

# Deployit Command Plugin Manual

Version 3.7.0

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# Preface

This document describes the functionality provided by the Command Plugin.

Refer to the *Deployit Reference Manual* for background information on Deployit and deployment concepts.

## Overview

As a system administrator, the need occasionally arises to execute adhoc scripts or OS commands on remote systems. The process usually entails having to manually login to each system, copy any required resources to said system and finally executing scripts/commands to process the resources or configure the remote system. The process is acceptable for a single system, but tends not to scale when performing the tasks on entire server farms. The manual intensive process becomes tedious and error prone. The Command Plugin helps with these tedious processes and significantly reduces the chances of errors.

A system administrator could also use the Command Plugin to reuse existing deployment scripts with Deployit, before choosing to move the deployment logic to a more reusable, easily maintainable plugin form.

## Features

- Execute an OS (Unix, Windows) command on a host
- Execute a script on a host
- Associate undo commands
- Copy associated command resources to a host

## Plugin Concepts

### Command

A Command encapsulates an OS specific command, as one would enter at the command prompt of a native OS command shell. The OS command is captured in the Command's `commandLine` property; e.g. 'echo hello >> /tmp/hello.txt'. The Command also has the capability of uploading any dependent files to the target system and make those available to the `commandLine` with the use of a placeholder; e.g. 'cat \${uploadedHello.txt} >> /tmp/hello.txt'.

### Undo Command

An undo Command has the same characteristics as a Command, except that it reverses the effect of the original Command it is associated with. An undo Command usually runs when the associated Command is undeployed or upgraded.

### Command Order

The order in which the Command is run in relation to other commands. The order allows for the chaining of commands to create a logical sequence of events. For example, an install tomcat command would execute before an install web application command, while a start tomcat command would be the last in the sequence.

## Requirements

This plugin requires:

- **Deployit:** version 3.5+

## Usage in Deployment Packages

Please refer to *Packaging Manual* for more details about the DAR packaging format.

## Sample DAR MANIFEST.MF entries defining a package that can (un)provision a tomcat server using an install and uninstall script

```

Manifest-Version: 1.0
Deployit-Package-Format-Version: 1.3
CI-Application: CommandPluginSample
CI-Version: 1.0

Name: install-tc-command
CI-type: cmd.Command
CI-order: 50
CI-commandLine: /bin/sh ${install-tc.sh} ${tomcat.zip}
CI-undoCommand: uninstall-tc-command
CI-dependencies-EntryValue-1: install-tc.sh
CI-dependencies-EntryValue-2: tomcat.zip
CI-name: install-tc-command

Name: uninstall-tc-command
CI-type: cmd.Command
CI-order: 45
CI-commandLine: /bin/sh ${uninstall-tc.sh}
CI-dependencies-EntryValue-1: uninstall-tc.sh
CI-name: uninstall-tc-command

Name: tomcat-6.0.32.zip
CI-name: tomcat.zip
CI-type: file.File

Name: install-tc.sh
CI-type: file.File
CI-name: install-tc.sh

Name: uninstall-tc.sh
CI-type: file.File
CI-name: uninstall-tc.sh

```

## Using the deployables and deployed

### Deployable vs. Container Table

The following table describes which deployable / container combinations are possible. Note that the CIs can only be targeted to containers derived from [Host](#).

Deployables	Containers	Generated Deployed
cmd.Command	overthere.Host	cmd.DeployedCommand

### Deployed Actions Table

The following table describes the effect a deployed has on its container.

Deployed	Create	Destroy	Modify
cmd.DeployedCommand	<ul style="list-style-type: none"> <li>Upload command resources to host</li> <li>Resolve command line placeholder references with absolute paths to the uploaded resource files on host</li> <li>Execute command line on host</li> </ul>	<ul style="list-style-type: none"> <li>Run the undo command associated with the deployed command, if exists. Actions are same as described for <i>Create</i></li> </ul>	<ul style="list-style-type: none"> <li>Run the undo command associated with the deployed command, if exists. Actions are same as described for <i>Create</i></li> <li>Run the modified command. Actions are same as described for <i>Create</i></li> </ul>

## Sample Usage Senario - Provision a Tomcat server

For illustration purposes, we take a simplistic view of installing Tomcat. In reality however, your installation of Tomcat would take on a far more comprehensive form.

Tomcat is distributed as a zip. For this example, we create an installation script to unzip the distribution on the host. The uninstall script simply shuts down a running Tomcat and deletes the installation directory.

### Create the installation script (install-tc.sh)

```
#!/bin/sh
set -e
if [ -e "/apache-tomcat-6.0.32" ]
then
    echo "/apache-tomcat-6.0.32 already exists. remove to continue."
    exit 1
fi
unzip $1 -d /
chmod +x /apache-tomcat-6.0.32/bin/*.sh
```

### Create the uninstall script (uninstall-tc.sh)

```
#!/bin/sh
set -e
/apache-tomcat-6.0.32/bin/shutdown.sh
rm -rf /apache-tomcat-6.0.32
```

### MANIFEST snippet defining the command to trigger the execution of the install script for the initial deployment

The following command will be executed at order 50 in the generated step list. '/bin/sh' is used on the host to execute the install script which takes a single parameter, the absolute path to the tomcat.zip on the host. When the command is undeployed, uninstall-tc-command will be executed.

```
Name: install-tc-command
CI-type: cmd.Command
CI-order: 50
CI-commandLine: /bin/sh ${install-tc.sh} ${tomcat.zip}
CI-undoCommand: uninstall-tc-command
CI-dependencies-EntryValue-1: install-tc.sh
CI-dependencies-EntryValue-2: tomcat.zip
CI-name: install-tc-command
```

### MANIFEST snippet defining the undo command to trigger the execution of the uninstall script for the undeploy

The undo command will be executed at order 45 in the generated step list. Note that it has a lower order than the install-tc-command. This ensures that the undo command will always run before the install-tc-command during an upgrade.

```
Name: uninstall-tc-command
CI-type: cmd.Command
CI-order: 45
CI-commandLine: /bin/sh ${uninstall-tc.sh}
CI-dependencies-EntryValue-1: uninstall-tc.sh
CI-name: uninstall-tc-command
```

See the Usage in Deployment Packages section for the complete MANIFEST.MF

## CI Reference

### Configuration Item Overview

## Deployable Configuration Items

CI	Description
<a href="#">cmd.Command</a>	Command specification that is executed on a host

## Deployed Configuration Items

CI	Description
<a href="#">cmd.DeployedCommand</a>	Command deployed to a Host

## Topology Configuration Items

CI	Description
<a href="#">overthere.CifsHost</a>	A machine that can be connected to using either WinRM or Telnet and can perform file manipulation via the CIFS protocol
<a href="#">overthere.LocalHost</a>	The machine on which the Deployit Server is running on
<a href="#">overthere.SshHost</a>	A machine that can be connected to using ssh
<a href="#">overthere.SshJumpstation</a>	A machine that can be used to create a tunneled connection to the destination host

## Virtual Topology Configuration Items

CI	Description
<a href="#">overthere.Host</a>	A machine that runs middleware, on which scripts can be executed, etc
<a href="#">overthere.HostContainer</a>	
<a href="#">overthere.Jumpstation</a>	Base class for jumpstations

## Configuration Item Details

### [cmd.Command](#)

<b>Hierarchy</b>	udm.BaseDeployable >> udm.BaseConfigurationItem
<b>Interfaces</b>	udm.Tagable, udm.Deployable, udm.ConfigurationItem

Command specification that is executed on a host

### Public Properties

**order** : INTEGER = 50

Order of the command

**commandLine** : STRING

Command line to execute on host. Dependent artifacts can be referred to using \${artifact name}.

**dependencies** : SET\_OF\_CI<file.File>

Artifacts that the command depends on

**runUndoCommandOnUpgrade** : BOOLEAN = true

Indicates whether the undoCommand should be run on an upgrade

**tags** : SET\_OF\_STRING

The tags to map deployables to containers.

**undoCommand** : CI<cmd.Command>

Command to execute when undeploying command


## cmd.DeployedCommand

**Hierarchy** udm.BaseDeployed >> udm.BaseConfigurationItem

**Interfaces** udm.Deployed, udm.ConfigurationItem

Command deployed to a Host

### Public Properties

 **container** : CI<udm.Container>

The container on which this deployed runs.

**order** : INTEGER = 50

Order of the command

**commandLine** : STRING

Command line to execute on host. Dependent artifacts can be referred to using \${artifact name}.

**dependencies** : SET\_OF\_CI<file.File>

Artifacts that the command depends on

**deployable** : CI<udm.Deployable>

The deployable that this deployed is derived from.

**rerunCommand** : BOOLEAN

Forces the command to be rerun.

**runUndoCommandOnUpgrade** : BOOLEAN

Indicates whether the undoCommand should be run on an upgrade

**undoCommand** : CI<cmd.Command>

Command to execute when undeploying command

## overthere.CifsHost

**Hierarchy** [overthere.Host](#) >> udm.BaseContainer >> udm.BaseConfigurationItem

**Interfaces** udm.Taggable, udm.ConfigurationItem, udm.Container, [overthere.HostContainer](#)

A machine that can be connected to using either WinRM or Telnet and can perform file manipulation via the CIFS protocol.

### Public Properties

**address** : [STRING](#)

Address of the host

**connectionType** : [ENUM \[TELNET, WINRM\\_HTTP, WINRM\\_HTTPS\]](#) = *TELNET*

Connection Type

**os** : [ENUM \[WINDOWS, UNIX\]](#)

Operating system

**password** : [STRING](#)

Password to use for authentication

**username** : [STRING](#)

Username to connect with

**cifsPort** : [INTEGER](#) = 445

Port on which the CIFS server runs

**jumpstation** : [CI<overthere.Jumpstation>](#)

If this host is not directly reachable, specify a jumpstation here which can be used to reach this host.

**port** : [INTEGER](#)

Port on which the Telnet or WinRM server runs

**tags** : [SET\\_OF\\_STRING](#)

The tags to map deployables to containers.

**temporaryDirectoryPath** : [STRING](#)

Directory into which temporary files are stored. Will be cleaned up when the connection is closed.



### Hidden Properties

**connectionTimeoutMillis** : *INTEGER = 1200000*

Connection Timeout Millis

**protocol** : *STRING = cifs*

Protocol

**tmpFileCreationRetries** : *INTEGER = 1000*

Tmp File Creation Retries

**winrmContext** : *STRING = /wsman*

Winrm Context

**winrmEnvelopSize** : *INTEGER = 153600*

Winrm Envelop Size

**winrmLocale** : *STRING = en-US*

Winrm Locale

**winrmTimeout** : *STRING = PT60.000S*

Winrm Timeout

**tmpDeleteOnDisconnect** : *BOOLEAN = true*

Whether to delete the temporary connection directory when the connection is closed

### Control Tasks

**checkConnection**

Check connection

## overthere.Host

**Hierarchy** udm.BaseContainer >> udm.BaseConfigurationItem

**Interfaces** udm.Tagable, udm.ConfigurationItem, udm.Container, [overthere.HostContainer](#)

A machine that runs middleware, on which scripts can be executed, etc.

### Public Properties

**os** : *ENUM [WINDOWS, UNIX]*

Operating system

**jumpstation** : *CI<overthere.Jumpstation>*

If this host is not directly reachable, specify a jumpstation here which can be used to reach this host.

**tags** : *SET\_OF\_STRING*

The tags to map deployables to containers.

**temporaryDirectoryPath** : *STRING*

Directory into which temporary files are stored. Will be cleaned up when the connection is closed.

**Hidden Properties****connectionTimeoutMillis** : **INTEGER** = *1200000*

Connection Timeout Millis

**protocol** : **STRING**

Protocol to use when connecting to this host

**tmpFileCreationRetries** : **INTEGER** = *1000*

Tmp File Creation Retries

**tmpDeleteOnDisconnect** : **BOOLEAN** = *true*

Whether to delete the temporary connection directory when the connection is closed

**Control Tasks****checkConnection**

Check connection

**overthere.HostContainer**

null

**overthere.Jumpstation****Hierarchy**    [overthere.Host](#) >> udm.BaseContainer >> udm.BaseConfigurationItem**Interfaces**    udm.Taggable, udm.ConfigurationItem, udm.Container, [overthere.HostContainer](#)

Base class for jumpstations

**Public Properties****jumpstation** : **CI**<[overthere.Jumpstation](#)>

If this host is not directly reachable, specify a jumpstation here which can be used to reach this host.

**tags** : **SET\_OF\_STRING**

The tags to map deployables to containers.

### Hidden Properties

**connectionTimeoutMillis** : *INTEGER = 1200000*

Connection Timeout Millis

**os** : *ENUM [WINDOWS, UNIX] = UNIX*

Os

**protocol** : *STRING*

Protocol to use when connecting to this host

**tmpFileCreationRetries** : *INTEGER = 1000*

Tmp File Creation Retries

**temporaryDirectoryPath** : *STRING*

Temporary Directory Path

**tmpDeleteOnDisconnect** : *BOOLEAN = true*

Whether to delete the temporary connection directory when the connection is closed

### Control Tasks

**checkConnection**

Check connection

## overthere.LocalHost

**Hierarchy**    [overthere.Host](#) >> udm.BaseContainer >> udm.BaseConfigurationItem

**Interfaces**    udm.Tagable, udm.ConfigurationItem, udm.Container, [overthere.HostContainer](#)

The machine on which the Deployit Server is running on.

### Public Properties

**os** : *ENUM [WINDOWS, UNIX]*

Operating system

**jumpstation** : *CI<overthere.Jumpstation>*

If this host is not directly reachable, specify a jumpstation here which can be used to reach this host.

**tags** : *SET\_OF\_STRING*

The tags to map deployables to containers.

**temporaryDirectoryPath** : *STRING*

Directory into which temporary files are stored. Will be cleaned up when the connection is closed.

**Hidden Properties****connectionTimeoutMillis** : **INTEGER** = *1200000*

Connection Timeout Millis

**protocol** : **STRING** = *local*

Protocol

**tmpFileCreationRetries** : **INTEGER** = *1000*

Tmp File Creation Retries

**tmpDeleteOnDisconnect** : **BOOLEAN** = *true*

Whether to delete the temporary connection directory when the connection is closed

**Control Tasks****checkConnection**

Check connection

**overthere.SshHost****Hierarchy**    [overthere.Host](#) >> udm.BaseContainer >> udm.BaseConfigurationItem**Interfaces**    udm.Taggable, udm.ConfigurationItem, udm.Container, [overthere.HostContainer](#)

A machine that can be connected to using ssh.

## Public Properties

**address** : *STRING*

Address of the host

**connectionType** : *ENUM [SFTP, SFTP\_CYGWIN, SFTP\_WINSSHD, SCP, SUDO, INTERACTIVE\_SUDO, TUNNEL] = SFTP*

Type of SSH connection to create

**os** : *ENUM [WINDOWS, UNIX]*

Operating system

**port** : *INTEGER = 22*

Port on which the SSH server runs

**username** : *STRING*

Username to connect with

**jumpstation** : *CI<overthere.Jumpstation>*

If this host is not directly reachable, specify a jumpstation here which can be used to reach this host.

**passphrase** : *STRING*

Optional passphrase for the private key in the private key file

**password** : *STRING*

Password to use for authentication

**privateKeyFile** : *STRING*

Private key file to use for authentication

**sudoUsername** : *STRING*

Username to sudo to when accessing files or executing commands

**tags** : *SET\_OF\_STRING*

The tags to map deployables to containers.

**temporaryDirectoryPath** : *STRING*

Directory into which temporary files are stored. Will be cleaned up when the connection is closed.

## Hidden Properties

**connectionTimeoutMillis** : **INTEGER** = *1200000*

Connection Timeout Millis

**interactiveKeyboardAuthRegex** : **STRING** = *.\*Password:[ ]?*

Regular expression to look for in keyboard-interactive authentication before sending the password

**protocol** : **STRING** = *ssh*

Protocol

**sudoCommandPrefix** : **STRING** = *sudo -u {0}*

Sudo command to prefix to the original command. The placeholder {0} is replaced with the sudoUsername

**sudoPasswordPromptRegex** : **STRING** = *.\*[Pp]assword.\*:*

Regular expression to look for in interactive sudo before sending the password

**tmpFileCreationRetries** : **INTEGER** = *1000*

Tmp File Creation Retries

**allocateDefaultPty** : **BOOLEAN** = *false*

If true, a default pty is allocated when executing a command. All sudo implementations require it for interactive sudo, some even require it for normal sudo. Some SSH server implementations (notably the one on AIX 5.3) crash when it is allocated.

**sudoOverrideUmask** : **BOOLEAN** = *false*

If true, permissions are explicitly changed with chmod -R go+rX after uploading a file or directory with scp.

**sudoQuoteCommand** : **BOOLEAN** = *false*

If true, the original command is quoted when it is prefixed with sudoCommandPrefix

**tmpDeleteOnDisconnect** : **BOOLEAN** = *true*

Whether to delete the temporary connection directory when the connection is closed

## Control Tasks

**checkConnection**

Check connection

## overthere.SshJumpstation

**Hierarchy** [overthere.Jumpstation](#) >> [overthere.Host](#) >> [udm.BaseContainer](#) >> [udm.BaseConfigurationItem](#)

**Interfaces** [udm.Taggable](#), [udm.ConfigurationItem](#), [udm.Container](#), [overthere.HostContainer](#)

A machine that can be used to create a tunneled connection to the destination host.

## Public Properties

**address** : *STRING*

Address of the host

**port** : *INTEGER = 22*

Port on which the SSH server runs

**username** : *STRING*

Username to connect with

**jumpstation** : *CI<overthere.Jumpstation>*

If this host is not directly reachable, specify a jumpstation here which can be used to reach this host.

**passphrase** : *STRING*

Optional passphrase for the private key in the private key file

**password** : *STRING*

Password to use for authentication

**privateKeyFile** : *STRING*

Private key file to use for authentication

**tags** : *SET\_OF\_STRING*

The tags to map deployables to containers.

## Hidden Properties

**connectionTimeoutMillis** : *INTEGER = 1200000*

Connection Timeout Millis

**connectionType** : *ENUM [SFTP, SFTP\_CYGWIN, SFTP\_WINSSHD, SCP, SUDO, INTERACTIVE\_SUDO, TUNNEL] = TUNNEL*

Connection Type

**interactiveKeyboardAuthRegex** : *STRING = .\*Password:[ ]?*

Regular expression to look for in keyboard-interactive authentication before sending the password

**os** : *ENUM [WINDOWS, UNIX] = UNIX*

Os

**protocol** : *STRING = ssh*

Protocol to use when connecting to this host

**tmpFileCreationRetries** : *INTEGER = 1000*

Tmp File Creation Retries

**temporaryDirectoryPath** : *STRING*

Temporary Directory Path

**tmpDeleteOnDisconnect** : *BOOLEAN = true*

Whether to delete the temporary connection directory when the connection is closed

**Control Tasks****checkConnection**

Check connection