How-to Guide: Nessus® for CyberArk

Last Updated: February 13, 2018

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Introduction

This document describes how to configure Tenable Nessusfor integration with CyberArk Enterprise Password Vault. Please email any comments and suggestions to support@tenable.com.

Security administrators know that conducting network vulnerability assessments means getting access to and navigating an ever-changing sea of usernames, passwords and privileges. By integrating the CyberArk Enterprise Password Vault with Tenable's solutions, customers are now granted even more choice and flexibility for reducing the credentials headache.

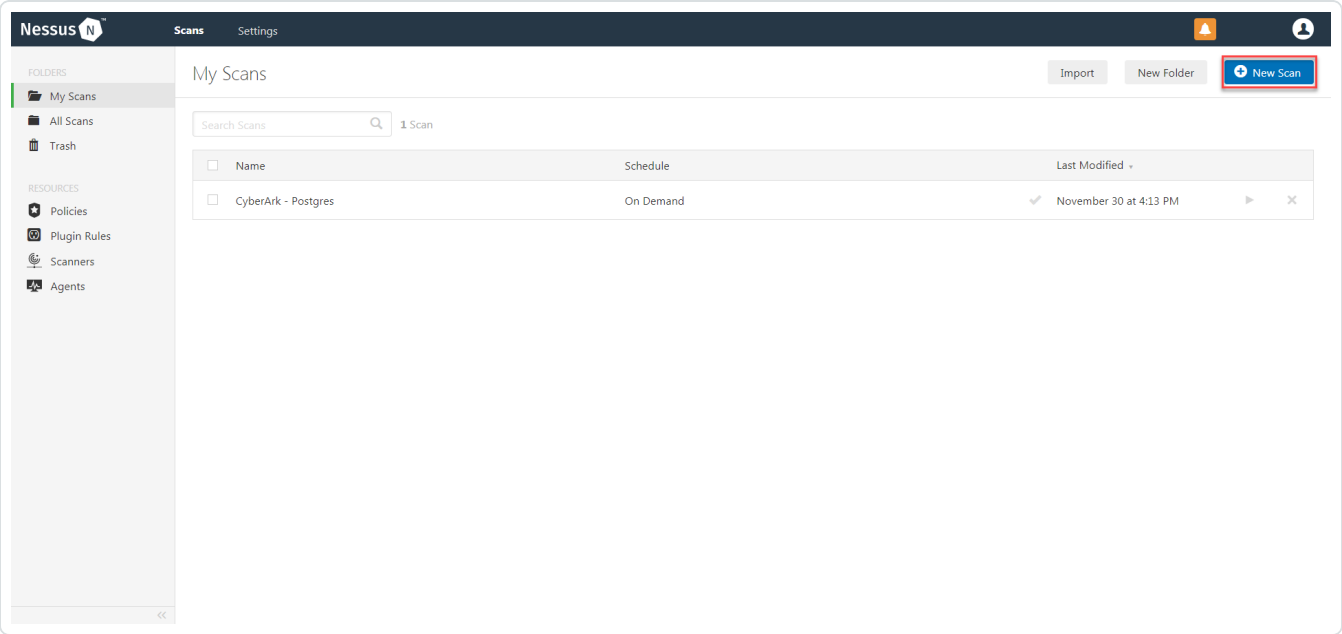
Benefits of integrating Tenable Nessus with CyberArk Enterprise Password Vault include:

- Credentials stored in CyberArk Enterprise Password Vault do not need to be managed and updated directly within Tenable Nessus
- Reduce the time and effort needed to document where credentials are stored within the entire organizational environment
- Automatically enforce security policies within specific departments or for specific business unit requirements, which simplifies compliance
- Reduce the risk of unsecured privileged accounts and credentials across the enterprise

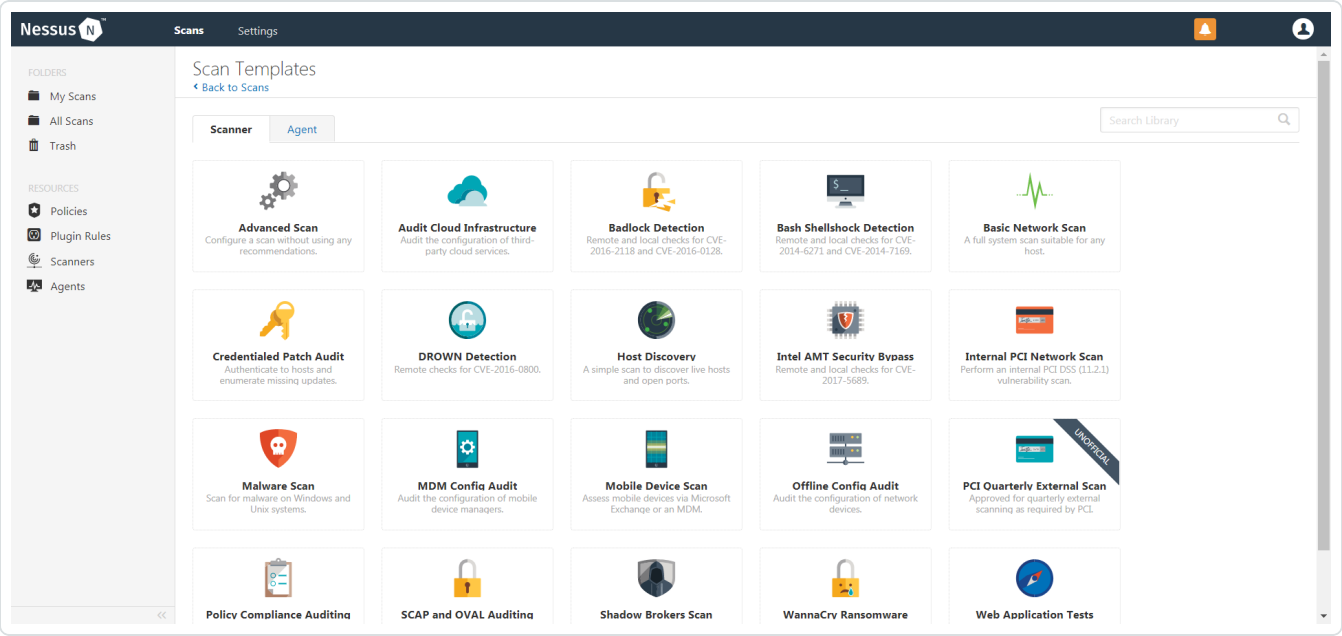
Integrating With CyberArk Enterprise Password Vault

Configuring credentialed network scans using CyberArk's password management solution is a simple process. CyberArk integration with Nessus is seamless, so credentials are configured similarly to other credentialed network scans.

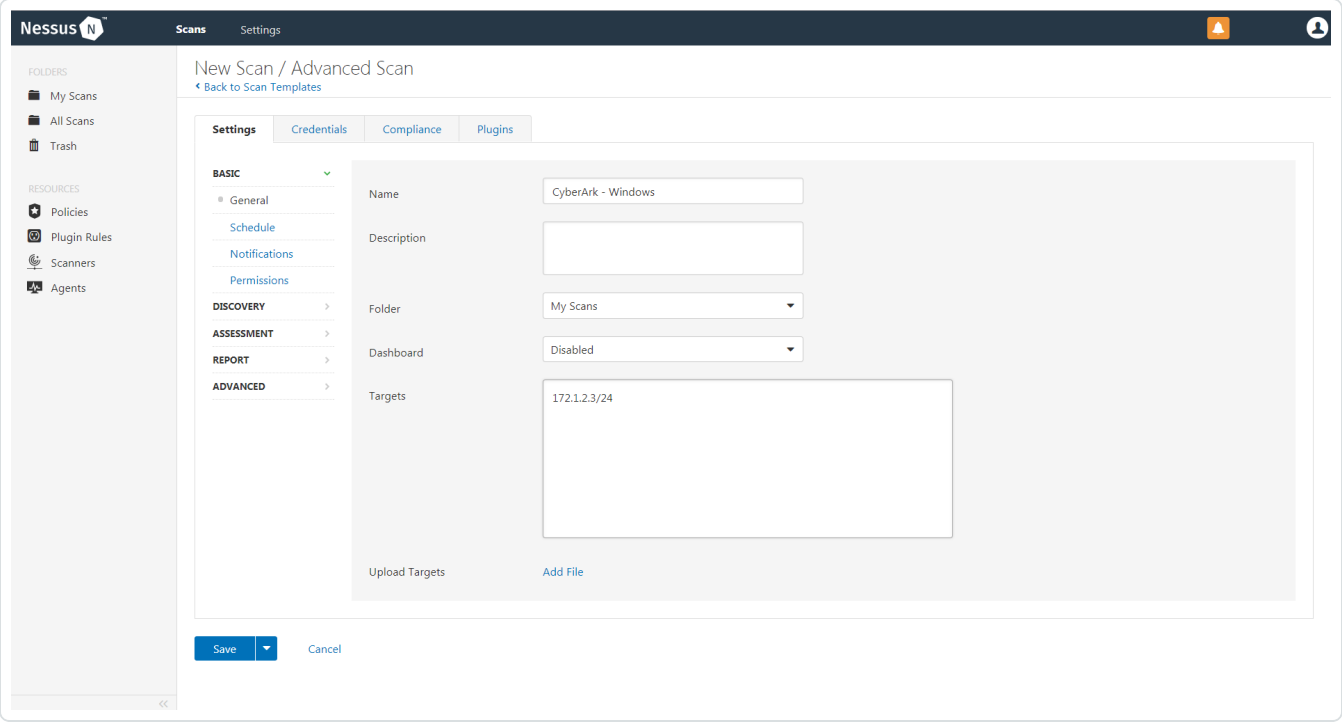
1. Log in to Nessus and click **Scans** and then **+ New Scan** to configure Nessus for credentialed scans of Windows systems using CyberArk's password management solution.



2. Select a **Scan Template** for the scan type required for your scan. For demonstration purposes, the **Advanced Network Scan** template will be used.

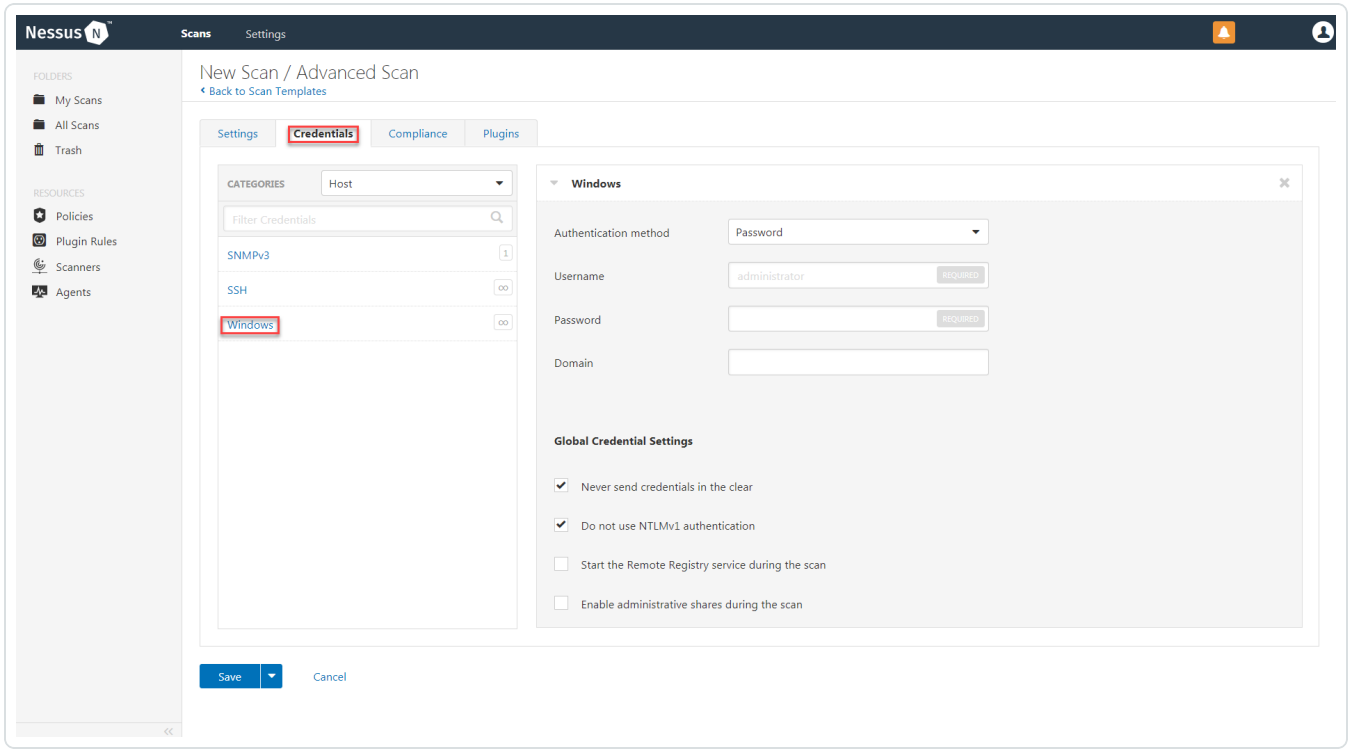


3. To configure a credentialed scan for Windows systems using CyberArk's password management solution, enter a descriptive **Name** and enter the IP address(es) or hostname(s) of the scan **Targets**.

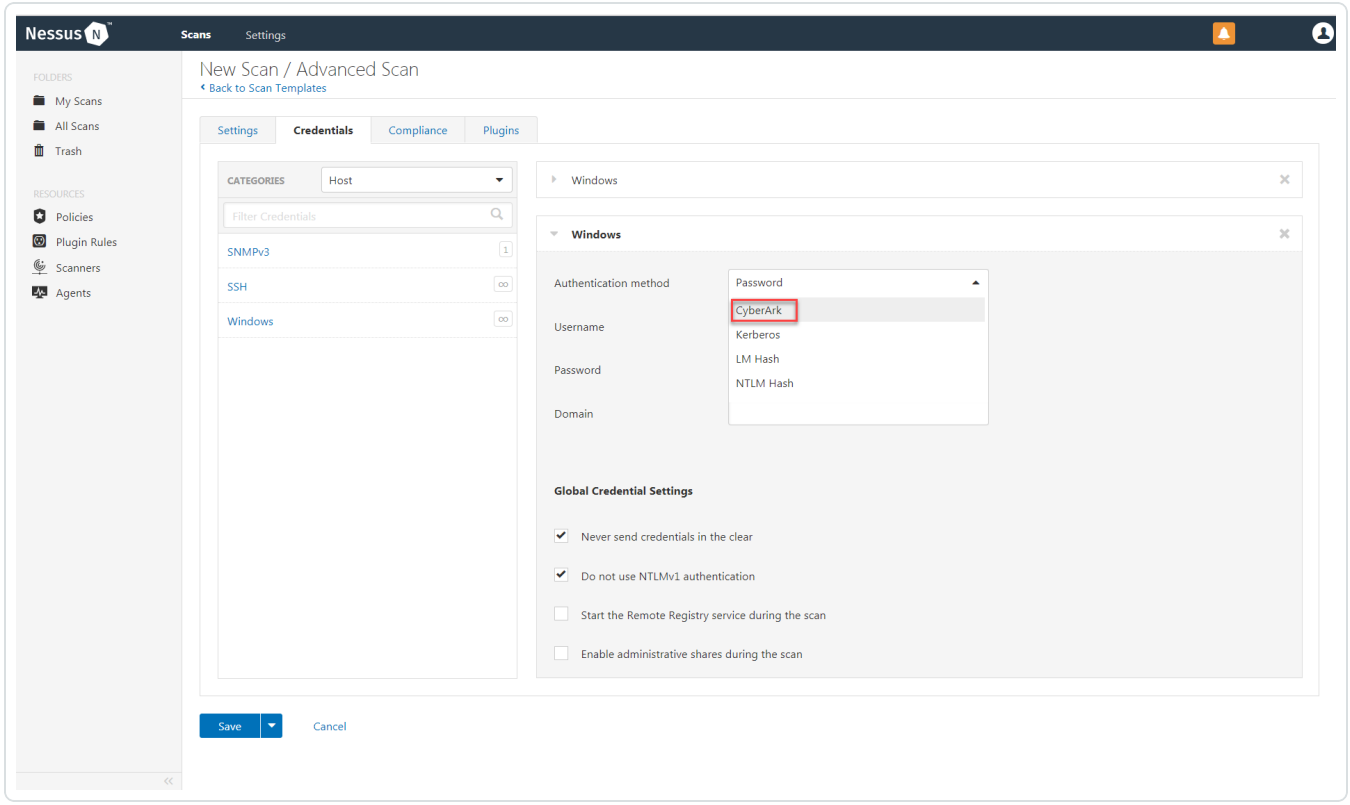


4. Once the **Name** and **Targets** have been configured, click **Credentials** (highlighted below) and

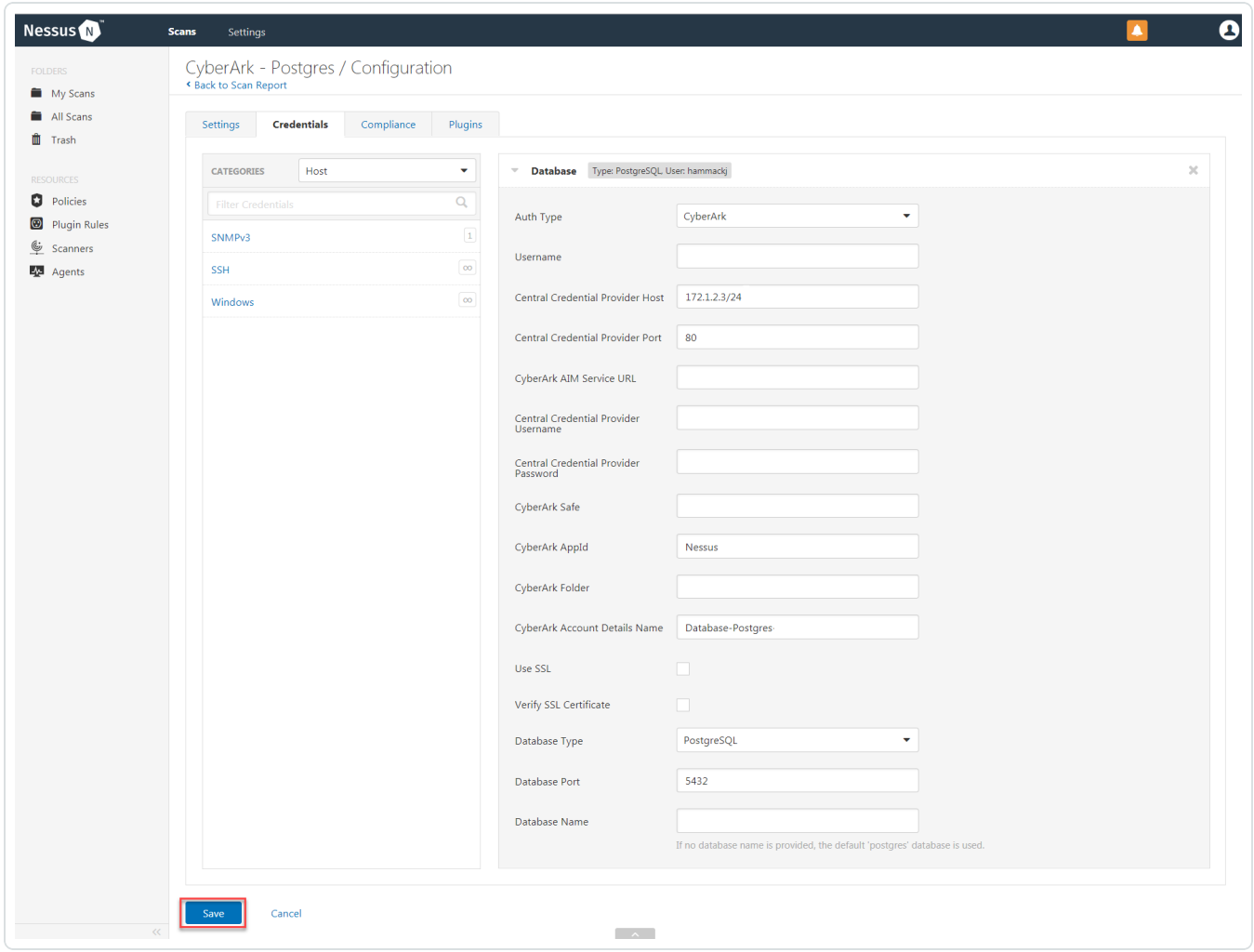
then select **Windows** from the left-hand menu (highlighted below).



5. Click the **Authentication method** drop-down and select **CyberArk**.



6. Configure each field for Windows authentication. Refer to the table below for a description of each field. Once the Windows credentials have been configured, click **Save** to finalize the changes.



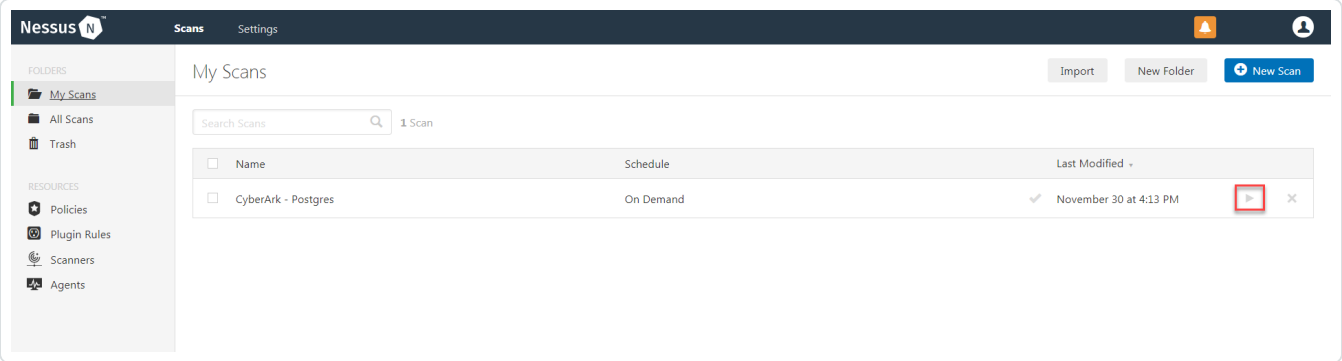
The table below contains a description of each option:

Option	Description
Username	The target system's username
Central Credential Provider Host	The CyberArk Central Credential Provider IP/DNS address
Central Credential Provider Port	The port on which the CyberArk Central Credential Provider listens
CyberArk AIM Service URL	Provides custom endpoints for CyberArk
Central Credential Username	If the CyberArk Central Credential Provider is configured to use basic authentication, you can fill in this field for authentication.

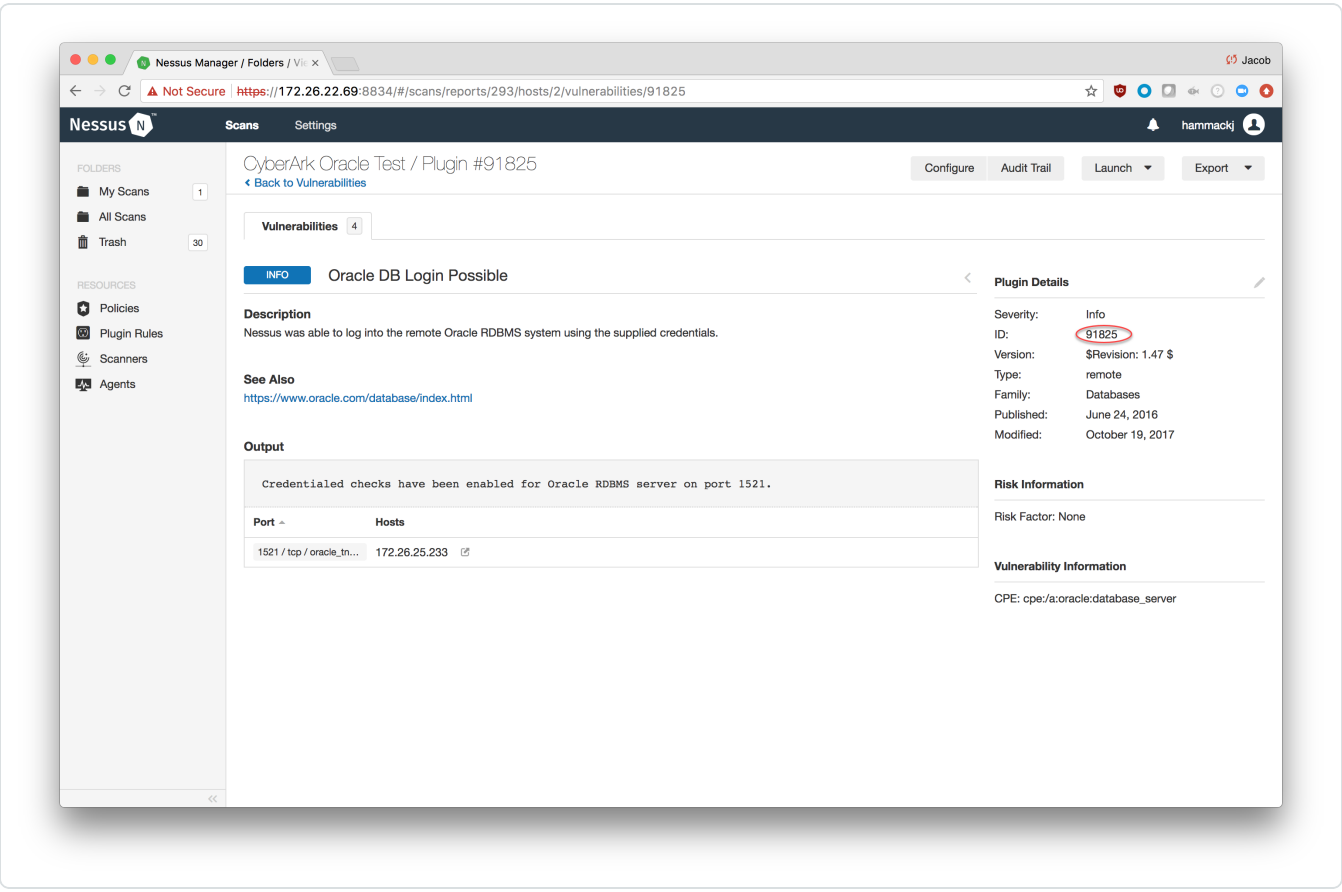
Central Credential Provider Password	If the CyberArk Central Credential Provider is configured to use basic authentication, you can fill in this field for authentication.
CyberArk Safe	The safe on the CyberArk Central Credential Provider server that contains the authentication information to be retrieved
CyberArk AppID	The ID of the App requesting the credentials
CyberArk Folder	A folder for the CyberArk contents
CyberArk Account Details Name	A unique string to identify the credential
Use SSL	If CyberArk Central Credential Provider is configured to support SSL through IIS, select this option for secure communication. (Recommended)
Verify SSL Certificate	If CyberArk Central Credential Provider is configured to support SSL through IIS, select this option to validate the certificate. (Recommended)
Database Type	The database type connected to the credentials being pulled
Database Port	The database port being authenticated
Database Name	The name of the database being authenticated

Caution: Tenable strongly recommends encrypting communication between the Nessus scanner and the CyberArk AIM gateway using HTTPS and/or client certificates. For information on securing the connection, refer to the Nessus User Guide and the **Central Credential Provider Implementation Guide** located at cyberark.com (login required).

7. Once the options to reach the CyberArk Enterprise Password Vault are set, click **Save** to save the changes.
8. To verify the integration is working, click the **Launch** button (highlighted below) to initiate an on-demand scan.



9. Once the scan has completed, select the completed scan and look for the corresponding Login Successful id (see chart below), which validates that authentication was successful. If the authentication is not successful, refer to the Debugging CyberArk Issues section of this document.



Plugin Type	Plugin ID
Postgres	91826

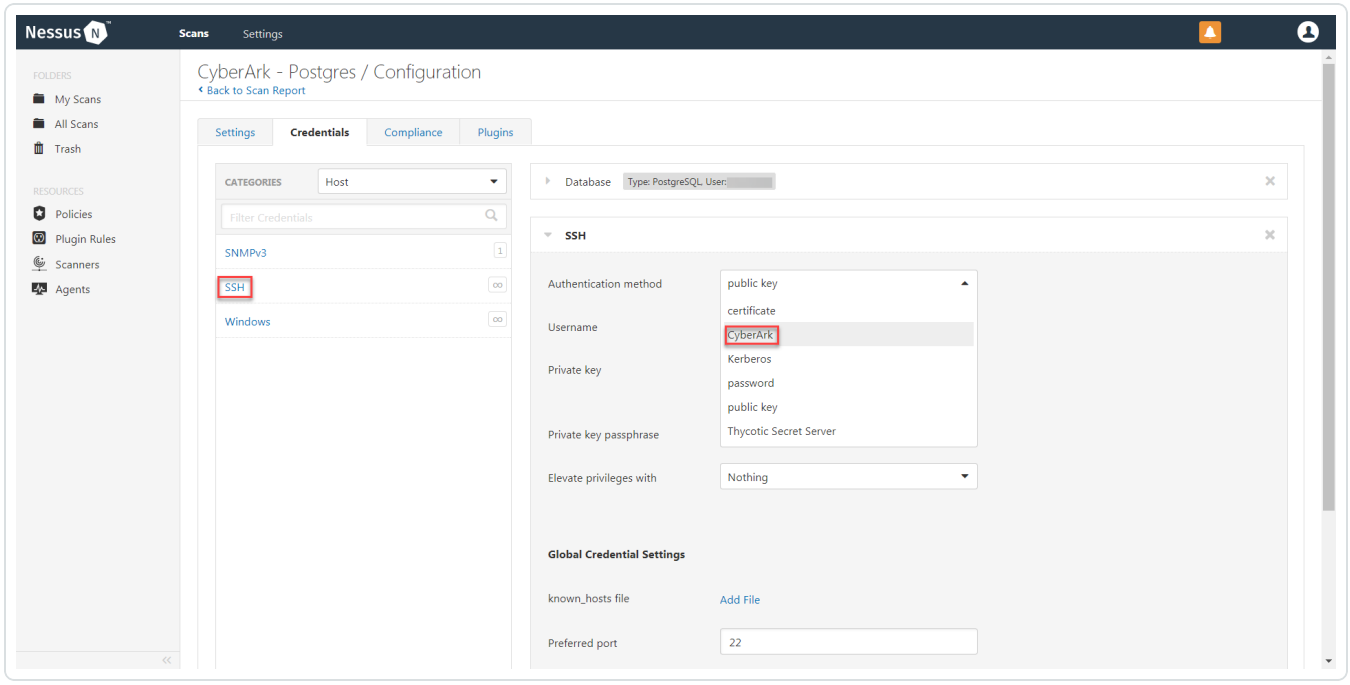
SQL	91825
MySQL	91823

Privilege Escalation With CyberArk Credentials

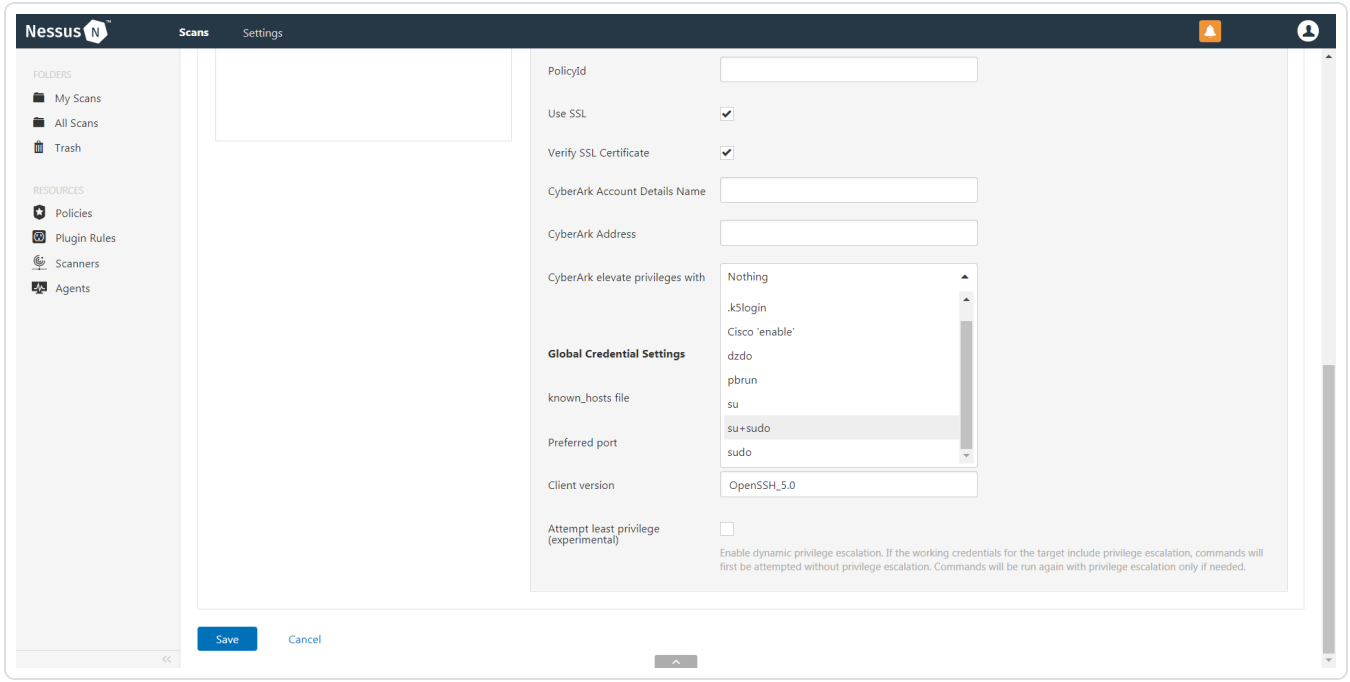
Nessus supports the use of privilege escalation, such as *su* and *sudo*, when using SSH through the CyberArk authentication method.

To add a CyberArk Password Vault credential set:

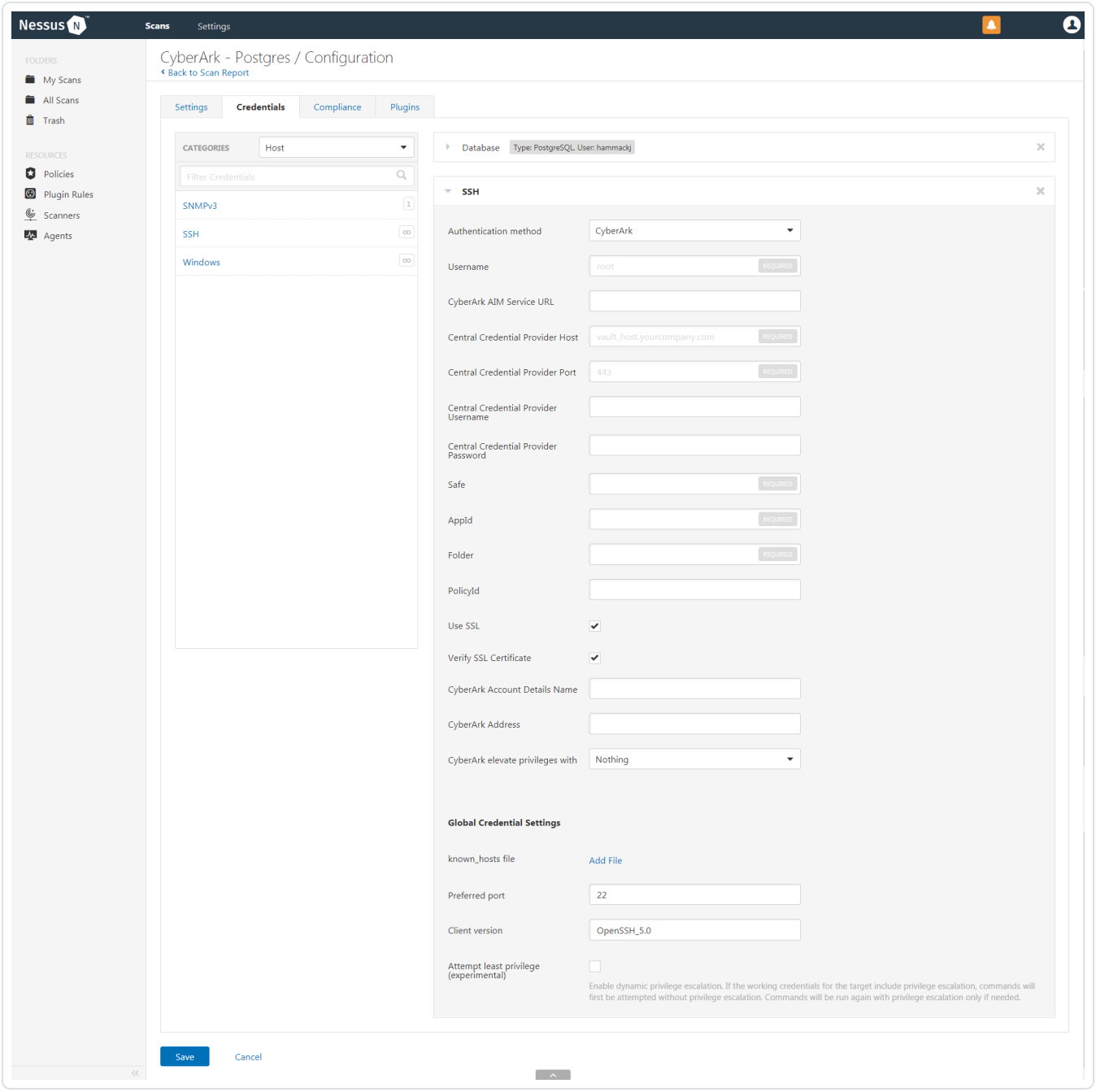
1. Select **SSH** as the **Type** and CyberArk as the **Authentication Method.**



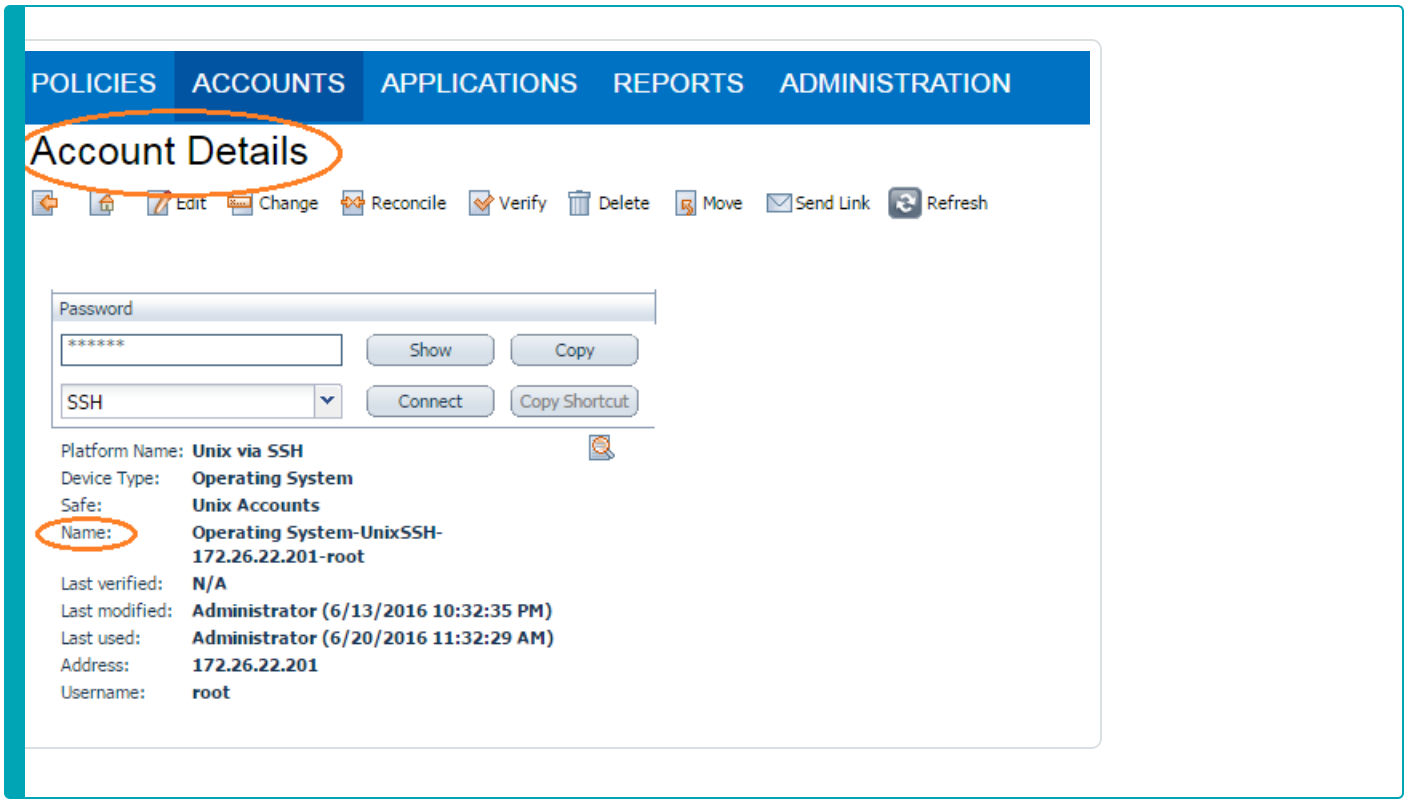
2. An option for **CyberArk elevate privileges with** appears near the bottom of the configuration page. Multiple options for privilege escalation are supported, including *su*, *su+sudo* and *sudo*. For example, if **sudo** is selected, additional fields for **sudo user**, **CyberArk Account Details Name** and **Location of sudo** (directory) are provided and can be completed to support authentication and privilege escalation through CyberArk Password Vault. Additional information about all of the supported privilege escalation types and their accompanying fields can be found in the Nessus User Guide.



3. Configure each field for Windows authentication. Once the SSH credentials have been configured, click **Save** to finalize the changes.



Note: When asked for a **CyberArk Account Details Name**, perform the following steps to obtain the correct value:
1. Log in to CyberArk Password Vault.
2. Choose the secret (password) you wish to use.
3. Look at the name parameter (such as in the image below) in the Account Details page; this is the value to supply in the **CyberArk Account Details Name** field.



Additional Information

CyberArk Domain and DNS Support

Tenable's support for CyberArk has been extended to allow Nessus to use its target list to query CyberArk Enterprise Password Vault for the target system's credentials, and Tenable's solutions can now use a flexible system to allow for DNS and domain support. See Nesssus Priority Scanning for CyberArk for explanation of the logic used by Nessus for scans using credentials from CyberArk Enterprise Password Vault.

Nessus Priority Scanning for CyberArk

Nessus sets a priority system that allows for flexible querying. The following is set out to describe the order Nessus tries values and the logic behind it.

1. Nessus will query CyberArk with the target value entered into the Nessus **Targets** configuration field. For example, if you put a FQDN in the target list, Nessus will query CyberArk with the address value of the FQDN. If you enter an IP address or range such as 192.168.1.1-20, Nessus will try to query using the IP address or IP range of the target system(s) in the CyberArk **Address** value. If the target system uses FQDN and can be resolved, then it will be contacted.
2. If the target value fails, Nessus will then look to see if there is a domain value (for a Windows system). If a domain value is present, Nessus will query CyberArk using the domain value for the address value to attempt to use domain credentials.
3. If the configured target value and the domain value both fail, Nessus will then pull the IP address of the system. If the IP address does not match one of the IP addresses supplied in the target list, Nessus will then query CyberArk using the IP address of the target itself. This is checked against the target value in the configuration to prevent querying CyberArk twice with the same value.

Retrieving Addresses to Scan from CyberArk

Nessus is able to use a feature in CyberArk to pull a list of targets to scan. Below is a description of how to pull the target system values and how to use them.

> **Note:** The following method of target address retrieval cannot be done from the default administrator account. You must create an account that is a member of the PVWAMonitor group to generate the following reports.

1. Click on Report at the top of the CyberArk Enterprise Password Vault web interface.
2. Click **Generate Report** at the top of the Report page.
3. Choose **Privileged Account Inventory**.
4. Click **Next**.
5. Specify the search parameters for the systems you want to scan.
6. Click **Next**.
7. Click **Finish**.
8. Download the CSV or XLS report.
9. Confirm the targets for Nessus to scan.
10. Confirm the values can all be resolved by Nessus.
11. Copy the values from the **Target system address** column.
12. Enter the values into Nessus. Either:
    a. Paste the values from addresses into the target list in Nessus.
    b. Paste the values into a file and use a file target list in Nessus.

Debugging CyberArk

To enable debugging when you configure a scan in Nessus, go to **Settings->Advanced->Debug Settings** and Check **Enable plugin debugging**. If an issue is found, review the results of plugin **Debugging Log Report** (84239). If debug output for the system exists in the debug log, one or more of the following files will be present:

- logins.nasl: Used for Windows credentials. Shows higher level failures in Windows authentication
- logins.nasl~CyberArk: Used to output specific CyberArk- related debug information
- ssh_settings: Used for SSH credentials. Shows higher level failures in SSH authentication
- ssh_settings~CyberArk: Used to output specific CyberArk-related debug information

Example of output:

```
[2015-11-17 22:17:04] HTTP/1.1 500 Internal Server Error returned
[2015-11-17 22:17:04] HTTP 500 : Server was unable to process request. ---
&gt; APPAP004E Password object matching query [Safe=Unix Account-
s;UserName=credtester;Folder=Root;Address=172.26.22.26] was not found (Dia-
gnostic Info: 5). Please check that there is a password object that
answers your query in the Vault and that both the Provider and the applic-
ation user have the appropriate permissions needed in order to use the
password.
[2015-11-17 22:17:04] HTTP/1.1 500 Internal Server Error returned
[2015-11-17 22:17:04] HTTP 500 : Server was unable to process request. ---
&gt; APPAP004E Password object matching query [Safe=Unix Account-
s;UserName=admin;Folder=Root;Address=172.26.22.26] was not found (Dia-
gnostic Info: 5). Please check that there is a password object that
answers your query in the Vault and that both the Provider and the applic-
ation user have the appropriate permissions needed in order to use the
password.
[2015-11-17 22:17:04] HTTP/1.1 500 Internal Server Error returned
[2015-11-17 22:17:04] HTTP 500 : Server was unable to process request. ---
&gt; APPAP229E Too many password objects matching query [Safe=Unix Account-
s;UserName=admin;Folder=Root] were found: (Safe=Unix
```

```
Accounts;Folder=Root;Object=Operating System-WinDesktopLocal-
172.26.22.205-admin, Safe=Unix Accounts;Folder=Root;Object=Operating Sys-
tem-WinDesktopLocal-172.26.22.66-admin and more. See trace log for more
information). (Diagnostic Info: 41)
```

The Nessus Priority Scanning for CyberArk section shows that a single system may send multiple requests that fail before finding a successful one. Because of this, the output to the debugging log may not show an issue with the scan, but it can be used as an audit trail if there is an issue. To address issues using the log, look for the parameters to match the intended query and see what error output was reported for that query. For example, if you intended to scan target 172.26.22.66 using parameters of (`Safe=Unix Accounts;UserName=admin;Folder=Root`), then you could discern from the log above that the reason the scan failed is because there were too many matching items to this query, and therefore no results were returned.

About Tenable

Tenable transforms security technology for the business needs of tomorrow through comprehensive solutions that provide continuous visibility and critical context, enabling decisive actions to protect your organization. Tenable eliminates blind spots, prioritizes threats, and reduces exposure and loss. With more than one million users and more than 20,000 enterprise customers worldwide, organizations trust Tenable for proven security innovation. Tenable's customers range from Fortune Global 500 companies, to the U.S. Department of Defense, to mid-sized and small businesses in all sectors, including finance, government, healthcare, higher education, retail, and energy. Transform security with Tenable, the creators of Nessus and leaders in continuous monitoring, by visiting tenable.com.