

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

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
cmd.Command	Command specification that is executed on a host

Deployed Configuration Items

CI	Description
cmd.DeployedCommand	Command deployed to a Host

Topology Configuration Items

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

Virtual Topology Configuration Items

CI	Description
overthere.Host	A machine that runs middleware, on which scripts can be executed, etc
overthere.HostContainer	
overthere.Jumpstation	Base class for jumpstations

Configuration Item Details

[cmd.Command](#)

Hierarchy `udm.BaseDeployable >> udm.BaseConfigurationItem`

Interfaces `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