

Deployit Command Plugin Manual

Version 3.9.0

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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

Deployables

CI	Description
cmd.Command	Command specification that is executed on a host

Deployeds

CI	Description
cmd.DeployedCommand	Command deployed to a Host

Containers

CI	Description
overthere.CifsHost	Machine that can be connected to using either WinRM or Telnet and can perform file manipulation via the CIFS protocol
overthere.Host	Machine that runs middleware, on which scripts can be executed, etc
overthere.Jumpstation	Base class for jumpstations
overthere.LocalHost	Machine on which the Deployit Server is running
overthere.RemoteHost	Description unavailable
overthere.SshHost	Machine that can be connected to using SSH
overthere.SshJumpstation	Machine that can be used to create a tunneled connection to a destination host

Other Configuration Items

CI	Description
cmd.Command	Command specification that is executed on a host
cmd.DeployedCommand	Command deployed to a Host
overthere.CifsHost	Machine that can be connected to using either WinRM or Telnet and can perform file manipulation via the CIFS protocol
overthere.Host	Machine that runs middleware, on which scripts can be executed, etc
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Configuration Item Details

cmd.Command

Type 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	If set, this deployable will only be mapped automatically to containers with the same tag.
undoCommand : CI < cmd.Command >	Command to execute when undeploying command

cmd.DeployedCommand

Type Hierarchy udm.BaseDeployed >> udm.BaseConfigurationItem
Interfaces udm.EmbeddedDeployedContainer, udm.Deployed, udm.ConfigurationItem

Command deployed to a Host

Parent	
* container : CI < udm.Container >	The container on which this deployed runs.
Public Properties	
* commandLine : STRING	Command line to execute on host. Dependent artifacts can be referred to using \${artifact name}.
* order : INTEGER = 50	Order of the command
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

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

Interfaces udm.Taggable, udm.ConfigurationItem, udm.Container,
overthere.HostContainer

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

Hidden Properties			
* connectionTimeoutMillis	: INTEGER = 1200000		Number of milliseconds Overthere waits for a connection to a remote host to be established
* protocol	: STRING = cifs		Protocol
* tmpFileCreationRetries	: INTEGER = 1000		Number of times Overthere attempts to create a temporary file with a unique name
* winrmContext	: STRING = /wsman		Context used by the WinRM server
* winrmEnvelopSize	: INTEGER = 153600		Envelop size for WinRM messages
* winrmHttpsCertificateTrustStrategy	: ENUM [STRICT, SELF_SIGNED, ALLOW_ALL] = STRICT		HTTPS certificate trust strategy for WinRM over HTTPS
* winrmHttpsHostnameVerificationStrategy	: ENUM [STRICT, BROWSER_COMPATIBLE, ALLOW_ALL] = STRICT		HTTPS host name verification strategy for WinRM over HTTPS
* winrmLocale	: STRING = en-US		Locale to use for WinRM messages
* winrmTimeout	: STRING = PT60.000S		Timeout to use for WinRM messages in XML schema duration format
tmpDeleteOnDisconnect	: BOOLEAN = true		Whether to delete the temporary connection directory when the connection is closed
winrmKerberosAddPortToSpn	: BOOLEAN = false		Add the port number (e.g. 5985) to the service principal name (SPN) for which a Kerberos ticket is requested
winrmKerberosDebug	: BOOLEAN = false		Enable Kerberos debug messages
winrmKerberosUseHttpSpn	: BOOLEAN = false		Use the HTTP protocol in the service principal name (SPN) for which a Kerberos ticket is requested, instead of the default WSMAN protocol
Control task	Parameter CI	Attributes	Description
checkConnection			Checks whether Deployit can transfer files to and execute commands on this host.

overthere.Host

Virtual Type

Type Hierarchy udm.BaseContainer >> udm.BaseConfigurationItem

Interfaces udm.Taggable, udm.ConfigurationItem, udm.Container, overthere.HostContainer

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

Public Properties			
* os	: ENUM [WINDOWS, UNIX]		Operating system the host runs
tags	: SET_OF_STRING		If set, only deployables with the same tag will be automatically mapped to this container.
temporaryDirectoryPath	: STRING		Directory into which temporary files are stored. Will be cleaned up when the connection is closed.
Hidden Properties			
* protocol	: STRING		Protocol to use when connecting to this host
* tmpFileCreationRetries	: INTEGER = 1000		Number of times Overthere attempts to create a temporary file with a unique name
tmpDeleteOnDisconnect	: BOOLEAN = true		Whether to delete the temporary connection directory when the connection is closed
Control task	Parameter CI	Attributes	Description
checkConnection			Checks whether Deployit can transfer files to and execute commands on this host.

overthere.Jumpstation**Virtual Type**

Type Hierarchy [overthere.RemoteHost](#) >> [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 >		Jumpstation that should be used to reach this host
tags	: SET_OF_STRING		If set, only deployables with the same tag will be automatically mapped to this container.
Hidden Properties			
* connectionTimeoutMillis	: INTEGER = 1200000		Number of milliseconds Overthere waits for a connection to a remote host to be established
* os	: ENUM [WINDOWS, UNIX] = UNIX		Os
* protocol	: STRING		Protocol to use when connecting to this host
* tmpFileCreationRetries	: INTEGER = 1000		Number of times Overthere attempts to create a temporary file with a unique name
temporaryDirectoryPath	: STRING		The default platform value (/tmp) suffices as no temporary files will be placed on the jumpstation
tmpDeleteOnDisconnect	: BOOLEAN = true		Whether to delete the temporary connection directory when the connection is closed
Control task	Parameter CI	Attributes	Description
checkConnection			Checks whether Deployit can transfer files to and execute commands on this host.

overthere.LocalHost

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

Interfaces udm.Taggable, udm.ConfigurationItem, udm.Container, overthere.HostContainer

Machine on which the Deployit Server is running

Public Properties			
* os	: ENUM [WINDOWS, UNIX]		Operating system the host runs
tags	: SET_OF_STRING		If set, only deployables with the same tag will be automatically mapped to this container.
temporaryDirectoryPath	: STRING		Directory into which temporary files are stored. Will be cleaned up when the connection is closed.
Hidden Properties			
* protocol	: STRING = local		Protocol
* tmpFileCreationRetries	: INTEGER = 1000		Number of times Overthere attempts to create a temporary file with a unique name
tmpDeleteOnDisconnect	: BOOLEAN = true		Whether to delete the temporary connection directory when the connection is closed
Control task	Parameter CI	Attributes	Description
checkConnection			Checks whether Deployit can transfer files to and execute commands on this host.

overthere.RemoteHost

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

Description unavailable

Public Properties				
* os	: ENUM [WINDOWS, UNIX]		Operating system the host runs	
jumpstation	: CI<overthere.Jumpstation >		Jumpstation that should be used to reach this host	
tags	: SET_OF_STRING		If set, only deployables with the same tag will be automatically mapped to this container.	
temporaryDirectoryPath	: STRING		Directory into which temporary files are stored. Will be cleaned up when the connection is closed.	
Hidden Properties				
* connectionTimeoutMillis	: INTEGER = 1200000		Number of milliseconds Overthere waits for a connection to a remote host to be established	
* protocol	: STRING		Protocol to use when connecting to this host	
* tmpFileCreationRetries	: INTEGER = 1000		Number of times Overthere attempts to create a temporary file with a unique name	
tmpDeleteOnDisconnect	: BOOLEAN = true		Whether to delete the temporary connection directory when the connection is closed	
Control task	Parameter	CI	Attributes	Description
checkConnection				Checks whether Deployit can transfer files to and execute commands on this host.

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

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 the host runs
* port : INTEGER = 22	Port on which the SSH server runs
* username : STRING	Username to connect with
jumpstation : CI<overthere.Jumpstation >	Jumpstation that should 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	If set, only deployables with the same tag will be automatically mapped to this container.
temporaryDirectoryPath : STRING	Directory into which temporary files are stored. Will be cleaned up when the connection is closed.
Hidden Properties	
* connectionTimeoutMillis : INTEGER = 1200000	Number of milliseconds Overthere waits for a connection to a remote host to be established
* 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	Number of times Overthere attempts to create a temporary file with a unique name
allocateDefaultPty : BOOLEAN = false	If true, a default PTY (dummy:80:24:0:0) is allocated when executing a command
allocatePty : STRING	Specification for the PTY to be allocated when executing a command. The format is TERM:COLS:ROWS:WIDTH:HEIGHT, e.g. xterm:80:24:0:0
sudoOverrideUmask : BOOLEAN = true	If true, permissions are explicitly changed with chmod -R go+rX after uploading a file or directory
sudoPreserveAttributesOnCopyFromTempFile : BOOLEAN = true	If true, files are copied from the connection temporary directory using the -p flag to the cp command
sudoPreserveAttributesOnCopyToTempFile : BOOLEAN = true	If true, files are copied to the connection temporary directory using the -p flag to the cp command
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 task	Parameter CI	Attributes	Description
checkConnection			Checks whether Deployit can transfer files to and execute commands on this host.

overthere.SshJumpstation

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

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

Machine that can be used to create a tunneled connection to a 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 >		Jumpstation that should 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		If set, only deployables with the same tag will be automatically mapped to this container.
Hidden Properties			
* connectionTimeoutMillis :	INTEGER = 1200000		Number of milliseconds Overthere waits for a connection to a remote host to be established
* 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
* portAllocationRangeStart :	INTEGER = 1025		Port from where to start looking for freely available ports to use as the local part of an SSH port forward
* protocol :	STRING = ssh		Protocol
* tmpFileCreationRetries :	INTEGER = 1000		Number of times Overthere attempts to create a temporary file with a unique name
temporaryDirectoryPath :	STRING		The default platform value (/tmp) suffices as no temporary files will be placed on the jumpstation
tmpDeleteOnDisconnect :	BOOLEAN = true		Whether to delete the temporary connection directory when the connection is closed
Control task	Parameter CI	Attributes	Description
checkConnection			Checks whether Deployit can transfer files to and execute commands on this host.