
Cloud Infrastructure Management Interface (CIMI) Model and RESTful HTTP-based Protocol — An Interface for Managing Cloud Infrastructure

*Model d'interface de management de l'infrastructure du nuage
informatique (CIMI) et protocole RESTful basé HTTP — Une interface
pour le management de l'infrastructure du nuage informatique*



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218

Foreword

219 The *Cloud Infrastructure Management Interface (CIMI) Model and RESTful HTTP-based Protocol*
220 specification (DSP0263) was prepared by the DMTF Cloud Management Working Group. It defines a
221 logical model for the management of resources within the Infrastructure as a Service domain.

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298 Cloud Infrastructure Management Interface (CIMI) Model and 299 RESTful HTTP-based Protocol

300 1 Scope

301 This specification describes the model and protocol for management interactions between a cloud
302 Infrastructure as a Service (IaaS) Provider and the Consumers of an IaaS service. The basic resources of
303 IaaS (machines, storage, and networks) are modeled with the goal of providing Consumer management
304 access to an implementation of IaaS and facilitating portability between cloud implementations that
305 support the specification. This document specifies a Representational State Transfer (REST)-style
306 protocol using HTTP. However, the underlying model is not specific to HTTP, and it is possible to map it
307 to other protocols as well.

308 CIMI addresses the management of the lifecycle of infrastructure provided by a Provider. CIMI does not
309 extend beyond infrastructure management to the control of the applications and services that the
310 Consumer chooses to run on the infrastructure provided as a service by the Provider. Although CIMI may
311 be to some extent applicable to other cloud service models, such as Platform as a Service ("PaaS") or
312 Storage as a Service ("SaaS"), these uses are outside the design goals of CIMI.

313 1.1 Document structure

314 This document defines a model and a RESTful HTTP-based protocol.

315 The core REST patterns are defined first and, after each resource is defined, any HTTP-specific
316 information for that resource is specified.

317 1.2 Document versioning scheme

318 This document adheres to the versioning scheme defined in clause 6.3 of [DSP4004](#).

319 As the specification changes over time certain features might be deprecated. These are identified in the
320 specification and should not be supported. Each of these deprecated features is clearly denoted in the
321 clause in which they were previously defined.

322 1.3 Typographical conventions

323 This specification uses the following conventions:

324 In the narrative text of the specification:

- 325 • The regular or narrative font is Arial.
- 326 • Proper CIMI nouns such as Resource names, attribute names, operation names, reserved
327 variable names are in *Courier* font. (e.g. *Machine*, *volumes*, *\$expand*). The plural form
328 applies to such names to indicate several instances of such Resources (e.g. *Machines*,
329 *Systems*).
- 330 • Examples text are in small *Courier* font and over a darker background.
- 331 • Quotes are used for any text that needs be distinguished as name or value of a particular
332 concept (e.g. the "value constraints" attribute, the "Resource Name" column, a "false" value). In
333 such cases, the string in quotes is always qualified by the concept it is an instance of.
- 334 • Names for CIMI concepts that may be common English words but have a very specific meaning
335 in CIMI, are in narrative font but capitalized, e.g. *Provider*, *Consumer*, *Resource*, *Collection*.

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336 When used in their common English sense they remain lower-case. However, CIMI modeling
337 concepts that are used in a commonly understood manner remain in lower-case, such as:
338 attribute, operation.

339 Inside tables describing the Resource data model:

- 340 • The narrative font is used for all terms, as the table structure qualifies them sufficiently.
- 341 • Where textual descriptions are introduced, the rules for narrative text apply.
- 342 • If a name is used as types (i.e., names of embedded structures as well as atomic types such as
343 "integer", "string"), are in *italic*.
- 344 • Names that are just placeholders for actual names that may vary with each model instance, are
345 between < > (e.g., <componentTemplate>).

346 Where the serialization of Resources is described, a pseudo-schema notation is used with the following
347 conventions:

- 348 • Values in *italics* indicate data types instead of literal values.
- 349 • Characters are appended to items to indicate cardinality:
 - 350 – "?" (0 or 1)
 - 351 – "*" (0 or more)
 - 352 – "+" (1 or more)
- 353 • Vertical bars, "|", denote choice. For example, "a|b" means a choice between "a" and "b".
- 354 • Parentheses, "(" and ")", are used to indicate the scope of the operators "?", "*", "+" and "|".
- 355 • Ellipses (i.e., "...") indicate points of extensibility. Note that the lack of an ellipses does not mean
356 no extensibility point exists, rather it is just not explicitly called out - usually for the sake of
357 brevity.

358 Operation names Create, Update, Delete, Read are abstract operations that convey the semantics of
359 concrete corresponding operations, such as HTTP methods or CIMI operation URIs.

360 2 Normative references

361 The following referenced documents are indispensable for the application of this document. For dated
362 or versioned references, only the edition cited (including any corrigenda or DMTF update versions)
363 applies. For references without a date or version, the latest published edition of the referenced document
364 (including any corrigenda or DMTF update versions) applies.

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