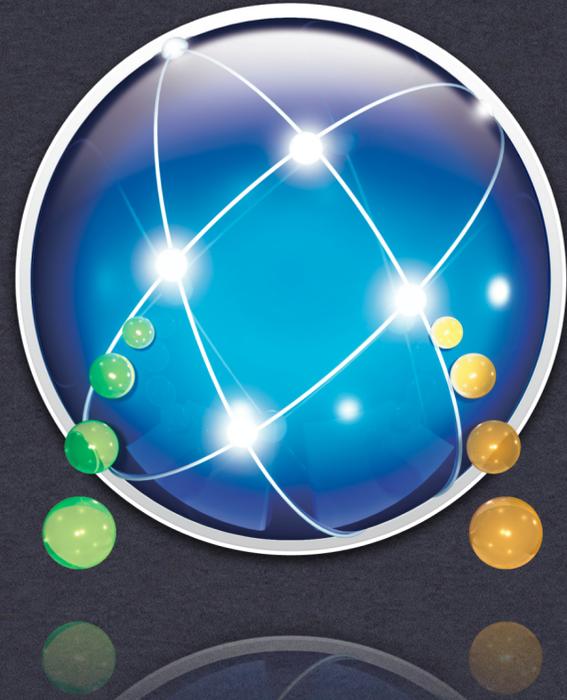


DEPLOYSTUDIO

MORE TIPS, TRICKS AND DISCUSSIONS



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Agenda

 Application Programming Interface (API)

 Workflow Organization

 Nested Workflows

 Computer Groups

 Package Groups

 AutoDMG

 Runtime Environment Variables

 Discussion



Application Programming Interface (API)

 Basic RESTful-like API

 [http\[s\]://deploystudio.example.com:60\[080|443\]](http[s]://deploystudio.example.com:60[080|443])

 Basic HTTP Authentication

 GET and POST endpoints

 Special thanks to Tim Sutton for saving me time

 <https://macops.ca/interfacing-with-deploystudio-using-http>



Noteworthy API Endpoints

GET

/computers/get/all

/computers/get/entry?id=<Identifier>

/logs/get/entry?id=<Identifier>

/workflows/get/all

/workflows/get/entry?id=<Identifier>

POST

/computers/set/entry?id=<Identifier>

/workflows/set/entry?id=<Identifier>



GET /computers/get/all

```
<key>PPPYWSSSCCCC</key>
<dict>
  <key>architecture</key>
  <string>i386</string>
  <key>dstudio-host-model-identifier</key>
  <string>MacBookPro8,2</string>
  <key>dstudio-host-primary-key</key>
  <string>dstudio-host-serial-number</string>
  <key>dstudio-host-serial-number</key>
  <string>PPPYWSSSCCCC</string>
  <key>dstudio-host-type</key>
  <string>Mac</string>
  <key>dstudio-hostname</key>
  <string>test01</string>
  <key>dstudio-last-workflow</key>
  <string>0E4BCA0F-DA7E-45F4-B5E2-ED78A8C912E0</string>
  <key>dstudio-last-workflow-duration</key>
  <string>0:08:10</string>
  <key>dstudio-last-workflow-execution-date</key>
  <string>2012/01/18, 19:30:07</string>
  <key>dstudio-last-workflow-status</key>
  <string>completed</string>
  <key>dstudio-mac-addr</key>
  <string>11:22:33:aa:bb:cc</string>
</dict>
```



DeployStudio Computer Plist

2 required keys

```
<key>dstudio-host-primary-key</key>  
<string>dstudio-host-serial-number</string>  
  
<key>dstudio-host-serial-number</key>  
<string>PPPYWSSSCCCC</string>
```

Optional but useful keys

```
<key>architecture</key>  
<string>i386</string>  
  
<key>cn</key>  
<string>test01</string>  
  
<key>dstudio-host-model-identifier</key>  
<string>MacBookPro10,1</string>  
  
<key>dstudio-host-type</key>  
<string>Mac</string>  
  
<key>dstudio-hostname</key>  
<string>test01</string>  
  
<key>dstudio-mac-addr</key>  
<string>11:22:33:aa:bb:cc</string>
```



Workflow Organization

- Modeled after Dewey Decimal System classes
- Allows for easier training and documentation
- Allows for faster visual browsing
- Workflow numbering allows for keyboard selection
- Helps to keep sanity with multiple admins
- Recommended with fresh installs (or production cleanup!)



Default Workflows

Title
Create a master from a volume
Install a package (pkg)
Restore a master on a volume
Triple-OS restoration

“Messy” Workflows

Title
ARD fix
BAD USER
Create a master from a volume
Install a package (pkg)
Restore a master on a volume
Restore Leopard (o god y)
Restore Lion
Restore Mavericks
Restore Mountain Lion
Restore Snow Leopard
Stop students in their tracks
Triple-OS restoration

Workflow “Groups”

Title
100 ===== [Primary Workflows] =====
200 ===== [Configuration] =====
300 ===== [Software] =====
400 ===== [Scripts] =====
500 ===== [Testing] =====
600 ===== [Misc] =====
700 ===== [Meta Tasks] =====
800 ===== [Dual Boot] =====
900 ===== [Development] =====

Organized Workflows

Title

100 ===== [Primary Workflows] =====

1000-Universal OOBE

1000-Universal OS X Reimage

1009-Base OS X 10.9 Mavericks

1009-RIT OS X 10.9 Mavericks

1010-Base OS X 10.10 Yosemite

1010-RIT OS X 10.10 Yosemite

1011-Base OS X 10.11 El Capitan

1011-RIT OS X 10.11 El Capitan

Nested Workflows



- Uses the **Workflow** task in DeployStudio
- Allows for nesting static workflows, or nesting dynamic workflows via scripts



Static Nested Workflows

 Allows you to statically set the nested workflow.



Adding a workflow task within a workflow makes it a meta-workflow.
In order to prevent loops, only flat workflows are listed in the popup below.

Embed workflow:

Scripted Nested Workflows

- Allows for more dynamic workflows
- Uses the **RuntimeSelectWorkflow** keyword
 - echo "RuntimeSelectWorkflow: <ID>"
 - <ID> can be the Workflow Title or Identifier



ds_workflow_selector.sh

```
#!/bin/bash
```

```
# get machine model
```

```
MACHINE_MODEL=$(sysctl -n hw.model)
```

```
# echo the workflow ID or title prefixed by "RuntimeSelectWorkflow:" according to the machine model
```

```
if [ "${MACHINE_MODEL}" == "MacBookAir3,2" ]
```

```
then
```

```
    echo "RuntimeSelectWorkflow: <UUID>"
```

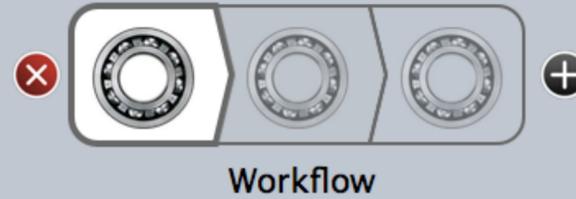
```
    echo "RuntimeSelectWorkflow: <Workflow Title>"
```

```
fi
```

```
exit 0
```



Nested Workflow Example



Adding a workflow task within a workflow makes it a meta-workflow.
In order to prevent loops, only flat workflows are listed in the popup below.

Embed workflow:

Automated DS Workflow

- 🌐 Erik Gomez - https://github.com/erikng/deploystudio_scripts
- 🌐 Python scripts to give user GUI prompt to select proper workflow



Computer Groups

- Default group for new machines
- Assign automated workflows
- Organize Workstations
- Bulk apply properties consistently
 - Use the API when the GUI lacks the functionality



Workflow Automation

DeployStudio Admin connected to nlfds-tb.main.ad.rit.edu

Runtime Control Logs

Search

Search

ACTIVITY	Identifier	Host name	Group	Default Workflow
COMPUTERS 25	intel D24DQ000DKQ4	testmac00	Library	1011-RIT OS X 10.11 El Capitan
Library 7	intel D24DQ001DKQ4	testmac01	Library	1011-RIT OS X 10.11 El Capitan
Restart	intel D24DQ002DKQ4	testmac02	Library	1011-RIT OS X 10.11 El Capitan
WORKFLOWS 23	intel D24DQ003DKQ4	testmac03	Library	1011-RIT OS X 10.11 El Capitan
MASTERS	intel D24DQ004DKQ4	testmac04	Library	1011-RIT OS X 10.11 El Capitan
PACKAGES 3	intel D24DQ005DKQ4	testmac05	Library	1011-RIT OS X 10.11 El Capitan
FOSS 8	intel D24DQ006DKQ4	testmac06	Library	1011-RIT OS X 10.11 El Capitan
Minitab 2				
Adobe CC 25				
SCRIPTS 10				

Library

General Licenses Network Accounts Custom properties Automation

Default group
If checked, every new computer will be automatically added to this group on first time DeployStudio Runtime startup.

Start workflow automatically: 1011-RIT OS X 10.11 El Capitan

and: Reset default workflow after a successful execution
 Disable computer after a successful execution

Package Groups

-  Allows you to deploy multiple packages with a single **Package install** task.
-  Easier to manage workflows
-  Easier to maintain software updates
-  Helps to integrate AutoPkg





Runtime



Control



Logs

Search

Search

ACTIVITY

COMPUTERS 25

WORKFLOWS 19

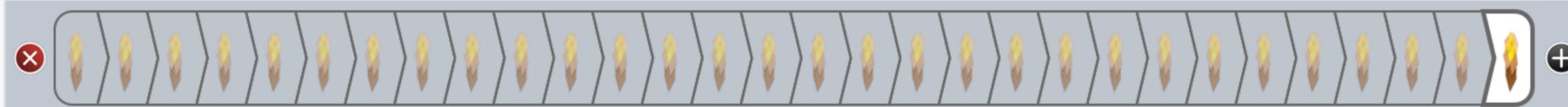
MASTERS

PACKAGES 3

Minitab

SCRIPTS 9

Title	Description	Identifier
300 ===== [Software] =====		300
301-ALL THE SOFTWARE		C59C7D02-B
310-Minitab Site License		6FAAB55D-8C
400 ===== [Scripts] =====		400
500 ===== [Testing] =====		500
600 ===== [Misc] =====		600
700 ===== [Meta Tasks] =====		700
800 ===== [Dual Boot] =====		800
900 ===== [Development] =====		900



Package install

Target volume: Previous task target

Package: Minitab_Express_MU_v1.5.0.pkg



DeployStudio Admin connected to n8felton.local



Runtime



Control



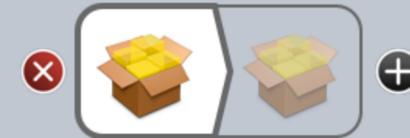
Logs

Search

Search

- ACTIVITY**
- COMPUTERS** 25
- WORKFLOWS** 19
- MASTERS**
- PACKAGES** 3
 - Minitab
- SCRIPTS** 9

Title	Description	Identifier
300 ===== [Software] =====		300
301-ALL THE SOFTWARE		C59C7D02-B167
310-Minitab Site License		6FAAB55D-8C2D
400 ===== [Scripts] =====		400
500 ===== [Testing] =====		500
600 ===== [Misc] =====		600
700 ===== [Meta Tasks] =====		700
800 ===== [Dual Boot] =====		800
900 ===== [Development] =====		900



Package install

Target volume:

Package:





DeployStudio Admin connected to n8felton.local



Runtime



Control



Logs

Search

Search

	File name	File Size	Access group	Publish
▶ ACTIVITY				
▶ COMPUTERS 25	Minitab_Express_MU_v1.5.0.pkg	0.0 MB	-	◇ ✓
◉ WORKFLOWS 19	RIT Minitab License Server Triad-2016.06.09.pkg	0.0 MB	-	◇ ✓
📄 MASTERS				
▼ PACKAGES 1				
Minitab				
📄 SCRIPTS 9				



DeployStudio Admin connected to n8felton.local



Runtime



Control



Logs

Search

Search

	Title	Description	Identifier
▶ COMPUTERS 25	300 ===== [Software] =====		300
WORKFLOWS 19	301-ALL THE SOFTWARE		C59C7D02-B167
	310-Minitab Site License		6FAAB55D-8C2D
MASTERS	400 ===== [Scripts] =====		400
▼ PACKAGES 3	500 ===== [Testing] =====		500
Minitab	600 ===== [Misc] =====		600
SCRIPTS 9	700 ===== [Meta Tasks] =====		700
	800 ===== [Dual Boot] =====		800
	900 ===== [Development] =====		900



Package install

Target volume: Previous task target

Package: Minitab



Runtime



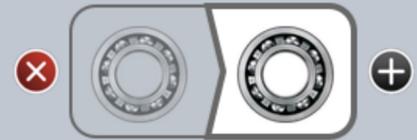
Control



Logs

Search

	ACTIVITY	Title	Description	Identifier	Access group	Publist
▶	COMPUTERS	25	300 ===== [Software] =====	300	-	✓
	WORKFLOWS	21	301-All Site Licensed Software	92146F11-ECB8-459D-9E9A-3D17E79D01DF	-	✓
			310-Adobe CC Site License	F0E56C5D-EC37-438A-A973-20812F9D42F7	-	✓
			310-Minitab Site License	6FAAB55D-8C2D-4E13-9D3B-982A3CC62FCF	-	✓
▼	PACKAGES	4	399-ALL THE SOFTWARE	C59C7D02-B167-4020-B337-F57F0B41B828	-	✓
	Minitab	2	400 ===== [Scripts] =====	400	-	✓
	Adobe CC	25	500 ===== [Testing] =====	500	-	✓
			600 ===== [Misc] =====	600	-	✓
	SCRIPTS	9	700 ===== [Meta Tasks] =====	700	-	✓



Workflow

Adding a workflow task within a workflow makes it a meta-workflow. In order to prevent loops, only flat workflows are listed in the popup below.

Embed workflow:

AutoPKG

- AutoPkg is an automation framework for OS X software packaging and distribution
- You run software “recipes” that will automate downloading the latest version of software.
- Community developed recipes that download directly to DeployStudio Packages folder or Package Groups



AutoDMG

- 🌐 Takes an OS X installer and builds a never-booted Core OS image
- 🌐 Automatically downloads the latest Apple Software Updates
- 🌐 Ability to add additional packages
- 🌐 Properly includes the required “.hfs.” filename extension so DeployStudio recognizes the image.
- 🌐 CLI available to allow for further automation



Environment Variables

ds_example.sh

 Lists all the environmental variables that are available.

Common Variables

 DS_MODEL_IDENTIFIER

 DS_CURRENT_WORKFLOW_ID

 DS_SERIAL_NUMBER



Discussions

-  What questions do you have?
-  What would you like DeployStudio to do that it doesn't do already?
(because maybe it does and you don't know it yet.)
-  NBICreator - <https://github.com/NBICreator/NBICreator>



FEEDBACK

bit.ly/psumac2016-104

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BLOG

n8felton.wordpress.com

MACADMINIS SLACK

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[#deploystudio](https://deploystudio.com)