



# Tanium™ Direct Connect User Guide

Version 1.4.2

March 24, 2020

*The information in this document is subject to change without notice. Further, the information provided in this document is provided “as is” and is believed to be accurate, but is presented without any warranty of any kind, express or implied, except as provided in Tanium’s customer sales terms and conditions. Unless so otherwise provided, Tanium assumes no liability whatsoever, and in no event shall Tanium or its suppliers be liable for any indirect, special, consequential, or incidental damages, including without limitation, lost profits or loss or damage to data arising out of the use or inability to use this document, even if Tanium Inc. has been advised of the possibility of such damages.*

*Any IP addresses used in this document are not intended to be actual addresses. Any examples, command display output, network topology diagrams, and other figures included in this document are shown for illustrative purposes only. Any use of actual IP addresses in illustrative content is unintentional and coincidental.*

*Please visit <https://docs.tanium.com> for the most current Tanium product documentation.*

*Tanium is a trademark of Tanium, Inc. in the U.S. and other countries. Third-party trademarks mentioned are the property of their respective owners.*

*© 2020 Tanium Inc. All rights reserved.*

# Table of contents

---

- Direct Connect overview** ..... **5**
- Product integration ..... 5
- Tanium™ Performance ..... 5
- Tanium™ Protect ..... 5
- Tanium™ Reveal ..... 5
- Active endpoint sessions ..... 5
- Getting started** ..... **7**
- Direct Connect requirements** ..... **8**
- Tanium dependencies ..... 8
- Tanium Module Server ..... 9
- Endpoints ..... 9
- Supported operating systems ..... 9
- Host and network security requirements ..... 9
- Ports ..... 9
- Security exclusions ..... 10
- Zone proxy server requirements ..... 11
- User role requirements ..... 12
- Installing Direct Connect** ..... **14**
- Before you begin ..... 14
- Import and configure Direct Connect with default settings ..... 14
- Import and configure Direct Connect with custom settings ..... 15
- Configure the Direct Connect action group ..... 15
- Configure the service account ..... 15

---

Configure Endpoint Connection settings .....	15
Configure certificates .....	16
Configure Zone Proxies .....	17
Before you begin .....	17
Install and configure the Direct Connect Zone Proxy .....	18
Upgrade Direct Connect .....	21
Verify Direct Connect version .....	21
What to do next .....	21
<b>Reviewing active endpoint sessions .....</b>	<b>22</b>
<b>Testing direct endpoint connections .....</b>	<b>23</b>
Test a direct endpoint connection .....	23
<b>Troubleshooting Direct Connect .....</b>	<b>24</b>
Generate a support package .....	24
Change the logging level .....	24
Troubleshoot endpoint connection issues .....	24
Uninstall Direct Connect .....	25
Remove Direct Connect content and tools from endpoints .....	25
Remove the Direct Connect solution from the Tanium Module Server .....	26

# Direct Connect overview

Direct Connect provides a communication channel for other Tanium™ modules and a central location for configuring and administering direct endpoint connections across modules.

With Direct Connect, you can configure the connection settings that are shared by Tanium modules for establishing direct endpoint connections. Since Direct Connect uses mutual authentication, both IP addresses and self-signed certificates are supported.

## Product integration

### Tanium™ Performance

Use Direct Connect with Performance to view historical process-level data from a single endpoint for analysis and troubleshooting. For more information, see [Performance User Guide: Connecting directly to endpoints](#).

### Tanium™ Protect

Protect encryption management policies use Direct Connect to securely retrieve encryption keys from the endpoint. For more information see [Protect User Guide: Encryption management](#).

### Tanium™ Reveal

Reveal uses Direct Connect to view files on endpoints that match configured rules and patterns. For more information, see [Reveal User Guide: Investigating rule matches](#) and [Reveal User Guide: Validating pattern matches](#).

## Active endpoint sessions

You can review open and pending endpoint sessions across Tanium modules. Use active endpoint connections to see the active connections on the server.

*This documentation may provide access to or information about content, products (including hardware and software), and services provided by third parties ("Third Party Items"). With respect to such Third Party Items, Tanium Inc. and its affiliates (i) are not responsible for such items, and expressly disclaim all warranties and liability of any kind related to such Third Party Items and (ii) will not be responsible for any loss, costs, or damages incurred due to your access to or use of such Third Party Items unless expressly set forth otherwise in an applicable agreement between you and Tanium.*

*Further, this documentation does not require or contemplate the use of or combination with Tanium products with any particular Third Party Items and neither Tanium nor its affiliates shall have any responsibility for any infringement of intellectual property rights caused by any such combination. You, and not Tanium,*

*are responsible for determining that any combination of Third Party Items with Tanium products is appropriate and will not cause infringement of any third party intellectual property rights.*

# Getting started

1. Install and configure Direct Connect. For more information, see [Installing Direct Connect on page 14](#).
2. Provide configuration settings for connecting to endpoints. For more information, see [Installing Direct Connect on page 14](#).

# Direct Connect requirements

Review the requirements before you install and use Direct Connect.

## Tanium dependencies

Make sure that your environment meets the following requirements.

Component	Requirement
Tanium™ Core Platform	<ul style="list-style-type: none"> <li>• 7.2.314.2831 or later</li> <li>• 7.3.314.3668 or later</li> <li>• 7.4.1.1939 or later</li> </ul>
Tanium™ Appliance	<p>(Optional) If you are using a Tanium Appliance for your Zone Server, you must use Tanium operating system (TanOS) 1.5.2 or later.</p> <ul style="list-style-type: none"> <li>• You must use the TanOS shell to install the Direct Connect Zone Proxy on TanOS 1.5.2 - 1.5.4.</li> <li>• You can install the Direct Connect Zone Proxy through the Tanium Operations menu on the Zone Server appliance on TanOS 1.5.5 and later. For more information, see <a href="#">Appliance Deployment Guide: Install the Direct Connect Zone Proxy</a>.</li> </ul>
Tanium™ Client	<ul style="list-style-type: none"> <li>• 7.2.314.3211 or later</li> <li>• 7.4.1.1955 or later</li> </ul>
Tanium™ products	<p>The following modules are optional, but Performance requires the specified minimum versions to work with them:</p> <ul style="list-style-type: none"> <li>• <b>Tanium Protect:</b> If you install Direct Connect 1.3.x or later for use with Protect, you must use Protect 2.1.1 or later.</li> </ul> <p>If you are using any of the following Tanium™ modules that use the Tanium™ Client Recorder Extension, you must use the specified versions:</p> <ul style="list-style-type: none"> <li>• Tanium™ Integrity Monitor 1.7.0.0035 or later</li> <li>• Tanium™ Map 1.1.1.0006 or later</li> <li>• Tanium™ Threat Response 1.2.0.0037 or later</li> <li>• Tanium™ Trace 2.9.0.0035 or later</li> </ul>



## Tanium Module Server

Direct Connect is installed and runs as a service on the Module Server. The impact on the Module Server is minimal and depends on usage.

## Endpoints

### Supported operating systems

The following endpoint operating systems are supported with Direct Connect.

- Windows
- Linux
- macOS

For a list of specific operating system versions, see [Tanium Client User Guide: Host system requirements](#).

## Host and network security requirements

Specific ports are needed to run Direct Connect.

### Ports

The following ports are required for Direct Connect communication.

Component	Port	Direction	Purpose
Module Server	17475	Inbound	Connecting to the Module Server for direct connections to endpoints.

Component	Port	Direction	Purpose
Zone Server <sup>1</sup>	17486	Inbound	The binding port that is used by the Zone Server for endpoint connections. The default port number is 17486. If needed, you can specify a different port number when you configure the Zone Proxy.
	17487	Inbound (Module Server to Zone Server)	The binding port that is used by the Zone Server for module server connections. The default port number is 17487. If needed, you can specify a different port number when you configure the Zone Proxy.
	17488	Inbound (Module Server to Zone Server)	The Direct Connect Zone Proxy installer automatically opens port 17488 on the Zone Server to allow communication between the Zone Server and the Module Server.

<sup>1</sup> These ports are required only when you use a Zone Server.

## Security exclusions

If security software is in use in the environment to monitor and block unknown host system processes, your security administrator must create exclusions to allow the Tanium processes to run without interference.

**Table 1: Direct Connect security exclusions**

Target Device	Process
Windows endpoints	<Tanium Client>\TaniumClientExtensions.dll
	<Tanium Client>\TaniumClientExtensions.dll.sig
	<Tanium Client>\extensions\TaniumDEC.dll
	<Tanium Client>\extensions\TaniumDEC.dll.sig

Target Device	Process
macOS endpoints	<Tanium Client>/libTaniumClientExtensions.dylib
	<Tanium Client>/libTaniumClientExtensions.dylib.sig
	<Tanium Client>/extensions/libTaniumDEC.dylib
	<Tanium Client>/extensions/libTaniumDEC.dylib.sig
Linux endpoints	<Tanium Client>/libTaniumClientExtensions.so
	<Tanium Client>/libTaniumClientExtensions.so.sig
	<Tanium Client>/extensions/libTaniumDEC.so
	<Tanium Client>/extensions/libTaniumDEC.so.sig

## Zone proxy server requirements

If you want to use Direct Connect to connect to endpoints that route to the module server through a Zone Server, you must install and configure the Direct Connect Zone Proxy on that Zone Server. For more information, see [Configure Zone Proxies](#).

**IMPORTANT:** For best results, do not use a load balancer in front of your Zone Server. If you must use a load balancer, it must be configured for persistent TCP connections and the port that you configure in the Direct Connect Zone Proxy for the **Endpoint Inbound Port** must be open on the load balancer. By default, this port is 17486.

## User role requirements

**Table 2: Tanium Direct Connect User Role Privileges**

Permission	Direct Connect Administrator	Direct Connect Read Only User	Direct Connect Service Account	Direct Connect User
<b>Show Direct Connect</b> Allows users to access the Direct Connect workbench	✓	✓	✗	✓
<b>Direct Connect Session Read</b> Allows users to view endpoint connections	✓	✓	✗	✓
<b>Direct Connect Session Write</b> Allows users to create and manage endpoint connections	✓	✗	✗	✓
<b>Direct Connect Settings Read</b> Allows users to view Direct Connect settings	✓	✓	✗	✓
<b>Direct Connect Settings Write</b> Allows users to modify Direct Connect settings	✓	✗	✗	✗
<b>Direct Connect Logs Read</b> Allows users to view the Direct Connect logs	✓	✗	✗	✓
<b>Direct Connect Cron Exec</b> Allows performing service account work	✗	✗	✓	✗

**Table 3: Provided Advanced user role permissions for Tanium 7.1.314.3071 or later**

Permission	Content Set for Permission	Direct Connect Administrator	Direct Connect Read Only User	Direct Connect Service Account	Direct Connect User
Read Sensor	Reserved	✓	✓	✗	✓
Read Sensor	Base	✓	✗	✗	✓
Read Sensor	Direct Connect	✓	✓	✓	✓
Read Action	Direct Connect	✓	✓	✓	✓
Read Own Action	Direct Connect	✓ <sup>1</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>
Write Action	Direct Connect	✓	✗	✓	✓
Show Preview	Direct Connect	✓ <sup>1</sup>	✗	✓ <sup>1</sup>	✓ <sup>1</sup>
Read Plugin	Direct Connect	✓ <sup>1</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>
Execute Plugin	Direct Connect	✓	✓	✓	✓
Read Package	Direct Connect	✓ <sup>1</sup>	✓	✓ <sup>1</sup>	✓ <sup>1</sup>
Write Package	Direct Connect	✓	✗	✓	✓
Read Saved Question	Reserved	✓	✓	✓	✓
Read Saved Question	Direct Connect	✓	✓	✓	✓

<sup>1</sup> Denotes a provided permission.

For more information and descriptions of content sets and permissions, see the [Tanium Core Platform User Guide: Users and user groups](#).

# Installing Direct Connect

Use the **Tanium Solutions** page to install Direct Connect and choose either automatic or manual configuration:

- **Automatic configuration with default settings** (Tanium Core Platform 7.4.2 or later only): Direct Connect is installed with any required dependencies and other selected products. After installation, the Tanium Server automatically configures the recommended default settings. This option is the best practice for most deployments. For details about the automatic configuration for Direct Connect, see [Import and configure Direct Connect with default settings on page 14](#).
- **Manual configuration with custom settings:** After installing Direct Connect, you must manually configure required settings. Select this option only if Direct Connect requires settings that differ from the recommended default settings. For more information, see [Import and configure Direct Connect with custom settings on page 15](#).

## Before you begin

- Read the [Release Notes](#).
- Review the [Direct Connect requirements on page 8](#).
- If you are upgrading from a previous version, see [Upgrade Direct Connect](#).

## Import and configure Direct Connect with default settings

When you import Direct Connect with automatic configuration, the following default settings are configured:

- The Direct Connect service account is set to the account that you used to import the module.
- The Direct Connect action group is set to the computer group `All Computers`.

To import Direct Connect and configure default settings, be sure to select the **Apply Tanium recommended configurations** check box while performing the steps in [Tanium Console User Guide: Manage Tanium modules](#). After the import, verify that the correct version is installed: see [Verify Direct Connect version on page 21](#).

## Import and configure Direct Connect with custom settings

To import Direct Connect without automatically configuring default settings, be sure to clear the **Apply Tanium recommended configurations** check box while performing the steps in [Tanium Console User Guide: Manage Tanium modules](#). After the import, verify that the correct version is installed: see [Verify Direct Connect version on page 21](#).

### Configure the Direct Connect action group


The action group defines the set of endpoints to which you are deploying the Direct Connect packages. By default, the **Computer Group Targets** setting for the Direct Connect action group is set to **No Computers**. You can set the action group to **All Computers** or any computer groups that you have defined.

1. From the Direct Connect **Home** page, in the **Configuration** section, click the **Configure Action Group** step and click **Configure Action Group**.
2. Select the computer group for the group of endpoints that you want to use for Direct Connect. Click **Save**.

### Configure the service account

The Direct Connect service account runs background processes for the Direct Connect service. The credentials that you provide must be reconfigured after each upgrade of Direct Connect. The Direct Connect service account should have the **Direct Connect Service Account** role.

1. From the Direct Connect **Home** page, in the **Configuration** section, click the **Configure Service Account** step and click **Configure Service Account**.
2. Enter the Tanium credentials and click **Save**.

**Note:** You can also set or update the service account from the Direct Connect settings. Click Settings , and update the service account settings on the **Service Account** tab. Click **Save**.

### Configure Endpoint Connection settings

Specify Endpoint Connection settings to define the domain name to use to connect to the Tanium Module Server, certificates to authenticate connections to the Tanium Module server and endpoints, and the port to use for connections.

1. From the Direct Connect **Home** page, in the **Configuration** section, click the **Configure Endpoint Connection** step and click **Configure Endpoint Connection**.
2. In the **Fully Qualified Domain Name** section, provide a domain name to use to connect to the Tanium Module server. The domain name that you provide must resolve to the Tanium Module Server from all endpoints in all direct endpoint connections. Direct Connect validates the name you provide to ensure the format. Verify the accuracy of the domain name you provide.
3. The **Port** is set to 17475 by default and cannot be modified. Make sure that incoming connections to this port are allowed by applicable firewall configurations.
4. In the **Action Lock** section, specify the behavior that you want for Direct Connect when action lock is enabled on endpoints:
  - **Block All Direct Connection Actions**
  - **Allow New Connections**
  - **Allow New Connections and Configuration Changes**

**Note:** For more information about action locks, see [Tanium Console User Guide: Managing action locks](#).


5. Click **Save**.

If the **Fully Qualified Domain Name** validates successfully, success messages display:  
The endpoint connection settings saved successfully.  
Content build is in progress. Connection settings will deploy to endpoints once complete.

If an error occurs, correct the fully qualified domain name and save again. If the information validates and saves successfully, packages for each supported operating system are created with the configuration information that is needed to use Direct Connect. These packages are distributed using a scheduled action to the Tanium Direct Connect action group.

## Configure certificates

Configure certificates to authenticate connections to the Tanium Module server and endpoints.

1. From the Direct Connect **Home** page, click Settings . Click the **Certificates** tab.
2. In the **Server Certificate** section, the **Install a new certificate** option is selected by default and cannot be modified during the initial configuration. A certificate is generated and installed to authenticate the server when an endpoint starts a



connection.

After a certificate is installed on the server, the expiration date for the certificate displays. If a certificate is installed, you can select **Renew** to renew the certificate.

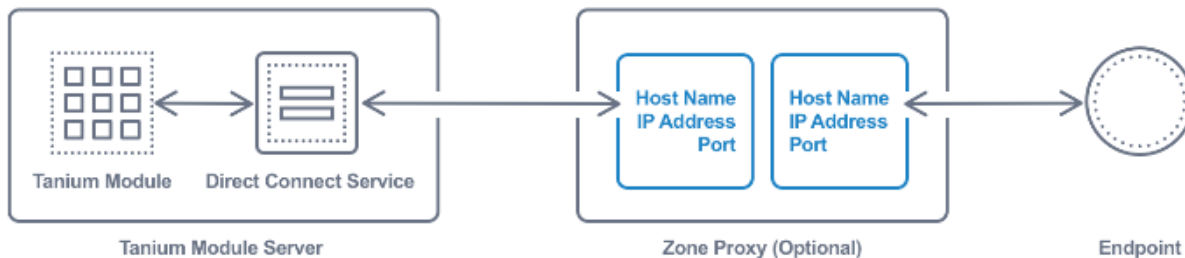
3. In the **Client Certificate** section, the **Install a new certificate** option is selected by default and cannot be modified during the initial configuration. A certificate is generated, installed, and deployed to endpoints to authenticate that the endpoint is a Tanium client with permission to connect to the server.

After a certificate is installed, the expiration date for the certificate displays. If a certificate is installed, you can select **Renew** to renew the certificate.

4. Click **Save**.

### Configure Zone Proxies

You can optionally configure a zone proxy to enable connections to endpoints through a Tanium™ Zone Server. This configuration is required to use Direct Connect with endpoints that connect to the Module Server through a Zone Server.



**Figure 1: Zone Proxy Server Overview**

**IMPORTANT:** For best results, do not use a load balancer in front of your Zone Server. If you must use a load balancer, it must be configured for persistent TCP connections and the port that you configure in the Direct Connect Zone Proxy for the **Endpoint Inbound Port** must be open on the load balancer. By default, this port is 17486.

#### BEFORE YOU BEGIN

Work with your TAM to obtain the Direct Connect Zone Proxy Installer file for your Zone Server operating system.

## INSTALL AND CONFIGURE THE DIRECT CONNECT ZONE PROXY

1. Copy the Direct Connect Zone Proxy Installer to the Zone Server.
2. Run the Direct Connect Zone Proxy Installer on the Zone Server to install the Direct Connect Zone Proxy.

**Note:**

- You must use the TanOS shell to install the Direct Connect Zone Proxy on TanOS 1.5.2 - 1.5.4.
- You can install the Direct Connect Zone Proxy through the Tanium Operations menu on the Zone Server appliance on TanOS 1.5.5 and later. For more information, see [Appliance Deployment Guide: Install the Direct Connect Zone Proxy](#).

The installation process generates the `Provision Secret and Certificate` (referred to as the **Provision Payload**).

The provision payload is stored in `provision.txt`, which is located in the following directories:

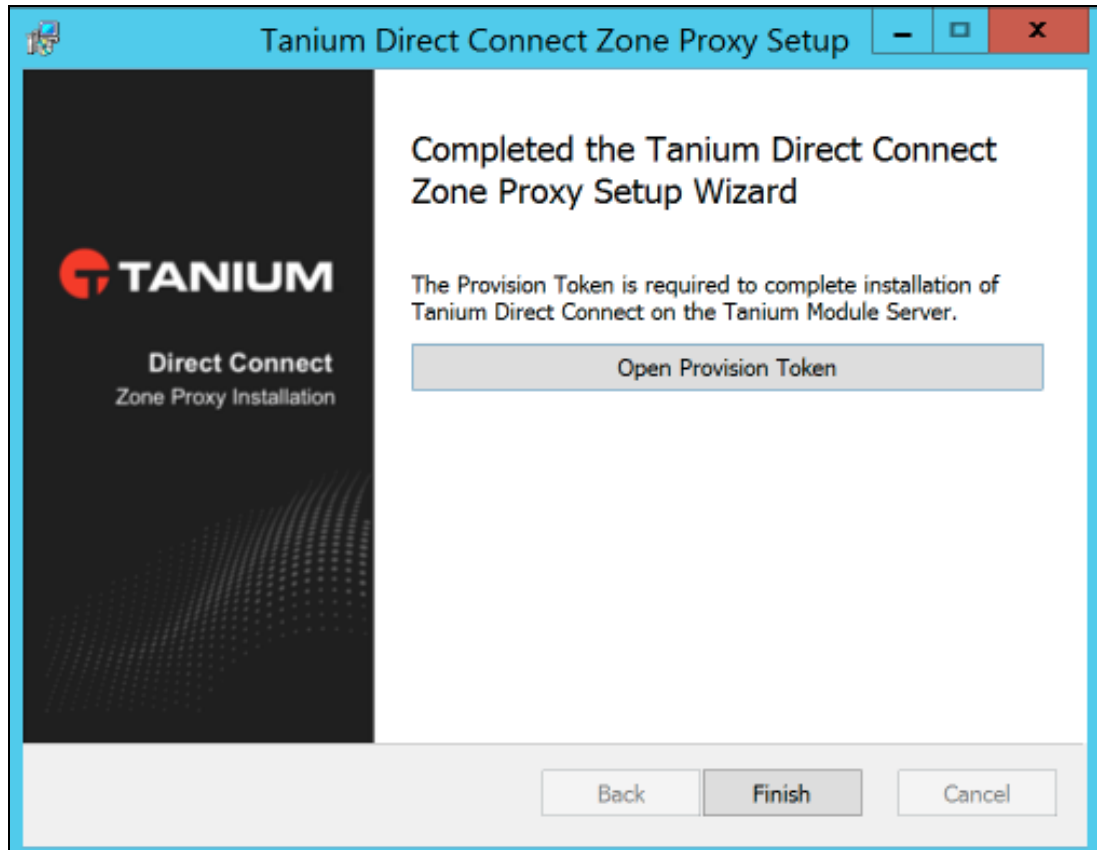
- **TanOS:** `<Tanium Install Directory>`

`/TaniumDirectConnectZoneProxy/settings/PROVISION.txt`

During the installation process on TanOS, the `Provision Secret and Certificate` also display in the console where you run the installation. You can copy the `Provision Secret and Certificate` from the console or from the `PROVISION.txt` file.

- **Windows:** `<Tanium Install Directory>\Tanium Direct Connect Zone Proxy\settings\PROVISION.txt`

At the end of the installation on Windows, click **Open Provision Token** to open `PROVISION.txt`. You can copy the `Provision Secret and Certificate` from this file.



Either copy these during the install or retrieve them from `provision.txt` for use during the subsequent configuration steps. For example:

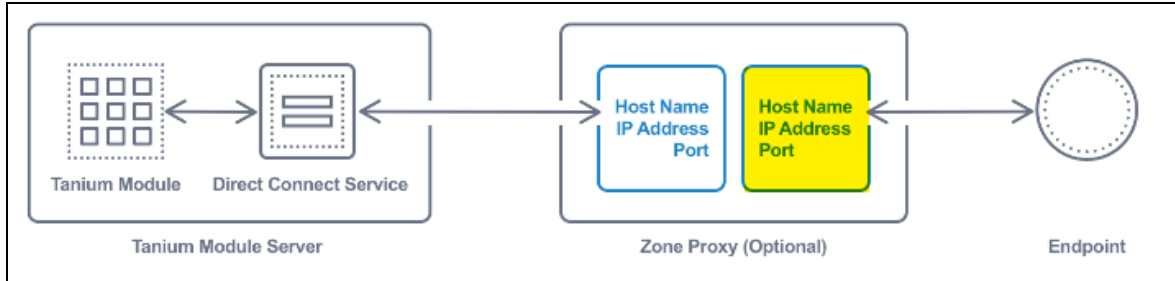
```
-----BEGIN PROVISION SECRET-----  
+EPQ1EuU1oBizbexjtshLuoxhNHA0JuMeOAEwFq/OKpEk6+jUJbFPx8Do1+vL22F  
geNrd4/+wbsZwTgL3EUsqg==  
-----END PROVISION SECRET-----  
-----BEGIN CERTIFICATE-----  
MIIC7TCCAdWgAwIBAgIgwAwI2sO+h6dq/XIroZ1vK96/sHqxcMRWvkLXFrZrb5pAw  
r3AxeSY2NpzDmVcQFN1YUhyR8QOr5hRE7AF9gGKDei6A  
-----END CERTIFICATE-----
```

If needed, you can rerun the installer to generate a new provision payload.

After the installation completes and you save the provision payload (provision secret and certificate), return to Direct Connect.

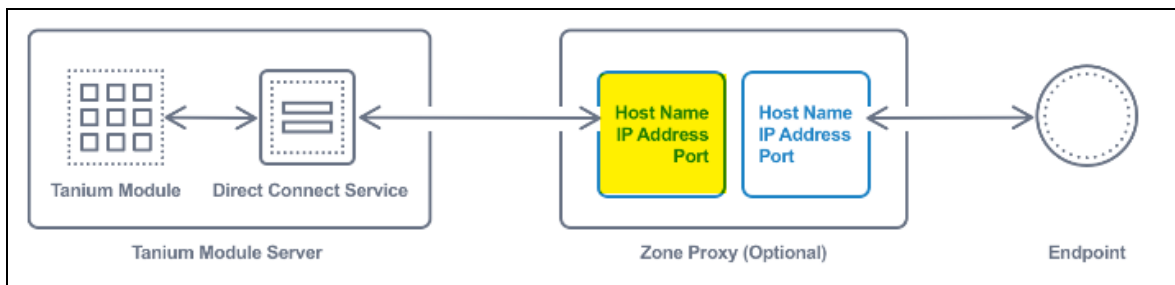
3. From the Direct Connect menu, click **Zone Proxies**.
4. Click **Add Zone Proxy**.

5. Specify the Zone Proxy **Name**.
6. Paste the `Provision Secret` and `Certificate` that you saved during the installation into the **Provision Payload** field.
7. Configure the **Endpoint Connection to the Zone Server**:



- a. Specify the **Endpoint Target Hostname**.  
This value is the hostname, fully qualified domain name, or IP address that is used by endpoints to connect to the Zone Server .
- b. Specify the **Endpoint Inbound IP Address**.  
This value is the binding IP address that is used by the Zone Server for endpoint connections. Use this value to specify the IPv4 interface on the Zone Server to bind to for endpoint connections on multihomed servers.
- c. Specify the **Endpoint Inbound Port**.  
This value is the binding port that is used by the Zone Server for endpoint connections. The default value is 17486.

8. Configure the **Tanium Module Server Connection to the Zone Server**:



- a. Specify the **Module Server Target Hostname**.  
This value is the hostname, fully qualified domain name, or IP address that is used by the Module Server to connect to the Zone Server.
- b. Specify the **Module Server Inbound IP Address**.  
This value is the binding IP address that is used by the Zone Server for module server connections. Use this value to specify the IPv4 interface on the Zone Server to bind to for module server connections on multihomed servers.

**Note:** In most environments, this value is not the same as the IP address of the Module Server.

- c. Specify the **Module Server Inbound Port**.

This value is the binding port that is used by the Zone Server for module server connections. The default value is 17487.

9. Click **Save**.

The status of the Zone Proxy displays in the **Status** column. When the configuration is complete, the status is **Connected**.

Due to the provisioning process, you cannot modify existing Zone Proxy configurations. If needed, you can delete the configuration and recreate it with different values. To delete a configuration, hover over the configuration and click **Delete**.


You can also see the status and activity for existing Zone Proxies from this page.

## Upgrade Direct Connect

For the steps to upgrade Direct Connect, see [Tanium Console User Guide: Manage Tanium modules](#). After the upgrade, verify that the correct version is installed: see [Verify Direct Connect version on page 21](#).

## Verify Direct Connect version

After you import or upgrade Direct Connect, verify that the correct version is installed:

1. Refresh your browser.
2. From the Main menu, click **Direct Connect** to open the Direct Connect **Home** page.
3. To display version information, click Info .

## What to do next

See [Getting started on page 7](#) for more information about using Direct Connect.

# Reviewing active endpoint sessions

Use Direct Connect to gain visibility into all the connections between endpoints and the Tanium Module Server. The connections that Direct Connect displays are created by Tanium Modules that use direct connection capabilities.

1. From the Direct Connect menu, select **Active Endpoint Sessions**. All current sessions across Tanium modules display in the results grid.
2. The results grid displays these details for each active session:
  - **Host Name:** Endpoint computer name.
  - **Tanium Client ID:** Endpoint ID that is used for the connection.
  - **IP Address:** Endpoint IP Address.
  - **Action Status:** Current status of the `Open Session` action. Possible values are `Creating`, `Downloading`, `Running`, `Error`, `Succeeded`, `Not Succeeded`, `Complete`, or `Closed`.
  - **Session Status:** Current status of the session.
  - **Duration:** Time passed since the connection was first established from the endpoint.
  - **Last Message:** Time passed since the last message was received from the endpoint.

# Testing direct endpoint connections

Use Direct Connect to test connections to endpoints without formally creating a connection. Test connections are a helpful tool to ensure that users of Tanium modules can make connections to endpoints and to troubleshoot connection issues if they occur.

## Test a direct endpoint connection

1. From the Direct Connect Main menu, click **Test Connection**.
2. Enter the IP address or Computer Name (exactly as it appear in the Computer Name sensor) for the endpoint to which you want to test a connection. Click **Search**.



The screenshot shows the 'Test Connection' interface in the Tanium Direct Connect application. At the top, there is a breadcrumb trail: 'Tanium > Direct Connect >'. Below this, the title 'Test Connection' is displayed. Underneath the title is a section titled 'Test a Direct Connection'. This section contains a text input field with the placeholder text 'Tanium Client IP address or Computer Name (exactly how it appears in Computer Name sensor)'. To the right of the input field is a blue button labeled 'Search'.


If the test connection was unsuccessful, see [Troubleshooting Direct Connect on page 24](#).

# Troubleshooting Direct Connect

To collect and send information to Tanium for troubleshooting, collect logs and other relevant information.


## Generate a support package

Collect information about the current state of the Direct Connect service to use for troubleshooting. The information is saved as a ZIP file that you can download with your browser.

1. From the Direct Connect **Home** page, click Help , then the **Troubleshooting** tab.
2. Click **Generate Support Package**.
3. When the package is generated, the **Download Support Package** button displays. Click this button to download the ZIP file to the local download directory.
4. Attach the ZIP file to your Tanium Support case form or send it to your TAM.

## Change the logging level

If you need greater verbosity in the logs, you can change the log level.

1. From the Direct Connect **Home** page, click Help , then the **Troubleshooting** tab.
2. Adjust the **Log Level** as needed.  
Possible values are: **trace**, **debug**, **info** (default), **warn**, **error**, **fatal**.

**Note:** This update changes the log level for future logging. It does not affect the data that is available in the support package for previously logged events.

## Troubleshoot endpoint connection issues

If you are unable to establish an endpoint connection, check the status of the `Deploy Direct Connect - Open Session - operating system - session ID` action from the **Action History** page.

If the action ran, but was not successful, check the `<Tanium Client>/Logs/extensions0.txt` log on the endpoint. Make sure that the endpoint can connect to the Module Server using the **Fully Qualified Domain Name** and **Port** that you configured on the **Endpoint Connection** tab in the Direct Connect settings.



If the action did not run on the endpoint, make sure that the endpoint is a member of the Direct Connect action group and has the latest tools installed.

The statuses of the **Deploy Direct Connect - Tools** and **Deploy Direct Connect - Configure Extension** saved actions might also provide useful troubleshooting information.

## Uninstall Direct Connect

If you need to uninstall Direct Connect, first clean up the Direct Connect artifacts on endpoints and then uninstall Direct Connect from the server.

**CAUTION:** Direct Connect is a shared service that is used by several Tanium solutions. If Direct Connect is in use by another Tanium solution, uninstalling Direct Connect or removing the tools from endpoints could have unintended consequences. Consult your TAM to determine whether uninstalling Direct Connect is advisable in your environment.

## Remove Direct Connect content and tools from endpoints

Each operating system has its own remove action. Therefore, you must select a group of endpoints for cleanup that has the same operating system.

1. From the Main menu, click **Interact**.
2. Ask a question to target the endpoints from which you want to remove Direct Connect content and tools. For example, `Get Direct Connect - Tools Version from all machines`.
3. Select the row for the endpoints from which you want to remove the Direct Connect tools (either **Windows Package Installed**, **Mac Package Installed** or **Linux Package Installed**).
4. Click **Deploy Action**.
5. On the **Deploy Action** page, enter `Direct Connect - Remove` in the **Enter package name here** field.
6. Select the **Direct Connect - Remove Tools [operating system]** action, where *operating system* matches the operating system of the endpoints that you selected.
7. Click **Show preview to continue**.
8. A results grid displays at the bottom of the page showing you the targeted endpoints for your action. If you are satisfied with the results, click **Deploy Action**.

## Remove the Direct Connect solution from the Tanium Module Server

1. From the Main menu, click **Tanium Solutions**.
2. In the **Tanium Content** section, select the **Direct Connect** row.
3. Click **Uninstall Solution**. Click **Uninstall** to complete the process.