Tanium™ Direct Connect User Guide

Version 1.2.1

December 10, 2019

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.

Table of contents

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. Direct Connect manages the fully qualified domain name (FQDN) and port information that direct endpoint connections use, and generates and installs certificates that authenticate connections between endpoints and the Tanium™ Module Server.

Product integration

Tanium™ Performance

Use the Direct Connect service with Performance to view historical process-level data from a single endpoint for analysis and troubleshooting.

Tanium™ Protect

Protect encryption management policies use Direct Connect to securely retrieve encryption keys from the endpoint.

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.

Getting started

1. Install Tanium Direct Connect. For more information, see Installing Direct Connect on page 12.
2. Provide configuration settings for connecting to endpoints. For more information, see Set up Direct Connect on page 12.

Direct Connect requirements

Review the requirements before you install and use Direct Connect.

Tanium dependencies

In addition to a license for Direct Connect, make sure that your environment meets the following requirements.

Component	Requirement
Platform	Version 7.2.314.2831 or later. For more information, see Tanium Core Platform Installation Guide: Installing Tanium Server.
Tanium™ Appliance	(Optional) If you are using a Tanium Appliance for your Zone Server, you must use Tanium operating system (TanOS) 1.5.2 or later.
Tanium Client	7.2.314.3211 or later
Tanium™ solutions that use the Tanium™ Client Recorder Extension	If you are using any of the following Tanium solutions that use the endpoint recorder, you must use the specified versions: • Tanium™ Integrity Monitor 1.7.0.0035 or later • Tanium™ Map 1.1.1.0006 or later • Tanium™ Threat Response 1.2.0.0037 or later • Tanium™ Trace 2.9.0.0035 or later

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

Direct Connect supports Windows, Linux, and macOS endpoints.

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.
Zone Server[1]	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	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	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.

[1] These ports are required only when you use a Zone Server.

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

Use role-based access control (RBAC) permissions to restrict access to Direct Connect functions.

Table 1: Tanium Direct Connect User Role Privileges

Permission	Direct Connect Administrator	Direct Connect Read Only User	Direct Connect Service Account	Direct Connect User
Direct Connect API Read Allows viewing of the Direct Connect workbench	✓[1]	✓	✓[1]	✓[1]
Direct Connect API Write Perform operations using the API	✓[1]	✗	✓[1]	✓
Direct Connect Cron Exec Allows performing service account user work	✓	✗	✓	✗
Direct Connect Endpoint Config Read Allows viewing endpoint configuration settings	✓[1]	✓	✗	✓
Direct Connect Endpoint Config Write Allows modification of endpoint configuration settings	✓	✗	✗	✗
Direct Connect Endpoint Connect Allows creating and using endpoint connections	✓	✗	✗	✓
Direct Connect Logs Read Allows viewing logs	✓	✓	✗	✓

Permission	Direct Connect Administrator	Direct Connect Read Only User	Direct Connect Service Account	Direct Connect User
Direct Connect Service User Read Allows viewing the service account user	✓[1]	✓	✗	✓
Direct Connect Service User Write Allows modification of the service account user	✓	✗	✗	✗
Direct Connect Session Read Allows viewing endpoint connections	✓[1]	✓[1]	✓[1]	✓[1]
Direct Connect Session Write Allows managing endpoint connections	✓	✗	✗	✗

[1] Denotes a provided permission.

Table 2: 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	✓[1]	✓[1]	✓[1]	✓[1]
Write Action	Direct Connect	✓	✗	✓	✓

Permission	Content Set for Permission	Direct Connect Administrator	Direct Connect Read Only User	Direct Connect Service Account	Direct Connect User
Show Preview	Direct Connect	✓[1]	✗	✓[1]	✓[1]
Read Plugin	Direct Connect	✓[1]	✓[1]	✓[1]	✓[1]
Execute Plugin	Direct Connect	✓	✓	✓	✓
Read Package	Direct Connect	✓[1]	✓	✓[1]	✓[1]
Write Package	Direct Connect	✓	✗	✓	✓
Read Saved Question	Reserved	✓	✗	✓	✓
Read Saved Question	Base	✓	✗	✗	✗
Read Saved Question	Direct Connect	✓	✓	✓	✓

[1] 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

You can install Direct Connect from the **Tanium Solutions** page.

Before you begin

- Read the Release Notes.
- Review the Direct Connect requirements on page 7.

Import Direct Connect

Import Direct Connect from the **Tanium Solutions** page.

1. In the **Tanium Content** section, select the **Direct Connect** row and click **Import Solution**.
2. In the **Content Import Preview** window, review the Tanium content that is being installed. Click **Import**.
3. After the installation process completes, refresh your browser.
4. From the Main menu, in the **Tanium Services** section, click **Direct Connect**. The Direct Connect **Home** page displays.

Verify installation

To verify that Direct Connect is installed, go to the **Supported Solutions** tab in the **Tanium Content** section of the **Tanium Solutions** page and check the **Imported Version**. To check the installed version from the Direct Connect **Home** page, click Info .

Set up Direct Connect

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 Cron Exec** permission.

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 **FQDN** 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 **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 **Install a new certificate** to generate and install a new certificate.

5. 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 **Install a new certificate** to generate and install a new certificate.
6. 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 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.

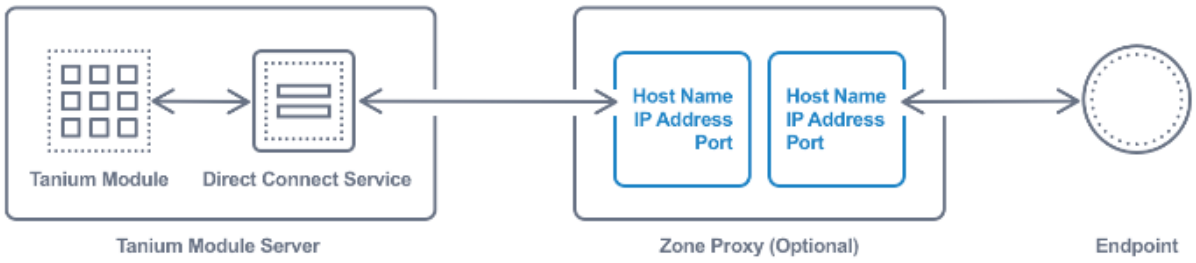


Figure 1: Zone Proxy Server Overview

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.

   During the installation process, the `Provision Secret` and `Certificate` (referred to as the **Provision Payload**) display in the console where you run the install file.

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

   - **Linux and TanOS**: *<Tanium Install Directory>*`/TaniumDirectConnectZoneProxy/settings/PROVISION.txt`
   - **Windows**: *<Tanium Install Directory>*`\Tanium Direct Connect Zone Proxy\settings\PROVISION.txt`

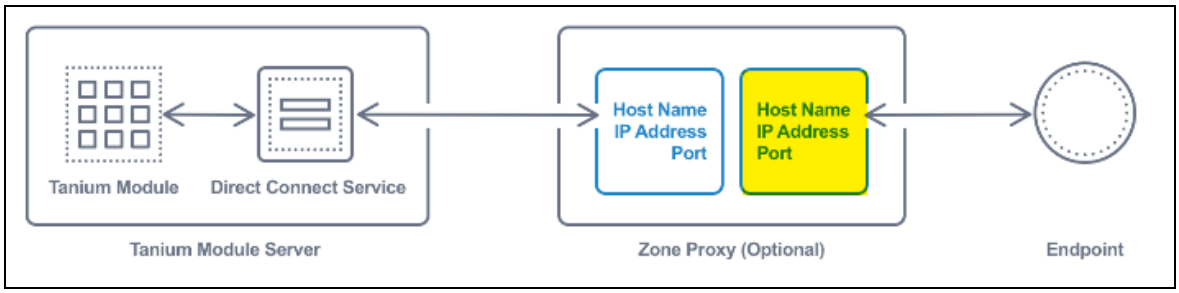
   Either copy these during the install or retrieve them from `provision.txt` for use during the subsequent configuration steps. For example:

   ```
   -----BEGIN PROVISION SECRET-----
    +EPQlEuU1oBizbexjtshLuoxhNHA0JuMeOAEwFq/OKpEk6+jUJbFPx8Do1+vL22F
    geNrd4/+wbsZwTgL3EUsqg==
    -----END PROVISION SECRET-----
    -----BEGIN CERTIFICATE-----
    MIIC7TCCAdWgAwIBAgIgAwi2sO+h6dq/XIroZ1vK96/sHqxcMRWvkLXFrZrb5pAw
    r3AxeSY2NpzDmVcQFNlYUhyR8QOr5hRE7AF9gGKDei6A
    -----END CERTIFICATE-----
   ```

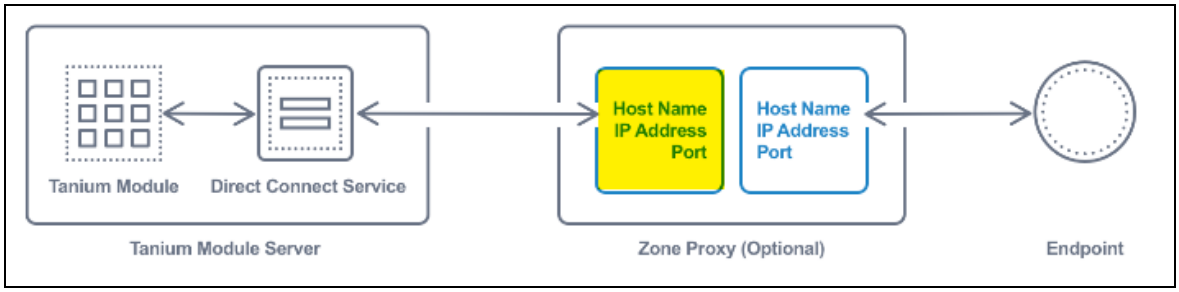
   If needed, you can rerun the installer to generate a new Provision Payload.

   After the installation completes and you save the provisioning payload (provision secret and certificate), return to Direct Connect.
3. From the Direct Connect **Home** page, click Settings ⚙.
4. Click the **Zone Proxies** tab and 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.
   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 port that is used by the zone server for module server connections.

   > **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 IP address 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**.

Upgrade Direct Connect

Upgrade Direct Connect to the latest version from the **Tanium Solutions** page.

1. From the Main menu, click **Tanium Solutions**.
2. Locate Direct Connect and click **Upgrade to X.X.X.XX**.
3. Click **OK**.
   The Import Solution window opens with a list of all the changes and import options.
4. Click **Proceed with Import** and enter your password.
   The installation and configuration process begins.
5. To confirm the upgrade, return to the **Tanium Solutions** page and check the **Installed: X.X.X.XX** version for Direct Connect.

> **Tip:** If the Direct Connect version is not updated, refresh your browser window.

What to do next

See Getting started on page 6 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.

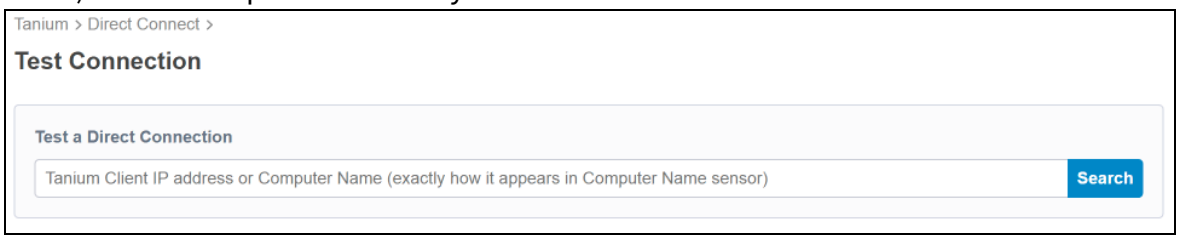
1. From the Direct Connect menu, click **Active Endpoint Sessions**. All current sessions across Tanium modules display in the results grid.
2. The results grid displays these details for each active session:
   - **Host Name**: Endpoint computer name.
   - **Tanium Client ID**: Endpoint ID that is used 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**.



If the test connection was unsuccessful, see Troubleshooting Direct Connect on page 20.

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.