



Hitachi Command Suite

Command Director

API Reference Guide

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Preface

This manual describes how to use the Hitachi Command Director API.

- [Intended audience](#)
- [Product version](#)
- [Release notes](#)
- [Referenced documents](#)
- [Document conventions](#)
- [Conventions for storage capacity values](#)
- [Accessing product documentation](#)
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Intended audience

This document is intended for those who want to use the supplied REST API to obtain reporting data from Hitachi Command Director.

To use the API, you should be familiar with HCmD concepts, terminology, and functionality. You should also have a basic understanding of web services and knowledge of:

- XML
- JSON
- The programming language you will use for the application development or integration

Product version

This document revision applies to Hitachi Command Director v8.1.1 or later.

Release notes

Read the release notes before installing and using this product. They may contain requirements or restrictions that are not fully described in this document or updates or corrections to this document.

Referenced documents

The following documents are referenced or contain more information about the features described in this manual.

- *Hitachi Command Suite Command Director User Guide*, MK-90HCMD001
- *Hitachi Command Suite Command Director CLI Reference Guide*, MK-90HCMD004
- *Hitachi Command Director Release Notes*, RN-90HCMD003
- *Hitachi Command Suite System Requirements*, MK-92HC209
- *Hitachi Command Suite documentation*
- *Hitachi Tuning Manager documentation*





The referenced documents are available on the Hitachi Data Systems Support Portal: <https://portal.HDS.com>

Document conventions

This document uses the following typographic conventions:

Convention	Description
Bold	Indicates text on a window, other than the window title, including menus, menu options, buttons, fields, and labels. Example: Click OK .
<i>Italic</i>	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: <i>copy source-file target-file</i> Note: Angled brackets (< >) are also used to indicate variables.
Monospace	Indicates text that is displayed on screen or entered by the user. Example: <code>pairdisplay -g oradb</code>
< > angled brackets	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: <code>pairdisplay -g <group></code> Note: Italic font is also used to indicate variables.
[] square brackets	Indicates optional values. Example: [a b] indicates that you can choose a, b, or nothing.
{ } braces	Indicates required or expected values. Example: { a b } indicates that you must choose either a or b.
vertical bar	Indicates that you have a choice between two or more options or arguments. Examples: [a b] indicates that you can choose a, b, or nothing. { a b } indicates that you must choose either a or b.

This document uses the following icons to draw attention to information:

Icon	Label	Description
	Note	Calls attention to important or additional information.
	Tip	Provides helpful information, guidelines, or suggestions for performing tasks more effectively.
	Caution	Warns the user of adverse conditions or consequences (for example, disruptive operations).
	WARNING	Warns the user of severe conditions or consequences (for example, destructive operations).

Conventions for storage capacity values

Physical storage capacity values (for example, disk drive capacity) are calculated based on the following values:

Physical capacity unit	Value
1 kilobyte (KB)	1,000 (10 ³) bytes

Physical capacity unit	Value
1 megabyte (MB)	1,000 KB or 1,000 ² bytes
1 gigabyte (GB)	1,000 MB or 1,000 ³ bytes
1 terabyte (TB)	1,000 GB or 1,000 ⁴ bytes
1 petabyte (PB)	1,000 TB or 1,000 ⁵ bytes
1 exabyte (EB)	1,000 PB or 1,000 ⁶ bytes

Logical storage capacity values (for example, logical device capacity) are calculated based on the following values:

Logical capacity unit	Value
1 block	512 bytes
1 KB	1,024 (2 ¹⁰) bytes
1 MB	1,024 KB or 1,024 ² bytes
1 GB	1,024 MB or 1,024 ³ bytes
1 TB	1,024 GB or 1,024 ⁴ bytes
1 PB	1,024 TB or 1,024 ⁵ bytes
1 EB	1,024 PB or 1,024 ⁶ bytes

Accessing product documentation

Product user documentation is available on the Hitachi Data Systems Portal: <https://portal.hds.com>. Check this site for the most current documentation, including important updates that may have been made after the release of the product.

Getting help

[Hitachi Data Systems Support Portal](https://portal.hds.com) is the destination for technical support of your current or previously-sold storage systems, midrange and enterprise servers, and combined solution offerings. The Hitachi Data Systems customer support staff is available 24 hours a day, seven days a week. If you need technical support, log on to the Hitachi Data Systems Support Portal for contact information: <https://portal.hds.com>

[Hitachi Data Systems Community](#) is a new global online community for HDS customers, partners, independent software vendors, employees, and prospects. It is an open discussion among these groups about the HDS portfolio of products and services. It is the destination to get answers, discover insights, and make connections. The HDS Community complements our existing Support Portal and support services by providing an area where you can get answers to non-critical issues and questions. **Join the**

conversation today! Go to community.hds.com, register, and complete your profile.

Comments

Please send us your comments on this document to doc.comments@hds.com. Include the document title and number, including the revision level (for example, -07), and refer to specific sections and paragraphs whenever possible. All comments become the property of Hitachi Data Systems Corporation.

Thank you!

About the Hitachi Command Director API

The API is a REST (REpresentational State Transfer) interface to storage management reports that are monitored through Hitachi Command Director (HCmD).

The HCmD API enables you to access reports from the following sources:

- A global dashboard that provides real-time enterprise storage information for monitoring the overall health of your storage resources.
- A report gallery that provides fast and simple access to performance and capacity utilization reports of your storage systems and servers.
- Application reports from "All Applications Business View" selection through the Resources > All Applications tab of Hitachi Command Director.

This module covers:

- [REST architecture](#)
- [Supported HTTP method](#)
- [REST report formats](#)
- [Special characters handling](#)

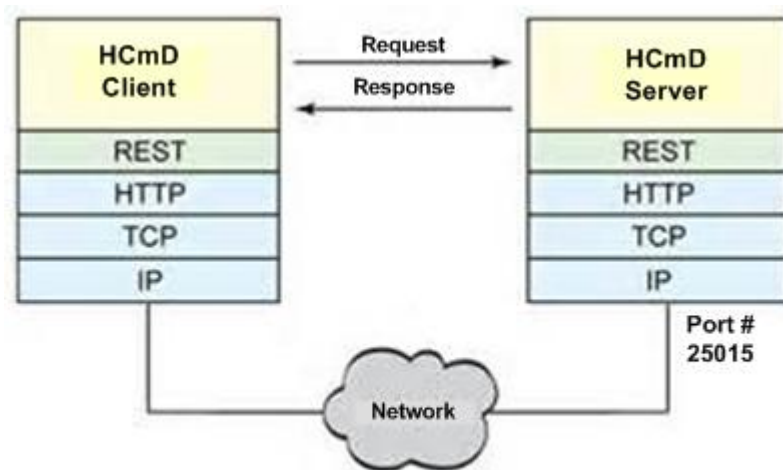
REST architecture

REST is a style of software architecture that can be used with many message formats for web services.

REST uses the HTTP protocol along with a uniform resource identifier (URI) to identify a name of a web resource for requests from the client. REST deploys components independently, which means that the client and server do not need to be using the same operating system or programming language.

Server responses can be either XML or JSON.

The following diagram provides a basic overview of a RESTful client-to-server interaction process.



! **Note:** The default port for an API call is typically 25015 for HTTP connections. For HTTPS connections, port 25016 is recommended.

Supported HTTP method

HTTP defines methods for actions that can be performed on a resource.

The Command Director API supports only the GET method. GET retrieves information about an individual report or retrieves a list of reports of a given type.

! **Note:** GET is a synchronous operation.

REST report formats

Reports are available in two formats: XML and JSON.

- To get a response in XML: `<rest-uri>.xml?params`
- To get a response in JSON: `<rest-uri>.json?params`

Special characters handling

Special characters can be invoked by using the percentage symbol (%) followed by the hexadecimal value of the special character.

Example: In place of "#", use "%23".

Getting reports

This module covers the type of reports and data that you can access through the HCmD API:

- [Getting a list of all available reports](#)
- [Getting specified data from a report](#)
- [Getting a list of reports saved by the user](#)
- [Getting data from a saved report](#)
- [Getting a list of available applications](#)

Getting a list of all available reports

The following URI allows you to obtain a list of all reports supported through the HCmD API.

HTTP request syntax (URI)

```
http://<host>:<port>/CommandDirector/v8/Reports
```

Example output (XML)

```
<Reports>
  <Report>
    <repName>Applications Missing SLO</repName>
    <links>
      <rel>self</rel>
      <href>/CommandDirector/v8/Reports/Applications
Missing SLO</href>
    </links>
  </Report>
  <Report>
    <repName>Response Time SLO Status</repName>
    <links>
      <rel>self</rel>
      <href>/CommandDirector/v8/Reports/Response Time SLO
Status</href>
    </links>
  </Report>
</Reports>
```

Example output (JSON)

```
{
  "repName": "Applications Missing SLO",
  "links": {
    "rel": "self",
    "href": "/CommandDirector/v8/Reports/Applications Missing
SLO"
  }
}
```

Output parameters

- <repName> - Name of the report
- <href> - The relative URI path to get the report data

Getting specified data from a report

The following URI allows you to obtain and specify certain data parameters (the report time and the number of records) from a selected report.

HTTP request syntax (URI)

`http://<host>:<port>/CommandDirector/v8/Reports/<report-name>?
params`

Allowed parameters

- `page=(1,10)` - If there are more than 10 records then this parameter displays only the first ten records.
- `timeZone=utc` - UTC is the only supported time-zone format: *mm-dd-yyyy hh:mm*. Time values in other formats in the specified report are converted to UTC format.



Note: The allowed parameters (`page` and `timeZone`) are optional. You can use them in the request syntax, as required.

Example URI

`http://<host>:<port>/CommandDirector/v8/Reports/Response Time
SLO Status?page=(1,2)&timeZone=utc`

Example output (XML)

```
<report>
  <title>Response Time SLO Status</title>
  <description>Displays the response time SLO status for all
applications in your environment</description>
<reportTime>01-26-2014 03:20</reportTime>
<dataCount>1</dataCount>
<records>
  <record>
    <column name="Missed" unit="" value="0"/>
    <column name="Borderline" unit="" value="0"/>
    <column name="OK" unit="" value="0"/>
    <column name="Unmonitored" unit="" value="0"/>
  </record>
</records>
</report>
```

Example output (JSON)

```
{
  "report": {
    "title": "Storage Allocation Details",
    "description": "Pool Capacity by Storage System",
    "reportTime": "01-26-2014 11:32",
    "dataCount": "7",
    "records": {
      "record": {
        "column": [
          {
            "name": "Storage System",
            "value": "SYMMETRIX 000194900938"
          },
          {

```

```

    "name": "Model",
    "value": "VMAX-1SE"
  },
  {
    "name": "Pool Capacity",
    "unit": "KB",
    "value": "374226816"
  },
  {
    "name": "Used",
    "unit": "KB",
    "value": "81573888"
  },
  {
    "name": "Free",
    "unit": "KB",
    "value": "334714752"
  },
  {
    "name": "Used%",
    "value": "21.8"
  },
  {
    "name": "Subscribed",
    "unit": "KB",
    "value": "466159680"
  },
  {
    "name": "Subscribed%",
    "value": "124.57"
  },
  {
    "name": "# Pools",
    "value": "16"
  },
  {
    "name": "# HDT Pools",
    "value": ""
  }
]
}
}
}

```

Output parameters

- <reportTime> - Time of report launch
- <dataCount> - Number of records

Getting a list of reports saved by the user

The following URI allows you to obtain a list of all reports that you saved.

HTTP request syntax (URI)

`http://<host>:<port>/CommandDirector/v8/SavedReports`

Example output (XML)

```
<Reports>
  <Report>
    <repName>Storage Allocation Details</repName>
    <links>
      <rel>self</rel>
      <href>/CommandDirector/v8/Reports/Storage Allocation
Details?viewId=60085</href>
    </links>
  </Report>
</Reports>
```

Example output (JSON)

```
{
  "Reports": {
    "Report": {
      "repName": "Storage Allocation Details",
      "links": {
        "rel": "self",
        "href": "/CommandDirector/v8/Reports/Storage Allocation
Details?viewId=60085"
      }
    }
  }
}
```

Output parameters

- `<viewId>` - The specific ID of the saved report
- `<href>` - The relative URI path to get the report data

Getting data from a saved report

The following URI allows you to view data from a report that you have saved through the Command Director application.

HTTP request syntax (URI)

`http://<host>:<port>/CommandDirector/v8/Reports/<saved-report-name>?viewId=<view_id>`

Example output (XML)

```
<report>
<title>Storage Allocation Details</title>
<description>Pool Capacity by Storage System</description>
<reportTime>01-26-2014 11:32</reportTime>
<dataCount>7</dataCount>
<records>
```

```

        <record>
          <column name="Storage System" unit=""
value="SYMMETRIX 000194900938"/>
          <column name="Model" unit="" value="VMAX-1SE"/>
          <column name="Pool Capacity" unit="KB"
value="374226816"/>
          <column name="Used" unit="KB" value="81573888"/>
          <column name="Free" unit="KB" value="334714752"/>
          <column name="Used%" unit="" value="21.8"/>
          <column name="Subscribed" unit="KB"
value="466159680"/>
          <column name="Subscribed%" unit="" value="124.57"/>
          <column name="# Pools" unit="" value="16"/>
          <column name="# HDT Pools" unit="" value=""/>
        </record>
      </records>
    </report>

```

Example output (JSON)

```

{
  "report": {
    "title": "Storage Allocation Details",
    "description": "Pool Capacity by Storage System",
    "reportTime": "01-26-2014 11:32",
    "dataCount": "7",
    "records": {
      "record": {
        "column": [
          {
            "name": "Storage System",
            "value": "SYMMETRIX 000194900938"
          },
          {
            "name": "Model",
            "value": "VMAX-1SE"
          },
          {
            "name": "Pool Capacity",
            "unit": "KB",
            "value": "374226816"
          },
          {
            "name": "Used",
            "unit": "KB",
            "value": "81573888"
          },
          {
            "name": "Free",
            "unit": "KB",
            "value": "334714752"
          },
          {
            "name": "Used%",
            "value": "21.8"
          },
          {
            "name": "Subscribed",

```

```
        "unit": "KB",  
        "value": "466159680"  
    },  
    {  
        "name": "Subscribed%",  
        "value": "124.57"  
    },  
    {  
        "name": "# Pools",  
        "value": "16"  
    },  
    {  
        "name": "# HDT Pools",  
        "value": ""  
    }  
] ]  
 }  
 }  
 }
```

Output parameters

- <reportTime> - Time of report launch
- <dataCount> - Number of records

Getting a list of available applications

The following URI allows you to obtain a list of all available applications from Hitachi Command Director.



Note: Some reports require the application name as an input parameter.

HTTP request syntax (URI)

```
http://<host>:<port>/CommandDirector/v8/Applications
```

Example output (XML)

```
<Applications>  
  <Application>  
    <appId>11475</appId>  
    <appName>HDVM_DC-172_17_79_141/GroupOfVolumes</appName>  
  </Application>  
  <Application>  
    <appId>11481</appId>  
    <appName>HDVM_DC-172_17_79_141/Host1</appName>  
  </Application>  
  <Application>  
    <appId>11479</appId>  
    <appName>HDVM_DC-172_17_79_141/Host2</appName>  
  </Application>  
</Applications>
```

Example output (JSON)

```
{
  "Applications":{
    "Application":[
      {
        "appId":11475,
        "appName":"HDVM_DC-172_17_79_141\GroupOfVolumes"
      },
      {
        "appId":11481,
        "appName":"HDVM_DC-172_17_79_141\Host1"
      },
      {
        "appId":11479,
        "appName":"HDVM_DC-172_17_79_141\Host2"
      }
    ]
  }
}
```




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