

HP EnterpriseView

For the Windows Operating System

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REST API Developer Guide

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Chapter 1: REST API Overview

Using the EnterpriseView REST API you can import and export asset data in the following ways:

- Import assessments on assets from any external security system or tool, eliminating the need to manually assess assets in EnterpriseView.
- Export assessments on assets to any external security system or tool.

Note: You can import or export assessment information only for assets of type **IP**; this assessment information is aggregate to top-level assets as in manual assessments

- Exporting asset aggregate scores to any external security system or tool, including:
 - The aggregate risk score of the asset
 - The aggregate compliance score of the asset
 - The aggregate control maturity score of the asset
 - The aggregate asset vulnerability score of the asset

Prerequisites:

Make sure that the following entities and parameters are identical in both EnterpriseView and the Security Automation tool:

- Assets of type IP
- Policy names
- Control paragraph numbers

The following HTTP request methods for importing and exporting asset data are available:

- **GET:** Reads one of the following resources from the EnterpriseView server:
 - Asset ID
 - P5 control maturity scores for multiple (1-5) factors
 - Compliance score of an asset with a control
 - Note on a control that is applied to an asset
 - The aggregate scores of an asset
- **PUT:** Updates/creates the following resources on the EnterpriseView server:

- P5 control maturity score for a single factor
- P5 control maturity scores for multiple (1-5) factors
- Compliance score of an asset with a control
- **POST:** Inserts notes on a control that is applied to an asset on the EnterpriseView server.

The first step of a client application is authenticating the user, as described in ["Authentication" on page 15](#). After a client is authenticated, it can work with EnterpriseView resources.

Chapter 2: HTTP Return Codes

Unless otherwise specified, these HTTP return codes are used:

Code	Cause
200	Successful operations
204	No content
400	Bad request
401	Unauthorized
403	Unauthorized operations
404	Resource not found
409	Conflict
500	Internal server error

Chapter 3: Error Messages

These are the application error messages returned by the REST API.

Code	Exception	Can happen when
400	Cannot execute your request. Parameters are missing.	Attempting to retrieve an asset ID by the asset's IP address, MAC address or DNS name. Parameters are not passed.
404	Cannot find asset IP Address: {IP_Address} or Cannot find asset MAC Address: {MAC_Address} or Cannot find asset DNS Name: {DNS_Name}	Attempting to retrieve an asset ID by the asset's IP address, MAC address or DNS name.
	Cannot find policy: {Policy_Name}	Attempting to update or retrieve P5 score/compliance score/note for a specific control.
403	Access is forbidden	An unauthorized user tries to access EnterpriseView.
409	Cannot find control: {Control_Paragraph_Number}	Attempting to update or retrieve P5 score/compliance score/note for a specific control.

Code	Exception	Can happen when
500	Cannot find asset: {Asset_ID}	Attempting to retrieve an asset ID by the asset's IP address, MAC address or DNS name.
	More than one asset matches the request. You can add additional parameters to filter the results.	Attempting to retrieve an asset ID by the asset's IP address, MAC address or DNS name.
	Score is out of range. Range should be between 0-100.	Attempting to input a compliance score that is out of range.
	Score is out of range. Range should be between 0-5.	Attempting to input a P5 control maturity factor score that is out of range.
	Score value must be either numeric or "NotAssessed".	Attempting to input a P5 control maturity factor score or a compliance score that is not numeric or "NotAssessed".
	Score value must be an integer.	Attempting to input a P5 control maturity factor score or a compliance score that is not an integer.
	Control {Control_Paragraph_Number} is not applied to asset {Asset_ID}. Scores cannot be updated.	Attempting to input a P5 control maturity factor score or a compliance score for a control that is not applied to an asset.

Chapter 4: Example Application

The following examples are based on Spring framework version 3.0.

Application Context

```
<?xml version="1.0" encoding="UTF-8"?>
<beans xmlns="http://www.springframework.org/schema/beans"
       xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
       xmlns:context="http://www.springframework.org/schema/context"
       xsi:schemaLocation="http://www.springframework.org/schema/beans
http://www.springframework.org/schema/beans/spring-beans-3.0.xsd
http://www.springframework.org/schema/context http://www.springframework.
org/schema/context/spring-context-3.0.xsd">

    <context:annotation-config/>

    <context:component-scan base-package="com.hp.redcat.restsample"/>

    <bean id="credentials" class="org.apache.commons.httpclient.UsernamePassword
Credentials">
        <constructor-arg value="admin"/>
        <constructor-arg value="admin"/>
    </bean>

    <bean id="secureHttpClient" factory-bean="httpClientFactoryBean" factory-met
hod="getHttpClient"/>

    <bean id="httpClientFactory" class="org.springframework.http.client.CommonsC
lientHttpRequestFactory">
        <constructor-arg ref="secureHttpClient"/>
    </bean>

    <bean id="restTemplate" class="org.springframework.web.client.RestTemplate">
        <constructor-arg ref="httpClientFactory"/>
    </bean>

</beans>
```

HTTP Client Factory Bean

```
package com.hp.redcat.restsample;

import org.apache.commons.httpclient.Credentials;
import org.apache.commons.httpclient.HttpClient;
import org.apache.commons.httpclient.auth.AuthScope;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Component;

@Component
public class HttpClientFactoryBean {

    private HttpClient httpClient;

    @Autowired
    public HttpClientFactoryBean(Credentials credentials) {
        this.httpClient = new HttpClient();
        this.httpClient.getState().setCredentials(AuthScope.ANY, credentials);
    }

    public HttpClient getHttpClient() {
        return httpClient;
    }
}
```

Example

```
package com.hp.redcat.restsample;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Component;
import org.springframework.web.client.RestTemplate;

import java.util.HashMap;
import java.util.Map;

@Component
public class RestSample {

    @Autowired
    private RestTemplate restTemplate;

    /**
     * @param assetIdInEnterpriseView is the asset ID in EnterpriseView.
     * Follow the instructions in "Asset Reconciliation" on page 17 to get it.
     */
}
```

```
*  
**/  
  
public void putP5Assessment(String assetIdInEnterpriseView) {  
    Map<String, String> variables = new HashMap<String, String>();  
    variables.put("assetId", assetIdInEnterpriseView);  
    variables.put("policyKey", "Cobit 4.1");  
    variables.put("controlParagraph", "P01.1");  
    variables.put("p5type", "People");  
  
    final String url = "http://hostname:8080/redcat/rest/" +  
        "assets/{assetId}/policy/audit/{policyKey}/{controlParagraph}/p  
5/{p5type}";  
    restTemplate.put(url, "1", variables);  
}
```


Chapter 5: Authentication

The application must perform HTTP basic authentication.

The user must have the following permissions:

- Login
- Read Policy Assessment
- Edit Policy Assessment
- Read Assets

The user must have access rights to all the relevant assets. For more information, see the *Business Model Authorization* section in the *HP EnterpriseView user Guide*.

Chapter 6: Resource References

This section includes the following resources:

Asset Reconciliation	17
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Asset Reconciliation

Description

Reconciliation is the process of identifying and matching entities from different data repositories, for example, in HP Server Automation (SA) and EnterpriseView. This process is designed to assure unique identification of assets in EnterpriseView.

The asset ID is passed as a parameter in all of the other methods. Therefore, retrieving the asset ID is always the first action.

Parameters

The asset ID can be retrieved with one or more of the following parameters:

- IP Address
- MAC Address
- Host Name

URL

`http://{host}:{port}/redcat/rest/reconcile/
asset?ipAddress={ipAddress}`

`http://{host}:{port}/redcat/rest/reconcile/
asset?macAddress={macAddress}`

`http://{host}:{port}/redcat/rest/reconcile/
asset?hostname={hostname}`

Or any combination of parameters. For example:

```
http://{host}:{port}/redcat/rest/reconcile/  
asset?hostname={hostname}&macAddress=  
{macAddress}&ipAddress={ipAddress}
```

Note: The IP Address, MAC Address and Host Name of an asset can change. In this case, using these parameters may return a different asset ID. If your connector has a unique key for this asset that is made up of the **Connector Asset ID** and the **Connector Name**, then we recommend using these parameters to make sure that the same asset is always returned.

URL

```
http://{host}:{port}/redcat/rest/reconcile/  
asset?connectorName={connectorName}&connectorAssetId=  
{connectorAssetId}&hostname={hostname}
```

```
http://{host}:{port}/redcat/rest/reconcile/  
asset?connectorName={connectorName}&connectorAssetId=  
{connectorAssetId}&ipAddress={ipAddress}
```

```
http://{host}:{port}/redcat/rest/reconcile/  
asset?connectorName={connectorName}&connectorAssetId=  
{connectorAssetId}&macAddress={macAddress}
```

Or any combination of parameters. For example:

```
http://{host}:{port}/redcat/rest/reconcile/  
asset?connectorName=MyConnector&connectorAssetId=17&ipAddress=  
192.168.0.1&hostname=assetHost&macAddress=assetMAC
```

Remark

EnterpriseView can return only one asset ID. If more than one asset is found with this method, then 404 error code is returned. None of the parameters (IP address, MAC address, host name) are mandatory in EnterpriseView. Using your knowledge of EnterpriseView, construct your queries to match a unique asset.

GET	
Action	Returns one asset ID.
Request Body	None
Returns	<pre><?xml version="1.0" encoding="UTF-8" standalone="yes"?> <asset> <id>{asset ID}</id> </asset></pre>
Example	GET http://127.0.0.1:8080/redcat/rest/reconcile/asset? ipAddress=192.168.0.1

Compliance Score

Description

A score between 0 and 100 (inclusive) representing the asset compliance with a specific control.

URL

`http://{host}:{port}/redcat/rest/assets/{asset_id}/policy/audit/{policy_name}/{control_paragraph}/compliance`

Remark

Attempting to create/update a compliance score that is not in the range of 0 and 100, results in a 500 exception.

All parameters are case-sensitive.

GET	
Action	Returns the compliance score for a specific control in a specific policy for a specific asset. Note: If the compliance is not assessed, GET returns the parameter "NotAssessed" instead of a score.
Request Body	None
Returns	<pre><?xml version="1.0" encoding="UTF-8" standalone="yes"?> <compliance> <complianceScore>{compliance Score}</complianceScore> </compliance></pre>
Example	GET <code>http://127.0.0.1:8080/redcat/rest/assets/189/policy/audit/Cobit%204.1/P01.1/compliance</code>

PUT	
Action	Creates/updates the compliance score for a specific control in a specific policy for a specific asset. Note: If the compliance that you want to create/update is not assessed, you need to pass the parameter "NotAssessed" instead of a score.
Request Body	The compliance score

PUT	
Example	PUT http://127.0.0.1:8080/redcat/rest/assets/189/policy/audit/Cobit%204.1/P01.1/compliance (Request body) 100

P5 Control Maturity Factor Score (Single)

Description

A score between 1-5 (inclusive) representing the control maturity of a single P5 factor in reference to a specific asset.

URL

http://{host}:{port}/redcat/rest/assets/{asset_id}/policy/audit/{policy_name}/{control_paragraph}/p5/{p5_factor}

P5 factors: people, proof, procedure, process, product

Remark

All parameters are case-sensitive.

PUT	
Action	Creates/updates the P5 control maturity score for one factor on a specific control in a specific policy for a specific asset. Note: If the P5 factor that you want to create/update is not assessed, pass the parameter "NotAssessed" instead of a score.
Request Body	The P5 control maturity score
Example	PUT http://127.0.0.1:8080/redcat/rest/assets/189/policy/audit/Cobit%204.1/P01.1/p5/people (Request body) 5

P5 Control Maturity Factors Scores (Multiple)

Description

A score between 1-5 (inclusive) representing the control maturity of one or more (maximum five) P5 factors in reference to a specific asset.

URL

`http://{host}:{port}/redcat/rest/assets/{asset_id}/policy/audit/{policy_name}/{control_paragraph}/p5`

Remark

All parameters are case-sensitive.

GET	
Action	Returns the P5 control maturity score for multiple factors on a specific control in a specific policy for a specific asset. If a specific P5 factor is not applied to the control, then it will not be returned. Note: If a P5 factor is not assessed, GET returns the parameter "NotAssessed" instead of a score.
Request Body	None
Returns	<pre><?xml version="1.0" encoding="UTF-8" standalone="yes"?> <p5> <people>{people}</people> <procedure>{procedure}</procedure> <process>{process}</process> <product>{product}</product> <proof>{proof}</proof> </p5></pre>
Example	GET <code>http://127.0.0.1:8080/redcat/rest/assets/189/policy/audit/Cobit%204.1/P01.1/p5/</code>

PUT	
Action	Creates/updates the P5 control maturity score for multiple factors on a specific control in a specific policy for a specific asset. Note: <ul style="list-style-type: none">• If the P5 factor that you want to create/update is not assessed, you need to pass the parameter "NotAssessed" instead of a score.• If you try to create or update a P5 factor that is not applied to the control, you get a 500 error code.

PUT	
Request Header	content-type: application/xml
Request Body	<pre><?xml version="1.0" encoding="UTF-8" standalone="yes"?> <p5> <people>{people}</people> <procedure>{procedure}</procedure> <process>{process}</process> <product>{product}</product> <proof>{proof}</proof> </p5></pre>
Example	<pre><?xml version="1.0" encoding="UTF-8" standalone="yes"?> <p5> <people>3</people> <procedure>3</procedure> <process>4</process> <product>5</product> <proof>NotAssessed</proof> </p5></pre>

Notes

Description

Any number of notes can be attached to a control in a specific policy for a specific asset.

URL

`http://{host}:{port}/redcat/rest/assets/{asset_id}/policy/audit/{policy_name}/{control_paragraph}/notes`

Remark

POST creates a single note. GET returns all notes for the control.

GET	
Action	Returns all of the notes for a specific control in a specific policy for a specific asset.

GET	
Request Body	None
Returns	<pre><?xml version="1.0" encoding="UTF-8" standalone="yes"?> <notes> <note> <createTime>{creation date and time}</createTime> <creator> <uniqueId>{user name}</uniqueId> </creator> <message>{note text}</message> </note> ... </notes></pre>
Example	GET http://127.0.0.1:8080/rest/assets/189/policy/audit/Cobit%204.1/P01.1/notes

POST	
Action	Create a new note for a specific control in a specific policy for a specific asset.
Request Body	The note text
Returns	HTTP code 200 or an error code
Example	<pre>http://127.0.0.1:8080/redcat/rest/assets/189/policy/audit/Cobit%204.1/P01.1/note {note text}</pre>

Aggregate Risk Score

Description

A score between 0 and 100 (inclusive) representing the aggregate risk of an asset.

URL

`http://{host}:{port}/redcat/rest/risk/score/{asset_id}`

Remark

All parameters are case-sensitive.

GET	
Action	Returns the aggregate risk score for a specific asset. Note: If there is no aggregate risk score for the asset, GET returns an empty tag instead of a score.
Request Body	None
Returns	<pre><?xml version="1.0" encoding="UTF-8" standalone="yes"?> <RiskScore> <AggregateScore> {aggregate risk score} </AggregateScore> </RiskScore></pre>
Example	GET <code>http://127.0.0.1:8080/redcat/rest/risk/score/189</code>

Aggregate Vulnerability Score

Description

A score between 0 and 10 (inclusive) representing the aggregate vulnerability of an asset.

URL

`http://{host}:{port}/redcat/rest/vulnerability/score/{asset_id}`

Remark

All parameters are case-sensitive.

GET	
Action	Returns the aggregate risk score for a specific asset. Note: If there is no aggregate vulnerability score for the asset, GET returns "0".

GET	
Request Body	None
Returns	<pre><?xml version="1.0" encoding="UTF-8" standalone="yes"?> <VulnerabilityScore> <AggregateScore> {aggregate vulnerability score} </AggregateScore> </VulnerabilityScore></pre>
Example	GET http://127.0.0.1:8080/redcat/rest/vulnerability/score/189

Aggregate Compliance Score

Description

A score between 0 and 100 (inclusive) representing the aggregate compliance of an asset.

URL

http://{host}:{port}/redcat/rest/compliance/score/{asset_id}

Remark

All parameters are case-sensitive.

GET	
Action	Returns the aggregate compliance score for a specific asset. Note: If there is no aggregate compliance score for the asset, GET returns an empty tag instead of a score.
Request Body	None
Returns	<pre><?xml version="1.0" encoding="UTF-8" standalone="yes"?> <ComplianceScore> <AggregateScore> {aggregate compliance score} </AggregateScore> </ComplianceScore></pre>
Example	GET http://127.0.0.1:8080/redcat/rest/compliance/score/189

Aggregate Control Maturity Score

Description

A score between 0 and 5 (inclusive) representing the aggregate maturity of an asset.

URL

`http://{host}:{port}/redcat/rest/maturity/score/{asset_id}`

Remark

All parameters are case-sensitive.

GET	
Action	Returns the aggregate maturity score for a specific asset. Note: If there is no aggregate maturity score for the asset, GET returns an empty tag instead of a score.
Request Body	None
Returns	<pre><?xml version="1.0" encoding="UTF-8" standalone="yes"?> <MaturityScore> <AggregateScore> {aggregate maturity score} </AggregateScore> </MaturityScore></pre>
Example	GET <code>http://127.0.0.1:8080/redcat/rest/maturity/score/189</code>