

Introduction to the Horizon DaaS REST API

VMware Horizon DaaS

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<https://docs.vmware.com/>

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Understanding the API

1

The REST API provides access to features and functionality (resources) using REST-based web services. Exchanges between the caller and the platform take place using HTTP and HTTPS requests and the platform returns XML to the caller in the HTTP response.

Resources

The following are the top-level entry points for the REST API.

Warning DtSecurityManager is not included in the following table because it is strongly recommended that you do not use it. Since functions accessed through this entry point cannot be fully controlled with REST APIs, avoid using any of the resources under DtSecurityManager.

Level	Entry Point	Description
1	<ul style="list-style-type: none">■ DtPlatform	Top-level entry point for the REST API.
2	<ul style="list-style-type: none">■ DtVersion	<ul style="list-style-type: none">■ Under DtPlatform.■ Provides version-related information about the REST APIs.
3	<ul style="list-style-type: none">■ DtInfrastructureManager■ DtInstallManager■ DtNotificationManager■ DtPoolManager■ DtQuotaManager■ DtReportingManager■ DtSessionManager■ DtSettingsManager■ DtSystemManager■ DtTaskManager	<ul style="list-style-type: none">■ Under DtPlatform.■ Each of these is a top-level entry point for a category of REST API resources. For example, under DtInfrastructureManager, there are DtDataCenter, DtNetwork, and so on.

Scope

The REST APIs have a common object model across the management (service provider and tenant) appliances. Some resources are available to both service providers and tenants, some are available only to service providers, and some available only to tenants. Among the resources that are available to both service providers and tenants, there is a scope associated with individual links in the resource instances that restricts the availability of some of the links to service providers or tenants. As a result, the same resource contains different links based on the context of its retrieval.

Properties and Links

Resources contain properties and links:

- A property stores a value. For example, the `DtUser` resource has a `loginName` property that indicates the name used by a user to log in.
- A link specifies a URI of a related resource or action. For example, the `DtUser` resource has a `desktopPatterns` link that retrieves the desktop patterns assigned to a user.

Link Attributes

A link has the following attributes:

- `name` – The unique name of the link. The name typically describes the purpose or target of the attribute.
- `href` – The URI relative to the server, webapp, and version, for example `/infrastructure/pool/1000`
- `method` – The http method used with the href in the REST API invocation: GET, POST, PUT, or DELETE.
- `rel` – Describes the relationship between the link and the resource that contains the link. The `rel` attribute is for informational purposes and is not required when coding to the API. The following table defines the link relationships.

Relationship	Description
ACTION	Indicates that the URI performs an action with the resource.
ASSOCIATION	Indicates that the URI retrieves an associated resource.
MAP	Indicates that the URI retrieves a map between resources (one-one, one-many, many-many).
SELF	Indicates that the URI is the URI of the container resource. A REST response always contains a link to itself. A GET on this URI returns the same URI.
TOP	Indicates that the URI is a top-level root resource.

HTTP Requests

The HTTP request you use to retrieve a Horizon DaaS Platform resource is constructed as follows:

```
https://<host>/dt-rest/<version>/<URI>
```

- `host` is the IP address of the administration console or Service Center.
- `version` is the version of the REST API. For information on retrieving available versions, see [Chapter 2 Getting Started](#).
- `URI` is the path to the resource, constructed by traversing the object model and extracting path information from the `href` attribute of a link.

For example:

```
/infrastructure/manager/mapping/users/default?sep={sep}&users={users}&
```

- The first component of the path is always the functional area, such as `system` or `infrastructure`.
- The `/manager` component of the path is used only for top-level resources and links served by that resource.
- Curly braces are used to represent request parameter values which you must supply in the actual HTTP request. The `href` attribute uses the following syntax to represent request parameters:

```
?p1={p1}&p2={p2}
```

For the preceding example, the actual values for the two request parameters (`sep` and `users`) might look as follows (where `sep` specifies the character you are using to delimit the user IDs in the request):

```
?sep=,&users=1234,5678&
```

- URL encoding is used to replace characters outside the ASCII set with a percent sign character (%) followed by two hexadecimal digits. For example, the question mark character (?) is replaced with %3F and the ampersand character (&) is replaced with %26.

Here is the complete HTTP request:

```
https://Host/dt-rest/v100/infrastructure/manager/mapping/users/default?sep=,&users=1234,5678&
```

Getting Started

2

This section gives you the basic information to get started using the REST API.

The instructions in this section describe how to:

- Retrieve the available software versions using the published URL `/system/platform`.
- Log in and save the HTTP response headers.
- Get the `DtTaskManager`.
- Retrieve the task history of a clone task.
- Get `DtMappingManager`.
- Retrieve the report of mapped users to assignments.

Before using the samples in this chapter to begin coding to the API, you must have the tenant or service provider IP address.

Retrieve the Available Software Versions

To retrieve the available software versions, submit the following HTTP request, where `<Host>` is the IP address of the tenant or service provider appliance.

```
https://<Host>/dt-rest/system/platform
```

The response includes a single `DtPlatform` XML element that contains one `DtVersion` element for each available software version. The latest version is the `DtVersion` element for which the attribute `latest="true"`. For example:

```
<DtVersion latest="true" id="v100">
  <DtLink href="/system" method="GET" name="DtSystemManager" rel="top"/>
  <DtLink href="/maintenance/manager" method="GET" name="DtMaintenanceManager" rel="top"/>
  <DtLink href="/install/manager" method="GET" name="DtInstallManager" rel="top"/>
  <DtLink href="/install/orchestrationengine" method="GET" name="DtOrchestrationEngine"
rel="top"/>
  <DtLink href="/security/manager" method="GET" name="DtSecurityManager" rel="top"/>
  <DtLink href="/setting/manager" method="GET" name="DtSettingsManager" rel="top"/>
  <DtLink href="/infrastructure/manager" method="GET" name="DtInfrastructureManager" rel="top"/>
  <DtLink href="/session/manager" method="GET" name="DtSessionManager" rel="top"/>
  <DtLink href="/quota/manager" method="GET" name="DtQuotaManager" rel="top"/>
  <DtLink href="/mapping/manager" method="GET" name="DtMappingManager" rel="top"/>
```

```

<DtLink href="/reservation/manager" method="GET" name="DtReservationStatusManager" rel="top"/>
<DtLink href="/pool/manager" method="GET" name="DtPoolManager" rel="top"/>
<DtLink href="/task/manager" method="GET" name="DtTaskManager" rel="top"/>
<DtLink href="/reporting/manager" method="GET" name="DtReportingManager" rel="top"/>
<DtLink href="/example/top" method="GET" name="DtTopLevelManagerImpl" rel="top"/>
<DtLink href="/notification/manager" method="GET" name="DtNotificationManager" rel="top"/>
<domainRegistrationURI>/v100/system/register/domain</domainRegistrationURI>
<DtCredentials type="CREDENTIALS">
  <DtLink href="/system/authenticate/credentials" method="POST" name="Submit" rel="action"/>
</DtCredentials>
</DtVersion>

```

The DtVersion element also defines the other top-level links you use to traverse the REST API, including DtSystemManager and DtInfrastructureManager.

Log In and Save the HTTP Response Header Authorization

The API provides secure access using domain authentication or two-factor authentication if configured.

- 1 To form the URL for your login, copy and paste the href from the authentication step returned by DtVersion.

DtVersion returns an authentication step, which varies depending on what authentication is configured for the organization. For example, if only Active Directory authentication is configured, it is DtCredentials, shown here (the href value is /system/authenticate/credentials):

```

<DtCredentials type="CREDENTIALS"> <DtLink href="/system/authenticate/credentials" method="POST"
name="Submit" rel="action"/> </DtCredentials>

```

- 2 To form the message to send for login, look in the documentation for the appropriate resource and include required properties, as in the following example.

```

<DtCredentials type="CREDENTIALS">
<username>nnnnnnnnnn</username>
<password>xxxxxxx</password>
<domain>DEMO-TENANT</domain>
</DtCredentials>

```

- 3 Send message as POST.
- 4 In the HTTP response header, note the following two values:
 - Authorization
 - x-dt-csrf-header

Note the following:

- You must include the Authorization key-value pair in the HTTP request header for every subsequent HTTP request you submit after login.

- If a request is a type other than GET, you must also include the x-dt-csrf-header key-value pair.

Get DtTaskManager

To create this request, append the href of the DtTaskManager link of the DtVersion element (see [Retrieve the Available Software Versions](#)) to the base URI. Here is an example of the request URI, where <Host> is the IP address of the tenant or service provider appliance:

```
https://<Host>/dt-rest/v100/task/manager
```

The response contains the following XML:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<List type="DtLink">
  <DtLink href="/task/manager" method="GET" name="DtTaskManager" rel="self"/>
  <DtLink href="/task/manager/cancel" method="POST" name="CancelTasks" rel="action"/>
  <DtLink href="/task/manager/tasks" method="POST" name="Tasks" rel="association"/>
  <DtLink href="/task/manager/taskReport" method="POST" name="TaskReport" rel="association"/>
  <DtLink href="/task/manager/childtasks" method="POST" name="GetChildTasks" rel="action"/>
  <DtLink href="/task/manager/filter" method="GET" name="CreateTaskFilter" rel="action"/>
</List>
```

Retrieve the Task History of a Clone Task

To perform this task, you must first get DtTaskManager as described above.

- 1 Get the tasks report using the TaskReport link from the Task Manager response. Here is an example of the request URI, where <Host> is the IP address of the tenant or service provider appliance:

```
https://<host>/dt-rest/v100/task/manager/taskReport
```

The response contains the following XML:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<DtTaskReport>
  <taskCount>2</taskCount>
  <tasks id="5831">
    <DtLink href="/infrastructure/pool/task/5831" method="GET" name="DtPoolTask" rel="self"/>
    <DtLink href="/infrastructure/pool/task/5831/gettaskhistory" method="GET"
name="GetTaskHistory" rel="action"/>
    <assignmentType>desktop</assignmentType>
    <cancellable>>false</cancellable>
    <desktopPoolId>1007</desktopPoolId>
    <hasChildTasks>>false</hasChildTasks>
    <percentageComplete>100</percentageComplete>
    <pool href="/infrastructure/pool/desktop/1007" method="GET" name="POD23-AGTB-"
rel="association"/>
    <startDate>2020-08-27T11:39:08.843Z</startDate>
    <status>SUCCESSFUL</status>
  </tasks>
</DtTaskReport>
```

```

    <statusDescription>Request to clone virtual machine 'POD23-AGTB-0378' - Successful</
statusDescription>
    <type>CloneVM</type>
  </tasks>
  <tasks id="5840">
    <DtLink href="/infrastructure/pool/task/5840" method="GET" name="DtPoolTask" rel="self"/>
    <DtLink href="/infrastructure/pool/task/5840/gettaskhistory" method="GET"
name="GetTaskHistory" rel="action"/>
    <assignmentType>desktop</assignmentType>
    <cancellable>>false</cancellable>
    <desktopPoolId>1007</desktopPoolId>
    <hasChildTasks>>false</hasChildTasks>
    <percentageComplete>100</percentageComplete>
    <pool href="/infrastructure/pool/desktop/1007" method="GET" name="POD23-AGTB-"
rel="association"/>
    <startDate>2020-08-27T11:39:08.843Z</startDate>
    <status>SUCCESSFUL</status>
    <statusDescription>Request to clone virtual machine 'POD23-AGTB-0377' - Successful</
statusDescription>
    <type>CloneVM</type>
  </tasks>
</DtTaskReport>

```

- 2 Get the history of one of the tasks. Here is an example of the request URI, where <Host> is the IP address of the tenant or service provider appliance:

```
https://<host>/dt-rest/v100/infrastructure/pool/task/5840/gettaskhistory
```

The response contains the following XML:

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<List type="DtPoolTaskHistory">
  <DtPoolTaskHistory>
    <dateUpdated>2020-08-27T11:50:18.985Z</dateUpdated>
    <objectId>c3eab94c-c0f7-4651-b8a2-eb1853cc2504</objectId>
    <percentageCompleted>0</percentageCompleted>
    <state>prepared</state>
    <taskId>11916c22-7011-4b34-8461-b524d43df074</taskId>
  </DtPoolTaskHistory>
  <DtPoolTaskHistory>
    <dateUpdated>2020-08-27T11:50:28.379Z</dateUpdated>
    <objectId>c3eab94c-c0f7-4651-b8a2-eb1853cc2504</objectId>
    <percentageCompleted>0</percentageCompleted>
    <state>queued</state>
    <taskId>11916c22-7011-4b34-8461-b524d43df074</taskId>
  </DtPoolTaskHistory>
  <DtPoolTaskHistory>
    <dateUpdated>2020-08-27T11:50:28.548Z</dateUpdated>
    <objectId>c3eab94c-c0f7-4651-b8a2-eb1853cc2504</objectId>
    <percentageCompleted>0</percentageCompleted>
    <state>running</state>
    <taskId>11916c22-7011-4b34-8461-b524d43df074</taskId>
  </DtPoolTaskHistory>
  <DtPoolTaskHistory>

```

```

<dateUpdated>2020-08-27T11:50:40.950Z</dateUpdated>
<description>Request to clone virtual machine 'POD23-AGTB-0377' - Successful</description>
<objectId>c3eab94c-c0f7-4651-b8a2-eb1853cc2504</objectId>
<percentageCompleted>100</percentageCompleted>
<state>success</state>
<taskId>11916c22-7011-4b34-8461-b524d43df074</taskId>
</DtPoolTaskHistory>
</List>

```

Get DtMappingManager

To retrieve DtMappingManager, use the path information specified by the DtMappingManager link of the DtVersion element (this request must include the Authorization header):

```
<DtLink href="/mapping/manager" method="GET" name="DtMappingManager" rel="top"/>
```

The href attribute indicates the URI to append to the base URI. Using this information, you can construct the following HTTP request:

```
https://Host/dt-rest/v100/mapping/manager
```

The response specifies the links you can traverse to obtain mapping of users and virtual machines to assignments. The following XML fragment shows two of the returned links:

```

<DtLink href="/mapping/manager/usermappingreport?
sortcriteria={sortcriteria}&sortorder={sortorder}&" method="POST" name="UserMappingReport"
rel="action"/>
  <DtLink href="/mapping/manager/desktopmappingreport?
sortcriteria={sortcriteria}&sortorder={sortorder}&" method="POST" name="DesktopMappingReport"
rel="action"/>

```

Retrieve the Report of Mapped Users to Assignments

To retrieve a report of mapped users to all assignments in the tenant, use the UserMappingReport method of the Mapping Manager:

```

<DtLink href="/mapping/manager/usermappingreport?
sortcriteria={sortcriteria}&sortorder={sortorder}&" method="POST" name="UserMappingReport"
rel="action"/>

```

The href attribute indicates the URI to append to the base URI. Using this information, you can construct the following HTTP request (must include the Authorization header):

```
https://Host/dt-rest/v100/mapping/manager/usermappingreport?sortcriteria=Id&sortorder=Ascending
```

The response contains one <UserMapping> element for each user with all its properties, including the assignment to which the user is mapped. For example:

```

<DtUserMappingReport>
  <userMappingReportCount>3</userMappingReportCount>
  <userMappingReportTotalCount>3</userMappingReportTotalCount>
  <UserMapping>
    <assignmentName>bat-vdi</assignmentName>
    <desktopModel>selectable</desktopModel>
    <desktopName>Small</desktopName>
    <mapType>static</mapType>
    <mappingSource>direct</mappingSource>
    <poolType>desktop</poolType>
    <userDomain>AUTO-TENANTD</userDomain>
    <userGuid>eb5965f04136634dbd4b75784d3d44e3</userGuid>
    <userName>portaluser1</userName>
    <vmName>D-bat-vdi0000</vmName>
  </UserMapping>
  <UserMapping>
    <assignmentName>bat-dsktp</assignmentName>
    <desktopModel>selectable</desktopModel>
    <desktopName>Hosted App Server</desktopName>
    <farmName>bat-dsktp</farmName>
    <groupName>portalusers</groupName>
    <mapType>session</mapType>
    <mappingSource>group</mappingSource>
    <poolType>session</poolType>
    <userDomain>AUTO-TENANTD</userDomain>
    <userGuid>eb5965f04136634dbd4b75784d3d44e3</userGuid>
    <userName>portaluser1</userName>
    <vmName></vmName>
  </UserMapping>
  <UserMapping>
    <assignmentName>bat-apps</assignmentName>
    <desktopModel>selectable</desktopModel>
    <desktopName>Hosted App Server</desktopName>
    <farmName>bat-apps</farmName>
    <groupName>portalusers</groupName>
    <mapType>appsession</mapType>
    <mappingSource>group</mappingSource>
    <poolType>appsession</poolType>
    <userDomain>AUTO-TENANTD</userDomain>
    <userGuid>eb5965f04136634dbd4b75784d3d44e3</userGuid>
    <userName>portaluser1</userName>
    <vmName></vmName>
  </UserMapping>
</DtUserMappingReport>

```