User Guide:

Intel Cloud Integrity Technology 3.1
Deployment Wizard

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Introduction

This document contains the user guide for the Cloud Integrity Technology 3.2 Deployment Wizard server. The Deployment Wizard is an installable service that will automatically deploy CIT components in a variety of configurations.

Purpose

The purpose of the Quick Start server is to simplify the deployment of Cloud Integrity Technology components into a specified environment.

The intended audience is developers, system engineers, product marketing team, and managers.

Definitions, Acronyms, Abbreviations

Acronyms

CIT - Cloud Integrity Technology

KMIP - Key Management Interoperability Protocol

SSH - Secure Shell

VM - Virtual Machine

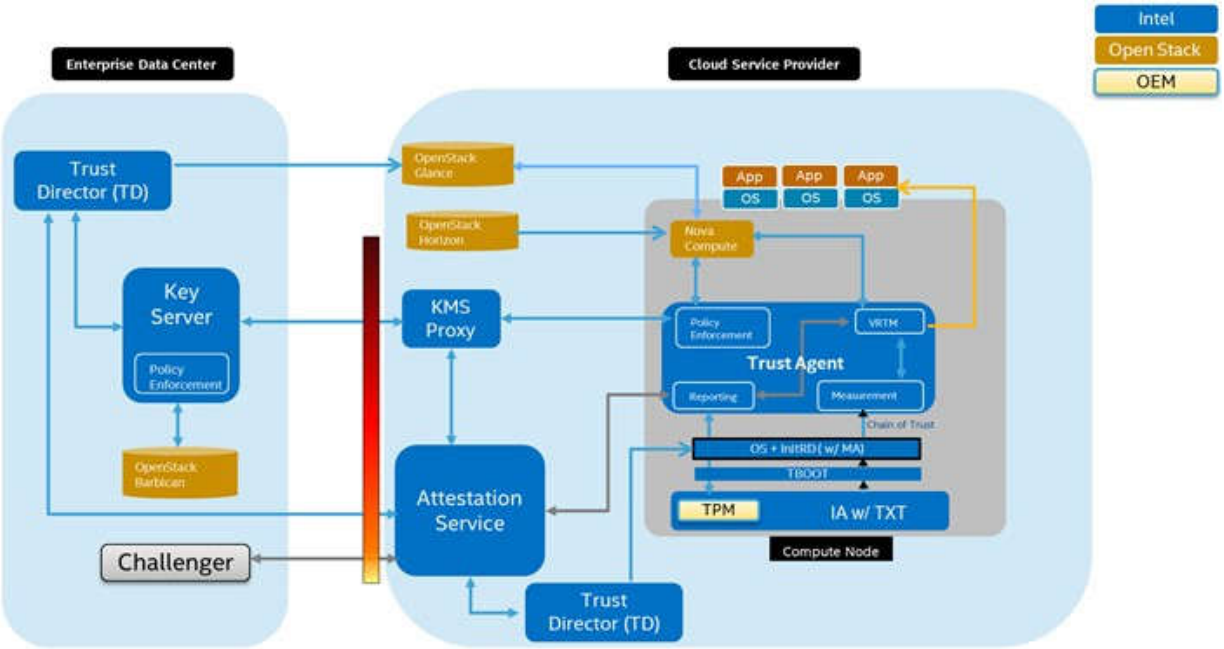
CSP - cloud service provider

CSC - cloud service consumer (the enterprise customer that is using the CSP), this term is used only to refer to an enterprise in situations when it is acting specifically as a customer of a CSP

References

Cloud Integrity Technology 3.2 Product Guide

Cloud Integrity Technology 3.1 Component Architecture



Intel Cloud Integrity Technology 3.0 consists of multiple components (see the CIT 3.0 Product Guide for a full description of each component and its purpose). These components can be deployed by the Deployment Wizard in different ways to support different use cases. Some components (such as the Key Broker Server) are only deployed to support specific use cases, and may not be used in all CIT installations.

The Deployment Wizard can install those components needed by the Cloud Service Provider (CSP), the components needed by the Enterprise Customer, or both. These components can be installed on a single host, or a separate host can be used for each component.

In any scenario where the CSP and Enterprise Customer components will be installed separately, the CSP components must be installed first. Information from the CSP (user authentication information, etc.) will need to be provided to the Enterprise Customer before the customer installs their own CIT components.

Overview

This user guide is organized into sections covering installation and operation.

Quick Start

To install the Cloud Integrity Technology Quick Start:

1. Copy the CIT Quick Start installer to the target system `CIT_QUICKSTART_HOST`

2. Run the installer

3. Browse to `https://CIT_QUICKSTART_HOST`

Installation

The Deployment Wizard server is packaged as a Linux self-extracting executable.

Standard

A standard installation of the Cloud Integrity Technology Deployment Wizard does not require any configuration. The software will be installed in /opt/cit and the server will be available on standard http port 80 and https port 443 by default. Simply run the executable and enter the server's IP address or hostname into a browser window to access the deployment tool.

Example output from a successful installation:

```
Verifying archive integrity... All good.
Uncompressing cit-quickstart-linux-3.0-SNAPSHOT.........
Installing Cloud Integrity Technology (R)...
==================================================>100%
http://198.51.100.18
```

Example output from a failed installation:

```
Verifying archive integrity... All good.
Uncompressing cit-quickstart-linux-3.0-SNAPSHOT.........
Installing Cloud Integrity Technology (R)...
===========>                                       23%
Installation failed; log file is at /tmp/cit/monitor/install-quickstart/stdout
```

Custom (Optional)

The following environment variables can be exported or defined in ~/cit.env before installation in order to customize the installation:

Table 1 Environment variables to customize installation

Name	Default	Notes
CIT_HOME	/opt/cit	Directory path. Directory where bin, configuration, env, logs, and repository are going to be installed.
CIT_USERNAME	cit	Linux username. The non-root user to run the quick start server
CIT_CONFIGURATION	CIT_HOME/configuration	Directory path. Alternate location: /etc/cit
CIT_REPOSITORY	CIT_HOME/repository	Directory path. Alternate location: /var/opt/cit
CIT_LOGS	CIT_HOME/logs	Directory path. Alternate location: /var/log/cit
CIT_BIN	CIT_HOME/bin	Directory path. Executable scripts and binaries are stored here
CIT_JAVA	CIT_HOME/java	Directory path. Application Java libraries are stored here
CIT_PID_FILE	CIT_LOGS/cit.pid	File path. Alternate location: /var/run/cit.pid
CIT_LOG_LEVEL	INFO	Possible values: DEBUG, INFO, WARN, ERROR. Set to DEBUG to write more details into log; set to WARN or ERROR to write less to the log
JAVA_REQUIRED_VERSION	1.7	Java version. Sets the minimum required Java version for using a pre-installed Java runtime; if one is not found the installer will install this Java version which is included
JETTY_PORT	80	Port number. The server's http port
JETTY_SECURE_PORT	443	Port number. The server's https port
MTWILSON_EXTENSIONS_FILEINCLUDEFILTER_CONTAINS	mtwilson,cit,jersey-media-multipart	Format is comma-separated without spaces. Controls which Jar files are scanned for auto-detecting extensions. Jar files in CIT_JAVA that contain any of

		these terms in the filename will be included.
MTWILSON_EXTENSIONS_PACKAGEINCLUDEFILTER_STARTSWITH	com.intel,org.glassfish.jersey.media.multipart	Format is comma-separated without spaces. Controls which Java packages are scanned for auto-detecting extensions. Within scanned jar files, Java packages that start with any of these terms will be included.
CIT_NOSETUP	N/A	Undefined, empty, or any value. Normally is not defined; set to any non-empty value such as “1” or “true” to skip generating master password, configuring the application, and running setup tasks during installation.

If present, the cit.env file is “sourced” by the shell so it can use any available shell variables and expressions in order to define the variables described in the above table.

Here is an example `/root/cit.env` file:

```
CIT_HOME=/opt/cit
CIT_CONFIGURATION=/etc/opt/cit
CIT_REPOSITORY=/var/opt/cit
CIT_LOGS=/var/log/cit
CIT_PID_FILE=/var/run/cit/cit.pid
```

Upgrade

To upgrade the Deployment Wizard server, simply run the new installer on a host with an existing installation. If the original installation was customized using the cit.env file, that file does not need to be present when upgrading. Customizations such as directory layout will be detected from the existing installation. An upgrade should not be used to change directory layouts - data will not be migrated.

To upgrade individual components deployed by the Deployment Wizard server, find the component installer under CIT_HOME/repository/packages and replace it with the new installer.

Note that upgrading the CIT Deployment Wizard does not upgrade any CIT components installed by the wizard.

Uninstallation

NOTE: the uninstallation procedure removes the Deployment Wizard server, **not** any deployed components.

There are two modes of uninstallation. The first mode ("uninstall") leaves configuration, logs, and data intact. The second mode ("uninstall --purge") completely removes the application and all its configuration, logs, and data.

Run the uninstall command that preserves configuration, logs, and data:

```
cit uninstall
```

Run the uninstall command that also removes configuration, logs, and data:

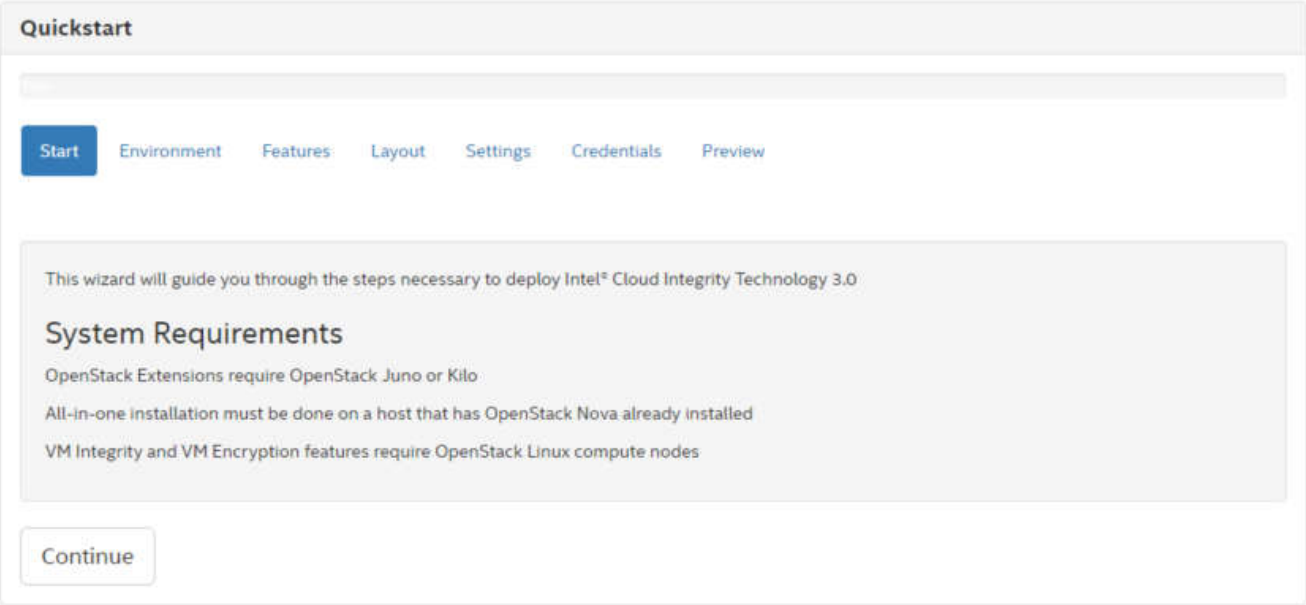
```
cit uninstall --purge
```

Browser

This section describes the browser user interface in detail. Each section describes one screen and may have one or more screenshots as a visual aid. Actual screens may differ from the screenshots shown here as we continuously improve the software.

Start

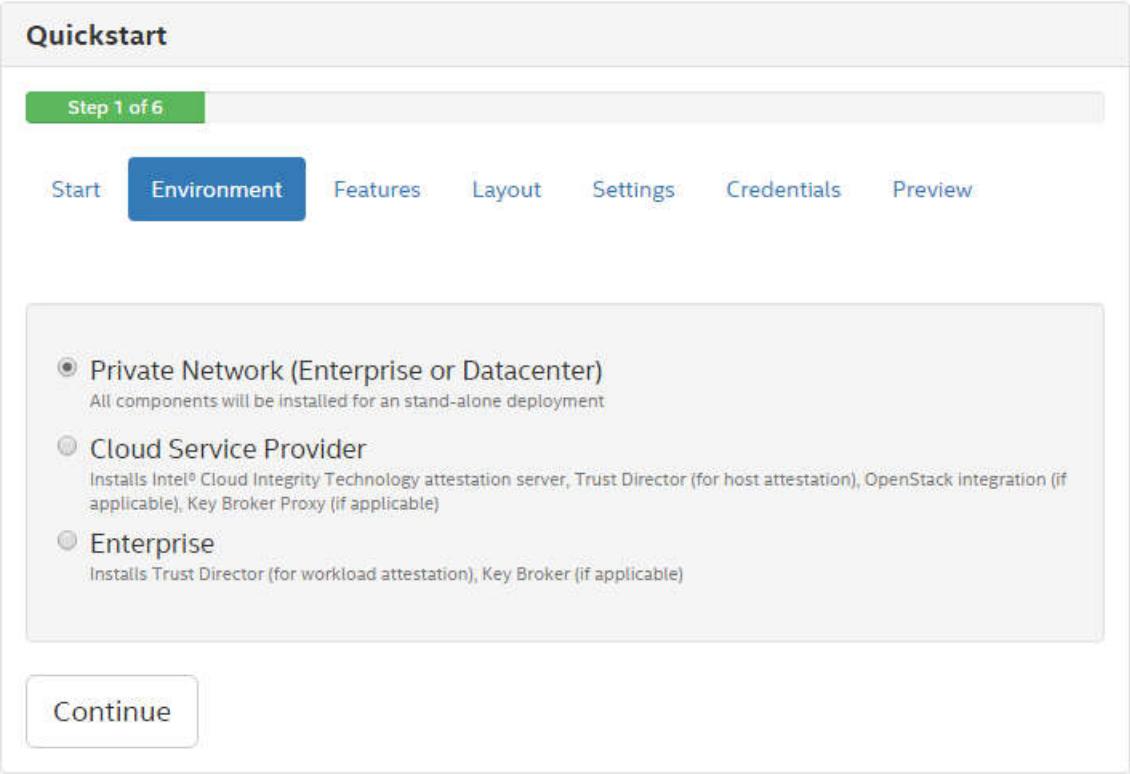
The start screen is an introductory screen that may include some release notes and system requirements for this version of Cloud Integrity Technology.



Environment

The environment screen presents a choice that affects which components of Cloud Integrity Technology will be installed and which configuration settings will be required. In a private network, all components will be installed and minimal configuration will be required. In a cloud service provider, all components except the Key Broker will be installed and minimal configuration will be required. In an enterprise, only Trust Director and Key Broker will be installed, and configuration settings will be required to connect to the Cloud Service Provider's OpenStack image service (Glance) and Attestation Service.

The default selection requires the least amount of configuration.

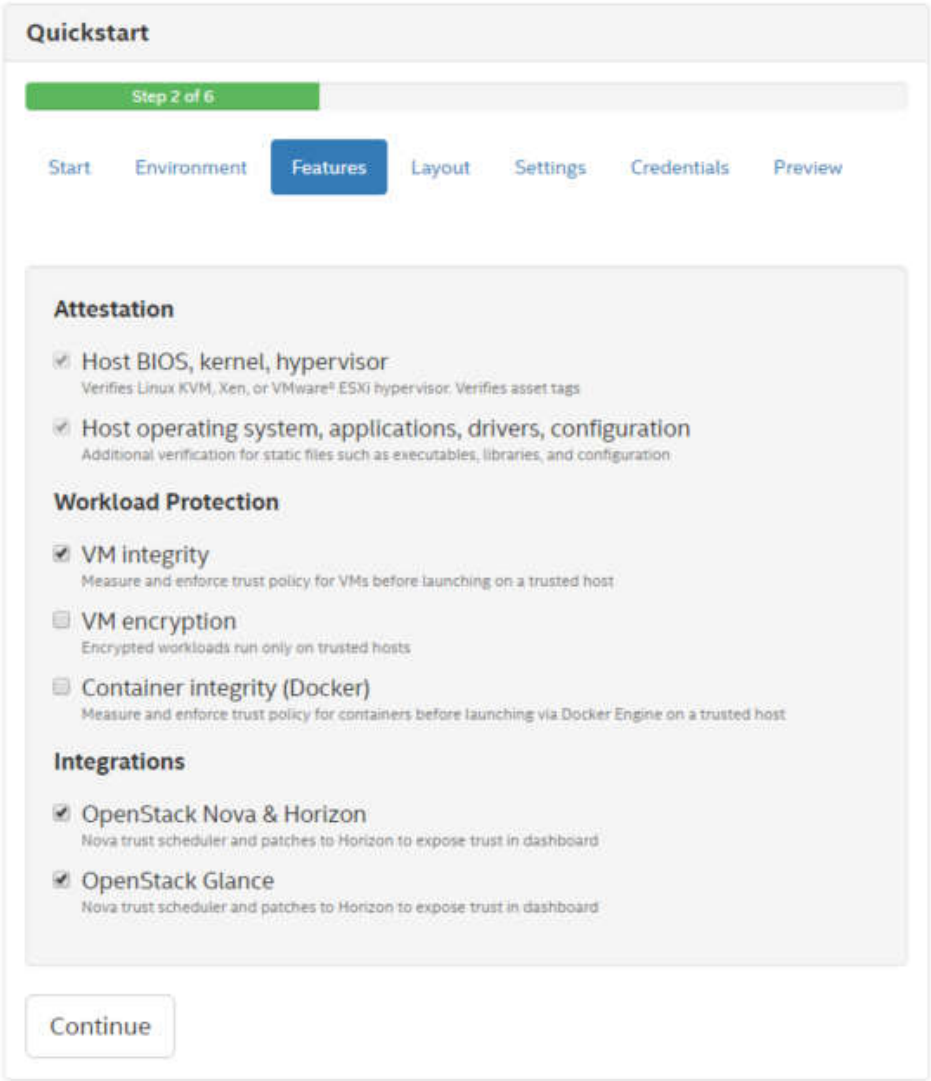


Features - Private Network (Enterprise or Datacenter)

The features screen presents a choice that affects which components will be installed and which configuration settings will be required. The items available in the features screen depend on the choice made in the environment screen. In a private network, all features are available.

The default selections require the least amount of configuration.

The “Private Network” selection will install all CIT components automatically. This is intended for a private cloud datacenter, as opposed to a Cloud Service Provider with one or more Enterprise Customers.

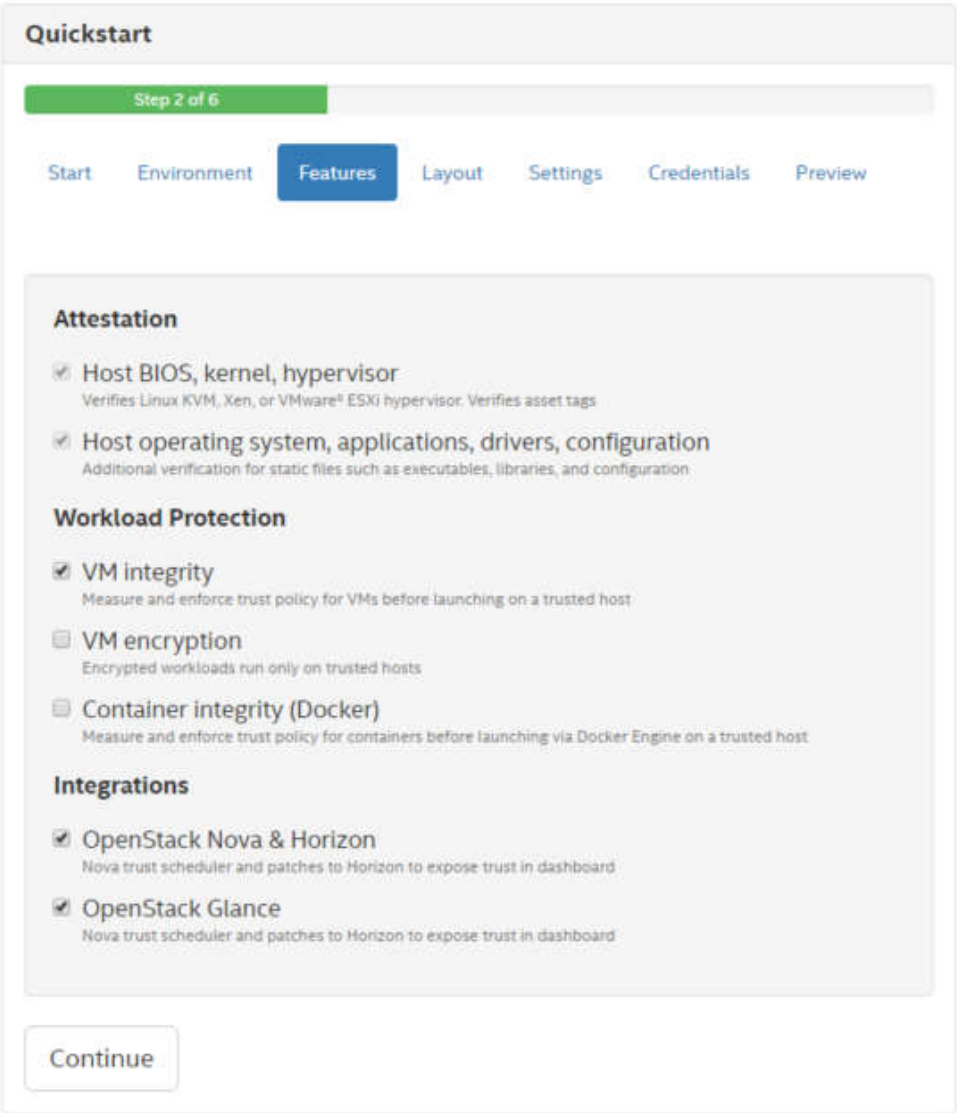


Features - Cloud Service Provider

The features screen presents a choice that affects which components will be installed and which configuration settings will be required. The items available in the features screen depend on the choice made in the environment screen. In a cloud service provider, Key Broker related features are omitted such as integration with OpenStack Barbican or a KMIP-enabled key server.

See the Cloud Integrity Technology Component Architecture diagram to see which components are part of a Cloud Service Provider deployment.

The default selections require the least amount of configuration.



Features - Private Network (Enterprise or Datacenter)

The features screen presents a choice that affects which components will be installed and which configuration settings will be required. The items available in the features screen depend on the choice made in the environment screen.

In an enterprise network, workload protection and various integration features are available. No Enterprise Customer deployment is needed if only Platform Attestation will be provided (all components needed for this are on the Cloud Service Provider side).

All selections will require some configuration because the enterprise installation is not a stand-alone installation and is intended to integrate with a cloud service provider's offering. To install all components locally with minimal configuration, choose the private network option in the environment screen.

Note that the Key Broker Server will not be installed if VM Encryption is not selected. If the VM Encryption will be selected for deployment, an existing KMIP or Barbican key management service must be installed and available before running the Enterprise Customer deployment.

For Barbican deployments, you will need the following information:

- Barbican ID
- Barbican URL
- Keystone URL
- Username
- Password
- Barbican Tenant Name

For KMIP deployments, you will need the following information:

- KMIP Server URL

See the Cloud Integrity Technology Component Architecture diagram to see which components are part of an Enterprise Customer deployment.

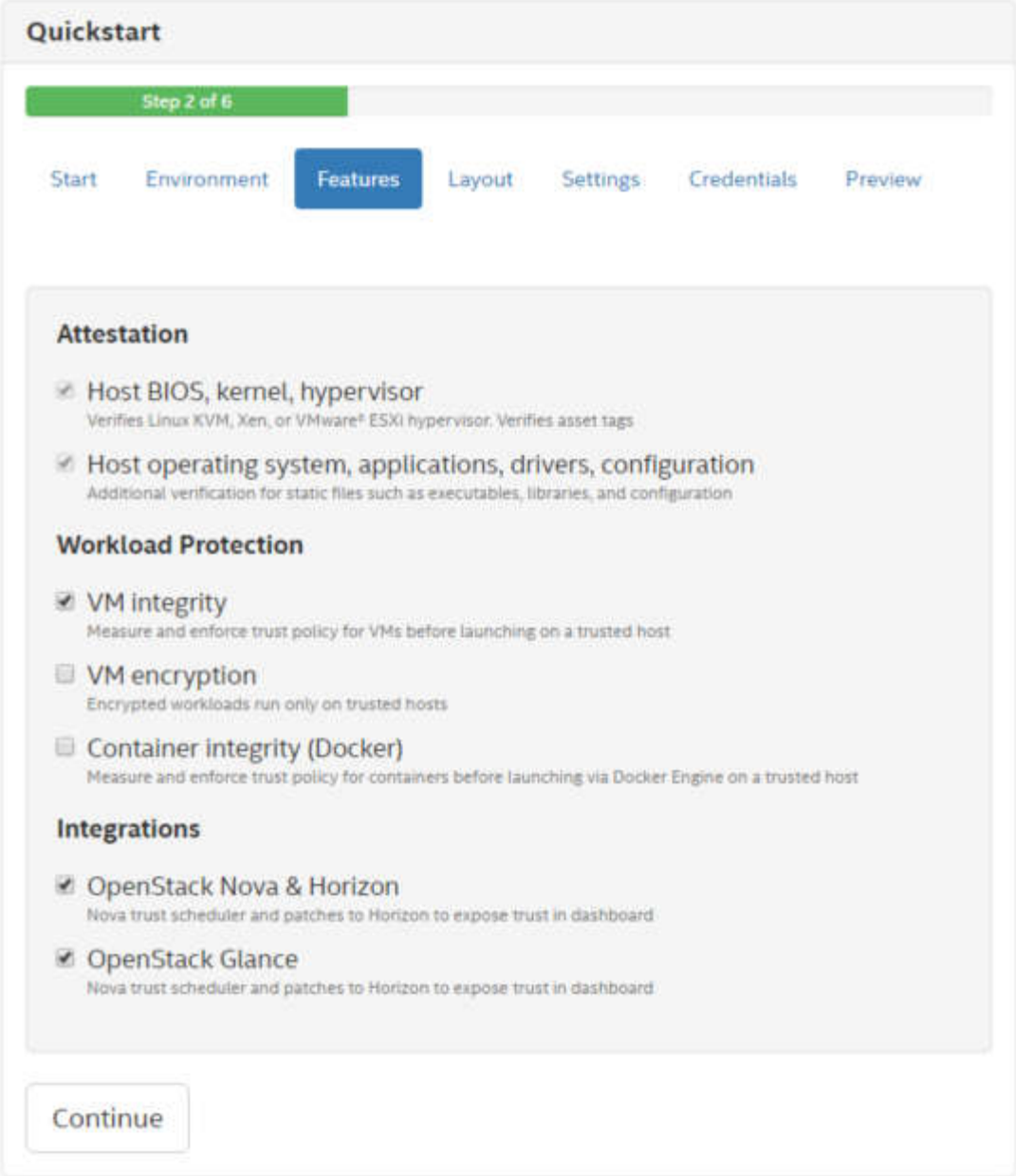
The following information will need to be provided by your Cloud Service Provider before installing the Enterprise Customer components:

Attestation Service Info:

- Host Name of IP Address
- Port Number
- TLS Certificate SHA-1 Fingerprint
- Username: *(Attestation Server user created by CSP)*
- Password: *(Attestation Server user password created by CSP)*

OpenStack Glance Integration:

- Glance Server URL
- Keystone Server URL
- Glance Username *(User created by CSP)*
- Glance Password *(User password created by CSP)*
- OpenStack Tenant Name *(Tenant name created by CSP)*



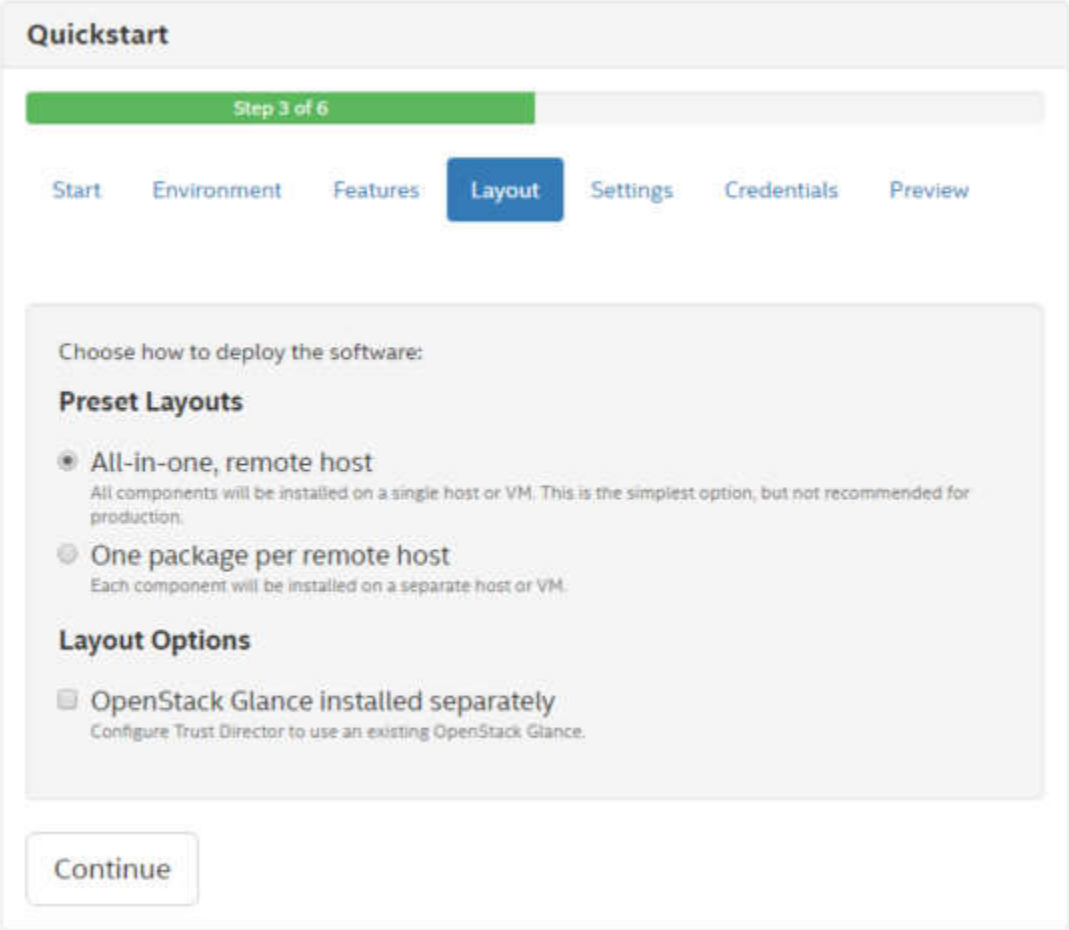
Layout

The layout screen presents a choice that will affect which configuration settings and login credentials will be required.

An “all-in-one” installation will result in all software components being installed in the same host, so only one host address and root password will be required in the credentials screen.

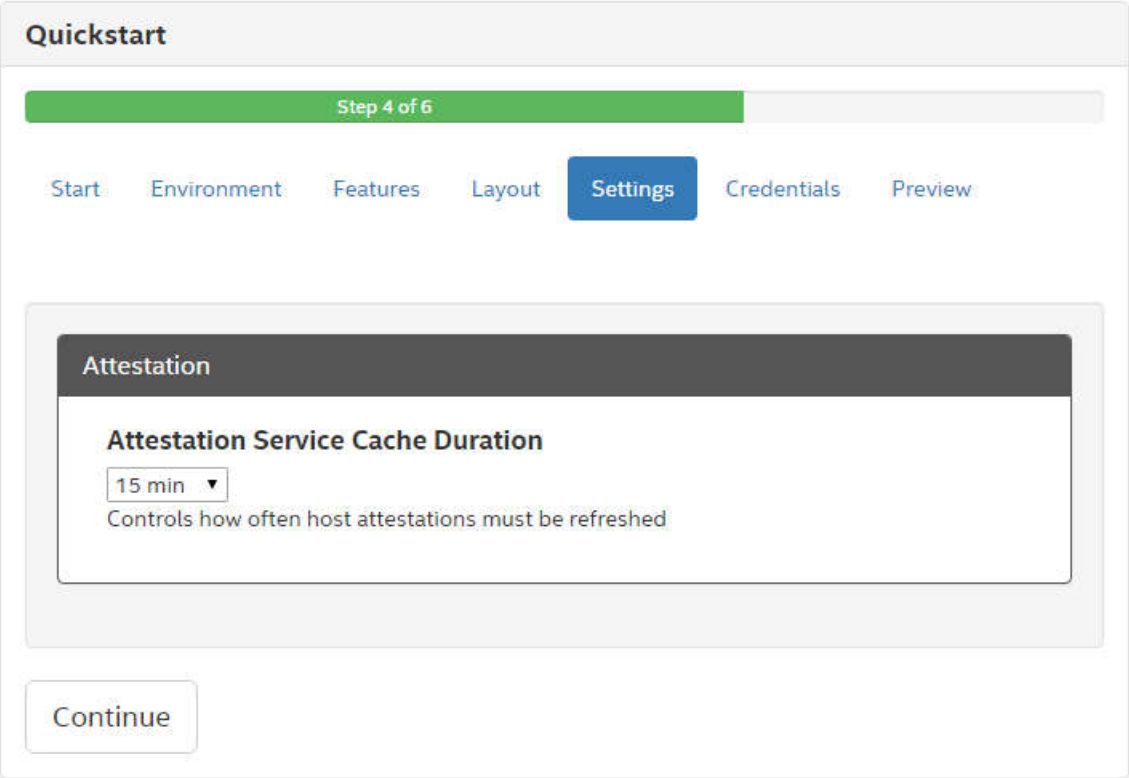
A “one package per remote host” installation will result in each software component being installed in a separate host, so the credentials screen will require multiple host addresses and root passwords.

The default selection requires the least amount of configuration.



Settings - Private Network, VM Integrity, All-in-one

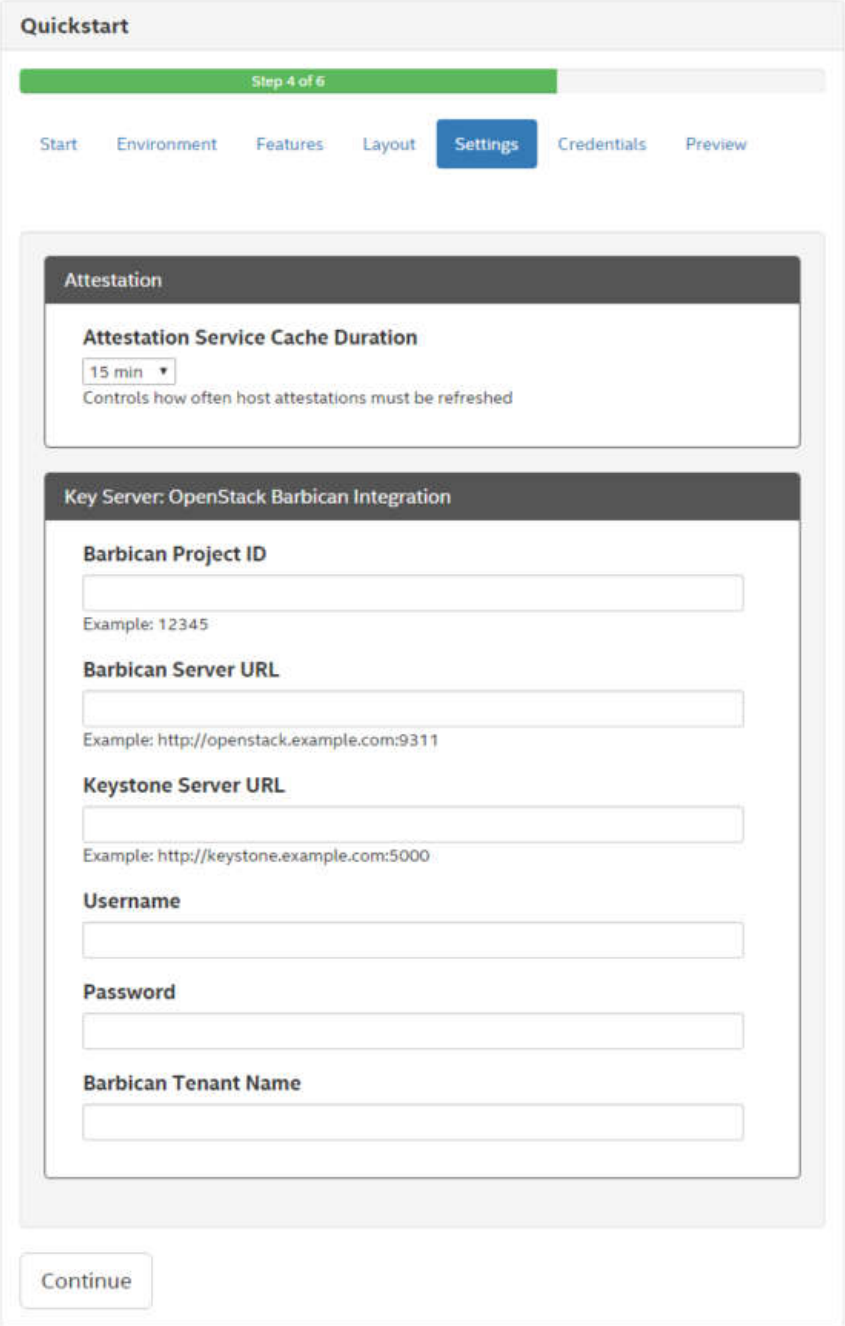
The settings screen presents required and optional settings that affect the configuration of the deployed software components. Selections made in the environment, features, and layout screens affect which settings are required or optional.



Settings - Private Network, VM Encryption with Barbican, All-in-one

The settings screen presents required and optional settings that affect the configuration of the deployed software components. Selections made in the environment, features, and layout screens affect which settings are required or optional.

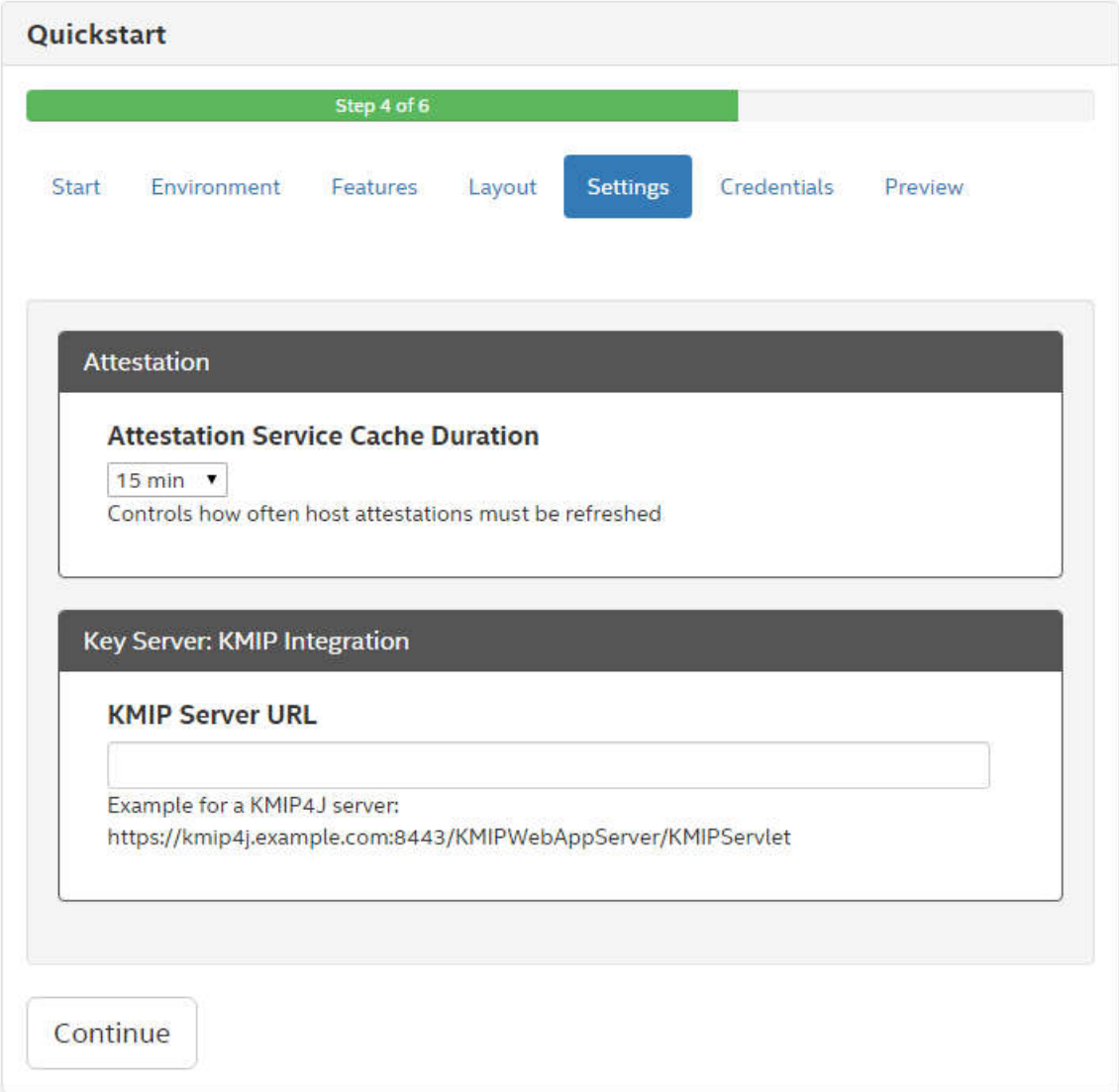
Note: this is the same as just VM Integrity, because OpenStack Barbican is setup automatically on the OpenStack host.



Settings - Private Network, VM Encryption with KMIP, All-in-one

The settings screen presents required and optional settings that affect the configuration of the deployed software components. Selections made in the environment, features, and layout screens affect which settings are required or optional.

The all-in-one layout applies to CIT 3.0 components, and the URL to the KMIP interface of the key server must be entered in this page.

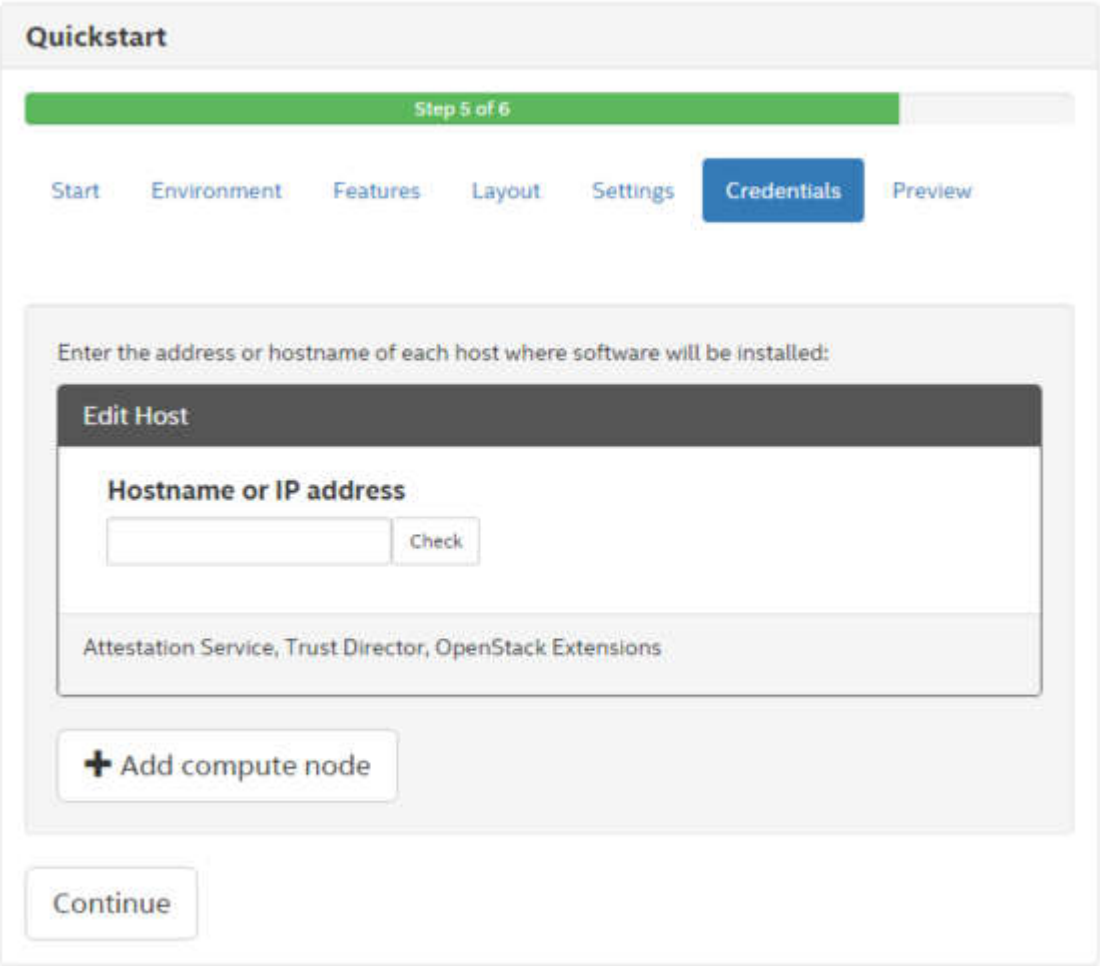


Credentials - Private Network, VM Integrity, All-in-one

The credentials screen is the final configuration step for the Cloud Integrity Technology deployment. Selections made in the environment, features, and layout screens affect how many credentials are required here.

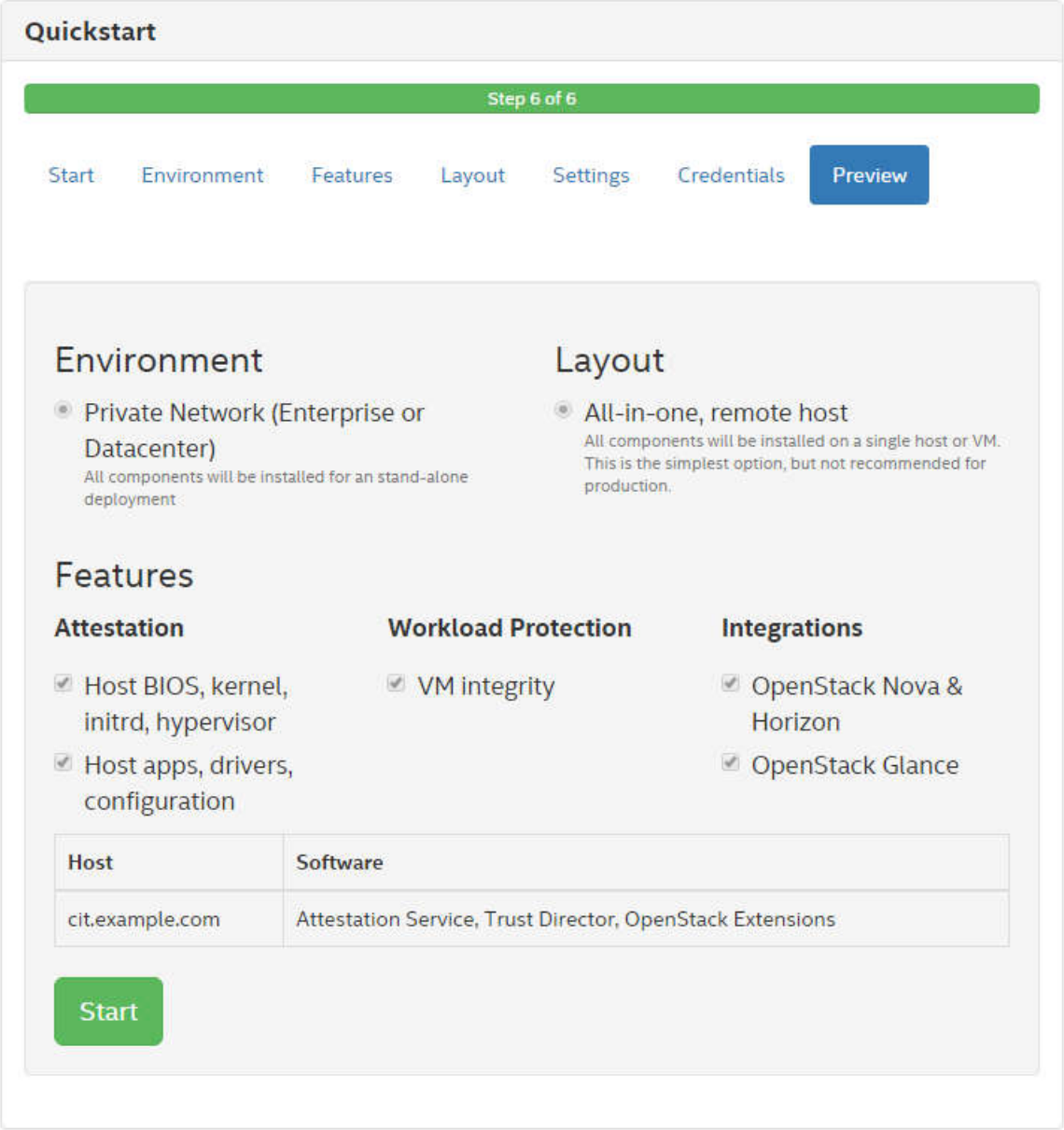
Each host for which credentials are required is shown in a separate box. When a hostname or IP address is entered, the host's SSH public key is retrieved and displayed in the "Host check" area. If the host cannot be reached an error message will be shown. The SSH public key must be accepted in order to enter the SSH password for the host. When a password is entered, the password will be verified. This verification ensures that the deployment tool will be able to access all designated hosts when deploying the software.

Note that even when deploying to localhost, the root password will be required. This is because the deployment tool itself does not run as root, but in order to install the software components root access is required. So when deploying to localhost the deployment tool still uses SSH to login as root and install the software.



Preview - Private Network, VM Integrity, All-in-one

The preview screen summarizes the deployment choices and shows what software packages will be installed on each host. No action will be taken until the “Start” button is clicked.



Deploying

The deploying screen shows a progress bar and a summary of what software will be installed on each host.

Summary

The summary screen shows a list of the hosts included in the deployment. For each host there is a check list of the software installed and any necessary access information such as URL, username, and password.

For OpenStack Extensions, the Horizon URL and login credentials are shown.

For Trust Agent, the checkmark will not appear. The Trust Agent installer and trustagent.env file are copied to the host but the installer is not run automatically. The administrator must complete the Trust Agent installation by following the directions in the Trust Agent section of the Cloud Integrity Technology User Guide. However, the trustagent.env file that is copied to the host by the deployment tool contains the necessary information for that procedure.

Quickstart

100%

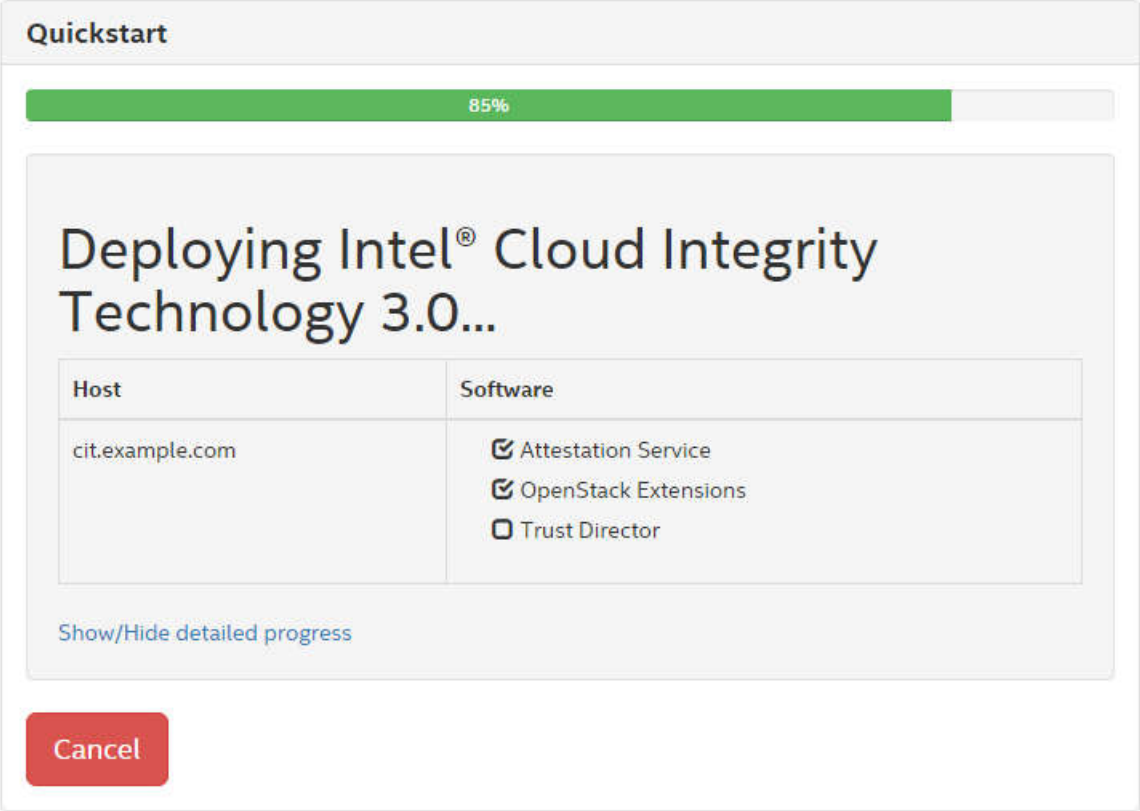
Intel® Cloud Integrity Technology 3.0

Host	Software
10.1.68.31	☑ Key Broker Proxy
10.1.68.34	☑ Key Broker https://10.1.68.34:443 Username: admin Password: 0uw7rKz+hN7Z6KrsT2igjA
10.1.68.31	☑ OpenStack Extensions http://10.1.68.31/horizon Username: cit-admin Password: bQFOzLhMjbZ366KKyf8URQ
10.1.68.31	☑ Attestation Service https://10.1.68.31:8443/mtwilson-portal Username: admin Password: UHGboqjJ6cz+VVVmGV5jFw
10.1.68.34	☑ Trust Director https://10.1.68.34:443 Username: admin Password: 3xR5ROsb+Y2vccmMlcK3sA
10.1.71.180	☐ Trust Agent

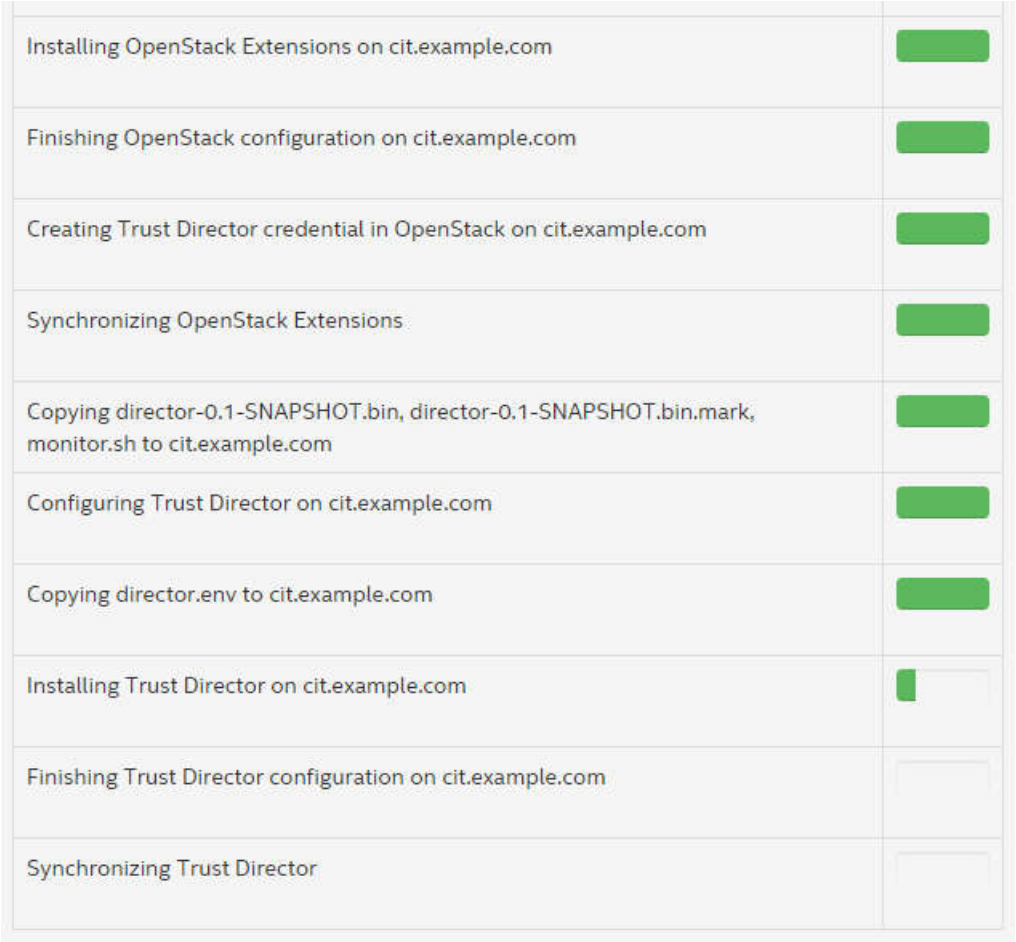
Show/Hide detailed progress

Start Again

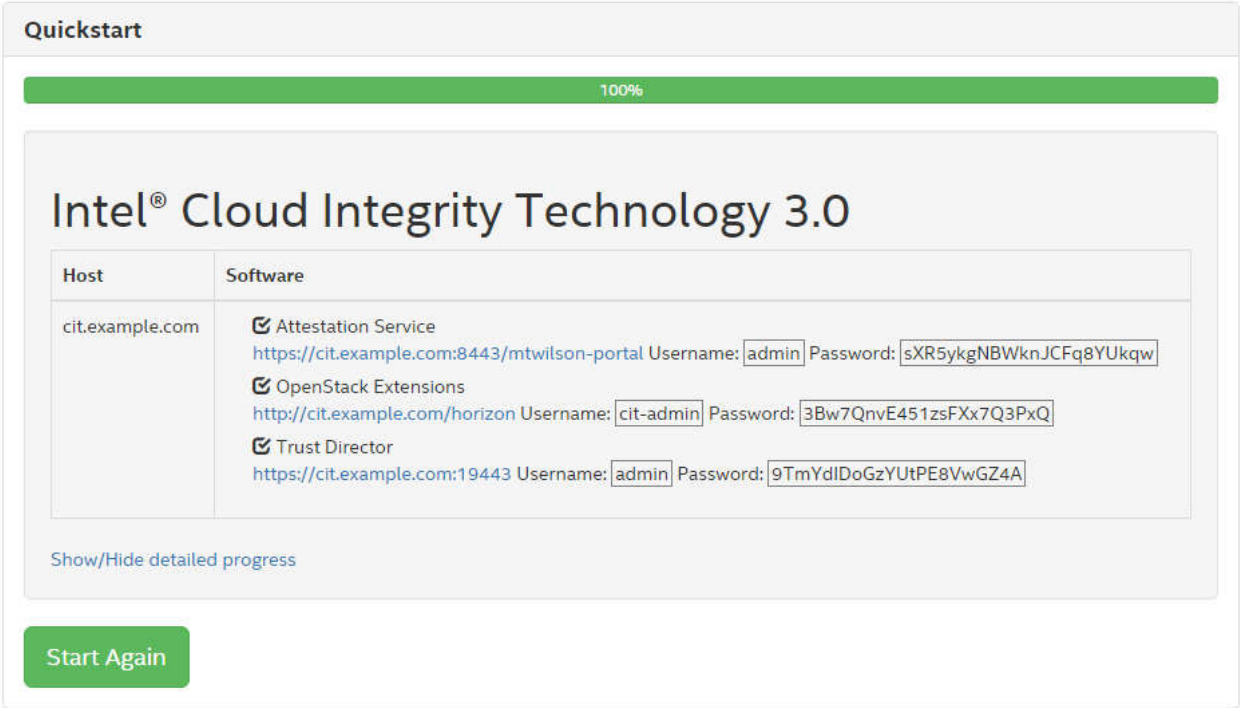
As each software component is installed, the box next to it is checked. Note that there may be some configuration steps after all software has been installed, so it's possible for all boxes to be checked before the progress bar reaches 100%.



View a more detailed progress report including configuration steps by clicking “Show/Hide detailed progress”.



When installation is complete, the deploying screen will show URLs and login credentials for each installed service that has a browser interface. This information should be saved before clicking the “Start Again” button or closing the quick start browser window.

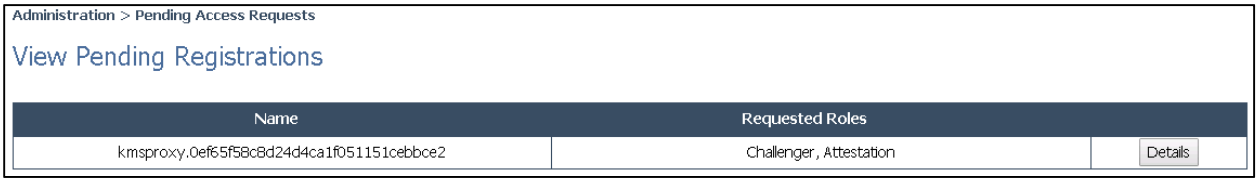


After the setup is complete, (Applies to CSP, Private Cloud options) you should do the following steps:

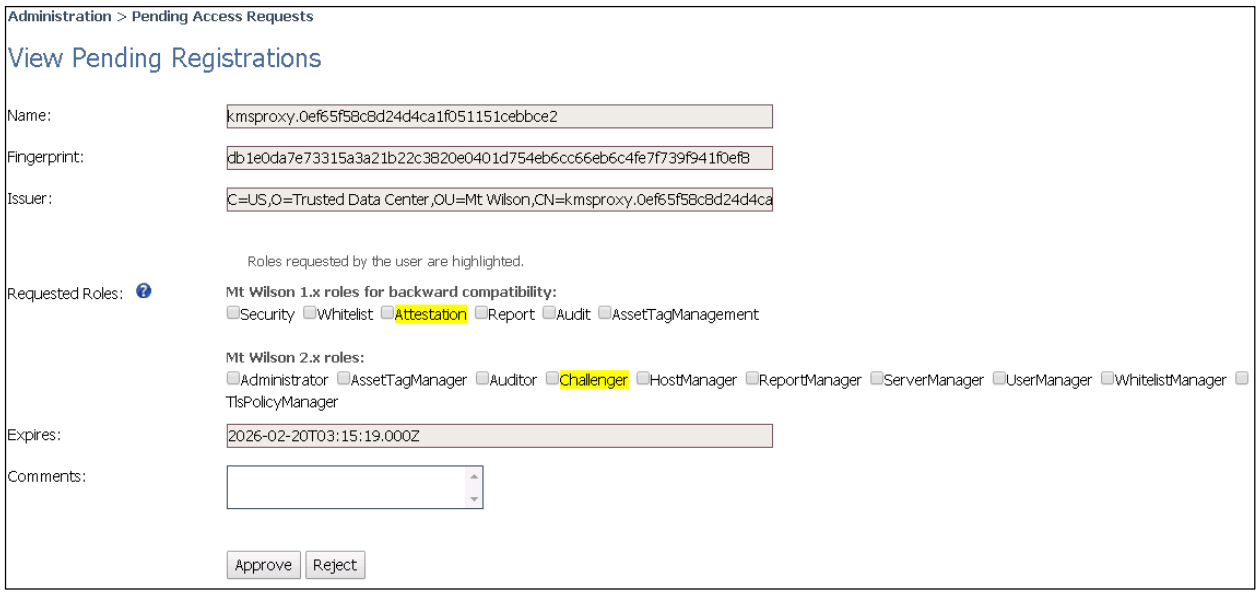
1. Approve and assign the roles/permissions for the Key Broker Proxy user in the Attestation server

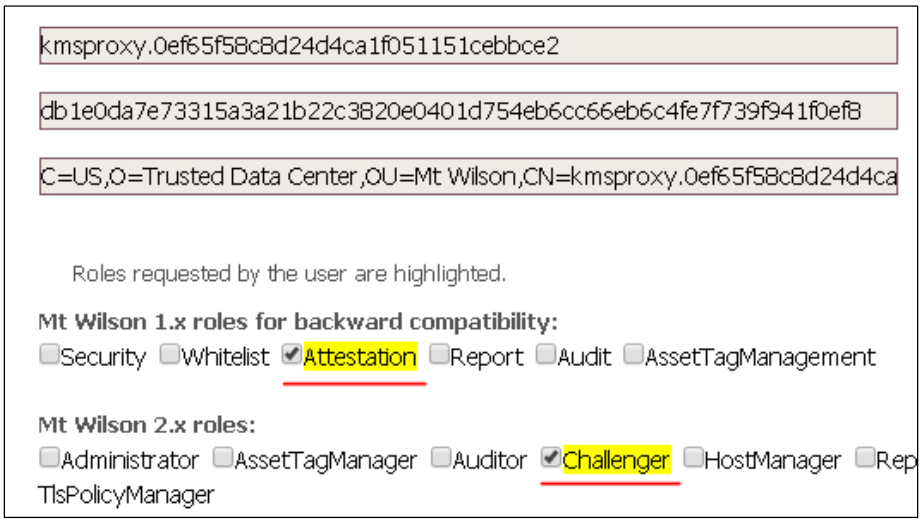
After the setup is complete, (Applies to CSP, Private Cloud options) you should do the following steps:

a. Navigate to the “Pending Requests” page by clicking on the “Administration” folder tab, then click the “Details” button.



b. Approve the user “kmsproxy.xxxx” and check the boxes marked in yellow to assign the roles “Attestation” and “Challenger” roles





2. Import the data bundle (certificates of the Attestation server) to Key Broker
    - Log into the Key Broker Portal
    - Select **Settings**
    - Select **Upload Settings**

Once you have completed the steps above, refer to the Product Guide for use and operations of CIT 3.0. This is marcos!!!