CIM_RedirectionService.RedirectionServiceType**

351 The CIM_RedirectionService.RedirectionServiceType property shall be set to 3 (KVM).

352 **7.3 Representing the KVM Redirection Service**

353 An instance of CIM_RedirectionService shall be used to represent the KVM Redirection Service, or
354 Service.

355 There shall be an instance of the CIM_HostedService association that associates each instance of
356 CIM_RedirectionService to a hosting CIM_ComputerSystem instance.

357 The CIM_HostedService association's Antecedent property shall reference the CIM_ComputerSystem
358 instance and its Dependent property shall reference the CIM_RedirectionService instance.

359 **7.3.1 Representing the Original Destination**

360 The instance of CIM_RedirectionService may be associated to one or more instances of a concrete
361 subclass of CIM_LogicalDevice which represents the Original Destination. The association shall use an
362 instance of the CIM_ServiceAffectsElement association.

363 The CIM_ServiceAffectsElement association's ManagedElement property shall reference the instance of
364 a concrete subclass CIM_LogicalDevice instance and its Service property shall reference the instance of
365 CIM_RedirectionService.

366 **7.3.2 Representing the System wherein the Original Destination Resides**

367 The instance of CIM_RedirectionService shall be associated to an instance of CIM_ComputerSystem
368 which represents the system wherein the Original Destination resides. The association shall use an
369 instance of the CIM_ServiceAffectsElement association.

370 The CIM_ServiceAffectsElement association's ManagedElement property shall reference the
371 CIM_ComputerSystem instance and its Service property shall reference the CIM_RedirectionService
372 instance.

373 **7.3.3 KVM Console Sharing Mode**

374 When a KVM console flow is redirected, the redirection may be exclusive or shared. Shared redirection
375 means the original destination of the KVM console is still receiving the KVM console flow. Exclusive
376 redirection means that the original destination is no longer receiving the KVM console flow.

377 The CIM_RedirectionService.SharingMode property shall designate whether a KVM Redirection is
378 exclusive or shared. A value of 2 (Exclusive) for the SharingMode property shall indicate exclusive
379 redirection. A value of 3 (Shared) for the SharingMode property shall indicate shared redirection.

380 The CIM_RedirectionServiceCapabilities.SharingModeSupported property shall designate whether a KVM
381 Redirection is capable of being set to exclusive or shared mode. A value of 2 (Exclusive) for the

382 SharingMode property shall indicate that exclusive redirection may be set on the KVM Redirection. A
383 value of 3 (Shared) for the SharingModeSupported property shall indicate that shared redirection may be
384 set on the KVM Redirection.

385 **7.3.4 Maximum Number of Concurrent Redirections**

386 A KVM console flow may be redirected to multiple access points; however, there may be a limitation to
387 the number of concurrent redirections. The limitation could be the result of hardware or software resource
388 limitations.

389 The CIM_RedirectionService.MaxCurrentEnabledSAPs property shall contain the maximum number of
390 instances of CIM_KVMRedirectionSAP, whose EnabledState property is set to 2 (Enabled), which may be
391 associated to the instance of CIM_RedirectionService. The Original Destination shall not be counted as
392 one of the redirected KVM consoles.

393 A Singular KVM Redirection is a redirection whose instance of CIM_RedirectionService has a
394 MaxCurrentEnabledSAPs property with a value of 1.

395 **7.3.5 CIM_RedirectionService.ElementName**

396 The ElementName property shall be formatted as a free-form string of variable length (pattern “.*/”).

397 The ElementName property may support being modified via the ModifyInstance operation. See 8.12.1.1.
398 This behavior is conditional. The following sections describe the CIM elements and behavior required to
399 determine whether an implementation supports client modification of the ElementName property.

400 **7.3.5.1 Modifying ElementName Is Supported — Conditional**

401 This section describes the CIM elements and behavior requirements when an implementation supports
402 client modification of the CIM_RedirectionService.ElementName property.

403 There shall be an instance of CIM_RedirectionServiceCapabilities associated with the
404 CIM_RedirectionService instance via an instance of the CIM_ElementCapabilities association.

405 The CIM_RedirectionServiceCapabilities.ElementNameEditSupported property shall have a value of
406 TRUE.

407 The CIM_RedirectionServiceCapabilities.MaxElementNameLen property shall be implemented.

408 **7.3.5.2 Modifying ElementName Is Not Supported**

409 This section describes the CIM elements and behaviors that shall be implemented when the
410 CIM_RedirectionService.ElementName does not support being modified via the ModifyInstance
411 operation.

412 There may be an instance of CIM_RedirectionServiceCapabilities associated with the
413 CIM_RedirectionServiceCapabilities instance via an instance of CIM_ElementCapabilities.

414 When an instance of CIM_RedirectionServiceCapabilities exists, its ElementNameEditSupported
415 property shall have a value of FALSE.

416 When an instance of CIM_RedirectionServiceCapabilities exists, its MaxElementNameLen property may
417 be implemented. The MaxElementNameLen property is irrelevant in this context.

418 **7.4 Representing the KVM Redirection Session**

419 An instance of CIM_KVMRedirectionSAP shall be used to represent the KVM Redirection Session, or
420 simply “Session” as defined in Section 3.

421 The Session is associated to computer systems via two associations. One is the computer system whose
422 KVM console flow is being redirected. The other is the computer system which contains the endpoint
423 where the redirected KVM console flow can be accessed.

424 The instance of CIM_KVMRedirectionSAP shall be associated to an instance of CIM_ComputerSystem,
425 which represents the computer system whose KVM console flow is being redirected, via an instance of
426 CIM_SAPAvailableForElement.

427 The CIM_SAPAvailableForElement association's ManagedElement property shall reference the
428 CIM_ComputerSystem instance and its AvailableSAP property shall reference the
429 CIM_KVMRedirectionSAP instance.

430 The instance of CIM_KVMRedirectionSAP shall be associated to an instance of CIM_ComputerSystem,
431 which represents the computer system which contains the endpoint where the redirect KVM console flow
432 can be accessed, via an instance of CIM_HostedAccessPoint.

433 The CIM_HostedAccessPoint association's Antecedent property shall reference the
434 CIM_ComputerSystem instance and its Dependent property shall reference the
435 CIM_KVMRedirectionSAP instance.

436 **7.4.1 Representing the Destination of the Redirected KVM Console Flow**

437 The instance of CIM_KVMRedirectionSAP may be associated to at most one instance of
438 CIM_ProtocolEndpoint which represents the endpoint where the redirected KVM console flow is
439 accessed. The association shall use an instance of the CIM_BindsTo association.

440 The CIM_BindsTo association's Antecedent property shall reference the CIM_ProtocolEndpoint instance
441 and its Dependent property shall reference the CIM_KVMRedirectionSAP instance.

442 **7.4.2 KVM Console Protocol Format**

443 The redirected KVM console can be formatted. Examples of the KVM console formats are raw data
444 stream and protocols such as RDP or VNC. In raw character stream format, the characters have no
445 special meaning. In protocol mode format, the data stream is formatted to have special meaning
446 according to the definition of the protocol.

447 The format of the redirection KVM console protocol shall be designated by the
448 CIM_KVMRedirectionSAP.KVMProtocol property.

449 When the redirected KVM console protocol format is a raw data stream, the
450 CIM_KVMRedirectionSAP.KVMProtocol property shall be set to a value of 2 (Raw).

451 When the redirected KVM console format is using the RDP protocol, the
452 CIM_KVMRedirectionSAP.KVMProtocol property shall be set to a value of 3 (RDP).

453 When the redirected KVM console format is using the VNC protocol, the
454 CIM_KVMRedirectionSAP.KVMProtocol property shall be set to a value of 4 (VNC).

455 When the redirected KVM console format is other than Raw, RDP or VNC, the
456 CIM_KVMRedirectionSAP.KVMProtocol property shall be set to a value of 1 (Other) and the value of
457 CIM_KVMRedirectionSAP.OtherKVMProcol shall contain a string which describes the format.

458 **7.4.3 Terminate a Redirected KVM Console**

459 A redirected KVM console session may be terminated via state management of the KVM Redirection
460 Session. (See 7.5.)

461 **7.4.4 CIM_KVMRedirectionSAP.ElementName**

462 The ElementName property shall be formatted as a free-form string of variable length (pattern “.*”).

463 The ElementName property may support being modified via the ModifyInstance operation. See 8.13.1.1.
464 This behavior is conditional. The following sections describe the CIM elements and behavior required to
465 determine whether an implementation supports client modification of the ElementName property.

466 **7.4.4.1 Modifying ElementName Is Supported — Conditional**

467 This section describes the CIM elements and behavior requirements when an implementation supports
468 client modification of the CIM_KVMRedirectionSAP.ElementName property.

469 There shall be an instance of CIM_EnabledLogicalElementCapabilities associated with the
470 CIM_KVMRedirectionSAP instance via an instance of the CIM_ElementCapabilities association.

471 The CIM_EnabledLogicalElementCapabilities.ElementNameEditSupported property shall have a value of
472 TRUE.

473 The CIM_EnabledLogicalElementCapabilities.MaxElementNameLen property shall be implemented.

474 **7.4.4.2 Modifying ElementName Is Not Supported**

475 This section describes the CIM elements and behaviors that shall be implemented when the
476 CIM_KVMRedirectionSAP.ElementName does not support being modified via the ModifyInstance
477 operation.

478 There may be an instance of CIM_EnabledLogicalElementCapabilities associated with the
479 CIM_KVMRedirectionSAP instance via an instance of CIM_ElementCapabilities.

480 When an instance of CIM_EnabledLogicalElementCapabilites exists, its ElementNameEditSupported
481 property shall have a value of FALSE.

482 When an instance of CIM_EnabledLogicalElementCapabilities exists, its MaxElementNameLen property
483 may be implemented. The MaxElementNameLen property is irrelevant in this context.

484 **7.5 State Management of a KVM Redirection**

485 The KVM Redirection shall have the states inactive, available, or active.

486 The KVM Redirection is inactive when the KVM Console Flow is not being redirected to the Session. The
487 KVM Redirection is available when the KVM Console Flow is being redirected to the Session, but the
488 session is not actively being used. The KVM Redirection is active when the KVM Console Flow is being
489 actively redirected to the Session and the session is actively being used.

490 The state of a KVM Redirection shall be determined by the state of the instance of
491 CIM_RedirectionService (Service) and the state of the instance of CIM_KVMRedirectionSAP (Session)
492 associated via an instance of CIM_ServiceAccessBySAP.

493 The KVM Redirection shall be in an active state when the state of CIM_RedirectionService is 2 (Enabled)
494 and the state of the CIM_KVMRedirectionSAP is 2 (Enabled).

495 The KVM Redirection shall be in an available state when the state of CIM_RedirectionService is 2
496 (Enabled) and the state of the CIM_KVMRedirectionSAP is 6 (Enabled but Offline).

497 Otherwise, the KVM Redirection shall be inactive.

498 The state management of the KVM Redirection may be performed using: 1) state management of the
499 Session only or 2) state management of both the Service and the Session.

500 The state management of the Service is discussed in 7.6. The state management of the Session is
501 discussed in 7.7.

502 **7.6 State Management of a KVM Redirection Service (Optional)**

503 Support for managing the state of a KVM Redirection Service is optional behavior. The following sections
504 describe the CIM elements and behaviors that allow the client to determine whether state management of
505 the KVM Redirection Service is supported.

506 **7.6.1 KVM Redirection Service State Management Is Supported — Conditional**

507 This section describes the CIM elements and behaviors that shall be implemented when state
508 management of the Service is supported.

509 **7.6.1.1 CIM_RedirectionServiceCapabilities**

510 When state management of the KVM Redirection Service is supported, exactly one instance of
511 CIM_RedirectionServiceCapabilities shall be associated with the instance of CIM_RedirectionService
512 through an instance of CIM_ElementCapabilities.

513 The CIM_ElementCapabilities association's ManagedElement property shall reference the
514 CIM_RedirectionService instance and its Capabilities property shall reference the
515 CIM_RedirectionServiceCapabilities instance.

516 **7.6.1.1.1 CIM_RedirectionServiceCapabilities.RequestedStatesSupported**

517 The RequestedStatesSupported property shall contain zero or more of the following values: 2 (Enabled),
518 3 (Disabled).

519 **7.6.1.2 CIM_RedirectionService.RequestedState**

520 When the CIM_RedirectionService.RequestStateChange() method is successfully invoked, the value of
521 the RequestedState property shall be the value of the RequestedState parameter. If the method is not
522 successfully invoked, the value of the RequestedState property is indeterminate.

523 The CIM_RedirectionService.RequestedState property shall have one of the values specified in the
524 CIM_RedirectionServiceCapabilities.RequestedStatesSupported property or a value of 5 (No Change).

525 **7.6.1.3 CIM_RedirectionService.EnabledState**

526 The EnabledState property shall have one of the following values: 2 (Enabled), 3 (Disabled).

527 When the RequestedState parameter has a value of 2 (Enabled) or 3 (Disabled) and the
528 CIM_RedirectionService.RequestStateChange() method completes successfully, the value of the
529 EnabledState property shall equal the value of the CIM_RedirectionService.RequestedState property.

530 If the method does not complete successfully, the value of the EnabledState property is indeterminate.

531 **7.6.2 KVM Redirection Service State Management Is Not Supported**

532 This section describes the CIM elements and behaviors that shall be implemented when management of
533 the Service state is not supported.

534 **7.6.2.1 CIM_RedirectionServiceCapabilities**

535 When state management is not supported, an instance of CIM_RedirectionServiceCapabilities may be
536 associated with the CIM_RedirectionService instance through an instance of CIM_ElementCapabilities.
537 The existence of the CIM_ElementCapabilities instance is conditional on the existence of the
538 CIM_RedirectionServiceCapabilities instance.

539 The CIM_ElementCapabilities association's ManagedElement property shall reference the
540 CIM_RedirectionService instance and its Capabilities property shall reference the
541 CIM_RedirectionServiceCapabilities instance.

542 **7.6.2.1.1 CIM_RedirectionServiceCapabilities.RequestedStatesSupported**

543 The CIM_RedirectionServiceCapabilities.RequestedStatesSupported property shall not contain any
544 values.

545 **7.6.2.2 CIM_RedirectionService.RequestedState**

546 The RequestedState property shall have the value of 12 (Not Applicable).

547 **7.6.2.3 CIM_RedirectionService.EnabledState**

548 The EnabledState property shall have one of the following values: 2 (Enabled) 3 (Disabled) or 5 (Not
549 Applicable). The value of 5 (Not Applicable) may be set when non-CIM instrumentation has manipulated
550 the instance of CIM_RedirectionService.

551 **7.7 State Management of a KVM Redirection Session (Optional)**

552 Support for managing the state of a KVM Redirection Session (Session) is optional behavior. The
553 following sections describe the CIM elements and behaviors that allow the client to determine whether
554 state management of the Session is supported.

555 **7.7.1 Session State Management Is Supported — Conditional**

556 This section describes the CIM elements and behaviors that shall be implemented when state
557 management of the Session is supported.

558 **7.7.1.1 CIM_EnabledLogicalElementCapabilities**

559 When state management of the Session is supported, exactly one instance of
560 CIM_EnabledLogicalElementCapabilities shall be associated with each instance of
561 CIM_KVMRedirectionSAP through an instance of CIM_ElementCapabilities.

562 The CIM_ElementCapabilities association's ManagedElement property shall reference the
563 CIM_KVMRedirectionSAP instance and its Capabilities property shall reference the
564 CIM_EnabledLogicalElementCapabilities instance.

565 **7.7.1.1.1 CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported**

566 The RequestedStatesSupported property shall contain zero or more of the following values: 2 (Enabled),
567 3 (Disabled) or 6 (Enabled but Offline).

568 **7.7.1.2 CIM_KVMRedirectionSAP.RequestedState**

569 When the CIM_KVMRedirectionSAP.RequestStateChange() method is successfully invoked, the value of
570 the RequestedState property shall be the value of the RequestedState parameter. If the method is not
571 successfully invoked, the value of the RequestedState property is indeterminate.

572 The CIM_KVMRedirectionSAP.RequestedState property shall have one of the values specified in the
573 CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported property or a value of 5 (No
574 Change).

575 **7.7.1.3 CIM_KVMRedirectionSAP.EnabledState**

576 The EnabledState property shall have one of the following values: 2 (Enabled), 3 (Disabled) or 6 (Enabled
577 but Offline).

578 When the RequestedState parameter has a value of 2 (Enabled), 3 (Disabled), or 6 (Enabled but Offline)
579 and the CIM_KVMRedirectionSAP.RequestStateChange() method completes successfully, the value of
580 the EnabledState property shall equal the value of the CIM_KVMRedirectionSAP.RequestedState
581 property.

582 If the method does not complete successfully, the value of the EnabledState property is indeterminate.

583 **7.7.2 Session State Management Is Not Supported**

584 This section describes the CIM elements and behaviors that shall be implemented when management of
585 the Session state is not supported.

586 **7.7.2.1 CIM_EnabledLogicalElementCapabilities**

587 When state management of the Session is not supported, an instance of
588 CIM_EnabledLogicalElementCapabilities may be associated with the CIM_KVMRedirectionSAP instance
589 through an instance of CIM_ElementCapabilities. The existence of the CIM_ElementCapabilities instance
590 is conditional on the existence of the CIM_EnabledLogicalElementCapabilities instance.

591 The CIM_ElementCapabilities association's ManagedElement property shall reference the
592 CIM_KVMRedirectionSAP instance and its Capabilities property shall reference the
593 CIM_EnabledLogicalElementCapabilities instance.

594 **7.7.2.1.1 CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported**

595 The CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported property shall not contain any
596 values.

597 **7.7.2.2 CIM_KVMRedirectionSAP.RequestedState**

598 The RequestedState property shall have the value of 12 (Not Applicable).

599 **7.7.2.3 CIM_KVMRedirectionSAP.EnabledState**

600 The EnabledState property shall have one of the following values: 2 (Enabled), 3 (Disabled), 5 (Not
601 Applicable), or 6 (Enabled but Offline). The value of 5 (Not Applicable) may be set when non-CIM
602 instrumentation has manipulated the instance of CIM_KVMRedirectionSAP.

603 **8 Methods**

604 **8.1 CIM_RedirectionService.RequestStateChange()**

605 Invocation of the RequestStateChange() method changes the element's state to the value specified in the
606 RequestedState parameter. The 2 (Enabled), and 3 (Disabled) values of the RequestedState parameter
607 shall correspond to the enabled and disabled states of the KVM Redirection Service, respectively.

608 It is implementation specific whether the method will complete successfully if there are active sessions.

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

610 No standard messages are defined.

611 Invoking the RequestStateChange() method multiple times could result in earlier requests being
612 overwritten or lost.

613 **Table 2 – CIM_RedirectionService.RequestStateChange() Method: Return Code Values**

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

614 **Table 3 – CIM_RedirectionService.RequestStateChange() Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN	RequestedState	uint16	Valid state values: 2 (Enabled) 3 (Disabled)
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

615 **8.1.1 CIM_RedirectionService.RequestStateChange() — Conditional Support**

616 When an instance of CIM_RedirectionServiceCapabilities is associated with the CIM_RedirectionService
617 instance and the CIM_RedirectionServiceCapabilities.RequestedStatesSupported property contains at
618 least one value, the CIM_RedirectionService.RequestStateChange() method shall be implemented and
619 supported. The CIM_RedirectionService.RequestStateChange() method shall not return a value of 1 (Not
620 Supported).

621 **8.2 CIM_KVMRedirectionSAP.RequestStateChange()**

622 Invocation of the RequestStateChange() method changes the element's state to the value specified in the
623 RequestedState parameter. The 2 (Enabled), 3 (Disabled) and 6 (Enabled but Offline) values of the
624 RequestedState parameter shall correspond to enabling, disabling, and enabled but offline states the
625 Session, respectively.

626 Detailed requirements of the RequestStateChange() method are specified in Table 4 and Table 5.

627 No standard messages are defined.

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

630 **Table 4 – CIM_KVMRedirectionSAP.RequestStateChange() Method: Return Code Values**

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

631

Table 5 – CIM_KVMRedirectionSAP.RequestStateChange() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN	RequestedState	uint16	Valid state values: 2 (Enabled) 3 (Disabled) 6 (Enabled but Offline)
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

632 **8.2.1 CIM_KVMRedirectionSAP.RequestStateChange() — Conditional Support**

633 When an instance of CIM_EnabledLogicalElementCapabilities is associated with the
634 CIM_KVMRedirectionSAP instance and the
635 CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported property contains at least one
636 value, the CIM_KVMRedirectionSAP.RequestStateChange() method shall be implemented and
637 supported. The CIM_KVMRedirectionSAP.RequestStateChange() method shall not return a value of 1
638 (Not Supported).

639 **8.2.2 Enabling a Singular KVM Redirection**

640 When multiple instances of CIM_KVMRedirectionSAP are associated with an instance of
641 CIM_RedirectionService, the service shall guarantee that the number of CIM_KVMRedirectionSAP with
642 the value of EnabledState as 2 (Enabled) do not exceed the MaxCurrentEnabledSAPs property value.
643 When CIM_KVMRedirectionSAP.RequestedState parameter has a value of 2 (Enabled) and there are
644 MaxCurrentEnabledSAPs instances of CIM_KVMRedirectionSAP with the value of EnabledState as 2
645 (Enabled), then CIM_KVMRedirectionSAP.RequestStateChange() shall complete with an error.

646 When the instance of CIM_KVMRedirectionSAP is associated to an instance of CIM_RedirectionService
647 whose MaxCurrentEnabledSAPs property has a value of 1, the method shall exhibit the following
648 additional behavior.

649 When the CIM_KVMRedirectionSAP.RequestedState parameter has a value of 2 (Enabled) and the
650 CIM_KVMRedirectionSAP.RequestStateChange() method completes successfully, the value of the
651 EnabledState property of all other instances of CIM_KVMRedirectionSAP associated with the instance of
652 CIM_RedirectionService shall be set to 6 (Enabled but Offline) if their prior value of EnabledState was 2
653 (Enabled) or 3 (Disabled) if the value of EnabledState has never been set to 2 (Enabled).

654 **8.3 Profile Conventions for Operations**

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

657 The default list of operations is as follows:

- 658 • GetInstance
- 659 • Associators
- 660 • AssociatorNames
- 661 • References

682

Table 8 – CIM_ElementCapabilities Operations

Operation	Requirement	Messages
GetInstance	Mandatory	None
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

683 8.7 CIM_RedirectionServiceCapabilities Operations

684 Table 9 lists implementation requirements for operations. If implemented, these operations shall be
 685 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 9, all operations in
 686 the default list in 8.3 shall be implemented as defined in [DSP0200](#).

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

688

Table 9 – CIM_RedirectionServiceCapabilities Operations

Operation	Requirement	Messages
GetInstance	Mandatory	None
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

689 8.8 CIM_HostedService Operations

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 8.3 shall be implemented as defined in [DSP0200](#).

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

694

Table 10 – CIM_HostedService Operations

Operation	Requirement	Messages
GetInstance	Mandatory	None
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

695 8.9 CIM_HostedAccessPoint Operations

696 Table 11 lists implementation requirements for operations. If implemented, these operations shall be
 697 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 11, all operations
 698 in the default list in 8.3 shall be implemented as defined in [DSP0200](#).

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

700

Table 11 – CIM_HostedAccessPoint Operations

Operation	Requirement	Messages
GetInstance	Mandatory	None
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

701 **8.10 CIM_ServiceAffectsElement Operations**

702 Table 12 lists implementation requirements for operations. If implemented, these operations shall be
 703 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 12, all operations
 704 in the default list in 8.3 shall be implemented as defined in [DSP0200](#).

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

706

Table 12 – CIM_ServiceAffectsElement Operations

Operation	Requirement	Messages
GetInstance	Mandatory	None
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

707 **8.11 CIM_ServiceAccessBySAP Operations**

708 Table 13 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 13, all operations
 710 in the default list in 8.3 shall be implemented as defined in [DSP0200](#).

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

712

Table 13 – CIM_ServiceAccessBySAP Operations

Operation	Requirement	Messages
GetInstance	Mandatory	None
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

713 **8.12 CIM_RedirectionService Operations**

714 Table 14 lists implementation requirements for operations. If implemented, these operations shall be
 715 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 14, all operations
 716 in the default list in 8.3 shall be implemented as defined in [DSP0200](#).

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

718

Table 14 – CIM_RedirectionService Operations

Operation	Requirement	Messages
GetInstance	Mandatory	None
ModifyInstance	Optional	See 8.12.1.
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

719 8.12.1 CIM_RedirectionService – ModifyInstance Operation

720 This section details the specific requirements for the ModifyInstance operation applied to an instance of
721 CIM_RedirectionService.

722 8.12.1.1 CIM_RedirectionService.ElementName property

723 When there is an instance of CIM_RedirectionServiceCapabilities associated with the
724 CIM_RedirectionService instance and the
725 CIM_RedirectionServiceCapabilities.ElementNameEditSupported property has a value of TRUE, the
726 implementation shall allow the ModifyInstance operation to change the value of the ElementName
727 property of the CIM_RedirectionService instance. The ModifyInstance operation shall enforce the length
728 restriction specified in the MaxElementNameLen property of the CIM_RedirectionServiceCapabilities.

729 When there is not an instance of CIM_RedirectionServiceCapabilities associated with the
730 CIM_RedirectionService instance, or the ElementNameEditSupported property of the
731 CIM_RedirectionServiceCapabilities has a value of FALSE, the implementation shall not allow the
732 ModifyInstance operation to change the value of the ElementName property of the
733 CIM_RedirectionService instance.

734 8.13 CIM_KVMRedirectionSAP Operations

735 Table 15 lists implementation requirements for operations. If implemented, these operations shall be
736 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 15, all operations
737 in the default list in 8.3 shall be implemented as defined in [DSP0200](#).

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

739

Table 15 – CIM_KVMRedirectionSAP Operations

Operation	Requirement	Messages
GetInstance	Mandatory	None
ModifyInstance	Optional	See 8.13.1.
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

740 **8.13.1 CIM_KVMRedirectionSAP — ModifyInstance Operation**

741 This section details the specific requirements for the ModifyInstance operation applied to an instance of
742 CIM_KVMRedirectionSAP.

743 **8.13.1.1 CIM_KVMRedirectionSAP.ElementName property**

744 When there is an instance of CIM_EnabledLogicalElementCapabilities associated with the
745 CIM_KVMRedirectionSAP instance and the
746 CIM_EnabledLogicalElementCapabilities.ElementNameEditSupported property has a value of TRUE, the
747 implementation shall allow the ModifyInstance operation to change the value of the ElementName
748 property of the CIM_KVMRedirectionSAP instance. The ModifyInstance operation shall enforce the length
749 restriction specified in the MaxElementNameLen property of the
750 CIM_EnabledLogicalElementCapabilities.

751 When there is not an instance of CIM_EnabledLogicalElementCapabilities associated with the
752 CIM_KVMRedirectionSAP instance, or the ElementNameEditSupported property of the
753 CIM_EnabledLogicalElementCapabilities has a value of FALSE, the implementation shall not allow the
754 ModifyInstance operation to change the value of the ElementName property of the
755 CIM_KVMRedirectionSAP instance.

756 **9 Use Cases**

757 This section contains object diagrams and use cases specific to *KVM Redirection Profile*. The use cases
758 are informative and are not intended to define the requirements for conformance.

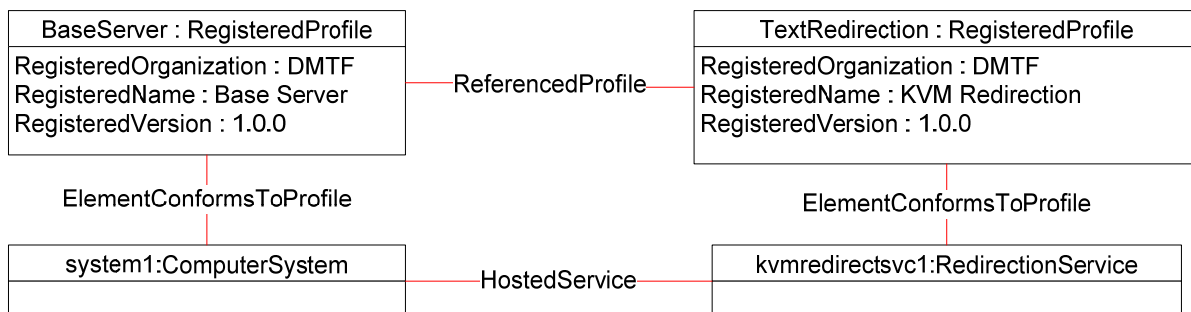
759 **9.1 Advertising the Profile Conformance**

760 The object diagram in Figure 2 shows how instances of CIM_RegisteredProfile are used to identify the
761 version of the *KVM Redirection Profile* with which an instance of CIM_RedirectionService and its
762 associated instances are conformant.

763 An instance of CIM_RegisteredProfile exists for each profile that is instrumented in the system. One
764 instance of CIM_RegisteredProfile identifies the DMTF [Base Server Profile](#), version 1.0.0. The other
765 instance identifies the DMTF *KVM Redirection Profile*, version 1.0.0. The Central Instance is the
766 CIM_RedirectionService. The Scoping Instance is the CIM_ComputerSystem instance.

767 This instance of CIM_ComputerSystem is conformant with the DMTF [Base Server Profile](#) version 1.0.0 as
768 indicated by the CIM_ElementConformsToProfile association to the CIM_RegisteredProfile instance.

769 This instance of CIM_RedirectionService is conformant with the DMTF *KVM Redirection Profile* version
770 1.0.0 as indicated by the CIM_ElementConformsToProfile association to the CIM_RegisteredProfile
771 instance.



772

773

Figure 2 – Registered Profile

774 **9.2 Object Diagram for a Monolithic Server**

775 Figure 3 shows the object diagram for a monolithic server, *system1*, which has a Service which can
 776 redirect the KVM console devices to the network port. Both the KVM devices and the network port are
 777 part of *system1* and modeled by the instances of CIM_SystemDevice.

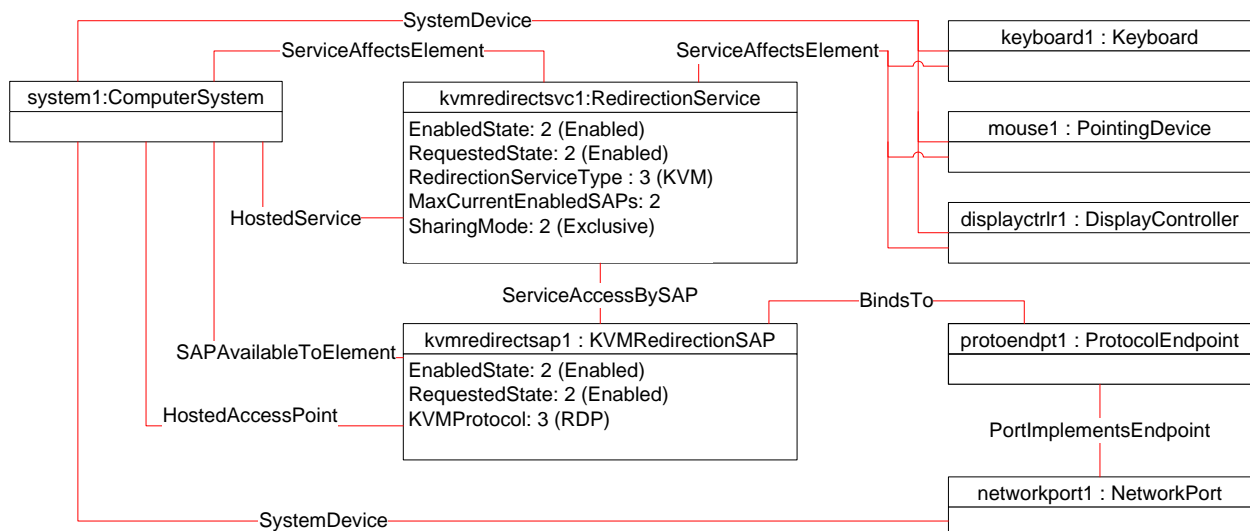
778 The KVM console session is represented with a source (*kvmredirectsvc1*), a destination
 779 (*kvmredirectsap1*) and the instance of CIM_ServiceAccessBySAP association between them. The KVM
 780 Redirection Service (*kvmredirectsvc1*) is hosted on *system1* as represented by the CIM_HostedService
 781 association between *system1* and *kvmredirectsvc1*. The service (*kvmredirectsvc1*) affects *system1* as
 782 represented by the CIM_ServiceAffectsElement association between *system1* and *kvmredirectsvc1*. This
 783 signifies that *system1* is the source of the KVM console which can be redirected.

784 The service also affects *keyboard1*, *displayctrlr1* and *mouse1* as represented by the
 785 CIM_ServiceAffectsElement association between *keyboard1*, *displayctrlr1* and *mouse1* and
 786 *kvmredirectsvc1*. *Keyboard1* is an instance of CIM_Keyboard, *displayctrlr1* is an instance of
 787 CIM_DisplayController and *mouse1* is an instance of CIM_PointingDevice, all of which are a concrete
 788 subclass of CIM_LogicalDevice. This signifies that keyboard1, displayctrlr1 and mouse1 are the Original
 789 Destination of a KVM console which can be redirected.

790 The KVM Redirection Session (*kvmredirectsap1*) is hosted on *system1* as represented by the
 791 CIM_HostedAccessPoint association between *system1* and *kvmredirectsap1*. The Session
 792 (*kvmredirectsap1*) provides a SAP for *system1* as represented by the CIM_SAPAvailableForElement
 793 association between *system1* and *kvmredirectsap1*. Note that any properties, such as encryption
 794 algorithms or settings, for the KVM Protocol’s transport can be included on the Protocol Endpoint
 795 *protoendpt1*.

796 From *kvmredirectsap1*, the CIM_BindsTo association can be traversed to the CIM_ProtocolEndpoint
 797 (*protoendpt1*). From *protoendpt1*, the CIM_PortImplementsEndpoint association can be traversed to the
 798 network port (*networkport1*), a device on *system1*.

799 In the figure, the KVM Redirection specified by *kvmredirectsvc1* and *kvmredirectsap1* is active, since the
 800 state of the *kvmredirectsvc1* is 2 (Enabled) and the state of the *kvmredirectsap1* is 2 (Enabled).



801

802

Figure 3 – Monolithic System Object Diagram

803 **9.3 Object Diagram for Monolithic Server with Service Processor**

804 Figure 4 shows the object diagram for a monolithic server with a service processor.

805 The diagram is similar to Figure 3, except there is now an instance of CIM_ComputerSystem, *sp1*,
806 representing the service processor which has a network port.

807 The KVM Redirection Service (*kvmredirectsvc1*) is hosted on *sp1* as represented by the
808 CIM_HostedService association between *sp1* and *kvmredirectsvc1*.

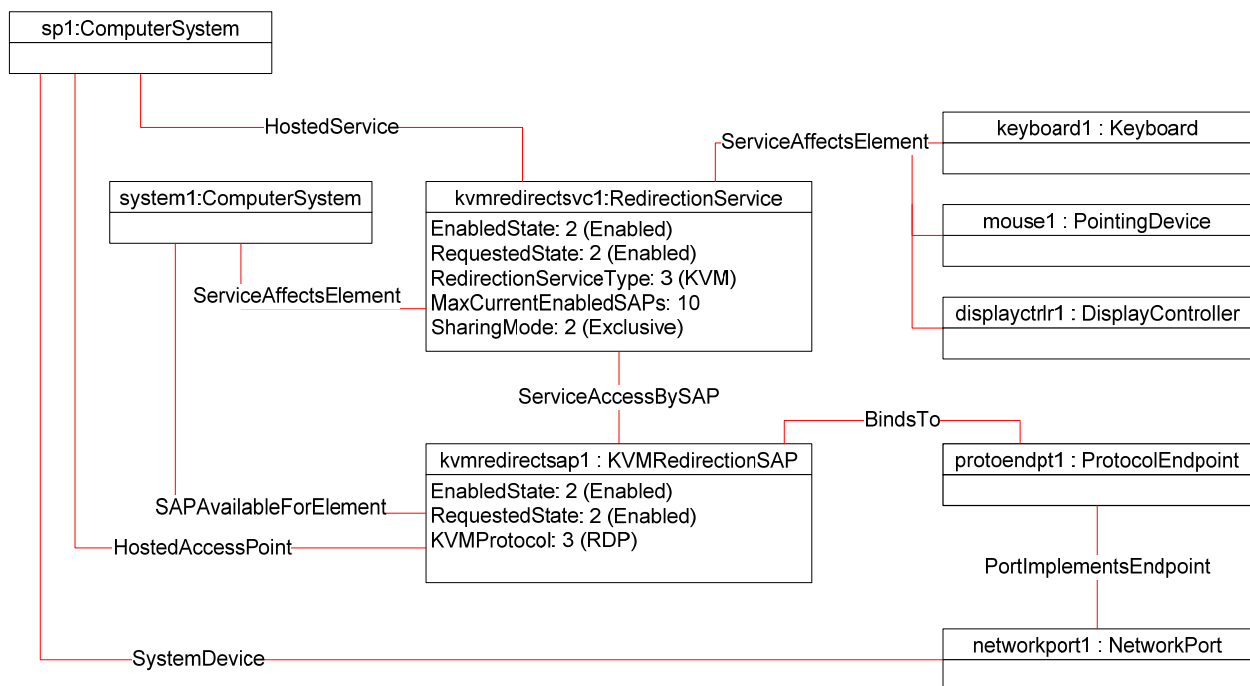
809 The service affects *system1* as represented by the CIM_ServiceAffectsElement association between
810 *system1* and *kvmredirectsvc1*. This signifies that *system1* is the source of the KVM console which can be
811 redirected.

812 The service also affects *keyboard1*, *displayctrlr1* and *mouse1* as represented by the
813 CIM_ServiceAffectsElement association between *keyboard1*, *displayctrlr1* and *mouse1* and
814 *kvmredirectsvc1*. This signifies that *keyboard1*, *displayctrlr1* and *mouse1* are the Original Destination of a
815 KVM console which can be redirected. *keyboard1*, *displayctrlr1* and *mouse1* are associated to *system1*
816 through CIM_SystemDevice (not shown).

817 The KVM Redirection Session (*kvmredirectsap1*) is hosted on *sp1* as represented by the
818 CIM_HostedAccessPoint association between *sp1* and *kvmredirectsap1*. The Session (*kvmredirectsap1*)
819 provides a SAP for *system1* as represented by the CIM_SAPAvailableForElement association between
820 *system1* and *kvmredirectsap1*.

821 From *kvmredirectsap1*, the CIM_BindsTo association can be traversed to the CIM_ProtocolEndpoint
822 (*protoendpt1*). From *protoendpt1*, the CIM_PortImplementsEndpoint association can be traversed to the
823 network port (*networkport1*), a device on *sp1*.

824 In the figure, the KVM Redirection specified by *kvmredirectsvc1* and *kvmredirectsap1* is active, since the
825 state of the *kvmredirectsvc1* is 2 (Enabled) and the state of the *kvmredirectsap1* is 2 (Enabled).



826

827 **Figure 4 – Monolithic System with Service Processor Object Diagram**

828 9.4 Object Diagram for a Modular System

829 The Figure 5 shows a modular system which can redirect the KVM devices on a blade to the network port
830 of the chassis management module (CMM) or the network port of the blade. The chassis management
831 module is represented with an instance of CIM_ComputerSystem, *chassismgr1*. The blade is
832 represented with an instance of CIM_ComputerSystem, *blade1*.

833 The KVM Redirection Service (*kvmredirectsvc1*) is hosted on *chassismgr1* as represented by the
834 CIM_HostedService association between *chassismgr1* and *kvmredirectsvc1*. The service affects *blade1*
835 as represented by the CIM_ServiceAffectsElement association between *blade1* and *kvmredirectsvc1*.
836 This signifies that *blade1* is the source of the KVM console which can be redirected.

837 The service also affects *keyboard1*, *displayctrlr1* and *mouse1* as represented by the
838 CIM_ServiceAffectsElement association between *keyboard1*, *displayctrlr1* and *mouse1* and
839 *kvmredirectsvc1*. This signifies that *keyboard1*, *displayctrlr1* and *mouse1* are the Original Destination of a
840 KVM console which can be redirected. The instance *keyboard1*, *displayctrlr1* and *mouse1* are associated
841 to *blade1* via an instance of CIM_SystemDevice.

842 There are two KVM Redirection Sessions, *kvmredirectsap1* and *kvmredirectsap2*. Each is associated to
843 the Service via an instance of the CIM_ServiceAccessBySAP associations.

844 One KVM Redirection Session (*kvmredirectsap1*) is hosted on *blade1* as represented by the
845 CIM_HostedAccessPoint association between *blade1* and *kvmredirectsap1*. This shows that the
846 resources of *blade1* are used to host the redirection session. The Session (*kvmredirectsap1*) provides a
847 SAP for *blade1* as represented by the CIM_SAPAvailableForElement association between *blade1* and
848 *kvmredirectsap1*.

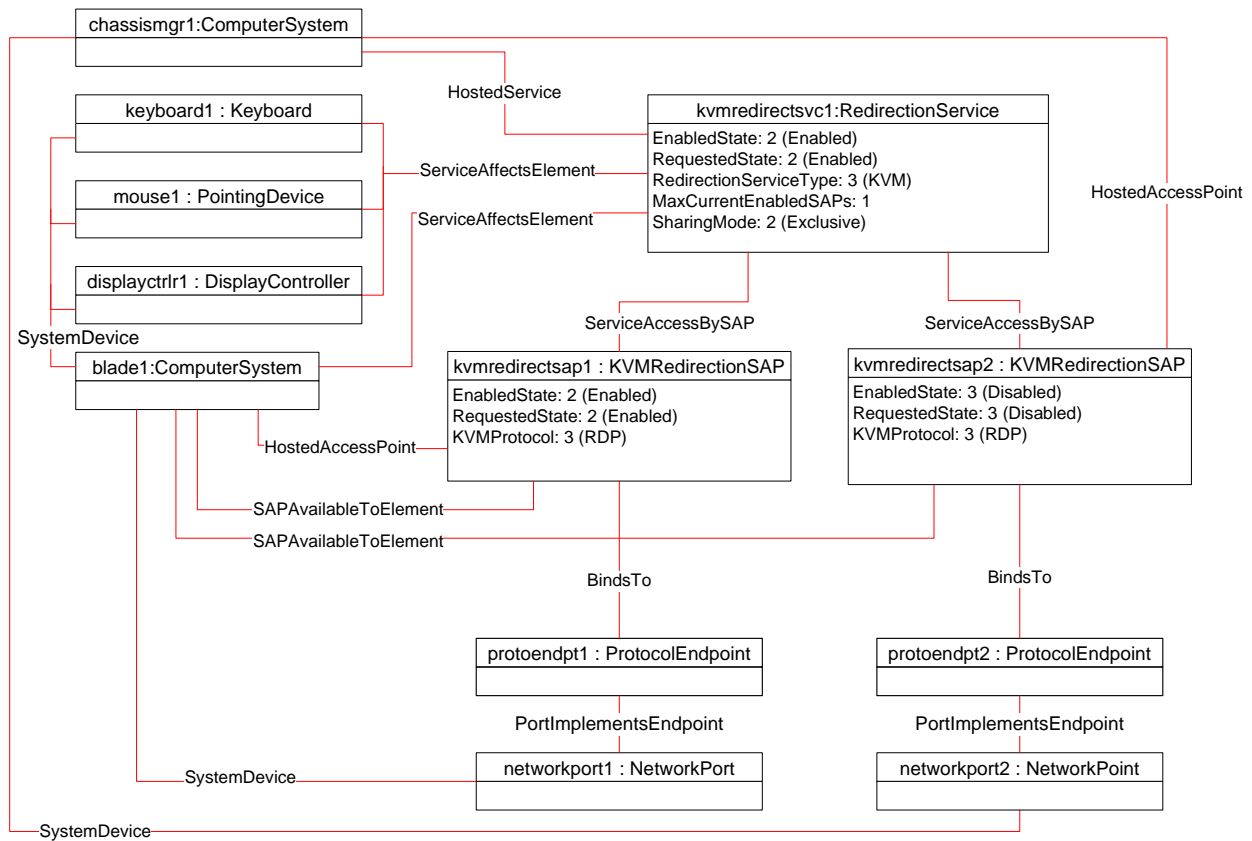
849 From *kvmredirectsap1*, the CIM_BindsTo association can be traversed to the CIM_ProtocolEndpoint
850 (*protoendpt1*). From *protoendpt1*, the CIM_PortImplementsEndpoint association can be traversed to the
851 network port (*networkport1*), a device on *blade1*.

852 The other KVM Redirection Session (*kvmredirectsap2*) is hosted on *chassismgr1* as represented by the
853 CIM_HostedAccessPoint association between *chassismgr1* and *kvmredirectsap2*. This shows that the
854 resources of *chassismgr1* are used to host the redirection session. The Session (*kvmredirectsap2*) also
855 provides a SAP for *blade1* as represented by the CIM_SAPAvailableForElement association between
856 *blade1* and *kvmredirectsap2*.

857 From *kvmredirectsap2*, the CIM_BindsTo association can be traversed to the CIM_ProtocolEndpoint
858 (*protoendpt2*). From *protoendpt2*, the CIM_PortImplementsEndpoint association can be traversed to the
859 network port (*networkport2*), a device on *chassismgr1*.

860 Note that both *kvmredirectsap1* and *kvmredirectsap2* are associated to *blade1* with the
861 CIM_SAPAvailableForElement, since *blade1* is the source of the KVM Redirection regardless of whether
862 the SAP is hosted on the *blade1* or *chassismgr1*.

863 In the figure, the KVM Redirection specified by *kvmredirectsvc1* and *kvmredirectsap1* is active, since the
864 state of *kvmredirectsvc1* is 2 (Enabled) and the state of *kvmredirectsap1* is 2 (Enabled). The state of
865 *kvmredirectsap2* is 3 (Disabled), which means that the session specified by *kvmredirectsvc1* and
866 *kvmredirectsap2* is not permitted to be made active.



867

868

Figure 5 – Modular System Object Diagram

869 **9.5 Determine Whether a System Has KVM Consoles That Can Be Redirected.**

870 A client can determine whether a computer system of interest has KVM consoles that can be redirected
871 as follows:

- 872 1) Start at the instance of `CIM_ComputerSystem` which represents the computer system whose
873 KVM consoles are of interest.
- 874 2) Enumerate the instances of the `CIM_RedirectionService` which are associated to the
875 `CIM_ComputerSystem` via an instance of the `CIM_ServiceAffectsElement` association.
- 876 3) If the enumeration is zero, the computer system has no KVM console that can be redirected.
- 877 4) Otherwise, the computer system has at least one KVM console that can be redirected. Each
878 instance of `CIM_RedirectionService` so found represents a Service on the computer system.

879 **9.6 Determine Whether a Keyboard, Display Controller or Pointing Device Can
880 Be Redirected**

881 A client can determine whether a keyboard, display controller or pointing device of interest can be
882 redirected as follows:

- 883 1) Start at the instance of `CIM_Keyboard`, `CIM_DisplayController` and/or `CIM_PointingDevice`
884 which represents the device(s) of interest.
- 885 2) Enumerate the instances of the `CIM_RedirectionService` which are associated to the
886 `CIM_Keyboard`, `CIM_DisplayController` and/or `CIM_PointingDevice` via an instance of the
887 `CIM_ServiceAffectsElement` association.

- 888 3) If the enumeration is zero, the KVM console cannot be redirected.
- 889 4) Otherwise, the keyboard, display controller or pointing device of interest is the Original
890 Destination for at least one KVM Redirection. Each session can be found by using the
891 CIM_RedirectionService, so found, as the Service.
- 892 5) It is advisable to enumerate the instances of any other CIM_LogicalDevice with which the
893 CIM_RedirectionService is associated, since this service may affect more than one device. To
894 do that, enumerate the instances of CIM_LogicalDevice, such as CIM_Keyboard,
895 CIM_DisplayController and/or CIM_PointingDevice which are associated to the instance of
896 CIM_RedirectionService via an instance of the CIM_ServiceAffectsElement association (other
897 than the one found in step 2).

898 **9.7 Find the KVM Redirection Services for a Computer System**

899 A client can determine the KVM Redirection Service on a computer system of interest as follows:

- 900 1) Start at the instance of CIM_ComputerSystem which represents the computer system of
901 interest.
- 902 2) Enumerate the instances of the CIM_RedirectionService which are associated to the
903 CIM_ComputerSystem via an instance of the CIM_ServiceAffectsElement association and
904 which have a CIMRedirectionService.RedirectionServiceType set to 3 (KVM).
- 905 3) Each instance of CIM_RedirectionService, so found, is a KVM Redirection Service for the
906 computer system of interest.

907 **9.8 Find the Original Destinations on a Computer System**

908 A client can determine the sources of KVM Console Flows (or Original Destinations) on a computer
909 system of interest as follows:

- 910 1) Start at the instance of CIM_ComputerSystem which represents the computer system of
911 interest.
- 912 2) Determine the KVM Redirection Services for the computer system using the use case in 9.7.
- 913 3) From each instance of CIM_RedirectionService so found, determine if there is an instance of
914 CIM_LogicalDevice which is associated to the instance of CIM_RedirectionService via an
915 instance of the CIM_ServiceAffectsElement association.
- 916 4) If an instance of CIM_LogicalDevice does not exist, there may be no further information to
917 determine the Original Destination of the KVM Redirection Service.
- 918 5) Each instance of CIM_LogicalDevice, so found, is a Original Destination for the computer
919 system of interest.

920 **9.9 Find the KVM Redirection Sessions for a Service**

921 A client can determine the KVM Redirection Sessions for a Service of interest as follows:

- 922 1) Start at the instance of CIM_RedirectionService of interest. (The instance could be found using
923 the use case in 9.6).
- 924 2) Enumerate the instances of CIM_KVMRedirectionSAP which are associated via an instance of
925 CIM_ServiceAccessBySAP.
- 926 3) Each instance of CIM_KVMRedirectionSAP, so found, is a KVM Redirection Session for the
927 computer system of interest.

9.10 Find the Destinations for the Redirected KVM Console Flow for a Service

A client can determine the KVM Redirection destinations redirected from a Service of interest as follows:

- 1) Start at the instance of CIM_RedirectionService of interest. (The instance could be found using the use case in 9.6.)
- 2) Determine the KVM Redirection Sessions using the use case in 9.9.
- 3) From each instance of CIM_KVMRedirectionSAP, determine if there is an instance of a subclass of CIM_ProtocolEndpoint which is associated to the instance of CIM_KVMRedirectionSAP via an instance of the CIM_BindsTo association.
- 4) If an instance of CIM_ProtocolEndpoint does not exist, there may be no further information to determine the Destination of the KVM RedirectionSession.
- 5) Otherwise, for each instance of CIM_ProtocolEndpoint, so found, traverse the CIM_PortImplementsEndpoint association to the instance of CIM_NetworkPort.
- 6) Each instance of CIM_NetworkPort, so found, is a destination of the redirected KVM Console Flow for the Service.

9.11 Find a KVM Redirection

Finding a KVM Redirection involves finding the KVM Redirection Service and the KVM Redirection Session.

A client can find a KVM Redirection as follows:

- 1) Use the steps described in 9.7 to find the instance of CIM_RedirectionService of interest.
- 2) Use the steps described in 9.9 to find the instance of CIM_KVMRedirectionSAP of interest.
- 3) The instance of CIM_RedirectionService and instance of CIM_KVMRedirectionSAP, so found, are components the KVM Redirection of interest.

9.12 Determine the Type of KVM Redirection State Management Supported

A client can determine whether a KVM Redirection is managed via the state of Session only or via the states of both the Service and Session as follows:

- 1) Start at the instance of CIM_RedirectionService which is a part of the KVM Redirection of interest.
- 2) Determine if an instance of CIM_ElementCapabilities exists which associates the instance of CIM_RedirectionService to an instance of CIM_RedirectionServiceCapabilities.
- 3) If the instance does not exist, the KVM Redirection Session is managed via the state of the Session only.
- 4) Otherwise, on the instance of CIM_RedirectionServiceCapabilities so found, query the value of the RequestedStateSupported property array.
- 5) If the RequestedStatesSupported property array contains no values, the KVM Redirection is managed via the state of the Session only.
- 6) Otherwise, the KVM Redirection can be managed via the state of both Service and Session.

9.13 Activate a KVM Redirection — Session Only

When the KVM Redirection is managed via the state of the Session only, a client can start a KVM Redirection as follows:

- 1) Start at the instance of the CIM_KVMRedirectionSAP which is a component of the KVM Redirection of interest.
- 2) Invoke the RequestStateChange() method with the RequestedState parameter set to 2 (Enabled).
- 3) Verify that the CIM_KVMRedirectionSAP.EnabledState property is set to a value of 2 (Enabled).
- 4) The KVM Redirection is now active.

Figure 6 shows an initial state of the KVM Redirection as inactive, since the state of *kvmredirectsvc1* is 2 (Enabled), but the state of *kvmredirectsap1* is 6 (Enabled but Offline). The steps described above will change the state of the *kvmredirectsap1* to 2 (Enabled), thereby activating the KVM Redirection specified by *kvmredirectsvc1* and *kvmredirectsap1*. The diagram of the active KVM Redirection will look like Figure 3.

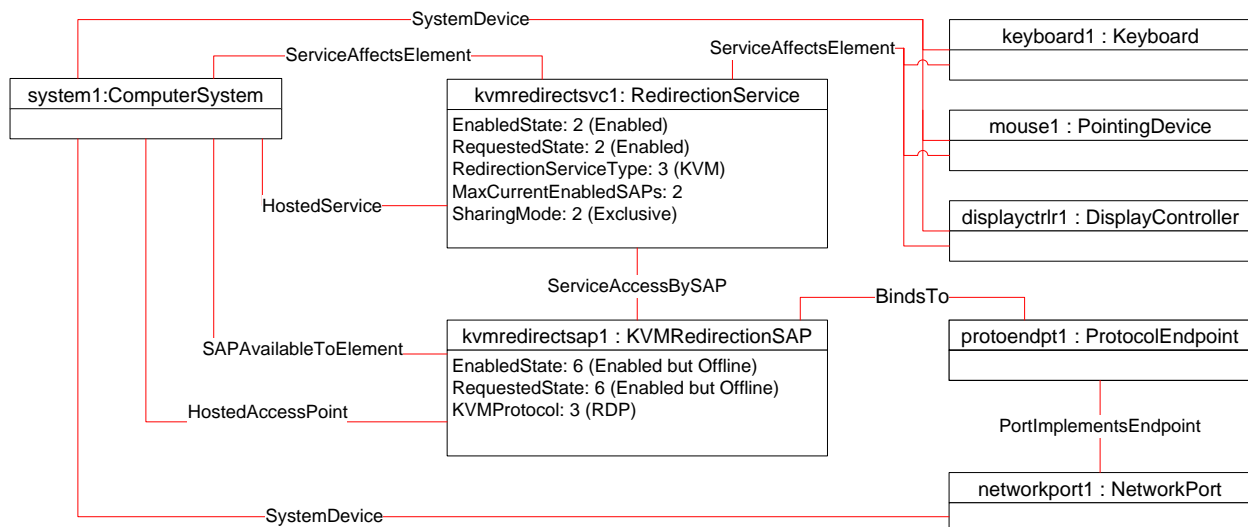


Figure 6 – An Initial State of a Session Managed via the Session State Only

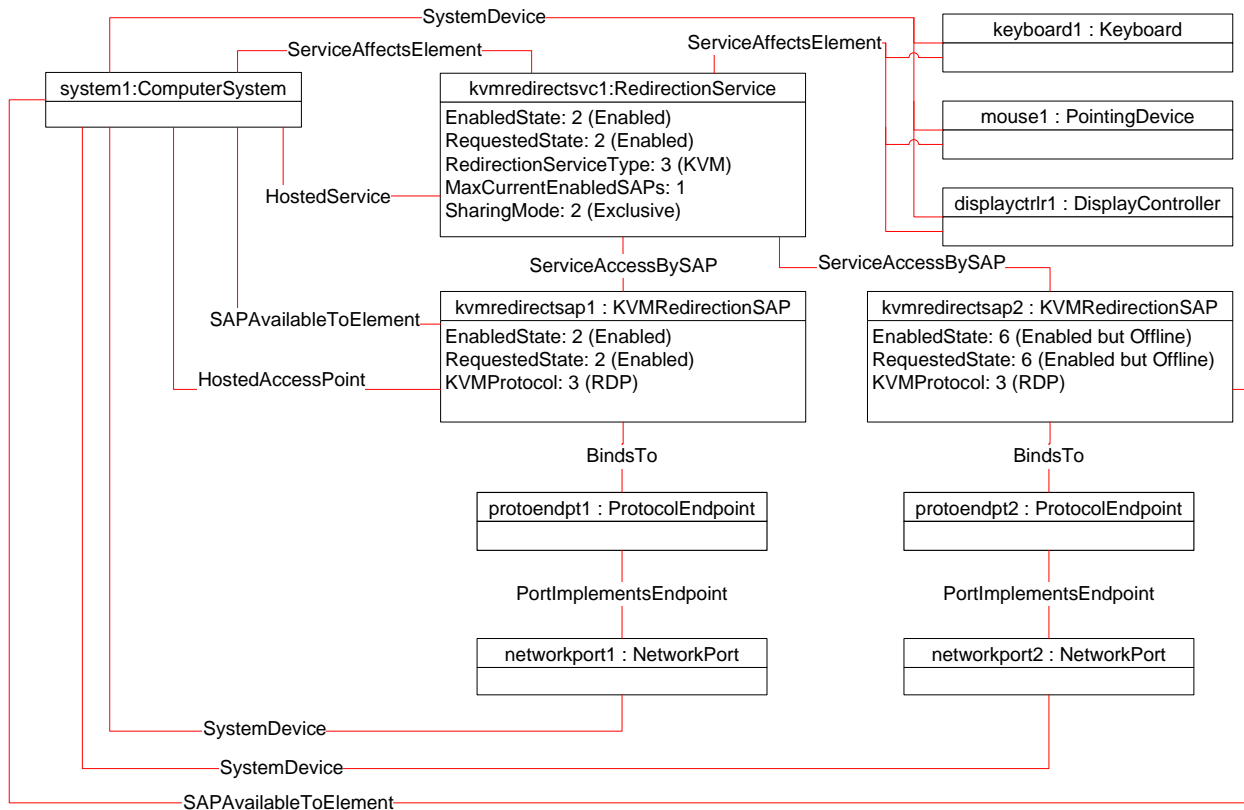
9.14 Activate a Singular KVM Redirection

When the KVM Redirection is a Singular KVM Redirection, a client can atomically activate a KVM Redirection and deactivate a previously activated KVM Redirection (see 8.2.2).

This above behavior is accomplished as follows:

- 1) Start at the instance of the CIM_KVMRedirectionSAP which is a component of the KVM Redirection of interest.
- 2) Invoke the RequestStateChange() method with the RequestedState parameter set to 2 (Enabled).
- 3) Verify that the CIM_KVMRedirectionSAP.EnabledState property is set to a value of 2 (Enabled).
- 4) The KVM Redirection is now active and any previously active session is now inactive.

991 Figure 7 shows the object diagram of the initial state of a Singular KVM Redirection. Note that the
 992 MaxCurrentEnabledSAPs property of *kvmredirectsvc1* is 1, by definition. The state of the Singular KVM
 993 Redirection, specified by *kvmredirectsvc1* and *kvmredirectsap1*, is active, since the state of
 994 *kvmredirectsvc1* is 2 (Enabled) and the state of *kvmredirectsap1* is 2 (Enabled).

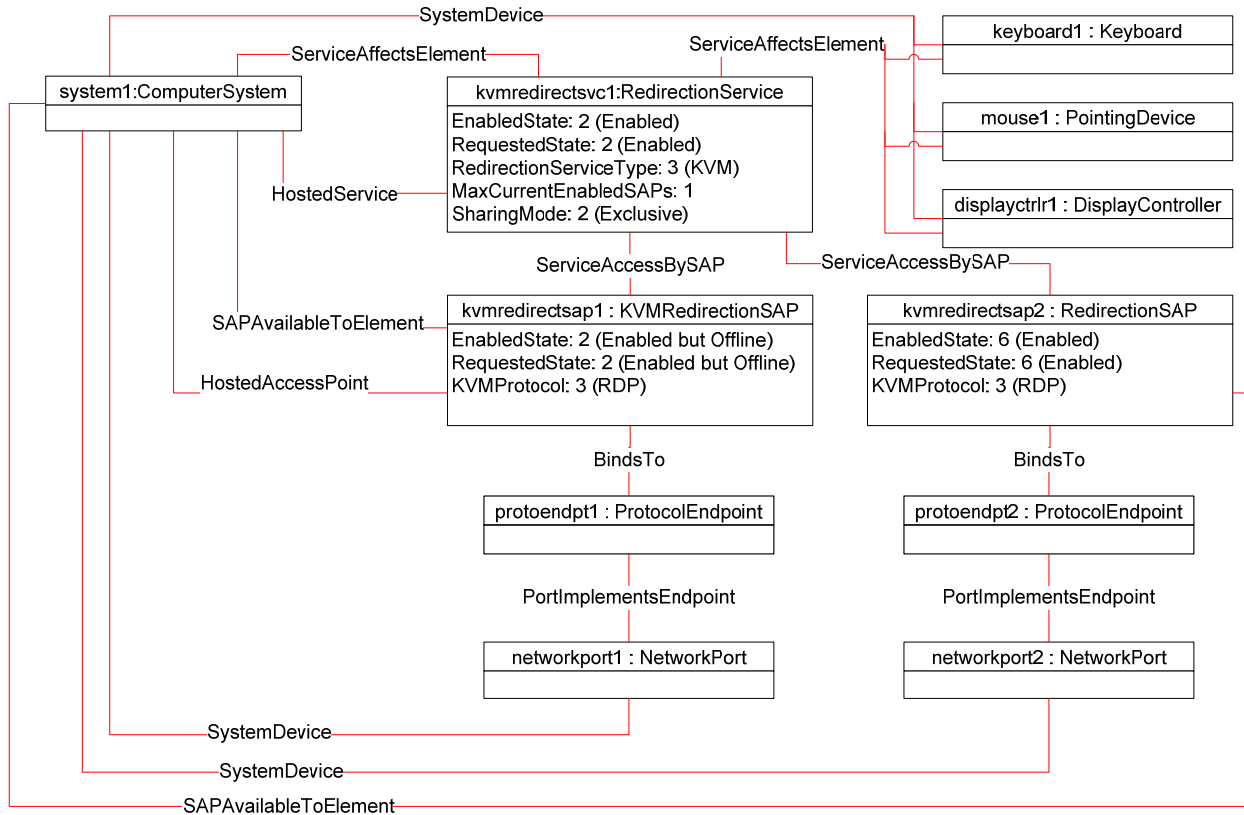


995

996 **Figure 7 – The Initial State of a Singular KVM Redirection**

997 If the CIM_KVMRedirectionSAP described in step one above is *kvmredirectsap2*, then the steps
 998 described above will change the state of the *kvmredirectsap1* to 6 (Enabled but Offline) and the state of
 999 the *kvmredirectsap2* to 2 (Enabled) since MaxCurrentEnabledSAPs is set to 1. This will result in the KVM
 1000 Redirection Session specified by *kvmredirectsvc1* and *kvmredirectsap2* being active, while the session
 1001 specified by *kvmredirectsvc1* and *kvmredirectsap1* is inactive.

1002 Figure 8 is an object diagram of the final state of the Singular KVM Redirection, when the call to the
 1003 RequestedStateChange() method completes successfully.



1004

1005

Figure 8 – The Final State of a Singular KVM Redirection

1006

9.15 Stop All KVM Redirection Associated with the Source — Session Only

1007

In the following use case, it is assumed that the client knows the instance of CIM_RedirectionService which specify the KVM Redirection Source of interest.

1008

1009

When the KVM Redirection is managed via the state of the Session only, a client can stop all KVM Redirection as follows:

1010

1011

- 1) Start at the instance of the CIM_RedirectionService which represents the KVM Redirection Service of interest.

1012

1013

- 2) Enumerate the instances of CIM_KVMRedirectionSAP which are associated to the instance of CIM_RedirectionService via an instance of CIM_ServiceAccessBySAP.

1014

1015

- 3) For each instance of CIM_KVMRedirectionSAP so found, query the value of the EnabledState property.

1016

1017

- 4) If the state of the CIM_KVMRedirectionSAP is 2 (Enabled), invoke the RequestStateChange() method with the RequestedState parameter set to 6 (Enabled but Offline).

1018

1019

- 5) Verify that the CIM_KVMRedirectionSAP.EnabledState property is set to a value of 6 (Enabled but Offline).

1020

1021

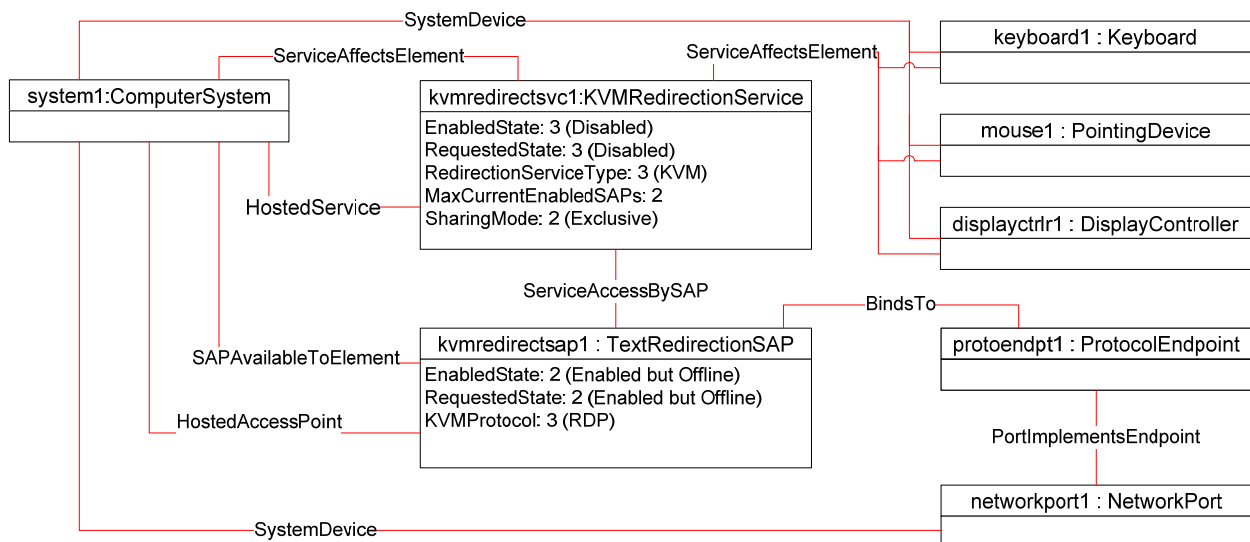
- 6) Each KVM Redirection redirected from the Service is now inactive.

1022 **9.16 Activate a KVM Redirection — Service and Session State Management**

1023 When the KVM Redirection is managed via the states of both the Service and Session, a client can start a
 1024 KVM Redirection as follows:

- 1025 1) Start at the instance of CIM_RedirectionService of interest.
- 1026 2) Invoke the CIM_RedirectionService.RequestStateChange() method with the RequestedState
 1027 parameter set to 2 (Enabled).
- 1028 3) Verify that the CIM_RedirectionService.EnabledState property is set to a value of 2 (Enabled).
- 1029 4) Invoke the CIM_KVMRedirectionSAP.RequestStateChange() method with the RequestedState
 1030 parameter set to 2 (Enabled).
- 1031 5) Verify that the CIM_KVMRedirectionSAP.EnabledState property is set to a value of 2 (Enabled).
- 1032 6) The KVM Redirection is now active.

1033 Figure 9 shows an initial state of the KVM Redirection as inactive, since the state of *kvmredirectsvc1* is 3
 1034 (Disabled), and the state of *kvmredirectsap1* is 6 (Enabled but Offline). The steps described above will
 1035 change the state of *kvmredirectsap1* to 2 (Enabled) and the state of *kvmredirectsvc1* to 2 (Enabled),
 1036 thereby activating the KVM Redirection specified by *kvmredirectsvc1* and *kvmredirectsap1*. The diagram
 1037 of the active KVM Redirection will look like Figure 3.



1038
 1039 **Figure 9 – An Initial State of a Session Managed via the Service and Session State**

1040 **9.17 Stop All KVM Redirection — Service and Session State Management**

1041 When the KVM Redirection is managed via the states of both the Service and Session, a client can stop
 1042 all KVM Redirections associated with the Service as follows:

- 1043 1) Start at the instance of the CIM_RedirectionService which represents the KVM Redirection
 1044 Service of interest.
- 1045 2) Change the state of the CIM_RedirectionService by invoking the RequestStateChange()
 1046 method with the RequestedState parameter set to 3 (Disabled).
- 1047 3) All KVM Redirections with the CIM_RedirectionService as the Service is now inactive.

1048 9.18 Find the Number of Active KVM Redirection Access Points

1049 A client can find the number of active KVM Redirections for a Service of interest as follows:

- 1050 1) Start at the instance of CIM_RedirectionService of interest.
- 1051 2) Query the value of the EnabledState property.
- 1052 3) If the EnabledState property is 3 (Disabled), then the number of active KVM Redirection is zero.
- 1053 4) If the EnabledState property is 2 (Enabled), then find all instances of CIM_KVMRedirectionSAP
- 1054 associated via an instance of CIM_ServiceAccessBySAP.
- 1055 5) For each CIM_KVMRedirectionSAP query the value of the EnabledState property.
- 1056 6) Count all the CIM_KVMRedirectionSAP.EnabledState properties whose value is 2 (Enabled).

1057 9.19 Determine Whether CIM_RedirectionService.ElementName Can Be Modified

1058 A client can determine whether the ElementName can be modified as follows:

- 1059 1) Start at the instance of CIM_RedirectionService.
- 1060 2) Get the CIM_RedirectionServiceCapabilities instance associated by traversing the
- 1061 CIM_ElementCapabilities association.
- 1062 3) Query the value of the ElementNameEditSupported property of the instance.
- 1063 4) If the value is TRUE, the CIM_RedirectionService.ElementName property can be modified by a
- 1064 client.

1065 If there is not an instance of CIM_RedirectionServiceCapabilities associated with the
 1066 CIM_RedirectionService instance, modifying the CIM_RedirectionService.ElementName property is not
 1067 supported.

1068 10 CIM Elements

1069 This section lists the required properties and method for each class required for this profile. Additional
 1070 requirements on these elements may have been imposed in sections 7 (“Implementation Requirements”)
 1071 and 8 (“Methods”).

1072 Table 16 lists the CIM Elements which are required for this profile. The subsequent sections contain
 1073 those CIM Elements where additional normative statements can be made.

1074 **Table 16 – CIM Elements: KVM Redirection Profile**

Element Name	Requirement	Description
CIM_RegisteredProfile	Mandatory	See 10.1.
CIM_BindsTo	Optional	See 10.2.
CIM_ElementCapabilities	Conditional	Referencing CIM_RedirectionService. See 10.3.
CIM_ElementCapabilities	Conditional	Referencing CIM_KVMRedirectionSAP. See 10.4
CIM_RedirectionServiceCapabilities	Mandatory	Associated to CIM_RedirectionService. See 10.5.
CIM_EnabledLogicalElementCapabilities	Optional	Associated to CIM_KVMRedirectionSAP. See 10.6.

Element Name	Requirement	Description
CIM_HostedAccessPoint	Mandatory	See 10.7.
CIM_HostedService	Mandatory	See 10.8.
CIM_ServiceAffectsElement	Mandatory	See 10.9.
CIM_ServiceAccessBySAP	Mandatory	See 10.10.
CIM_ServiceAffectsElement	Mandatory	Referencing CIM_ComputerSystem. See 10.11.
CIM_ServiceAffectsElement	Optional	Referencing CIM_LogicalDevice. See 10.12.
CIM_RedirectionService	Mandatory	See 10.13.
CIM_KVMRedirectionSAP	Mandatory	See 10.14.

1075 **10.1 CIM_RegisteredProfile**

1076 CIM_RegisteredProfile identifies the *KVM Redirection Profile* in order for a client to determine whether an
 1077 instance of CIM_ComputerSystem is conformant with this profile. The CIM_RegisteredProfile class is
 1078 defined by the [Profile Registration Profile](#). With the exception of the mandatory values specified for the
 1079 properties below, the behavior of the RegisteredProfile instance is per the [Profile Registration Profile](#).

1080 **Table 17 – Class: CIM_RegisteredProfile**

Properties	Requirement	Notes
RegisteredName	Mandatory	This property shall have a value of "KVM Redirection".
RegisteredVersion	Mandatory	This property shall have a value of "1.0.0".
RegisteredOrganization	Mandatory	This property shall have a value of 2 (DMTF).

1081 **10.2 CIM_BindsTo**

1082 The CIM_BindsTo association is used to relate the CIM_KVMRedirectionSAP to the
 1083 CIM_ProtocolEndpoint which is the destination of the redirected KVM console.

1084 **Table 18 – Class: CIM_BindsTo**

Properties	Requirement	Notes
Antecedent	Mandatory	This shall be a reference to an instance of the CIM_ProtocolEndpoint class. See 7.4.1. Cardinality is "0..1".
Dependent	Mandatory	This shall be a reference to an instance of the CIM_KVMRedirectionSAP. See 7.4.1. Cardinality is "1..*".

1085 **10.3 CIM_ElementCapabilities Relating CIM_RedirectionService to**
 1086 **CIM_RedirectionServiceCapabilities**

1087 The CIM_ElementCapabilities association is used to relate an instance of
 1088 CIM_RedirectionServiceCapabilities with the instance of CIM_RedirectionService.

1089 **Table 19 – Class: CIM_ElementCapabilities Referencing CIM_RedirectionService**

Properties	Requirement	Description
ManagedElement	Mandatory	This shall be a reference to an instance of CIM_RedirectionService. See 7.6.1.1 and 7.6.2.1. Cardinality is "1..*".
Capabilities	Mandatory	This shall be a reference to an instance of CIM_RedirectionServiceCapabilities. See 7.6.1.1 and 7.6.2.1. Cardinality is "0..1".

1090 **10.4 CIM_ElementCapabilities Relating CIM_KVMRedirectionSAP to**
 1091 **CIM_EnabledLogicalElementCapabilities**

1092 The CIM_ElementCapabilities association is used to relate an instance of
 1093 CIM_EnabledLogicalElementCapabilities with the instance of CIM_KVMRedirectionSAP.

1094 **Table 20 – Class: CIM_ElementCapabilities Referencing CIM_KVMRedirecitonSAP**

Properties	Requirement	Description
ManagedElement	Mandatory	This shall be a reference to an instance of CIM_KVMRedirectionSAP. See 7.7.1.1 and 7.7.2.1. Cardinality is "1..*".
Capabilities	Mandatory	This shall be a reference to an instance of CIM_EnabledLogicalElementCapabilities. See 7.7.1.1 and 7.7.2.1. Cardinality is "0..1".

1095 **10.5 CIM_RedirectionServiceCapabilities Associated to CIM_RedirectionService**

1096 CIM_RedirectionServiceCapabilities indicates support for managing the KVM Redirection Service.

1097 **Table 21 – Class: CIM_RedirectionServiceCapabilities Associated to CIM_RedirectionService**

Elements	Requirement	Notes
InstanceID	Mandatory	Key
RequestedStatesSupported	Mandatory	See 7.6.1.1 and 7.6.2.1.
ElementNameEditSupported	Mandatory	See 7.3.5.1 and 7.3.5.2.
MaxElementNameLen	Conditional	See 7.3.5.1 and 7.3.5.2.
SharingModeSupported	Mandatory	See 7.3.3.

1098 **10.6 CIM_EnabledLogicalElementCapabilities Associated to**
 1099 **CIM_KVMRedirectionSAP**

1100 CIM_EnabledLogicalElementCapabilities indicates support for managing the KVM Redirection Session.

1101 **Table 22 – Class: CIM_EnabledLogicalElementCapabilities Associated to**
 1102 **CIM_KVMRedirectionSAP**

Elements	Requirement	Notes
InstanceID	Mandatory	Key
RequestedStatesSupported	Mandatory	See 7.7.1.1 and 7.7.2.1.
ElementNameEditSupported	Mandatory	See 7.4.4.1 and 7.4.4.2.
MaxElementNameLen	Conditional	See 7.4.4.1 and 7.4.4.2.

1103 **10.7 CIM_HostedAccessPoint**

1104 The CIM_HostedAccessPoint association is used to relate the CIM_KVMRedirectionSAP to the
 1105 CIM_ComputerSystem to which the KVM console is redirected.

1106 **Table 23 – Class: CIM_HostedAccessPoint**

Properties	Requirement	Notes
Antecedent	Mandatory	This shall be a reference to an instance of the CIM_ComputerSystem class. See 7.4. Cardinality is "1".
Dependent	Mandatory	This shall be a reference to an instance of the CIM_KVMRedirectionSAP. See 7.4. Cardinality is "**".

1107 **10.8 CIM_HostedService**

1108 The CIM_HostedService association is used to relate the CIM_RedirectionService to the
 1109 CIM_ComputerSystem on which it is hosted.

1110 **Table 24 – Class: CIM_HostedService**

Properties	Requirement	Notes
Antecedent	Mandatory	This shall be a reference to an instance of the CIM_ComputerSystem class. See 7.2. Cardinality is "1".
Dependent	Mandatory	This shall be a reference to an instance of the CIM_RedirectionService. See 7.2. Cardinality is "**".

1111 **10.9 CIM_SAPAvailableForElement**

1112 The CIM_ServiceAccessBySAP association is used to relate the instance of CIM_ComputerSystem to the
 1113 instances of CIM_KVMRedirectionSAP which are available as access points for the redirected KVM
 1114 console.

1115

Table 25 – Class: CIM_SAPAvailableForElement

Properties	Requirement	Notes
AvailableSAP	Mandatory	This shall be a reference to an instance of the CIM_KVMRedirectionSAP class. See 7.4. Cardinality is "**".
ManagedElement	Mandatory	This shall be a reference to an instance of the CIM_ComputerSystem. See 7.4. Cardinality is "1".

1116 10.10 CIM_ServiceAccessBySAP

1117 The CIM_ServiceAccessBySAP association is used to relate the instance of CIM_RedirectionService to
1118 the instances of CIM_KVMRedirectionSAP which are enabled by the service.

1119

Table 26 – Class: CIM_ServiceAccessBySAP

Properties	Requirement	Notes
Antecedent	Mandatory	This shall be a reference to an instance of the CIM_RedirectionService class. See 7.17.1. Cardinality is "1".
Dependent	Mandatory	This shall be a reference to an instance of the CIM_KVMRedirectionSAP. See 7.17.1. Cardinality is "1..**".

1120 10.11 CIM_ServiceAffectsElement Relating CIM_RedirectionService to 1121 CIM_ComputerSystem

1122 The CIM_ServiceAffectsElement association is used to relate the instance of CIM_RedirectionService to
1123 the instance of CIM_ComputerSystem which represent the source of the KVM console flow.

1124

Table 27 – Class: CIM_ServiceAffectsElement Referencing CIM_ComputerSystem

Properties	Requirement	Notes
AffectingElement	Mandatory	This shall be a reference to an instance of the CIM_RedirectionService class. See 7.1. Cardinality is "**".
AffectedElement	Mandatory	This shall be a reference to an instance of the CIM_ComputerSystem. See 7.1. Cardinality is "1".

1125 10.12 CIM_ServiceAffectsElement Relating CIM_RedirectionService to a Concrete 1126 Subclass of CIM_LogicalDevice

1127 The CIM_ServiceAffectsElement association is used to relate the instance of CIM_RedirectionService to
1128 the instance of a concrete class of CIM_LogicalDevice which represent the source of the KVM console
1129 flow.

1130

Table 28 – Class: CIM_ServiceAffectsElement Referencing CIM_LogicalDevice

Properties	Requirement	Notes
AffectingElement	Mandatory	This shall be a reference to an instance of the CIM_RedirectionService class. See 7.3.2. Cardinality is "1".
AffectedElement	Mandatory	This shall be a reference to an instance of CIM_LogicalDevice. See 7.3.2. Cardinality is "0..1".

1131 **10.13 CIM_RedirectionService**

1132 The CIM_RedirectionService class represents the ability to manage the KVM Redirection capabilities of a
1133 computer system.

1134

Table 29 – Class: CIM_RedirectionService

Properties	Requirement	Description
SystemCreationClassName	Mandatory	Key
SystemName	Mandatory	Key
CreationClassName	Mandatory	Key
Name	Mandatory	Key
ElementName	Mandatory	See 7.3.5.
MaxCurrentEnabledSAPs	Mandatory	See 7.3.4.
EnabledState	Mandatory	See 7.6.
RequestedState	Mandatory	See 7.6.
RedirectionServiceType	Mandatory	See 7.2.
SharingMode	Mandatory	See 7.3.3.
RequestStateChange()	Mandatory	See 8.1.

1135 **10.14 CIM_KVMRedirectionSAP**

1136 The CIM_KVMRedirectionSAP class represents a KVM Redirection capability which is possible on a
1137 computer system.

1138

Table 30 – Class: CIM_KVMRedirectionSAP

Properties	Requirement	Description
SystemCreationClassName	Mandatory	Key
SystemName	Mandatory	Key
Name	Mandatory	Key
CreationClassName	Mandatory	Key
ElementName	Mandatory	See 7.4.4.
EnabledState	Mandatory	See 7.7.1.3.
RequestedState	Mandatory	See 7.7.1.2.
KVMProtocol	Mandatory	See 7.4.2.
OtherKVMProtocol	Conditional	See 7.4.2.
RequestStateChange()	Mandatory	See 8.2.

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ANNEX A
(informative)
Change Log

Version	Date	Description
1.0.0a	08/06/2007	Initial Preliminary Version
1.0.0	06/16/2009	DMTF Standard Release

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