



# **Asset Development 401**

# Arcus

**makes users more successful, productive and secure  
in any cloud, using any technology.**

**It is the platform for where & how to get things done!**



# Topics

- Asset Library
- Creating Software Assets:
  - Using Asset Properties
  - Environment Variables
  - Best Practices & Tips
- Managing Assets
- Creating ElasticTest™ Assets
- Rest API
- Support & Troubleshooting





# **Asset Library**

# Asset Library

## Everything is an Asset!

The screenshot displays the Arcus Asset Library interface. The top navigation bar includes 'My Workspace', 'My Teams', 'Projects', and 'Site Admin'. The main content area is divided into several sections:

- Project Info:** Shows 'Arcus Demo' with 999 members and no restrictions. A link to 'Go to project settings' is provided.
- Site Alerts:** Indicates 'No site alerts' and provides a link to 'Manage site alerts'.
- Available Test Tools:** Lists various tools with their versions:
  - LISA 5.0.29
  - Nessus 8.13.1
  - Script 2.0.0
  - soapUI 5.2.1
- Automated Provisioning:** Features a 'Memory usage (GB)' dropdown and a line graph showing usage over time from 01:00 to 08:00 on April 25.
- Virtual Resources:** Displays resource usage statistics:
  - CPU: 14 / 999
  - Memory: 26 GB / 9.8 TB
  - Storage: 300 GB / 999.0 TB
  - Hosts: 3 / 999
  - GPU: 0 / 0
- Deployment Runs:** Includes a link to 'View all deployment runs'.
- Cloudspace Status:** Lists the status of various cloudspaces:
  - Arcus Demo: Online
  - Arcus Demo GW1: Online
  - Azure Virginia Dev: Online
- Documentation:** Provides links to learn more about deploying systems, projects, assets, cloudspaces, and system administration.

A blue callout box with the text 'Browse Asset Types' and an arrow points to the 'Add' buttons next to the asset categories in the left sidebar, which include Compute (Hosts, Runs), Services (Storage), Composites (Deployments, Scenarios, Container Apps, Systems), and Library (Applications, Source Code, Tests, Container Images).

Browse to find existing Software, Tests, Systems, Scenarios, and Deployments



# Types of Assets

## Resource Assets

*Elements of a Cloud that are **registered** to be available for use by the CONS3RT agent. The Cloud Administrator controls which resources they want to allow access to. Users do not interface or manage.*

## Component Assets

*Component assets are the building blocks that can be mixed and matched as part of Composite Assets.*

*Components can be **imported** by a user with appropriate permissions via the web application.*

## Composite Assets

*Users **assemble** Component Assets by combining available Resources and Components to define how systems and scenarios will be built, configured and deployed. Users often refer to these as “designs,” “recipes,” “blueprints,” or “manifests.”*

*Assembly is done via the web application.*

Clouds

Cloudspaces

Networks

Operating System Templates

Software Applications

Container Images

Test Cases (Nessus, Fortify, etc.)

App Bundles

Systems

Scenarios

Deployments

Compositions



# Asset Library

Viewable Assets = Selected Project + Asset Visibility

The screenshot displays the Arcus Asset Library interface. At the top, a navigation bar includes 'My Workspace', 'My Team', 'Projects', and 'Site Admin'. A sidebar on the left lists various categories: Compute (Hosts, Runs), Services (Storage), Composites (Deployments, Scenarios, Container Apps, Systems), and Library (Applications, Source Code, Tests, Container Images). The main area shows a grid of 37 software assets under the 'Arcus Demo' project. Annotations with blue arrows point to specific features: 'Projects' points to the project switcher; 'Tags' points to the 'Certification' and 'Tags' filters; 'Filters' points to the 'More filters' button; 'Visibility' points to the 'Me' and 'Everyone' visibility options; 'Search' points to the search icon; 'Asset Sub-Type' points to the 'APPLICATION' label on an asset card; and 'Add Assets' points to the 'Add' button in the 'Applications' category of the sidebar.

This page contains dynamic content -- Highest classification is UNCLASSIFIED//CUI

Navigation: My Workspace, My Team, Projects, Site Admin

Project: Arcus Demo (Owner: Arcus Gov Team)

Filters: Certification, Tags, More filters

Visibility: Me, Everyone

Search

37 SOFTWARE ASSETS | Sort by: Newest

Asset Name	Sub-Type	Updated
SEAS v4.7	APPLICATION	Updated 2 weeks ago
Chrome 79 for Windows	APPLICATION	Updated 1 month ago
Modded Multi-User VNC	APPLICATION	Updated 2 months ago
Desktop Modded	APPLICATION	Updated 2 months ago
Desktop	APPLICATION	Updated 5 months ago
Help Channel Demo Asset	APPLICATION	Updated 5 months ago
test	APPLICATION	Updated 5 months ago
Remote Access Video Tutorials	APPLICATION	Updated 6 months ago
Copy Media to Directory	APPLICATION	Updated 6 months ago

Annotations:

- Projects
- Tags
- Filters
- Visibility
- Search
- Asset Sub-Type
- Add Assets





# **Creating Software Assets**



# Component Assets

Asset Type	Sub Types	Examples
Software Assets	<ul style="list-style-type: none"><li>• Application Software</li><li>• Container images</li></ul>	<ul style="list-style-type: none"><li>• STIG, Security Hardening</li><li>• Java, MySQL, JBOSS</li><li>• Puppet, Chef, Ruby, Python</li><li>• Network Configuration</li><li>• Forge.mil Source Code</li><li>• Github Source Code</li><li>• Nightly Builds</li><li>• Test Data</li><li>• Production Databases</li></ul>
Test Assets	<ul style="list-style-type: none"><li>• Tenable Nessus</li><li>• HP Fortify</li><li>• Sonarlint</li><li>• Web Exploit Suite</li><li>• SmartBear SoapUI</li><li>• CA LISA</li><li>• Script</li></ul>	<ul style="list-style-type: none"><li>• Security Vulnerability</li><li>• Source Code Quality &amp; Security</li><li>• Web Service Validation</li><li>• Web Application Functional &amp; Performance Tests</li></ul>

Sample Assets on Github: <https://github.com/cons3rt>



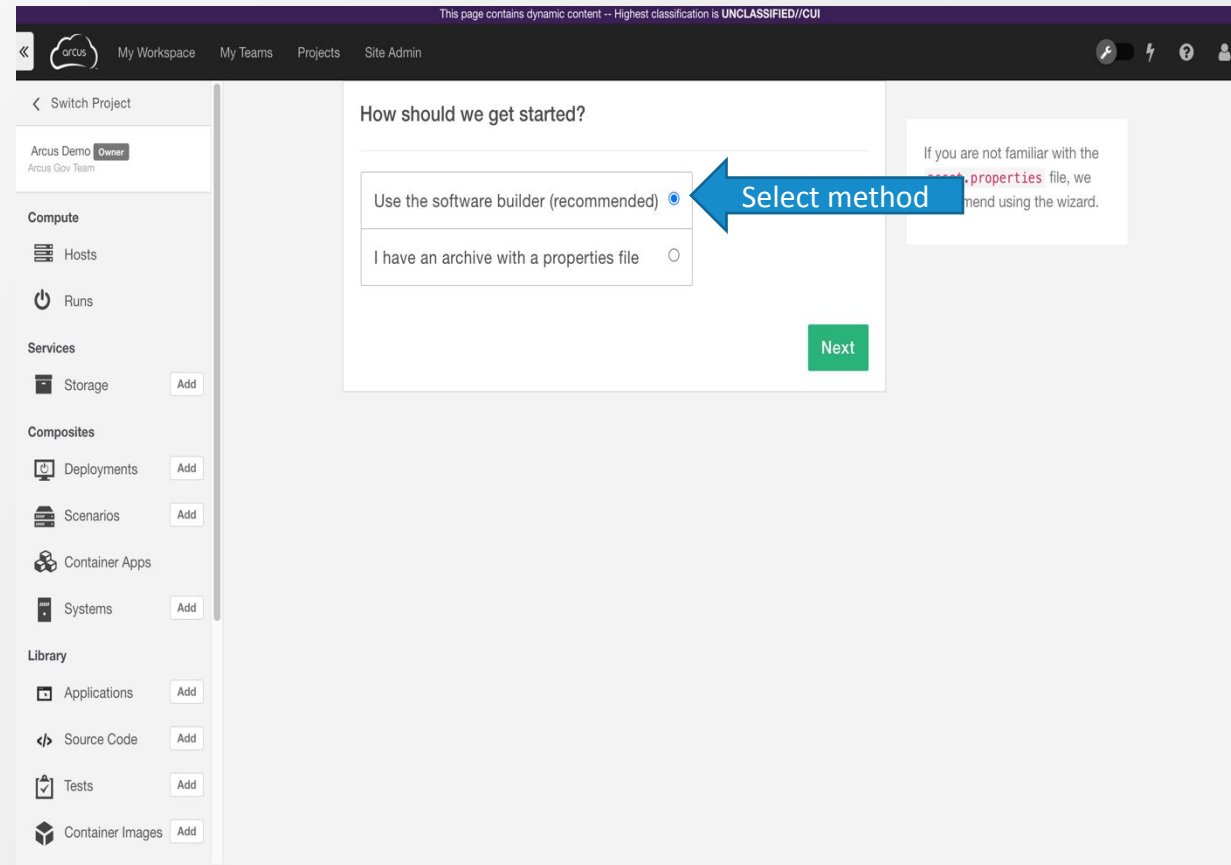
# Developing Software Assets

- Assets do the heavy lifting of application install, configuration, data loading, utilities, and more
- Assets can be developed in ANY language:
  - Scripting (Bash, Powershell, Python, etc.)
  - Higher Level Languages (Java, Ruby, etc.)
  - Configuration Management Languages (Ansible, Puppet, Salt, Chef, etc.)
- Assets must be wrapped in a language installed on the System by the time the Asset is run:
  - Bash (Linux) and Powershell (Windows) are guaranteed on all Systems
  - However, *Asset 1* could install Puppet and then *Assets 2-10* could be Puppet-based
- Assets should be ***managed like any other source code***
- Like any code, Assets can be simple & fixed or granular & flexible based on the style and need of the Team
- Assets make use of properties to merge the System information into the execution



# Adding Assets

- There are two ways to add Assets to the Library...
- Assets can be built using the **Asset Builder Wizard**:
  - This walks through the process of collecting the data and components needed.
  - It is good for those getting started with Asset development.
- Assets can be uploaded as a single **Asset Zip** file:
  - The zip file contains all the scripts, media, metadata, and documentation.
  - The zip can be assembled from source offline and uploaded via GUI or ReST.





# **Asset Builder**

# Asset Builder:

- Select an **Application Software Asset**
- An **Application Software Asset** installs on the System with a single primary install script.

The screenshot displays the Arcus Asset Builder web interface. At the top, a navigation bar includes the Arcus logo, 'My Workspace', 'My Teams', 'Projects', and 'Site Admin'. A security notice at the top right states 'This page contains dynamic content -- Highest classification is UNCLASSIFIED//CUI'. The main content area is titled 'Switch Project' and shows the 'Arcus Demo' project with the role 'Owner' and 'Arcus Gov Team'. A left-hand sidebar lists various components: 'Compute' (Hosts, Runs), 'Services' (Storage, Add), 'Composites' (Deployments, Scenarios, Add), 'Container Apps' (Systems, Add), and 'Library' (Applications, Source Code, Tests, Container Images, Add). The central panel asks 'What kind of software do you have?' and offers two radio button options: 'My files are ready for installation' (selected) and 'My source code needs to be compiled'. A blue arrow labeled 'Select type' points to the selected option. Below the options are 'Back' and 'Next' buttons. A help box on the right explains that source code assets require cloning or checking out from a repository and building with Ant or Maven.



# Asset Builder: Basic Info

- Enter a **Name** for the Asset
- Enter a **Description** (optional)
- Enter the **Version**
- Enter the **Vendor**

This page contains dynamic content -- Highest classification is UNCLASSIFIED//CUI

<< Arcus My Workspace My Teams Projects Site Admin

< Switch Project

Arcus Demo **Owner**  
Arcus Gov Team

**Compute**

- Hosts
- Runs

**Services**

- Storage **Add**

**Composites**

- Deployments **Add**
- Scenarios **Add**
- Container Apps
- Systems **Add**

**Library**

- Applications **Add**
- Source Code **Add**
- Tests **Add**
- Container Images **Add**

**Provide some details**

Name  
Demo Application

Description  
Optional

Version  
2.0

Vendor  
Optional

← Back **Next**

Additional details that are provided will be visible to users of this asset.



# Asset Builder: Define Resources

- Select **Platform** (required)
  - If defined, an Asset will not be installed on an incompatible platform
- Select the **Architecture**
- Select **Bits**
- Define the minimum suggested **CPUs**
- Define the minimum suggested **Memory**
- Define the minimum suggested **Storage**

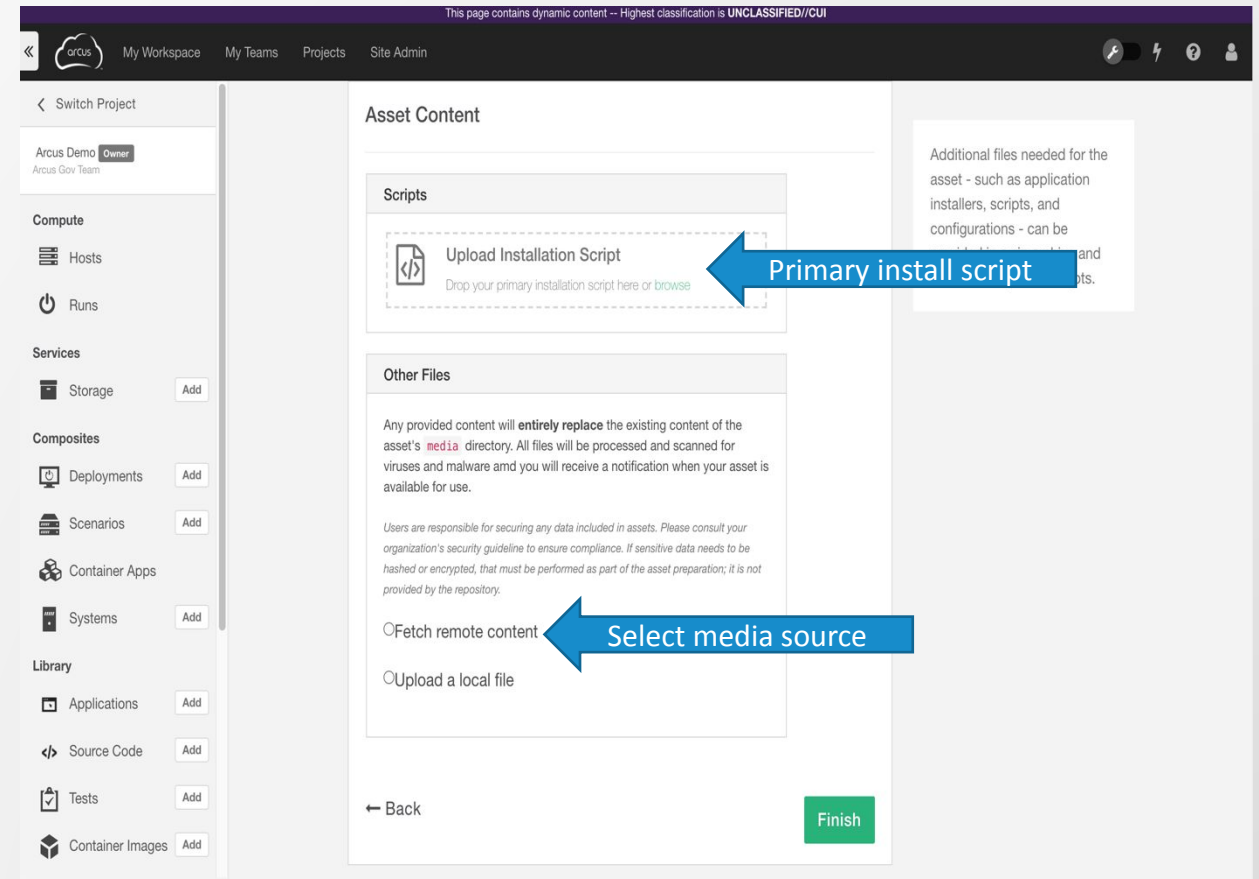
Note: CPU, RAM, and Storage values are provided to the user as guidance but **not** enforced

The screenshot displays the Arcus Asset Builder interface. The top navigation bar includes 'My Workspace', 'My Teams', 'Projects', and 'Site Admin'. The main content area is titled 'What resources does your software need?'. On the left, a sidebar lists various resource categories: Compute (Hosts, Runs), Services (Storage, Add), Composites (Deployments, Scenarios, Container Apps, Systems, Add), and Library (Applications, Source Code, Tests, Container Images, Add). The main form contains the following fields: Platform (Linux), Architecture (x64), Bits (64-bit), CPU (slider), Memory (slider with GB unit), and Storage (slider with GB unit). A 'Next' button is located at the bottom right of the form. A callout box on the right side of the form states: 'If the platform is specified, this software asset will only be able to be installed on compatible systems. All other values are for informational purposes.'



# Asset Builder: Script & Media (App)

- Drag and drop or browse the file System to upload the primary **Install** script
- Identify the **Media** to be added to the Asset. The **media** can be...
  - Fetched from a remote (http) source
  - Uploaded from the local file System
- Any provided content will entirely replace the existing content of the Asset's media directory.
- All files are scanned for viruses and malware.
- A notification is sent when the Asset is available for use.
- Users are responsible for securing any data included in Assets. If sensitive data needs to be hashed or encrypted, that must be performed as part of the Asset preparation.





# Asset Builder: Script & Media (Source)

- Drag and drop or browse the file System to upload the the four required scripts:
  - **Install** script
  - **Checkout** script
  - **Build** script
  - **Deploy** script
- Identify the **Media** to to added to the Asset. The **media** can be...
  - Fetched from a remote (http) source
  - Uploaded from the local file System
- Any provided content will entirely replace the existing content of the Asset's media directory.
- All files are scanned for viruses and malware.
- A notification is sent when the Asset is available for use.
- Users are responsible for securing any data included in Assets. If sensitive data needs to be hashed or encrypted, that must be performed as part of the Asset preparation.

This page contains dynamic content -- Highest classification is UNCLASSIFIED//CUI

arcus My Workspace My Teams Projects Site Admin

< Switch Project

Arcus Demo **Owner**  
Arcus Gov Team

Compute

- Hosts
- Runs

Services

- Storage **Add**

Composites

- Deployments **Add**
- Scenarios **Add**
- Container Apps

Library

- Applications **Add**
- Source Code **Add**
- Tests **Add**
- Container Images **Add**

### Asset Content

#### Scripts

- Upload Installation Script**  
Drop your primary installation script here or [browse](#)
- Upload Check-Out Script**  
Drop your .sh file here or [browse](#)
- Upload Build Script**  
Drop your .sh file here or [browse](#)
- Upload Deploy Script**  
Drop your .sh file here or [browse](#)

#### Other Files

Any provided content will **entirely replace** the existing content of the asset's **media** directory. All files will be processed and scanned for viruses and malware and you will receive a notification when your asset is available for use.

*Users are responsible for securing any data included in assets. Please consult your organization's security guideline to ensure compliance. If sensitive data needs to be hashed or encrypted, that must be performed as part of the asset preparation; it is not provided by the repository.*

- Fetch remote content
- Upload a local file

← Back **Finish**

Additional files needed for the asset - such as application installers, scripts, and configurations - can be provided in a zip archive and referenced by these scripts.

**Select media source**





**Asset Zip**

# Asset Zip: Zip File

- Drag and drop or browse the file System to upload the prepared zip file
- Any provided content will entirely replace the existing content of the Asset's media directory.
- All files are scanned for viruses and malware.
- A notification is sent when the Asset is available for use.
- Users are responsible for securing any data included in Assets. If sensitive data needs to be hashed or encrypted, that must be performed as part of the Asset preparation.

This page contains dynamic content -- Highest classification is UNCLASSIFIED//CUI

< Switch Project

Arcus Demo **Owner**  
Arcus Gov Team

Compute

- Hosts
- Runs

Services

- Storage **Add**

Composites

- Deployments **Add**
- Scenarios **Add**
- Container Apps
- Systems **Add**

Library

- Applications **Add**
- Source Code **Add**
- Tests **Add**
- Container Images **Add**

### Import Asset

Assets that are imported will be processed and scanned for viruses and malware. You will receive a notification when your asset is available for use.

Users are responsible for securing any data included in assets. Please consult your organization's security guideline to ensure compliance. If sensitive or classified data needs to be hashed or encrypted, that must be performed as part of the asset; it is not provided by the repository.

Choose a file or drag it in.

Supported file type(s): .zip (4096 MB max.)

← Back **Finish**

Ensure your archive is complete with an `asset.properties` file, an installation script in the `scripts` directory, and any additional files in the `media` directory.



# Asset Zip: Software Assets Structure

1. Create the Asset directory structure
  - Use a sample asset template [from Github](#)
2. Add install media to the media directory
3. Add install scripts to the scripts
4. Update the asset.properties file
  - Set the installScript property to the name of your primary install script
  - Set the name, description, and other information
5. Add README and LICENSE files to the root directory
6. Zip the directory
7. Click the + button to import
8. The Asset upload task is backgrounded and scanned for virus
9. An email is sent when the upload is complete, and the Asset is available



# Asset Zip: Application Software Assets

- **Asset Directory** (`$ASSET_DIR` or `%ASSET_DIR%`)

- `asset.properties`
- `README` (*optional*)
- `LICENSE` (*optional*)
- `media/`
  - `install media files` (*optional*)
- `scripts/`
  - `install.sh` (Linux)
  - `install.bat` (Windows)
  - `install.ps1` (Windows)



Any Scripting Language!



# Asset Zip: Sample asset.properties

```
#####  
## These are mandatory  
#####  
  
# Indicates the asset type  
# Valid Values: software, testasset  
Type=software  
  
# Indicates the Software Asset Type  
# Valid Values: Application, Source_Code  
softwareAssetType=Application  
  
# Name and Description  
name=Sample Software Application Asset Name  
description=Sample Software Asset Description  
  
# Primary install script to execute  
# Must exist in the scripts directory  
installScript=install.sh  
  
# Specify a license file  
# Must exist at the location specified  
licenseFile=LICENSE.html  
  
# Specify a documentation file  
# Must exist at the location specified  
documentationFile=HELP.html
```

```
#####  
## These are optional  
#####  
# Instance limit  
# Leave blank for unlimited instances  
# Expressed as a number  
instanceLimit=10  
# Application vendor information  
# Expressed as Free Text  
vendor=SoftwareVendor  
softwareVersion=0.99  
applicationVendorMessage=Please Redistribute Freely  
# Required CPU count for the application  
# Expressed as a number  
applicationRequiredCpuCount=1  
# CPU Speed  
# Expressed as a number in MHz  
applicationRequiredCpuSpeed=2100  
# Ram and disk space required  
# Expressed as a number in MBytes required  
Ram=2048 required  
Disk=2048  
# For application software asset  
# Expressed as Free Text  
applicationType=Java EE applicationProductFamily=JBoss  
# Asset Developer POC Information  
pocName=John Doe  
pocOrganization=Organization, Inc.  
pocEmail=john@doe.net  
pocPhone=123-456-7890
```





# **Other Asset Resources**

# Environment Variables

- Available to install scripts at runtime
  - Grab media files from the asset
  - Launching additional code (e.g., Puppet manifests)
  - Conditional logic based on Role name
  - Grabbing custom properties or Deployment properties

Variable	Description
ASSET_DIR	Path to the parent directory of your Asset on the System
CONS3RT_ROLE_NAME	Set to the role name given in the Scenario
DEPLOYMENT_HOME	Path to the Deployment properties files





# Deployment Properties

- Deployment properties consist of
  - Standard System properties
  - User defined properties
- The standard system properties includes data about
  - IP addresses, hostnames, user, technologies, etc.
- The role name (defined in Scenario) maps properties to a System
- To access, Use the `DEPLOYMENT_HOME` environment variable
- OS-friendly source-able files (replace dots with underscores):
  - Linux: `deployment-properties.sh`
  - Windows Powershell: `deployment-properties.ps1`

OS	Language	How to Access in your Scripts
Any	Java, Groovy, any	<code>\$DEPLOYMENT_HOME/deployment.properties</code>
Linux	Shell Scripts (e.g., bash), Perl, Python, Ruby, etc.	<code>source \$DEPLOYMENT_HOME/deployment-properties.sh</code>
Windows	Powershell	<code>\$env:DEPLOYMENT_HOME\deployment-properties.ps1</code>



# Sample deployment.properties

- # ==== Begin deployment.properties ====
- #Properties file for Deployment 31372
- cons3rt.deployment.id=31372
- cons3rt.deployment.name=My Awesome Deployment
- cons3rt.deploymentRunId=21149
- cons3rt.deploymentRunName=My Awesome Deployment Run
- **cons3rt.fap.deployment.machine.RoleName.0.externalIp=10.3.1.11**
- **cons3rt.fap.deployment.machine.RoleName.0.internalIp=10.3.1.11**
- cons3rt.fap.deployment.machine.RoleName.0.isCons3rtNetwork=true
- cons3rt.fap.deployment.machine.RoleName.0.mac=00\:50\:56\:01\:07\:35
- cons3rt.fap.deployment.machine.RoleName.0.networkName=003\_vdcA\_routeNet\_01
- cons3rt.fap.deployment.machine.hostname.RoleName=dr21149v0
- **cons3rt.fap.deployment.machine.ipAddress.RoleName=10.3.1.11**
- cons3rt.fap.deployment.machine.isMaster.RoleName=true
- cons3rt.fap.deployment.machine.isProvisionable.RoleName=true
- cons3rt.fap.deployment.machine.isVirtual.RoleName=true
- cons3rt.fap.deployment.machine.osFamily.RoleName=WINDOWS
- cons3rt.fap.deployment.machine.template.RoleName=template-windows2012-x64
- cons3rt.fap.deployment.numMachines=1
- cons3rt.user=michael.loebel.eca
- **customProperty1=propertyValue1**
- **customProperty2=propertyValue2**
- # ==== End deployment.properties ====



# Logging!!!



- Log as much as you can!!
- CONS3RT Agent log (*cleaned up if the run succeeds*):
  - Linux: /opt/cons3rt-agent/logs
  - Windows: C:\cons3rt-agent\logs
- Review logs in the UI!

1) Click the "Log" icon

2) View Logs!

3) Type to Search

4) Select Log Level to Auto-Filter

```
2016-05-17 08:41:05.734 Log opened. (Time zone: UTC-04:00)
2016-05-17 08:41:05.734 Setup version: Inno Setup version 5.5.5 (a)
2016-05-17 08:41:05.734 Original Setup EXE: C:\cons3rt-agent\run\Deployment43009\Scenario43008\QuickBuild\assets\42505\media\ichs.exe
2016-05-17 08:41:05.734 Setup command line: /SL5="$40082,212347909,56832,C:\cons3rt-agent\run\Deployment43009\Scenario43008\QuickBuild\assets\42505\media\ichs.exe" /SILENT /LOG=c:\cons3rt-agent\log\install-ichs.log /DIR=C:\Users\Public\ICHS
2016-05-17 08:41:05.734 Windows version: 6.1.7601 SP1 (NT platform: Yes)
2016-05-17 08:41:05.734 64-bit Windows: Yes
2016-05-17 08:41:05.734 Processor architecture: x64
2016-05-17 08:41:05.734 User privileges: Administrative
2016-05-17 08:41:05.734 64-bit install mode: No
2016-05-17 08:41:06.452 Created temporary directory: C:\Windows\TEMP\is-1B72F.tmp
2016-05-17 08:41:08.995 Starting the installation process.
2016-05-17 08:41:09.041 Creating directory: C:\Users\Public\ICHS
2016-05-17 08:41:09.041 Creating directory: C:\Users\Public\ICHS\ICHS
2016-05-17 08:41:09.057 Setting permissions on directory: C:\Users\Public\ICHS\ICHS
2016-05-17 08:41:09.338 Creating directory: C:\Users\Public\ICHS\Completed
2016-05-17 08:41:09.338 Setting permissions on directory: C:\Users\Public\ICHS\Completed
2016-05-17 08:41:09.338 Creating directory: C:\Users\Public\ICHS\Programs
2016-05-17 08:41:09.338 Setting permissions on directory: C:\Users\Public\ICHS\Programs
2016-05-17 08:41:09.338 Creating directory: C:\Users\Public\ICHS\ICHS\GPOs
2016-05-17 08:41:09.338 Creating directory: C:\Users\Public\ICHS\ICHS\GPOs\B0001
2016-05-17 08:41:09.338 Creating directory: C:\Users\Public\ICHS\ICHS\GPOs\B0001\B0001 Computer Hardening
2016-05-17 08:41:09.369 Creating directory: C:\Users\Public\ICHS\ICHS\GPOs\B0001\B0001 Computer Hardening\{F377784C-13A8-40BB-AF40-B3D547C32236}
2016-05-17 08:41:09.369 Creating directory: C:\Users\Public\ICHS\ICHS\GPOs\B0001\B0001 Computer Hardening\{F377784C-13A8-40BB-AF40-B3D547C32236}\DomainSysvol
2016-05-17 08:41:09.369 Creating directory: C:\Users\Public\ICHS\ICHS\GPOs\B0001\B0001 Computer Hardening\{F377784C-13A8-40BB-AF40-B3D547C32236}\DomainSysvol\GPO
2016-05-17 08:41:09.369 Creating directory: C:\Users\Public\ICHS\ICHS\GPOs\B0001\B0001 Computer Hardening\{F377784C-13A8-40BB-AF40-B3D547C32236}\DomainSysvol\GPO\Machine
2016-05-17 08:41:09.369 Creating directory: C:\Users\Public\ICHS\ICHS\GPOs\B0001\B0001 Computer Hardening\{F377784C-13A8-40BB-AF40-B3D547C32236}\DomainSysvol\GPO\Machine\Scripts
2016-05-17 08:41:09.369 Creating directory: C:\Users\Public\ICHS\ICHS\GPOs\B0001\B0001 Computer Hardening\{F377784C-13A8-40BB-AF40-B3D547C32236}\DomainSysvol\GPO\Machine\Scripts\Scripts
```

- Create your own log files



# Best Practices & Tips

- ***Logging is your friend!!!***
- **Paint by Numbers approach:**
  - Start by creating “master” shells (empty) of the Deployments, Scenarios, Systems, and Assets you think you will need
  - Launch a parallel component and work the install/config/test/security
  - Then update the “master” component as you identify working elements
- **Use Exit Codes:**
  - CONS3RT looks for the exit code of your primary Install Script
  - 0 = CONS3RT assumes success, proceeds to next Asset
  - 255 = CONS3RT assumes failure but proceeds to next Asset
  - Non-Zero = CONS3RT assumes failure, halts, and notifies user
- **Split the installer media and the install script into two Assets:**
  - Allows you to reuse community Assets for installer media (e.g. SQL Server)
  - Focus changes on lightweight script assets
- **“Infrastructure as Code”= manage assets like source code:**
  - Check into source code repository
  - Promote, merge, rollback, etc.
  - When appropriate, tie Asset scripts to source code repo
  - Frequently “compile” (aka deploy)





# Managing Assets

# Asset Help

- Includes...
  - How to use Asset
  - Properties used
  - List of any prerequisites (Operating System, Asset dependencies)
- Exit Codes
- Uses Markdown (.md) formatting or plain text

The screenshot shows the Arcus Asset Help page for 'Chrome 79 for Windows'. The page is titled 'Chrome 79 for Windows' and is categorized as an 'APPLICATION' updated 1 month ago with 0 stars. A blue arrow points to the 'Help' tab in the navigation menu. The main content area is divided into three sections: 'README', 'Technical contact', and 'STATE'. The 'README' section contains the text: 'CHROME 79 for Windows x64 This asset installs the Chrome desktop web browser on Windows x64.' The 'Technical contact' section lists 'Ian Ellett' with email 'ian.ellett@jackpinetech.com' and phone 'P: 4439744664'. The 'STATE' section shows 'In Development' and 'Not shared'.

Switch Project

Arcus Demo **Owner**  
Arcus Gov Team

Compute

- Hosts
- Runs

Services

- Storage **Add**

Composites

- Deployments **Add**
- Scenarios **Add**
- Container Apps
- Systems **Add**

Library

- Applications **Add**
- Source Code **Add**
- Tests **Add**
- Container Images **Add**
- App Bundles

Manage

Chrome 79 for Windows

APPLICATION Updated 1 month ago  
★ 0 stars

+ Add to System Builder Re-import

Overview Related **Help** License Agreement

README

CHROME 79 for Windows x64 This asset installs the Chrome desktop web browser on Windows x64.

Technical contact

For technical support, contact:

**Ian Ellett**  
ian.ellett@jackpinetech.com  
P: 4439744664

STATE

- In Development

ONLINE

- 

PROJECT

- Arcus Demo

OWNER

- Ian Ellett

WHO HAS ACCESS

- Not shared

RESTRICTION

- None

CLOUD IMPACT LEVEL

- No Data Impact Level

INSTANCE LIMIT



# Asset License Info

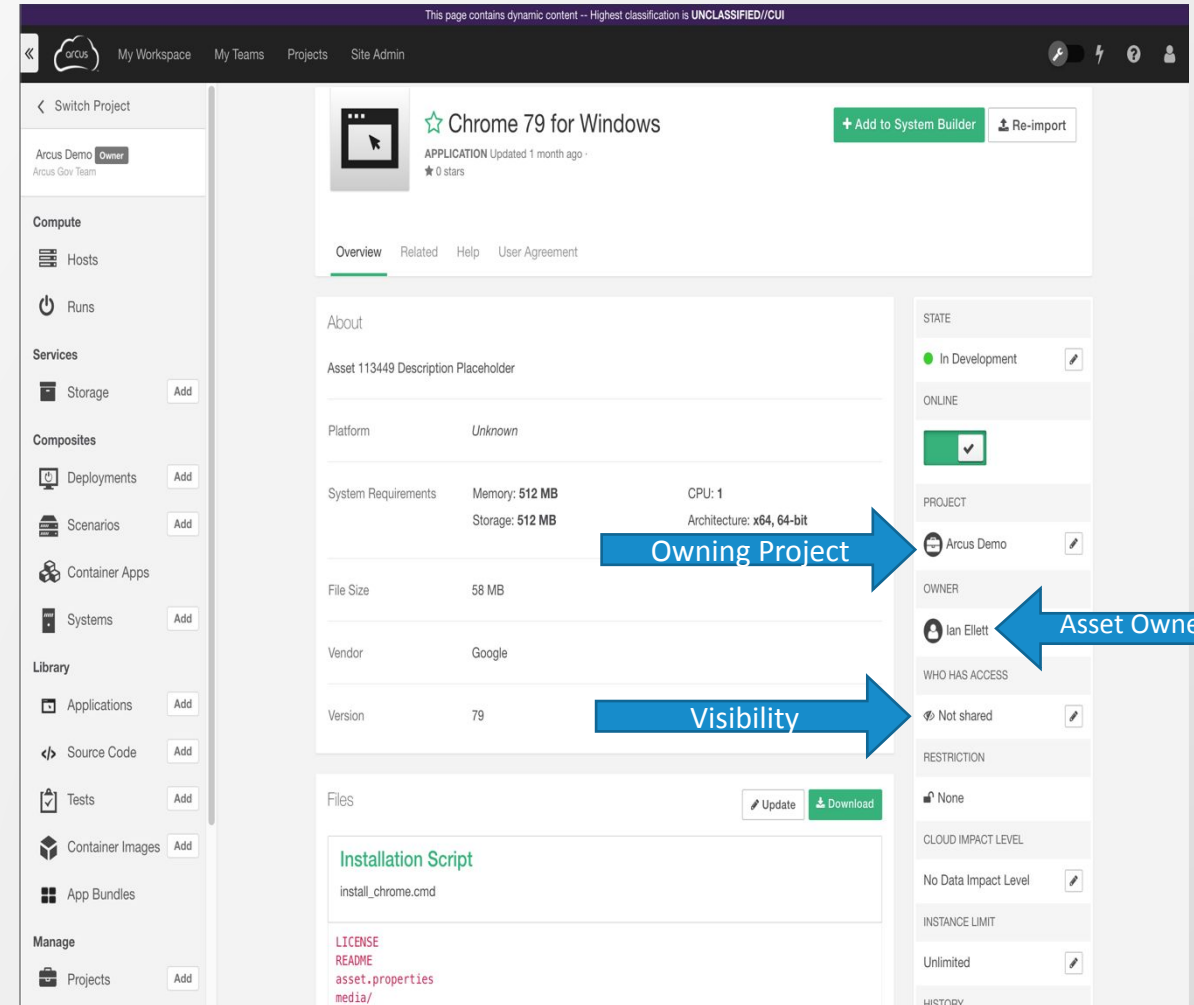
- Add applicable software license/user agreement or link to a public license
- This is **NOT** for license keys
- Uses Markdown (.md) formatting or plain text

The screenshot displays the Arcus application interface. At the top, a navigation bar includes 'My Workspace', 'My Teams', 'Projects', and 'Site Admin'. The main content area shows the details for 'Chrome 79 for Windows', an application updated 1 month ago with 0 stars. Below the application name, there are tabs for 'Overview', 'Related', 'Help', and 'User Agreement'. The 'User Agreement' tab is active, displaying the 'Terms & Conditions' for Google Chrome. The text includes: 'Google Chrome Terms of Service These Terms of Service apply to the executable components of Google Chrome. Source code for Google Chrome is available free of charge under open source software license agreements at https://code.google.com/chromium/terms.html.' It also lists sections like '1. Your relationship with Google' and '1.1 Your use of Google's products, software, services and...'. On the right side of the page, there are sections for 'STATE' (In Development), 'ONLINE' (checked), 'PROJECT' (Arcus Demo), 'OWNER' (Ian Ellett), and 'WHO HAS ACCESS'. Two blue arrows are overlaid on the image: one pointing to the 'User Agreement' tab with the text '1) Click "User Agreement"', and another pointing to the 'Edit' button with the text '2) Click "Edit"'. The bottom of the image features a decorative cloud graphic.



# Asset Ownership

- Assets belong to:
  - Owner – the person who created the Asset
  - Project – the owner's Project when the Asset was created
- Site Admins and Project Managers can change the Asset owner
- Only Site Admins can move Asset ownership to another Project



This page contains dynamic content -- Highest classification is UNCLASSIFIED//CUI

My Workspace My Teams Projects Site Admin

Switch Project

Arcus Demo **Owner**  
Arcus Gov Team

Compute

- Hosts
- Runs

Services

- Storage **Add**

Composites

- Deployments **Add**
- Scenarios **Add**

Container Apps

- Systems **Add**

Library

- Applications **Add**
- Source Code **Add**
- Tests **Add**
- Container Images **Add**
- App Bundles

Manage

- Projects **Add**

Chrome 79 for Windows

APPLICATION Updated 1 month ago -  
★ 0 stars

**Add to System Builder** **Re-import**

Overview Related Help User Agreement

About

Asset 113449 Description Placeholder

Platform *Unknown*

System Requirements Memory: 512 MB CPU: 1  
Storage: 512 MB Architecture: x64, 64-bit

File Size 58 MB

Vendor Google

Version 79

Files **Update** **Download**

**Installation Script**  
install\_chrome.cmd

LICENSE  
README  
asset.properties  
media/

STATE

- In Development

ONLINE

- 

PROJECT

- Arcus Demo

OWNER

- Ian Elett

WHO HAS ACCESS

- Not shared

RESTRICTION

- None

CLOUD IMPACT LEVEL

- No Data Impact Level

INSTANCE LIMIT

- Unlimited

HISTORY

Owning Project

Asset Owner

Visibility





# Asset Visibility and Sharing

- Set the Visibility for all your Assets
- Leverage for privacy, publishing, configuration management, workflow, sharing

Level	Visibility
No one else (me)	Asset is not shared, only visible to you
Project	Members of the Asset owning Project
Partner Projects	Select from a list of “Trusted Projects”
Everyone	Anyone in the Community can view and use the Asset

- Default Visibility is “No one else”
- Change visibility via the edit (pencil) button
- Trusted Projects are set up by the Project Manager
- Maximize re-usability by using Community Assets in your Project!
- Deployments cannot be shared outside of a Project

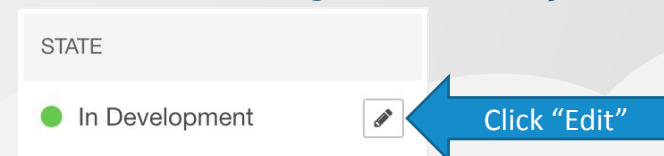


# Asset States

- Designed to fit your Team's processes
- Leverage for configuration management, workflow

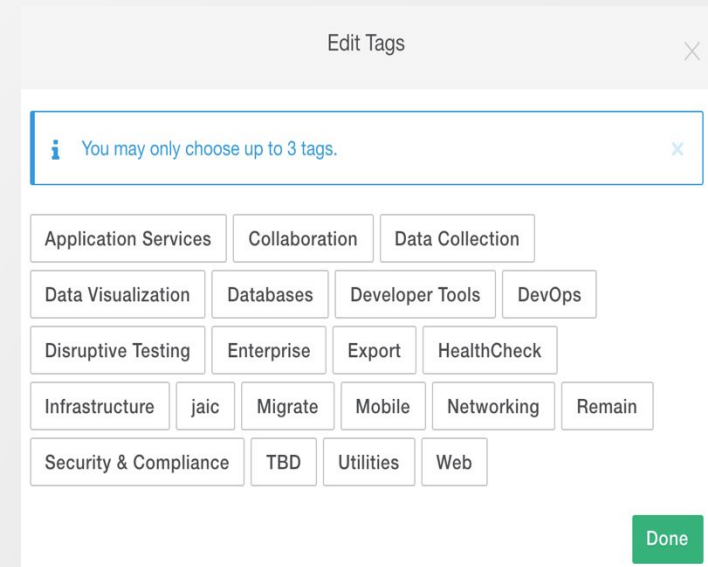
State	Behavior
In Development (Initial State)	Owner can edit the Install script and update the Asset components. Other users can expect change.
Published	The Asset cannot be updated. Other users can rely on stability.
Certified	Same as <i>Published</i> plus support standing behind the Asset.
Deprecated	Greyed out in Asset Library (select "Include Inactive" to see) Cannot be used in new Systems; existing Runs will launch CANNOT change back to "Published"
Retired	Greyed out in Asset Library (select "Include Inactive" to see) Deployment Runs cannot launch with a <i>Retired</i> Asset CANNOT change back to "Published"

- Using a shared Asset that is "In Development" will generate a warning that it may change
- Set the Asset State by clicking the gear icon



# Tags

- Choose up to three Tags from list
- The Tags list is managed by the Site Admin
- Disruptive Tags generate notifications to Site Admins when Asset is used



The screenshot shows a dialog box titled "Edit Tags" with a close button (X) in the top right corner. Below the title bar is a message box with an information icon (i) and the text "You may only choose up to 3 tags." and a close button (X). Below the message box is a grid of 24 tags arranged in 5 rows:

Application Services	Collaboration	Data Collection			
Data Visualization	Databases	Developer Tools	DevOps		
Disruptive Testing	Enterprise	Export	HealthCheck		
Infrastructure	jaic	Migrate	Mobile	Networking	Remain
Security & Compliance	TBD	Utilities	Web		

A green "Done" button is located in the bottom right corner of the dialog box.



# Instance Limits

- Manages number of simultaneous times an Asset is deployed
- Use to manage software license compliance
- To set the Instance Limit...

The screenshot shows the Arcus console interface. A modal dialog is open, asking "How many instances of 'Chrome 79 for Windows' can be used simultaneously?". The dialog has two options: "Unlimited" (selected) and "Fixed number:" with an input field. Below the options are "Cancel" and "Confirm change" buttons. A blue arrow labeled "2) Set 'Unlimited' or a Fixed Number" points to the "Unlimited" radio button. Another blue arrow labeled "3) Confirm or Cancel" points to the "Confirm change" button. In the background, the console shows the asset details for "Chrome 79 for Windows", including system requirements (Memory: 512 MB, CPU: 1, Architecture: x64, 64-bit), file size (58 MB), vendor (Google), and version (79). A blue arrow labeled "1) Click 'Edit'" points to the "Edit" icon in the "INSTANCE LIMIT" section of the asset details.



# Cloud Impact Level

- Set the FedRamp Data Impact Level for an Asset
- Assets cannot be deployed into a Cloudspace that does not support that data Impact Level or higher
- Cloudspace Administrators set the data Impact Level
- To set the Impact Level...

The screenshot shows the Arcus console interface. A modal dialog titled "Edit Impact Level" is open, displaying a dropdown menu with "No Data Impact Level" selected. Below the dropdown are "Cancel" and "Save" buttons. Three blue arrows with text labels point to specific elements: "1) Click 'Edit'" points to the edit icon in the "CLOUD IMPACT LEVEL" field of the asset details; "2) Set 'Impact Level'" points to the dropdown menu; and "3) Click 'Save'" points to the "Save" button. The background shows the asset details for "Asset 113449", including system requirements and a file list.



# ITAR Restriction

- Set at the Project level
- Cannot share ITAR Assets at the Community level
- ITAR Restrictions carry through to Composite Assets
- Once something is ITAR restricted, it cannot be undone
- To set the ITAR Restriction, see the image to the right...

The screenshot shows the Arcus project management interface. At the top, there is a navigation bar with 'My Workspace', 'My Teams', 'Projects', and 'Site Admin'. The main content area displays the 'Arcus Demo' project details. A blue arrow labeled '1) Select "Manage"' points to the 'Manage' button in the top right corner. Below the project name, there are tabs for 'Overview', 'Runs', and 'Members'. The 'Basic Info' section is active, showing fields for 'Name' (Arcus Demo), 'Description' (optional), and 'Visibility' (Private). A 'Save' button is visible at the bottom right of the 'Basic Info' section. Below this, the 'Sharing Restrictions' section contains a warning: 'Restrictions govern the sharing of resources between projects. Once a project is made restricted, its resources can no longer be shared with the community or other non-restricted projects. Adding a restriction is an irreversible action and cannot be undone.' A checkbox labeled 'ITAR restricted' is present, with a blue arrow labeled '2) Turn on ITAR' pointing to it. A 'Save' button is also visible at the bottom right of the 'Sharing Restrictions' section.

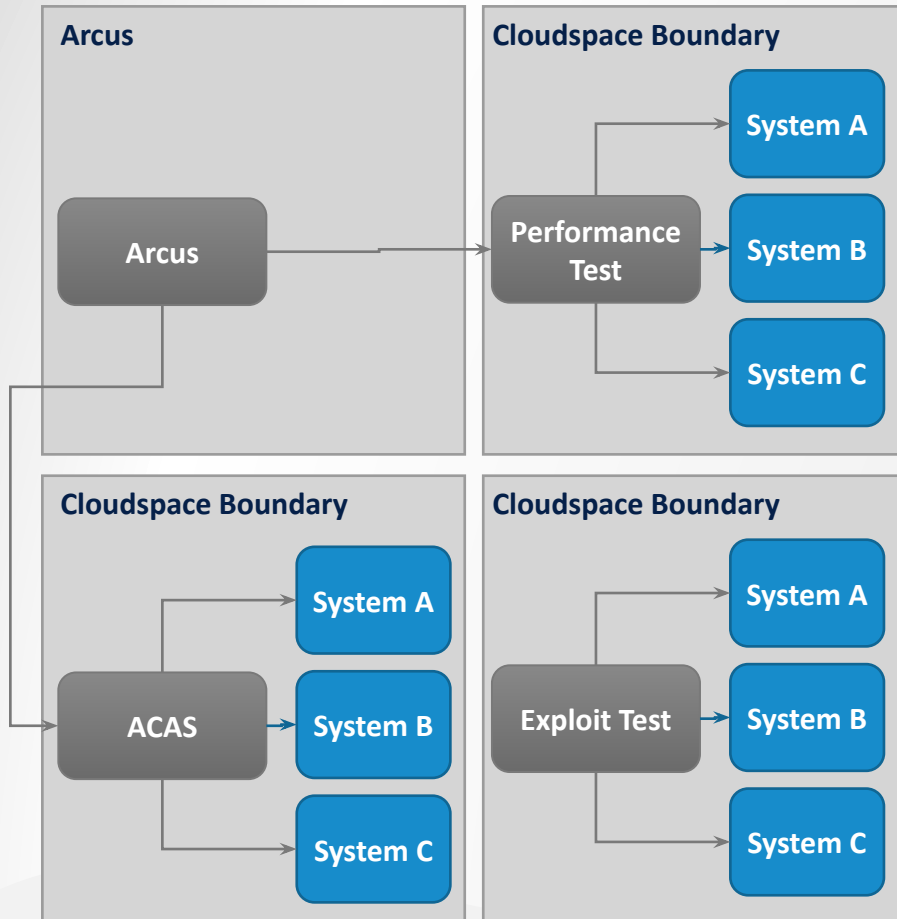




# **Creating ElasticTest™ Assets**

# ElasticTest™

## ElasticTest™



## Benefits

- Built on-demand
- Tool is local so it can reach its target...
- ...but can also do WAN testing
- Less disruptive traffic
- Secure control over credentials used in evaluation
- Isolated activities
- Elastic resources
- Efficient use of license investment
- No management of system necessary
- No expertise required to execute but...
- Power users can still customize





# ElasticTest™ Enabled Tools

- **Tenable Nessus** – vulnerability assessment
- **MicroFocus Fortify\*** – source code analysis
- **Sonarlint** – source code analysis
- **SmartBear SoapUI** – web service & application
- **CA LISA\*** – web service & application
- **Worksoft Certify\*** – web service, full application
- **Web Exploit Suite** – suite of penetration tools
- **Script**
  - bash
  - Powershell
- ElasticTest SDK used for developing new tools



# Test Assets

- Test Cases/Suites/Scripts
- Test Assets consist of:
  - Files or files used by the Test Tool to run the test
  - Configuration Data such as:
    - Static properties and data
    - Custom user properties
    - Dynamic properties
  - Asset definition (used for CONS3RT management)
  - Documentation
- Tests should be written to handle data defined in the Asset
- Different test tool types require different custom properties



# Using Test Assets

This page contains dynamic content -- Highest classification is UNCLASSIFIED//CUI

arcus My Workspace My Teams Projects Site Admin

Switch Project

Arcus Demo **Owner**  
Arcus Gov Team

**Compute**

- Hosts
- Runs

**Services**

- Storage **Add**

**Composites**

- Deployments **Add**
- Scenarios **Add**
- Container Apps
- Systems **Add**

**Library**

- Applications **Add**
- Source Code **Add**
- Tests **Add**
- Container Images **Add**

Test type Certification Tags More filters Me Everyone

7 TEST ASSETS Sort by: Newest

**NESSUS TEST** + **2) Add to Deployment Builder** ☆

Sample Nessus 6.4.3 Scan  
Updated 1 month ago

**NESSUS TEST** + ☆

HUG Site Credentialed Scan  
Updated 1 year ago

**FORTIFY TEST** + ☆

Steves cool fortify test  
Updated 1 year ago

**FORTIFY TEST** + ☆

Steves Fortify  
Updated 1 year ago

**FORTIFY TEST** + ☆

Steves Fortify Scan  
Updated 1 year ago

**FORTIFY TEST** + ☆

T Fortify Scan  
Updated 2 years ago

**1) Click Tests**



# Running & Reporting

- User initiated via the GUI or REST API
- Immediate run, future run, or via recurring schedule
- Tests can be run using community tools or as an on-demand (elastic) tool. (i.e. shared vs. dedicated resources)
- Provision System under test and then execute a test
- Re-execute Tests multiple times
  
- Canned reports (formats vary – pdf, csv, txt, xls, etc.)
- Log files (usually in txt format)
- Customize report interface (i.e. a database, log file, some externally accessible API)





**Rest API**

# ReST API

- ReST is a stateless interface that allows users to interact with a system via HTTP calls:
  - Each ReST call contains all the necessary information to complete a desired task (Stateless – interactive session is not required)
  - Specific urls detail the target of an interaction, such as
    - `/rest/api/systems`
    - `/rest/api/scenarios/{id}/launch`
  - http verbs, such as GET/PUT/POST/DELETE dictate the actions to be taken on a specified target
- ReST allows general actions to be automated saving time an effort of continual tasks



Automate the Automation



# ReST Use Cases

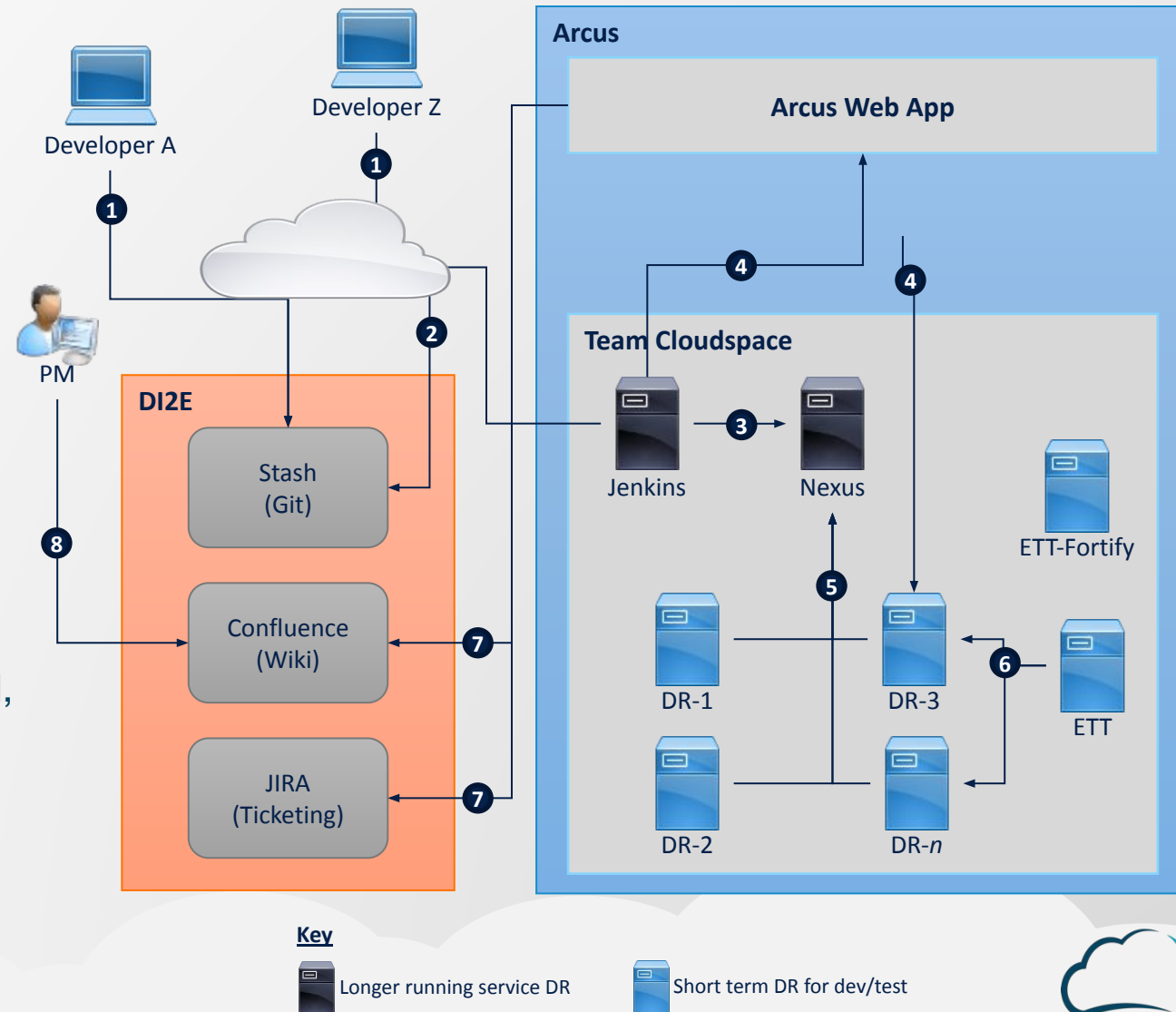
- Query your active Deployment Runs and put results in a dashboard
- Launch a Test every time code is checked-in to your repository
- Setup new Project spaces upon user registration
- Update System/Scenario/Deployment recipes when an Asset is updated
- Update Asset state after a successful Security Scan
- Remotely launch a Nessus Scan and return results to content share of your choice
- Run smoke tests every hour on the hour



# ReST Driven Workflow

## Daily CI Flow

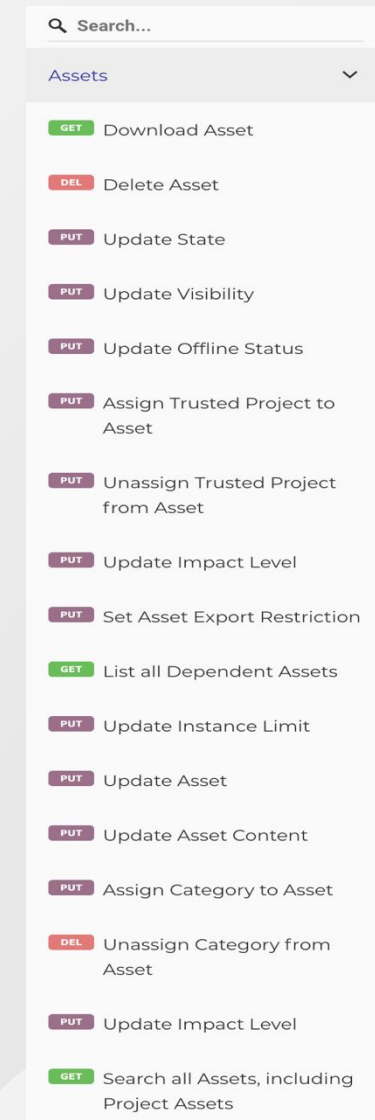
- 1) Developers check in code to DI2E Stash during the day
- 2) Nightly Jenkins job pulls day's code from DI2E Stash
- 3) Jenkins job builds artifact and pushes to Nexus repository
- 4) Jenkins launches twenty (20) Deployment Runs (DR) in arcus using ReST API
- 5) Each DR pulls and installs the latest artifact from Nexus
- 6) Each DR includes an ElasticTest case (functional Test, Security Scan)
- 7) Upon completion of the DR, the Systems are released, and the ElasticTest results are posted in DI2E:
  - Issues in JIRA as tickets
  - Summary results in a Confluence wiki
- 8) Each morning the PM & team can see PASS/FAIL results for hundreds of criteria





# Overview of the CONS3RT REST API

- First things first go here and read: <https://arcus-cloud.io/kb/developer/>
- Generate an API key in your account profile page
- What can I do now?
  - 100+ Endpoints
  - 15+ Categories



# What makes up a ReST call?

- URL: the target of the call
- HTTP verb: either GET, PUT, POST, DELETE
- Credentials:
  - Password or certificate: provided via browser, or directly
  - ReST API Key : provided following a support request
  - Project : the project context (user must be a member)
- Body: some calls require input, which takes the form of xml or json objects
- Content-Type: Specifies the type of content being sent (application/xml - json)
- Query Parameters: input that is fed into the url itself to specify settings or options ex:  
`/rest/api/systems/{id}/clone?name=test`



# Sample Rest Call : Structure

## Download Asset

Downloads the Asset in the form of a zip file. Download is only available for importable Asset types (i.e. Software, Test, and Container).

Based on the background flag, the download will be done in the foreground (false), background (true), or in a location as determined by Asset size (default).

If the background flag is set to true (or if no value for the background flag is provided), and the Asset is larger than the site threshold, the Asset will be prepared for download in the background. In that case, an email with a link to retrieve the Asset will be sent. If the Asset is larger than download threshold, it will be prepared for download in the background, and an email with a download link will be sent.

AUTHORIZATIONS: ( `APIKeyHeader` ) OR ( `Username` )

### PATH PARAMETERS

→ `id` string  
`required` ID of asset

### QUERY PARAMETERS

→ `background` boolean  
Default: `false`  
Force the download to happen in the background

## Responses

> 200 OK

– 202 Accepted

– 400 Invalid ID supplied or asset is not the correct type

– 404 Asset not found

The screenshot shows a REST client interface with a dark theme. At the top, a dropdown menu displays the method `GET` and the endpoint `/api/assets/{id}/download`. Below this, the **Response samples** section shows a `200` status code. A box labeled **Content type** contains the value `application/json`. At the bottom of the response area, the word `true` is visible, and there are interactive buttons for `Copy`, `Expand all`, and `Collapse all`.



# ReST In Action (Examples)

- Example call

```
curl -i -k \  
--cert "{cert from keychain}" \  
-H "rest_api_key: {key goes here}" \  
-H "Accept: application/xml" -H "Content-Type: application/xml" \  
-H "project: Sample Project" \  
-X GET https://www.cons3rt.com/rest/api/projects/\$ID/members/
```

- Browser plugin
- Bash script



# Plugins & SDKs

- Jenkins Plugin

- Arcus can be fully integrated into a Jenkins CI pipeline using the Arcus Jenkins Plugin.
- The Jenkins Plugin allows users to **create** and **update** Arcus software assets as part of a Jenkins build.
- The Jenkins Plugin can also leverage the deployment run options in the post-build actions to launch new deployment runs that leverage the newly updated asset(s).
- The Jenkins plugin can be downloaded via <https://github.com/jenkinsci/cons3rt-plugin> or accessed at <https://plugins.jenkins.io/cons3rt>
- After installing the plugin, you'll get a new Post-Build entry named "Create an Arcus Asset" and a Post-Build Action entry named "Create or Update an Arcus Asset"
- In order to upload your asset to a site, a site URL and ReST token must first be provided (the latter taking the form of a Jenkins secret-text credential)

- Arcus offers SDKs for several languages (e.g. Python):

- Currently in Beta
- Please contact support if you are interested in leveraging these SDKs





# **Support & Troubleshooting**

# Support

## Support

- <https://arcus.mil/support>
- Submit a ticket through...
  - the *Support* link on the home page
  - the *Help* icon when signed in
- Help icon tickets provide more data on what the user was working on

## Email

- [support@arcus-cloud.io](mailto:support@arcus-cloud.io)

## Knowledge Base

- <https://arcus.mil/kb/>
- The Knowledge Base expands on all the topics covered in this training.

## Github Sample Assets

- <https://github.com/cons3rt>

Support Pricing Blog

arcus

SIGN IN REGISTER

## Support

### Training

Getting Started Video Guides

Knowledge Base

Change Log

Getting Help

More Resources

There are a variety of ways to get help using CONS3RT. If you are new to the site, be sure to check out the resources below:

### Training

We have four training programs for beginner, intermediate, and advanced users listed below. Please contact Jackpine Technologies through the "Support" button below to arrange a custom training program.

- Overview (for Beginners) PDF
- Power Users (for Intermediate to Advanced users) PDF
- Getting Started (for Beginners) PDF
- Asset Development (for Intermediate to Advanced users) PDF

### Getting Started Video Guides

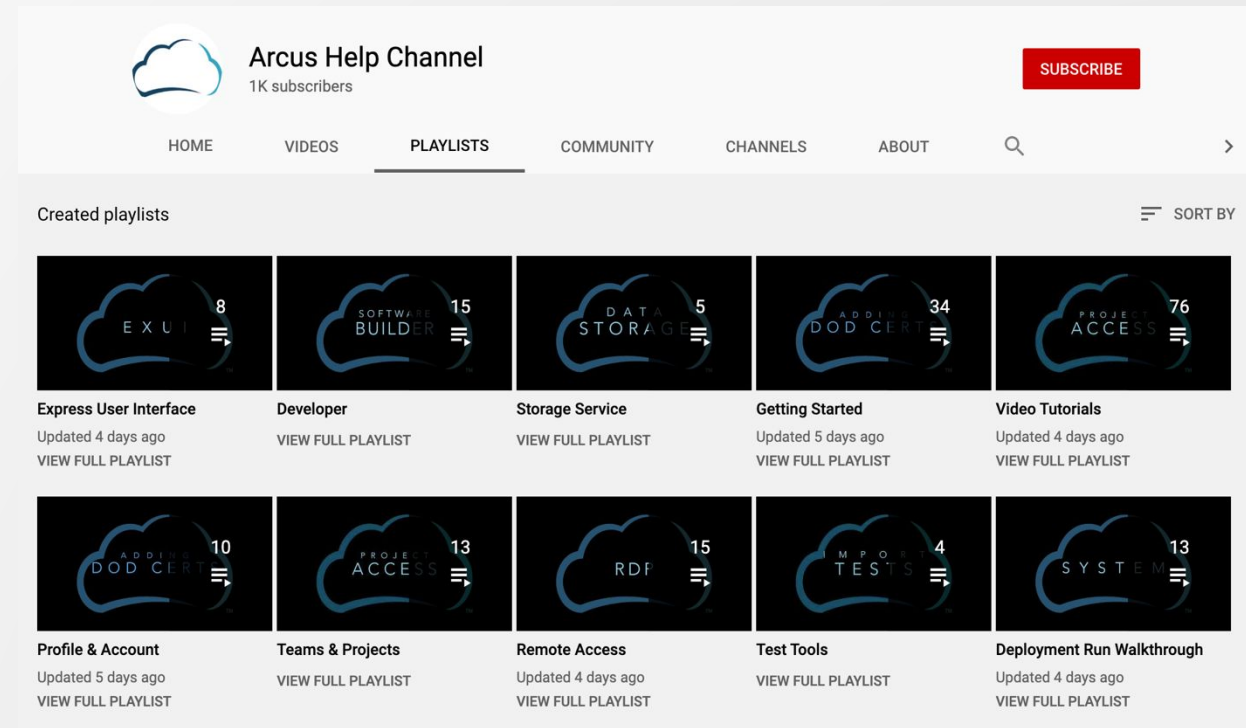
Listed below are our YouTube playlists for video tutorials on getting started with CONS3RT. In addition, We have established a **CONS3RT repository** to provide users with several source code and software asset samples available for download.

← [Video Player] [Video Player] [Video Player] →



# Video Tutorials

- If you would like to see **Arcus** in action, feel free to check out the video tutorials:
  - On the Arcus Help Channel at <https://www.youtube.com/c/arcushelpchannel>
  - Embedded in the articles on our [Help Site](#)
- If you have any suggestions for future videos, let us know by submitting a ticket



The screenshot shows the YouTube channel page for 'Arcus Help Channel', which has 1K subscribers. The page is set to the 'PLAYLISTS' tab. Below the navigation bar, there is a section titled 'Created playlists' with a 'SORT BY' dropdown menu. The playlists are arranged in two rows of five items each. Each item consists of a thumbnail with a cloud icon and a number, a title, and a 'VIEW FULL PLAYLIST' link. The first row includes: 'Express User Interface' (8 videos, updated 4 days ago), 'Developer' (15 videos), 'Storage Service' (5 videos), 'Getting Started' (34 videos, updated 5 days ago), and 'Video Tutorials' (76 videos, updated 4 days ago). The second row includes: 'Profile & Account' (10 videos, updated 5 days ago), 'Teams & Projects' (13 videos), 'Remote Access' (15 videos, updated 4 days ago), 'Test Tools' (4 videos), and 'Deployment Run Walkthrough' (13 videos, updated 4 days ago).

Playlist Title	Video Count	Last Updated
Express User Interface	8	Updated 4 days ago
Developer	15	
Storage Service	5	
Getting Started	34	Updated 5 days ago
Video Tutorials	76	Updated 4 days ago
Profile & Account	10	Updated 5 days ago
Teams & Projects	13	
Remote Access	15	Updated 4 days ago
Test Tools	4	
Deployment Run Walkthrough	13	Updated 4 days ago







**Thank you!**



arcus

TM