STATE STREET.

Cloud App Deployment Guide

Document Version: 11.0

05/02/2012

© 2012 State Street Corporation.

TABLE OF CONTENTS

© 2012 State Street Corporation.

1. BUILD AND EXPORT AN APP IMAGE TO DEV

The guide is intended to describe the deployment steps in the Cloud app promotion process. These steps include:

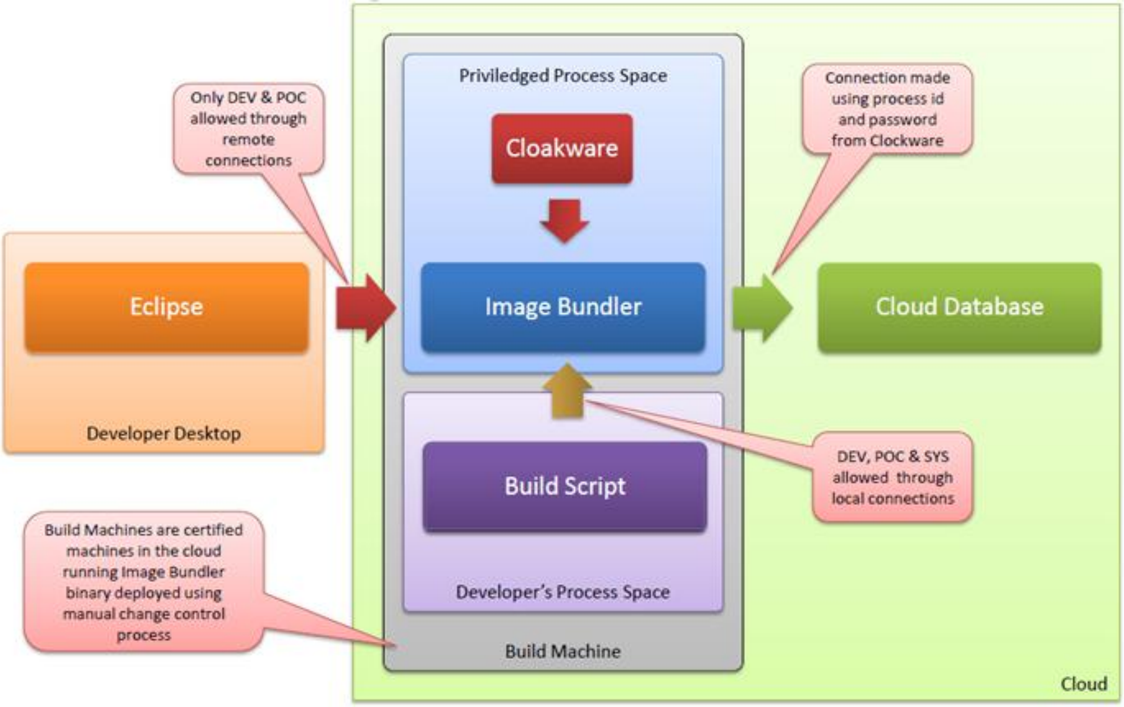
- Building an app image and exporting the image to the Cloud
- Creating and editing an app profile for deployment to a Cloud environment
- Getting the appropriate approvals
- Performing a certified ClearCase build, so an app can be promoted to UAT
- Setting and changing system properties in the app profile for app promotion

Before you can start the app promotion process by deploying to the DEV environment, you must have

- Obtained an extended app code (app identifier) for your app.
- Set up the required Cloud Controller development access eSF roles for your development team.
- Requested Cloud Controller access eSF roles in eSF Self Service. All members of your team must have the appropriate roles to deploy or approve an app.
- Created a Cloud project for your app in the CDT Eclipse-based IDE.
- Run JUnit tests on your app.

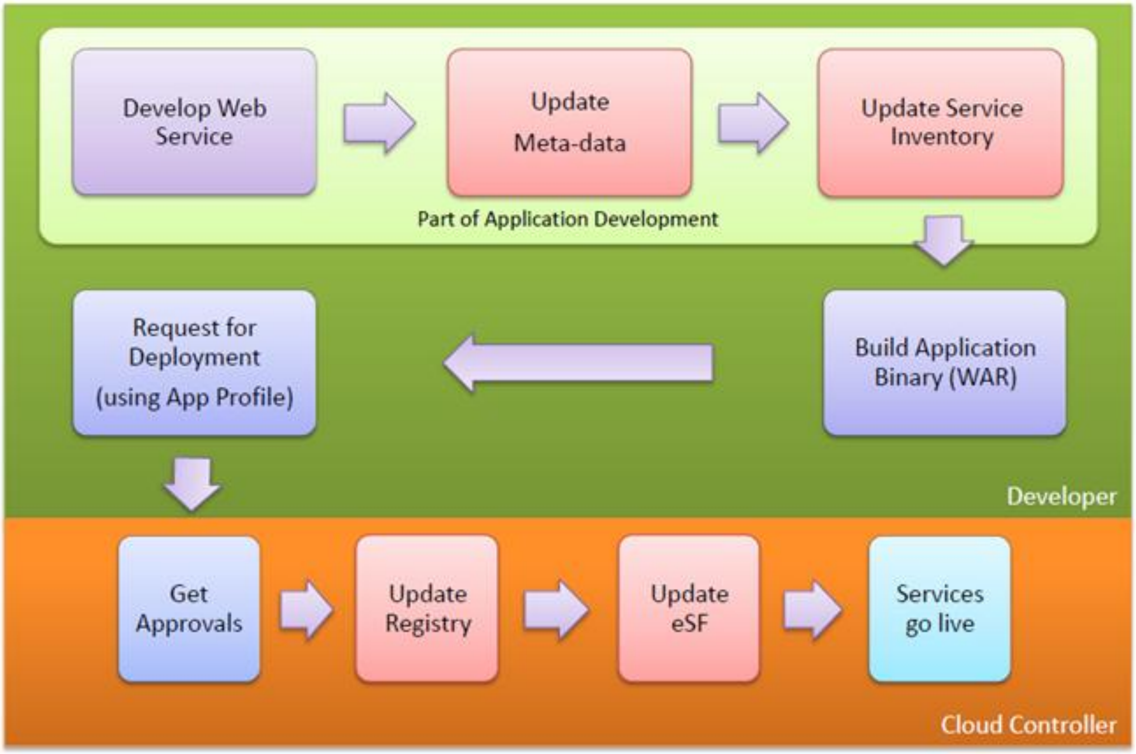
1.1 App Image Promotion

The image bundler promotes approved and secure web services to the Cloud. The image bundler can be invoked from the desktop for POC, DEV and SYS deployments, but can only be invoked from designated ClearCase build machines for the UAT and PROD deployments.


Only DEV & POC allowed through remote connections
Eclipse
Developer Desktop
Priviledged Process Space
Cloakware
Image Bundler
Build Script
Developer's Process Space
Build Machine
Connection made using process id and password from Clockware
Cloud Database
DEV, POC & SYS allowed through local connections
Build Machines are certified machines in the cloud running Image Bundler binary deployed using manual change control process
Cloud

© 2012 State Street Corporation.

When an app is deployed, the Cloud Controller manages approvals and updates to the Service Registry and eSF.

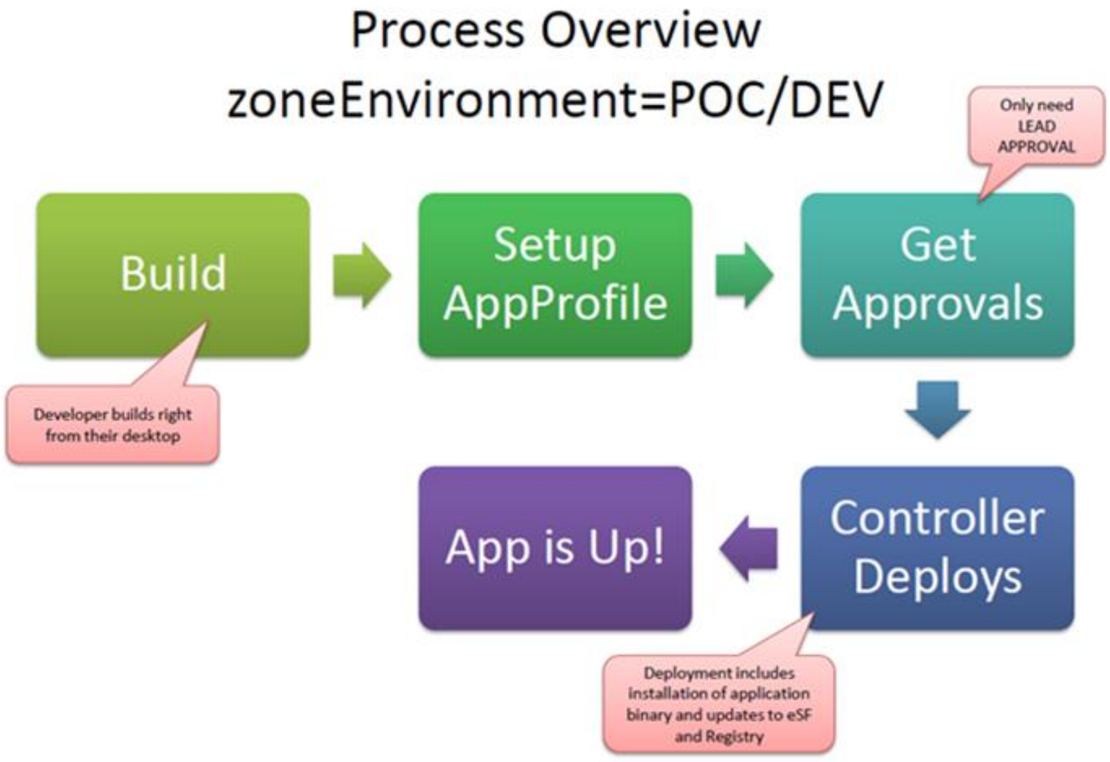


The workflow and deployment process varies by environment:

© 2012 State Street Corporation.

- **Proof of Concept (POC) and Development (DEV)**
  In POC and DEV, the developer can build the *.war* file right from the desktop.

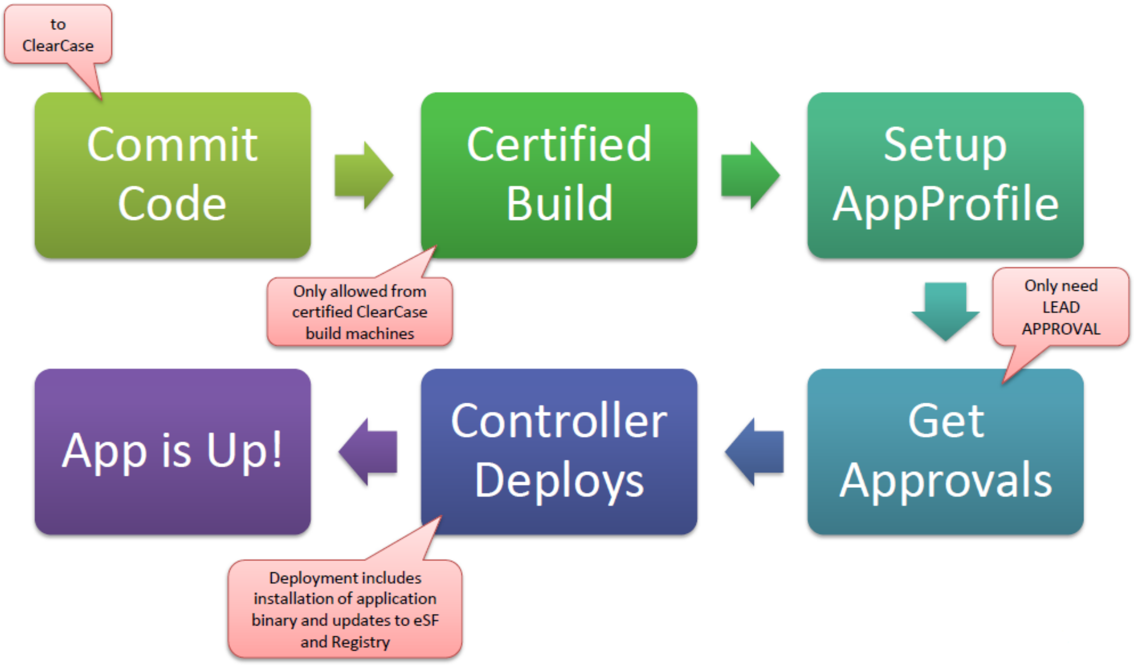
  To build and export the app image for deployment to DEV, use the Eclipse Export option to use a designated DEV build machine, as described in “Export an App from Eclipse“ in this document.


Process Overview
zoneEnvironment=POC/DEV
Only need LEAD APPROVAL
Build
Setup AppProfile
Get Approvals
Developer builds right from their desktop
App is Up!
Controller Deploys
Deployment includes installation of application binary and updates to eSF and Registry

© 2012 State Street Corporation.

- **System Integration (SYS)**
  In SYS, the process is more restricted for an app image you want to promote.

  For any app image that is a candidate for promotion to UAT, the image can only be shipped from designated build machines, which are certified machines where the developer can run ClearCase build scripts. To build and bundle an app image for deployment to SYS for later promotion to UAT, see “Perform a Certified Build” in this document.


to ClearCase
Commit Code
Certified Build
Setup AppProfile
Only allowed from certified ClearCase build machines
Only need LEAD APPROVAL
App is Up!
Controller Deploys
Get Approvals
Deployment includes installation of application binary and updates to eSF and Registry

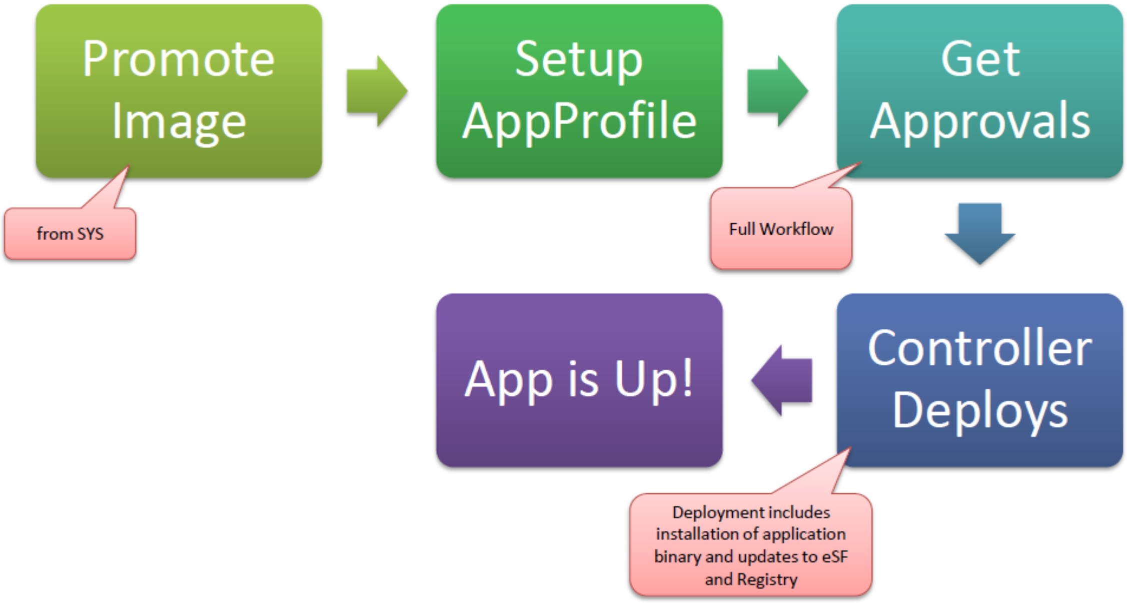
© 2012 State Street Corporation.

- **User Acceptance Testing (UAT and Production (PROD)**
  Images for UAT and PROD do not get into the Cloud directly from a build. Instead, they are moved logically to the environment using a “promote” method.

  When a developer creates an app profile for UAT, the developer picks an app image that was built for SYS on a certified build machine, where ClearCase build scripts can run.

  For PROD, the developer picks an app image in UAT.

  This process makes sure that the image deployed in UAT and PROD is the same image that was tested in the preceding environment in the application promotion process.



© 2012 State Street Corporation.

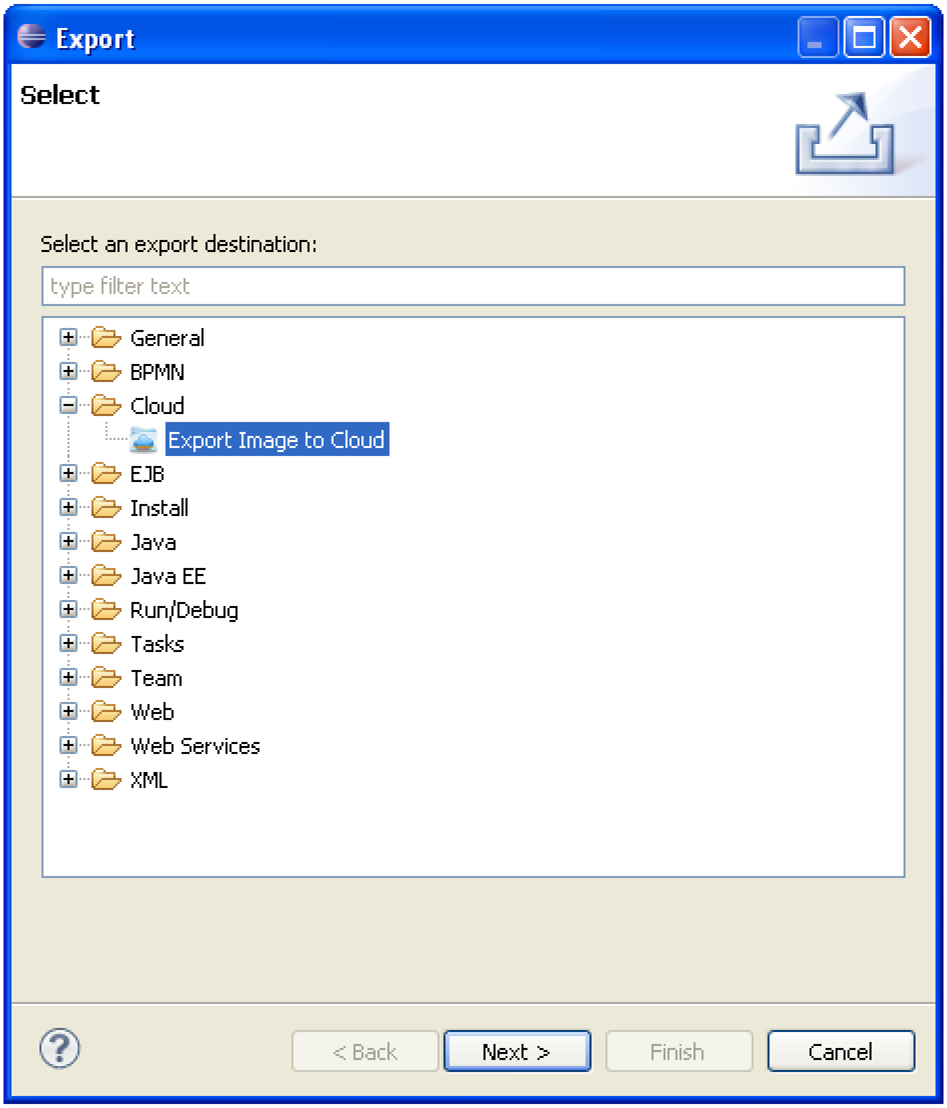
1.2 Export an App from Eclipse to DEV

In the CDT Eclipse-based IDE, you can build the app image and transmit its *.war* file directly to the Cloud DEV environment in one operation by using the Export option.

Note: For certified builds for SYS. UAT, and PROD, see “Perform a Certified Build” in this document.

To build and deploy your app to the Cloud:

1. Select the project to be deployed in the Package Explorer in Eclipse.
2. Right-click the project and select **Export**, or click **File** -> **Export**. The Export dialog displays.
3. Expand **Cloud** and select **Export Image to Cloud**.

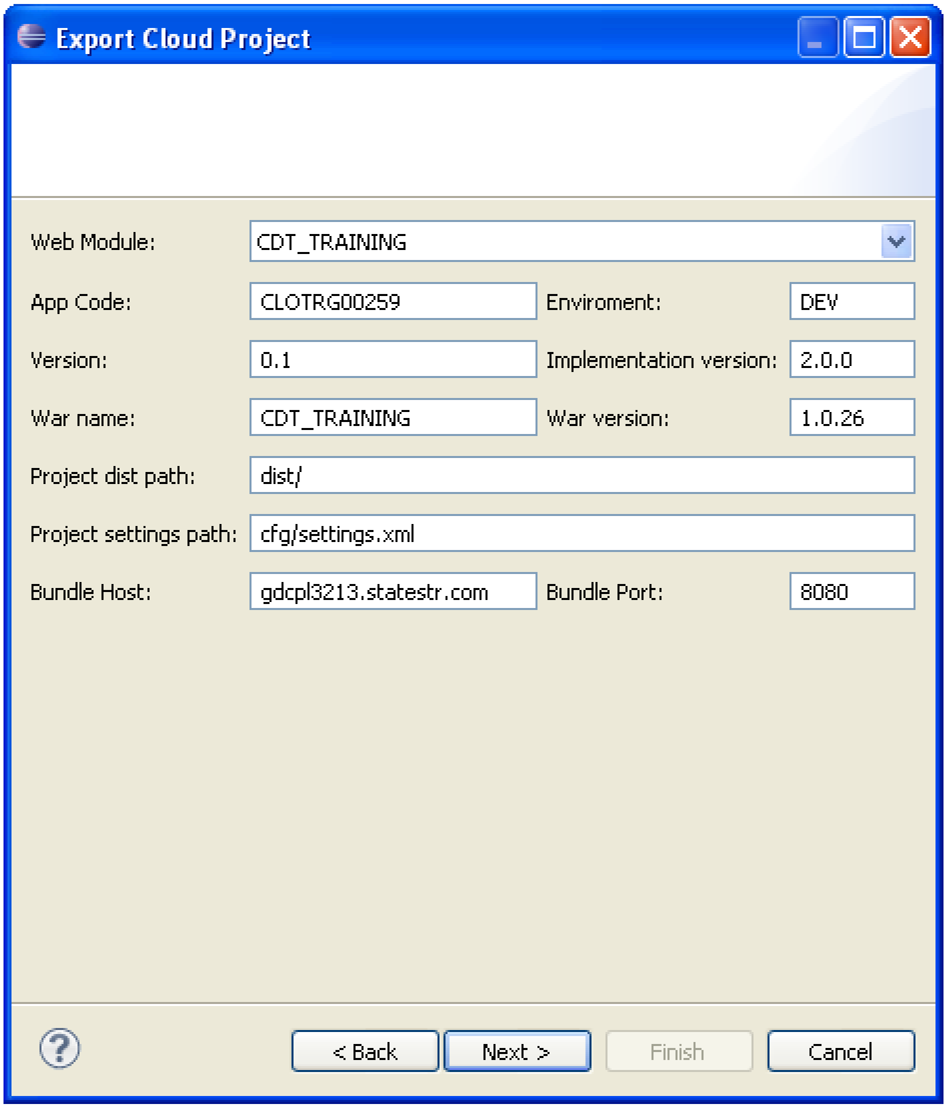


4. Click **Next**.

© 2012 State Street Corporation.

5. On the first page of the Export Cloud Project dialog, review project's property fields, automatically filled in by Eclipse.

   Note: Make sure that the Bundle Host is **gdcpl3213.statestr.com** and the Bundle Port is **8080**.



Export Cloud Project

Web Module: CDT_TRAINING

App Code: CLOTRG00259 Enviroment: DEV

Version: 0.1 Implementation version: 2.0.0

War name: CDT_TRAINING War version: 1.0.26

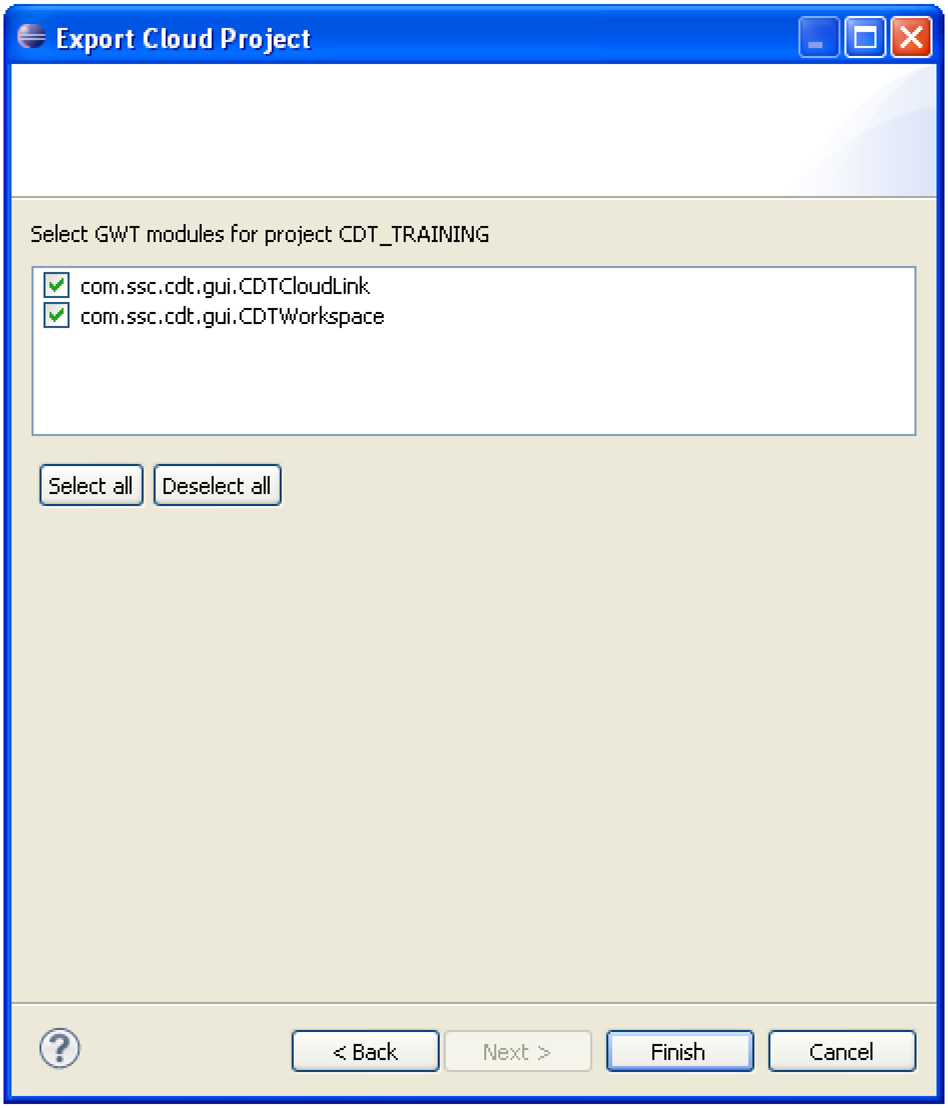
Project dist path: dist/

Project settings path: cfg/settings.xml

Bundle Host: gdcpl3213.statestr.com Bundle Port: 8080

© 2012 State Street Corporation.

6. Click **Next**.
7. On the second page of the Export Cloud Project dialog, the workspaces you created for user interface development (see Create a Workspace for User Interface Development on the CDT site) appear in a list. Each workspace has a GWT configuration module (*.gwt.xml* file) that points to the GWT Java files to be compiled and converted to JavaScript for the UI. Select the workspaces you need. The compile and convert process can be quite lengthy. So if a workspace is unneeded, you can exclude it.



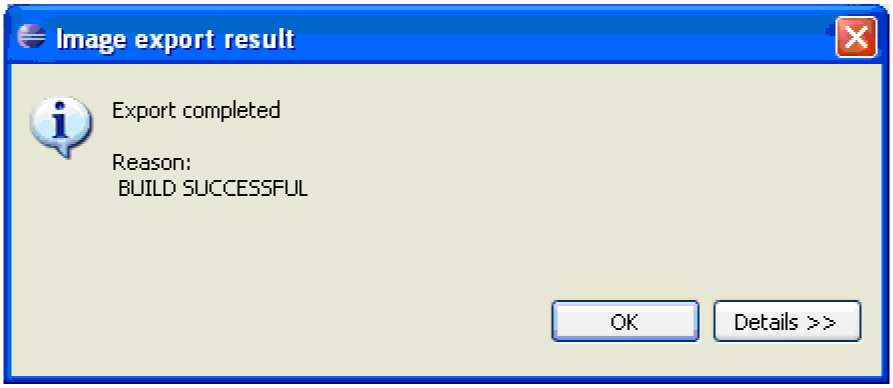
Export Cloud Project

Select GWT modules for project CDT_TRAINING

☑ com.ssc.cdt.gui.CDTCloudLink
☑ com.ssc.cdt.gui.CDTWorkspace

© 2012 State Street Corporation.

8. Click **Finish**. Eclipse builds your app and exports the app image (.*war* file) to the DEV environment in the Cloud. If there is an associated SQL .*war* file, Eclipse exports this .*war* file also, and the app image appears in the Related Images tab of the Image Browser dialog in the Cloud, as described in “Create an App Profile and Change Status to Published” in this document.
9. In the Image export result dialog, click **OK**.



Export completed

Reason:
BUILD SUCCESSFUL

© 2012 State Street Corporation.

2. DEPLOY AN APP TO AN ENVIRONMENT IN THE CLOUD

The Application Profiles tab of the App Control Panel enables to create and maintain app profiles for app images you have exported to the Cloud. Use the app profile for app promotion for all environments.

Environment	Promotion
DEV	After you have done some local development and testing, you can export the app's *.war* file to the Cloud. You can select the app on the Application Profiles tab of the App Control Panel. The app's initial status is DRAFT. Complete the app profile and select an app image. If you just exported the app, select its image in the Image Browser. If have exported a newer build, select that build's image. Change the status to PUBLISHED. Your app is running in the DEV environment upon approval. For more information about approvals, see "Get Approval " in this document.
SYS	Only apps running in DEV can be promoted to SYS. In SYS, an app must be built on certified build machines and checked into ClearCase for promotion to UAT.
UAT	Only apps running in SYS can be promoted to UAT.
PROD	Only an app running in UAT can be promoted to PROD, where the app runs "live."

Note: An app profile can only be edited in DRAFT status.

2.1 Obtain a Cloakware Password

You must obtain a Cloakware DEV password and a separate Cloakware PROD (UAT) password. The Cloud DEV environment points to the Cloakware DEV environment, and the Cloud SYS, UAT, and PROD environments point to the Cloakware PROD (UAT) environment, as described in this table:

Cloud Environment	Cloakware Environment
DEV	DEV
SYS UAT PROD	PROD (UAT)

Requesting a DEV Cloakware password is self-service; for more information, see Cloakware and eSF Environments for Development and Deployment on the CDT site.

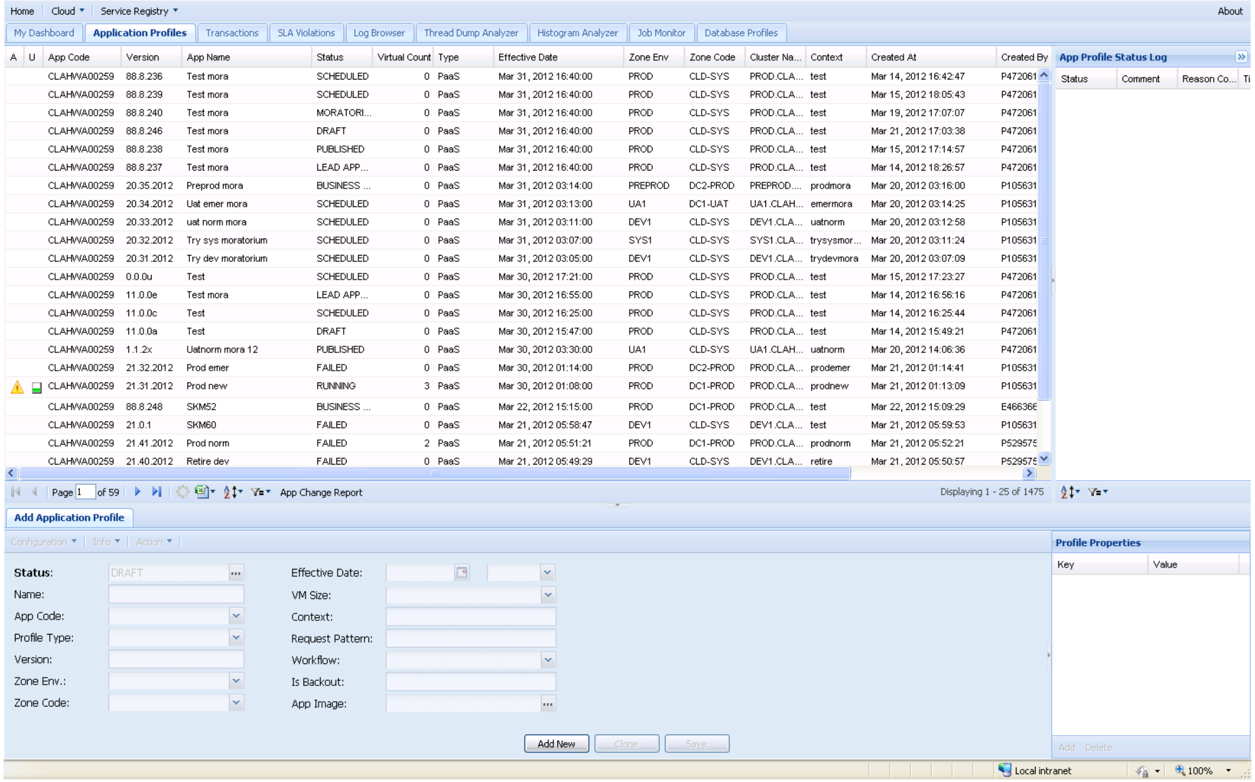
For information on obtaining a Cloakware PROD (UAT) password, contact SES-Security-Engineering@StateStreet.com.

2.2 Create an App Profile and Change Status to Published

1. Login to the Cloud (https://cloud.statestr.com/), using your LAN ID and password.
2. On the welcome screen, click **Cloud** > **App Control Panel**.

© 2012 State Street Corporation.

3. On the App Control Panel page, click the Application Profiles tab.



A	U	App Code	Version	App Name	Status	Virtual Count	Type	Effective Date	Zone Env	Zone Code	Cluster Na...	Context	Created At	Created By
		CLAHWA00259	88.8.236	Test mora	SCHEDULED	0	PaaS	Mar 31 , 2012 16:40:00	PROD	CLD-SYS	PROD.CLA...	test	Mar 14, 2012 16:42:47	P472061
		CLAHWA00259	88.8.239	Test mora	SCHEDULED	0	PaaS	Mar 31 , 2012 16:40:00	PROD	CLD-SYS	PROD.CLA...	test	Mar 15, 2012 18:05:43	P472061
		CLAHWA00259	88.8.240	Test mora	MORATORI...	0	PaaS	Mar 31 , 2012 16:40:00	PROD	CLD-SYS	PROD.CLA...	test	Mar 19, 2012 17:07:07	P472061
		CLAHWA00259	88.8.246	Test mora	DRAFT	0	PaaS	Mar 31 , 2012 16:40:00	PROD	CLD-SYS	PROD.CLA...	test	Mar 21 , 2012 17:03:38	P472061
		CLAHWA00259	88.8.238	Test mora	PUBLISHED	0	PaaS	Mar 31 , 2012 16:40:00	PROD	CLD-SYS	PROD.CLA...	test	Mar 15, 2012 17:14:57	P472061
		CLAHWA00259	88.8.237	Test mora	LEAD APP...	0	PaaS	Mar 31 , 2012 16:40:00	PROD	CLD-SYS	PROD.CLA...	test	Mar 14, 2012 18:26:57	P472061
		CLAHWA00259	20.35.2012	Preprod mora	BUSINESS ...	0	PaaS	Mar 31 , 2012 03:14:00	PREPROD	DC2-PROD	PREPROD....	prodmora	Mar 20, 2012 03:16:00	P105631
		CLAHWA00259	20.34.2012	Uat emer mora	SCHEDULED	0	PaaS	Mar 31 , 2012 03:13:00	UA1	DC1-UAT	UA1.CLAH...	emermora	Mar 20, 2012 03:14:25	P105631
		CLAHWA00259	20.33.2012	uat norm mora	SCHEDULED	0	PaaS	Mar 31 , 2012 03:11:00	DEV1	CLD-SYS	DEV1.CLA...	uatnorm	Mar 20, 2012 03:12:58	P105631
		CLAHWA00259	20.32.2012	Try sys moratorium	SCHEDULED	0	PaaS	Mar 31 , 2012 03:07:00	SYS1	CLD-SYS	SYS1.CLA...	trysysmor...	Mar 20, 2012 03:11:24	P105631
		CLAHWA00259	20.31.2012	Try dev moratorium	SCHEDULED	0	PaaS	Mar 31 , 2012 03:05:00	DEV1	CLD-SYS	DEV1.CLA...	trydevmora	Mar 20, 2012 03:07:09	P105631
		CLAHWA00259	0.0.0u	Test	SCHEDULED	0	PaaS	Mar 30, 2012 17:21:00	PROD	CLD-SYS	PROD.CLA...	test	Mar 15, 2012 17:23:27	P472061
		CLAHWA00259	11.0.0e	Test mora	LEAD APP...	0	PaaS	Mar 30, 2012 16:55:00	PROD	CLD-SYS	PROD.CLA...	test	Mar 14, 2012 16:56:16	P472061
		CLAHWA00259	11.0.0c	Test	SCHEDULED	0	PaaS	Mar 30, 2012 16:25:00	PROD	CLD-SYS	PROD.CLA...	test	Mar 14, 2012 16:25:44	P472061
		CLAHWA00259	11.0.0a	Test	DRAFT	0	PaaS	Mar 30, 2012 15:47:00	PROD	CLD-SYS	PROD.CLA...	test	Mar 14, 2012 15:49:21	P472061
		CLAHWA00259	1.1.2x	Uatnorm mora 12	PUBLISHED	0	PaaS	Mar 30, 2012 03:30:00	UA1	CLD-SYS	UA1.CLAH...	uatnorm	Mar 20, 2012 14:06:36	P472061
		CLAHWA00259	21.32.2012	Prod emer	FAILED	0	PaaS	Mar 30, 2012 01:14:00	PROD	DC2-PROD	PROD.CLA...	prodemer	Mar 21 , 2012 01:14:41	P105631
⚠	▬	CLAHWA00259	21.31.2012	Prod new	RUNNING	3	PaaS	Mar 30, 2012 01:08:00	PROD	DC1-PROD	PROD.CLA...	prodnew	Mar 21 , 2012 01:13:09	P105631
		CLAHWA00259	88.8.248	SKM52	BUSINESS ...	0	PaaS	Mar 22, 2012 15:15:00	PROD	DC1-PROD	PROD.CLA...	test	Mar 22, 2012 15:09:29	E46636E
		CLAHWA00259	21.0.1	SKM60	FAILED	0	PaaS	Mar 21 , 2012 05:58:47	DEV1	CLD-SYS	DEV1.CLA...	test	Mar 21 , 2012 05:59:53	P105631
		CLAHWA00259	21.41.2012	Prod norm	FAILED	2	PaaS	Mar 21 , 2012 05:51:21	PROD	DC1-PROD	PROD.CLA...	prodnorm	Mar 21 , 2012 05:52:21	P529575
		CLAHWA00259	21.40.2012	Retire dev	FAILED	0	PaaS	Mar 21 , 2012 05:49:29	DEV1	CLD-SYS	DEV1.CLA...	retire	Mar 21 , 2012 05:50:57	P529575

Page 1 of 59

App Change Report

Displaying 1 - 25 of 1475

App Profile Status Log

Status	Comment	Reason Co...	Ti

Add Application Profile

Status: DRAFT

Name:

App Code:

Profile Type:

Version:

Zone Env.:

Zone Code:

Effective Date:

VM Size:

Context:

Request Pattern:

Workflow:

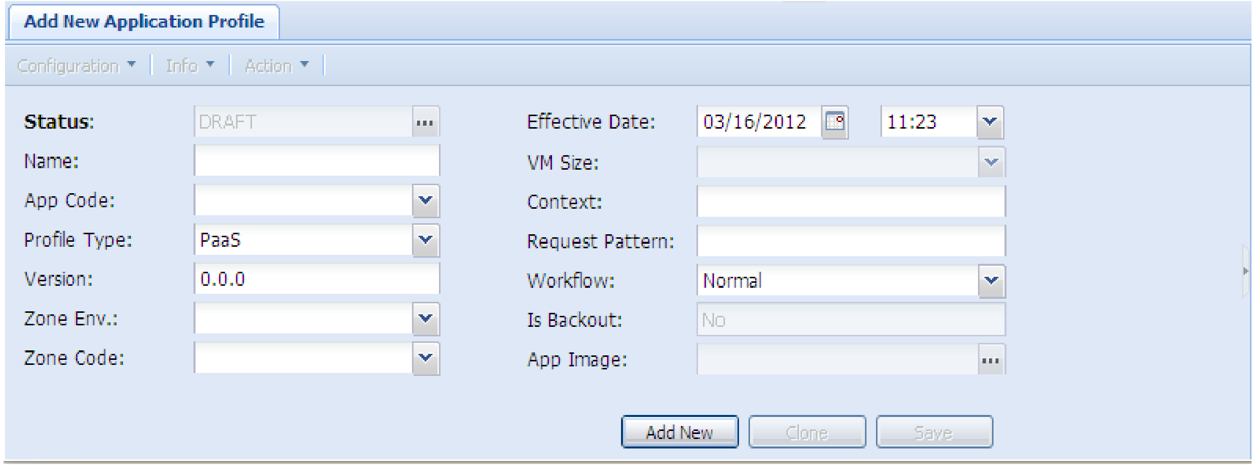
Is Backout:

App Image:

Profile Properties

Key	Value

4. In the Add Application Profile panel, click **Add New**. The tab now displays Add New Application Profile.



Add New Application Profile

Status: DRAFT

Name:

App Code:

Profile Type: PaaS

Version: 0.0.0

Zone Env.:

Zone Code:

Effective Date: 03/16/2012 11:23

VM Size:

Context:

Request Pattern:

Workflow: Normal

Is Backout: No

App Image:

5. In the Add New Application Profile dialog, enter a name for the app in the Name field.

6. Click **App Code** ⌄. In the dropdown list, select the extended app code (app identifier) that has been assigned to your app.

   Note: If your App Code does not appear in the dropdown list, either your eSF role entitlements are not configured correctly for this application or the necessary eSF role is not correctly associated with your login.

© 2012 State Street Corporation.

7. Click **Profile Type** ⌄ and select:

PaaS	Your app is built using the CDT framework and runs on the Cloud infrastructure.
IaaS-App	Your app runs on the Cloud infrastructure.
IaaS-Vendor	Your vendor app runs on the Cloud infrastructure.
Note: The capability to create IaaS-App and IaaS-Vendor app profile types will be included in a *future* Cloud Controller release.	

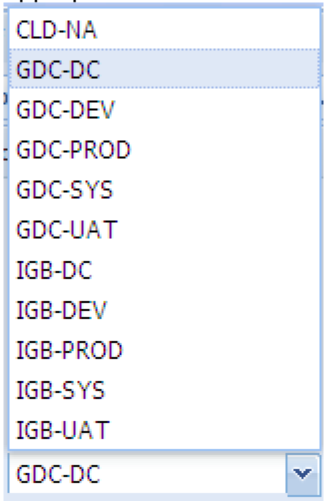
   Infrastructure-as-a-Service (IaaS) includes Linux, Java, Siteminder, and other software products, almost all purchased and license by State Street. **Platform-as-a-Service** (PaaS) is a combination of the IaaS software products and the application stack, as defined by the CDT framework. Almost the entire application stack is owned by State Street.

8. Specify a version number in the format 1.1.1 in the Version field. You can append a lowercase letter to the version number, for example 1.1.1a.

9. Click **Zone Env** ⌄. In the dropdown list, select the environment for deployment, such as DEV1.

   Note: Use this field to select any environment for app promotion.

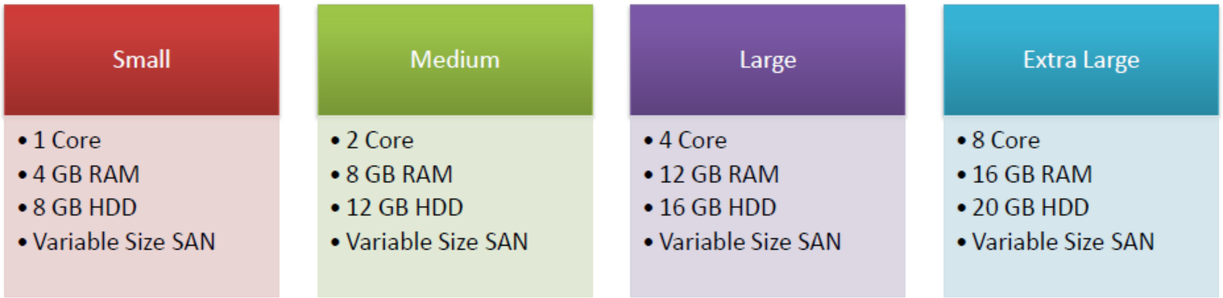
10. Click **Zone Code** ⌄. In the dropdown list, select the zone where your app is going to be running, such as GDC-DEV for the Grafton DEV environment. The Cloud team provides information on the appropriate Zone Code selection for your app.



11. Click **Effective Date** 📅and select a date; click ⌄ to specify a time.
    Selecting a future date enables the approval process to complete, upon which the Cloud will start running the app at the specified date and time. If the effective date passes without approval, the Cloud will start the app when approval occurs. As a best practice, do not schedule the effective date and time during business hours.

© 2012 State Street Corporation.

12. For IaaS app profiles, enable the Cloud to make accurate capacity planning and provide better fault tolerance and failover by clicking **VM Size** ▼ and selecting the size of your IaaS VM, according to these specifications:



Small	Medium	Large	Extra Large
• 1 Core • 4 GB RAM • 8 GB HDD • Variable Size SAN	• 2 Core • 8 GB RAM • 12 GB HDD • Variable Size SAN	• 4 Core • 12 GB RAM • 16 GB HDD • Variable Size SAN	• 8 Core • 16 GB RAM • 20 GB HDD • Variable Size SAN

Note: The capability to specify VM Size for IaaS app profiles will be included in a future Cloud Controller release..

13. In the Context field, enter the context you specified for the project in Eclipse, or enter a different context. The context becomes part of the URL that enables you to access your app in the Cloud.
14. Ignore the Request Pattern field; the Cloud fills in this field.
15. In the Workflow field, accept the default, Normal.

    Note: To deploy an application quickly or immediately, follow the Emergency workflow (PROD only). To deploy an application during a moratorium period, follow the Moratorium workflow (UAT and PROD only). Emergency and Moratorium workflows require additional approvals.

16. Unless you are designating an app version as backout, skip the Is Backout field.

    Note: You can only designate a *running* app version to be a backout app. Once an app version is designated as backout, the image associated with its app profile cannot be changed.

© 2012 State Street Corporation.

17. Click **App Image** ... to open the Image Browser dialog. The latest image appears at the top of the list.

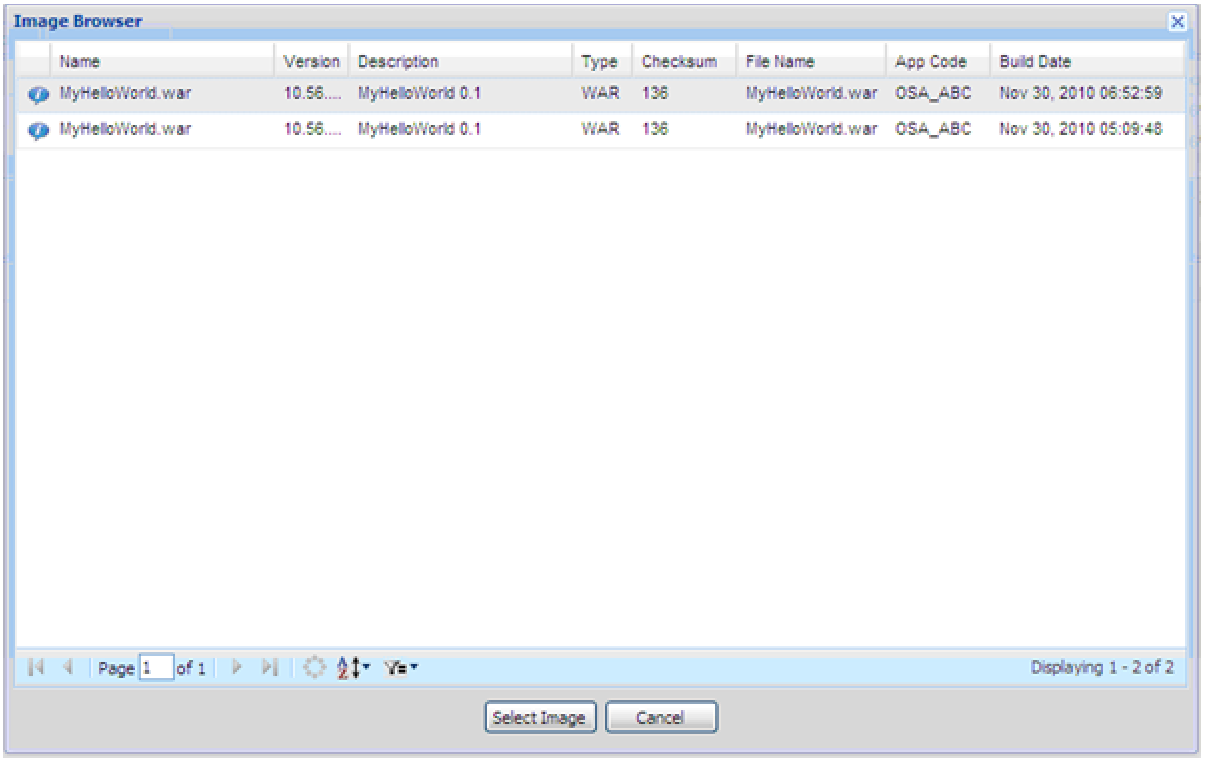


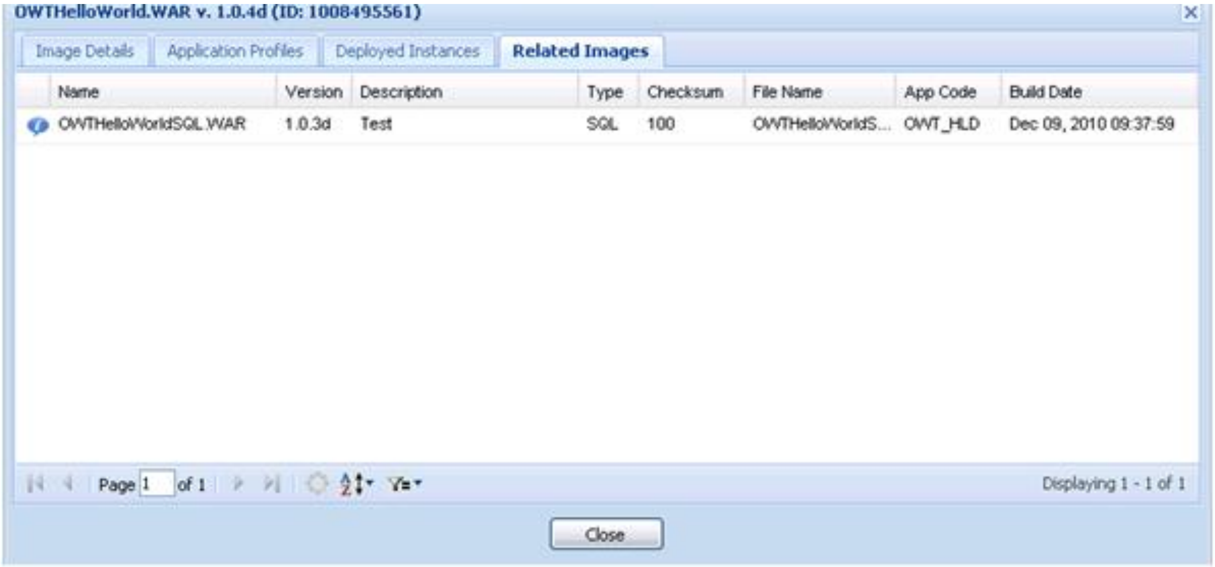
Image Browser

Name	Version	Description	Type	Checksum	File Name	App Code	Build Date
MyHelloWorld.war	10.56....	MyHelloWorld 0.1	WAR	136	MyHelloWorld.war	OSA_ABC	Nov 30, 2010 06:52:59
MyHelloWorld.war	10.56....	MyHelloWorld 0.1	WAR	136	MyHelloWorld.war	OSA_ABC	Nov 30, 2010 05:09:48

Page 1 of 1 Displaying 1 - 2 of 2

18. Select the application image you want to use. By clicking the information icon to the left of the image, display a dialog containing the image details. Verify that the image details are correct.

19. If there are any related SQL images bundled with the app image (PaaS app profiles only), click the **Related Images** tab in the details dialog and verify the related SQL image.



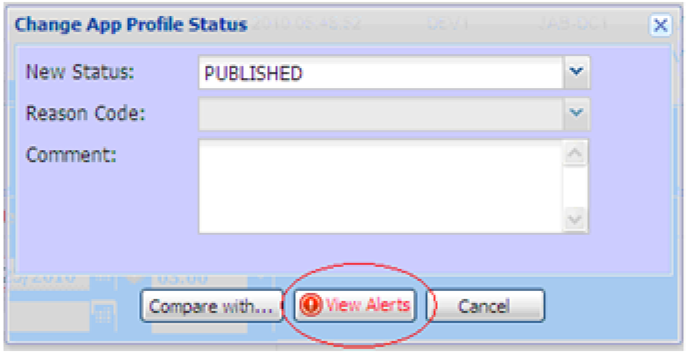
OWTHelloWorld.WAR v. 1.0.4d (ID: 1008495561)

Name	Version	Description	Type	Checksum	File Name	App Code	Build Date
OWTHelloWorldSQL.WAR	1.0.3d	Test	SQL	100	OWTHelloWorldS...	OWT_HLD	Dec 09, 2010 09:37:59

Page 1 of 1 Displaying 1 - 1 of 1

© 2012 State Street Corporation.

20. After you finish verifying the application and SQL images, click **Close**.
21. Click **Select Image**, and then click **Save** in the Add New Application Profile dialog. Upon saving, the status of the app is set to DRAFT.
22. To change the status from DRAFT to PUBLISHED, click **Status** ... to open the Change App Profile Status dialog.
23. In the Change App Profile Status dialog, click **New Status** and select PUBLISHED in the dropdown list.

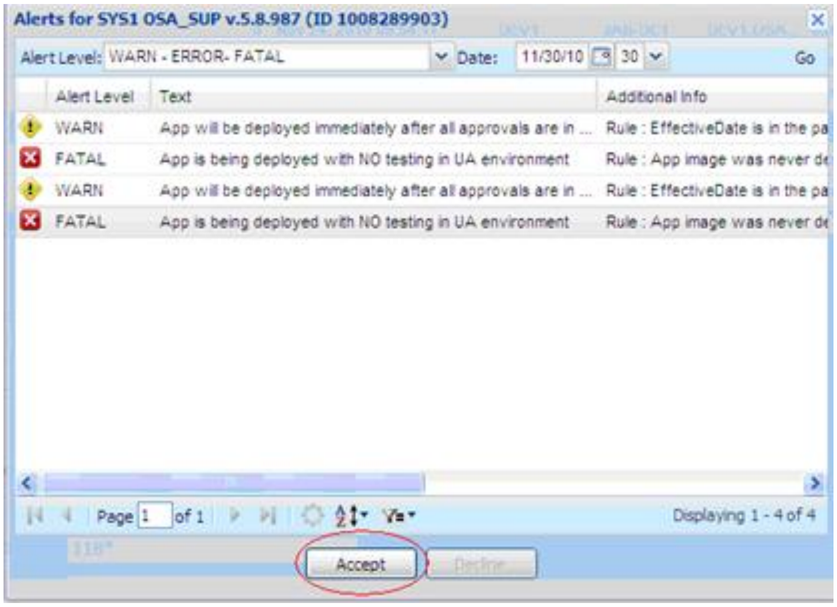


Change App Profile Status

New Status:	PUBLISHED
Reason Code:	
Comment:	

Note: If you do not see PUBLISHED in the dropdown list, either your eSF role entitlements are not configured correctly for this application or the necessary eSF role is not correctly associated with your login.

24. Click **View Alerts** to open the Alerts dialog. Review any alerts, and then click **Accept**.



Alerts for SYS1 OSA_SUP v.5.8.987 (ID 1008289903)

Alert Level: WARN - ERROR- FATAL Date: 11/30/10 30

	Alert Level	Text	Additional Info
⚠	WARN	App will be deployed immediately after all approvals are in ...	Rule : EffectiveDate is in the pa
☒	FATAL	App is being deployed with NO testing in UA environment	Rule : App image was never de
⚠	WARN	App will be deployed immediately after all approvals are in ...	Rule : EffectiveDate is in the pa
☒	FATAL	App is being deployed with NO testing in UA environment	Rule : App image was never de

The status of your application is now PUBLISHED.

© 2012 State Street Corporation.

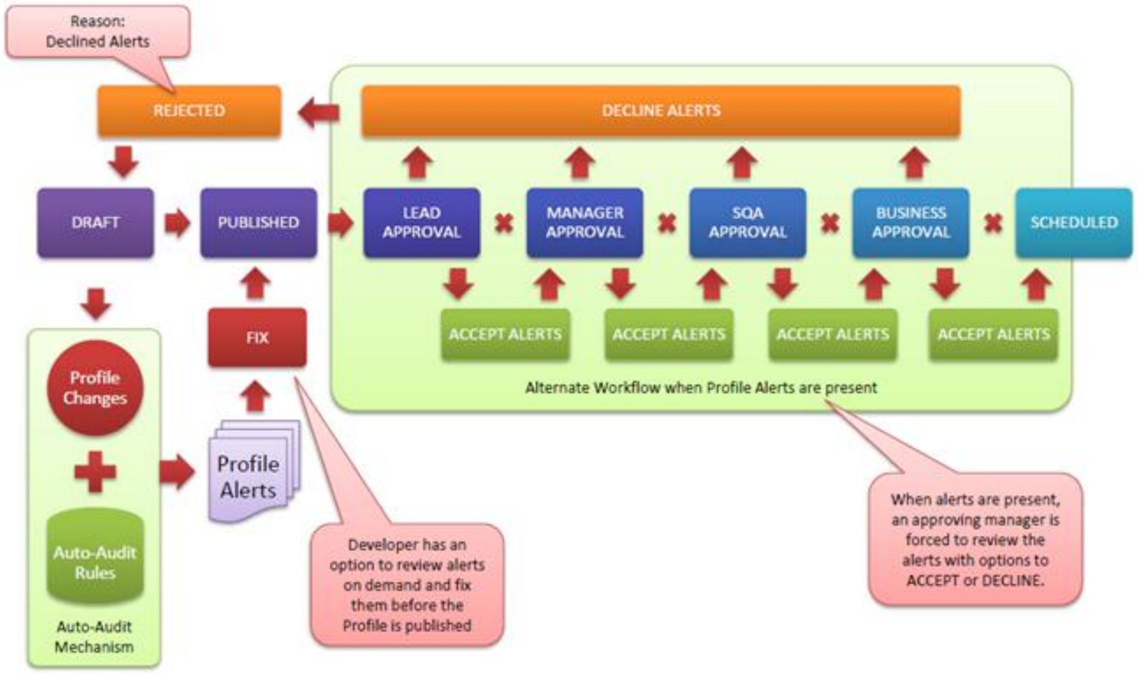
2.2.1 Open Your Cloud App in a Browser by Environment

For each environment in the development and deployment process, you can open your app in a browser by using the appropriate URL address. For each URL, replace <*context*> with the context for your app. Context is specified in the app profile.

Environment	URL
DEV	https://cloud-dev1.statestr.com/<context>
SYS	https://cloud-sys1.statestr.com/<context>
UAT	https://cloud-uat1.statestr.com/<context>
PROD	https://cloud.statestr.com/<context>

2.2.2 Alerts

Developers can make changes to an app profile while the app profile is in DRAFT status. AutoAudit is a set of rules applied to every change made to the app profile. Other changes to the app are tracked too.


Reason: Declined Alerts
REJECTED
DECLINE ALERTS
DRAFT
PUBLISHED
LEAD APPROVAL
MANAGER APPROVAL
SQA APPROVAL
BUSINESS APPROVAL
SCHEDULED
ACCEPT ALERTS
ACCEPT ALERTS
ACCEPT ALERTS
ACCEPT ALERTS
Alternate Workflow when Profile Alerts are present
FIX
Profile Changes
Auto-Audit Rules
Auto-Audit Mechanism
Profile Alerts
Developer has an option to review alerts on demand and fix them before the Profile is published
When alerts are present, an approving manager is forced to review the alerts with options to ACCEPT or DECLINE.

Alerts are generated for every rule that fails. Alerts are classified as

- INFO
- WARN
- ERROR
- FATAL

Developer can review the alerts after every change. All approvers must review the alerts when there are non-INFO alerts associated with an app profile.

© 2012 State Street Corporation.

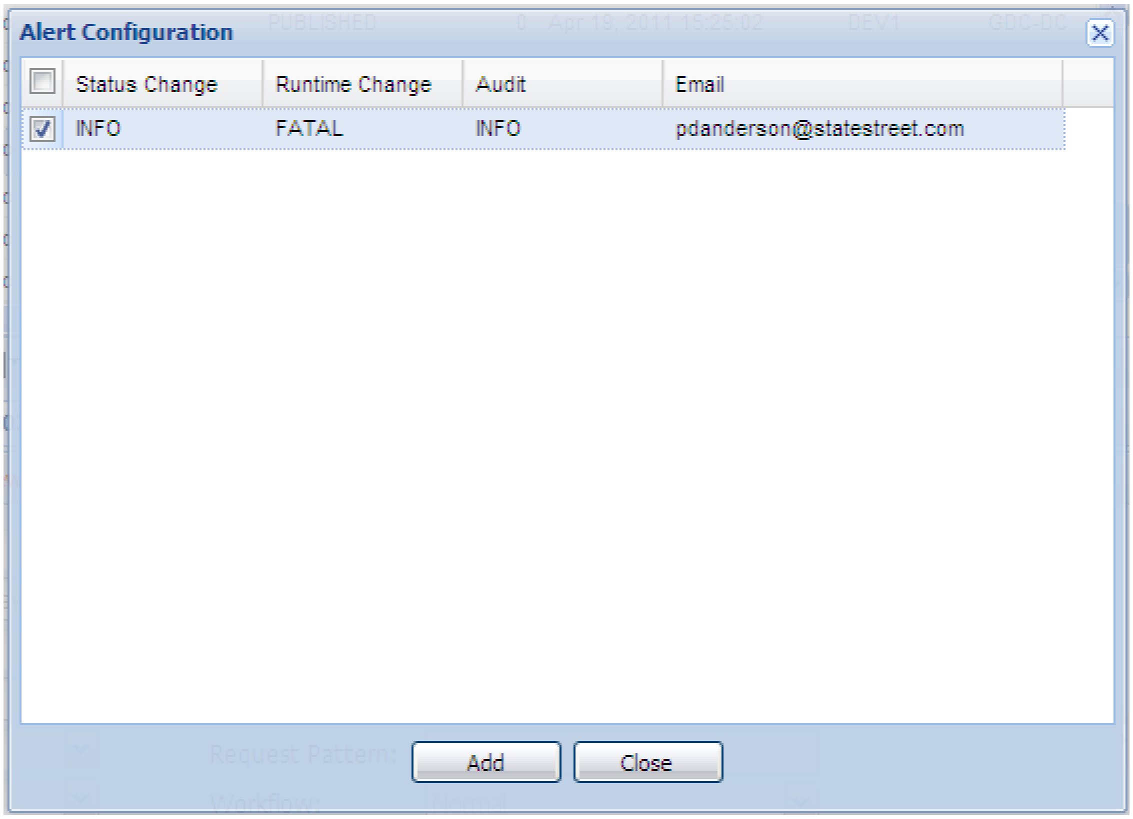
Approvers can accept or decline the alerts after review. Choosing Accept enables the approver to move the app forward. Choosing Decline moves the app backward by setting the status of the app profile to REJECTED with the reason code as DECLINED ALERTS.

2.2.3 Configure Alerts

As a convenience for your approvers, you can configure email alerts to be sent to your approvers when a status change to the app profile requires their approval.

Note: The list of approvers is set in eSF by the Cloud Controller access role entitlements, established for members of the development team, leads, and managers. The designated approvers can login to the Cloud and approve app profile status changes, even if email alerts have not been configured for them or have not yet been received by the approvers.

In the Application Profile panel, select an app and display its profile properties. Click **Configuration** -> **Alert Config**. In the Alert Configuration dialog, click **Add**.



Alert Configuration

□	Status Change	Runtime Change	Audit	Email
☑	INFO	FATAL	INFO	pdanderson@statestreet.com

Double click in each column to select a type alert. Selecting INFO includes all other alert types. Click **Close**, and alerts will be sent to your email address.

© 2012 State Street Corporation.

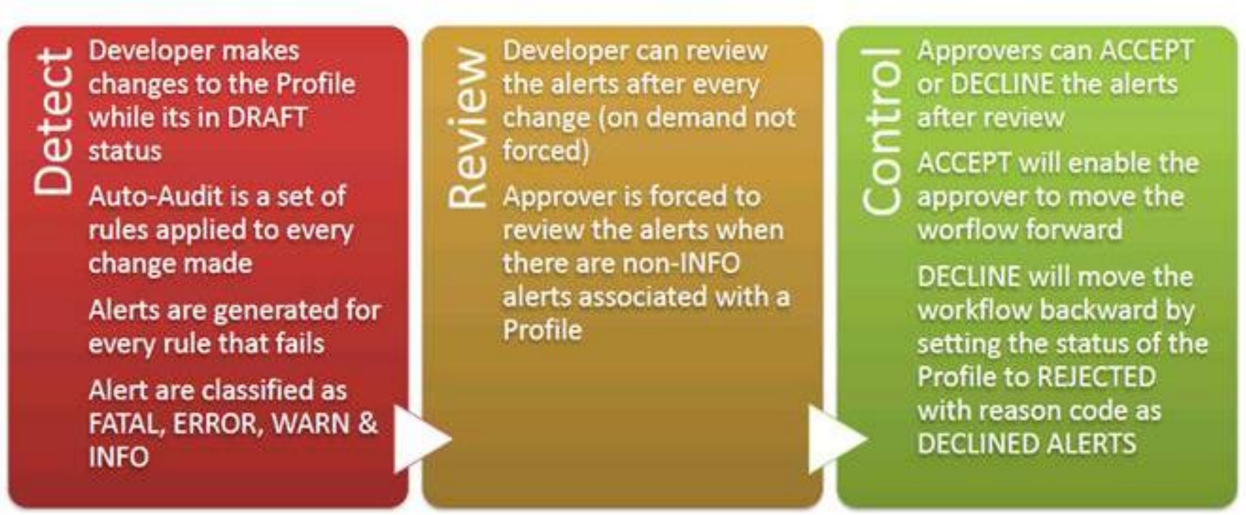
2.2.4 Auto-Audit Rules

Auto-Audit rules generate alerts when any rules check of an app profile results in a negative.

These alerts are associated with an app profile and are presented to approvers before they can approve the app profile.

An approver must accept or decline alerts. If they accept, the workflow moves forward. If they decline, the profile is rejected and sent back to DRAFT status.

Before the app status can be reset to PUBLISHED, developers must fix any problems discovered by the Auto-Audit rules check.



Detect

Developer makes changes to the Profile while its in DRAFT status

Auto-Audit is a set of rules applied to every change made

Alerts are generated for every rule that fails

Alert are classified as FATAL, ERROR, WARN & INFO

Review

Developer can review the alerts after every change (on demand not forced)

Approver is forced to review the alerts when there are non-INFO alerts associated with a Profile

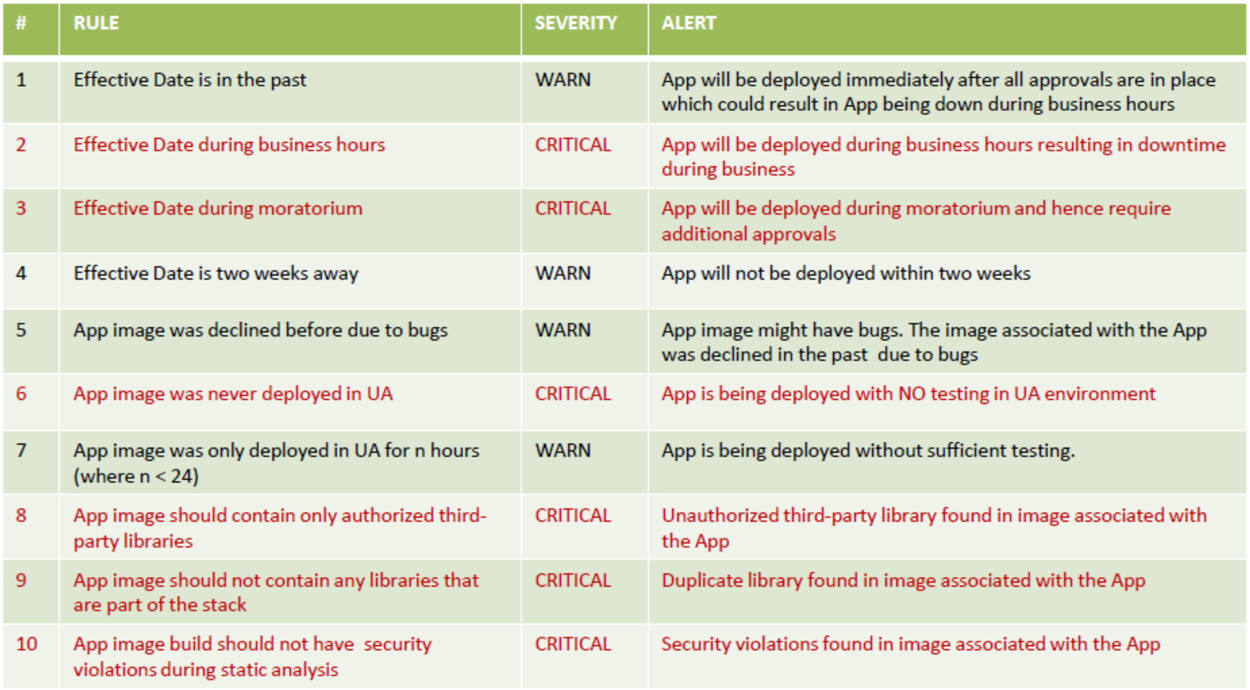
Control

Approvers can ACCEPT or DECLINE the alerts after review

ACCEPT will enable the approver to move the worflow forward

DECLINE will move the workflow backward by setting the status of the Profile to REJECTED with reason code as DECLINED ALERTS

The table contains some of the alerts that are checked when an app profile status is changed.



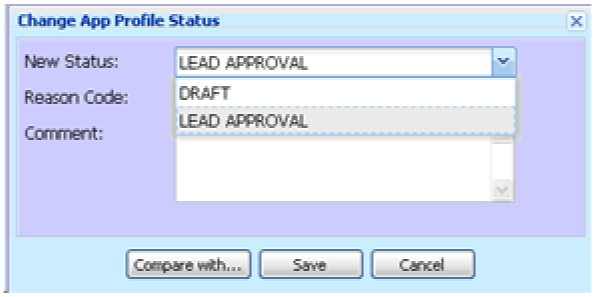
#	RULE	SEVERITY	ALERT
1	Effective Date is in the past	WARN	App will be deployed immediately after all approvals are in place which could result in App being down during business hours
2	Effective Date during business hours	CRITICAL	App will be deployed during business hours resulting in downtime during business
3	Effective Date during moratorium	CRITICAL	App will be deployed during moratorium and hence require additional approvals
4	Effective Date is two weeks away	WARN	App will not be deployed within two weeks
5	App image was declined before due to bugs	WARN	App image might have bugs. The image associated with the App was declined in the past due to bugs
6	App image was never deployed in UA	CRITICAL	App is being deployed with NO testing in UA environment
7	App image was only deployed in UA for n hours (where n < 24)	WARN	App is being deployed without sufficient testing.
8	App image should contain only authorized third-party libraries	CRITICAL	Unauthorized third-party library found in image associated with the App
9	App image should not contain any libraries that are part of the stack	CRITICAL	Duplicate library found in image associated with the App
10	App image build should not have security violations during static analysis	CRITICAL	Security violations found in image associated with the App

© 2012 State Street Corporation.

2.3 Get Approval

After the status of your app is changed to PUBLISHED for any environment, you must get approval before the app status can change to RUNNING.

After your application status is changed to PUBLISHED in the DEV environment, a team member with lead approval authority must login to the Cloud and change the status from PUBLISHED to LEAD APPROVAL. The approver should also enter comments in the Comment box.



Change App Profile Status

New Status: LEAD APPROVAL

Reason Code:

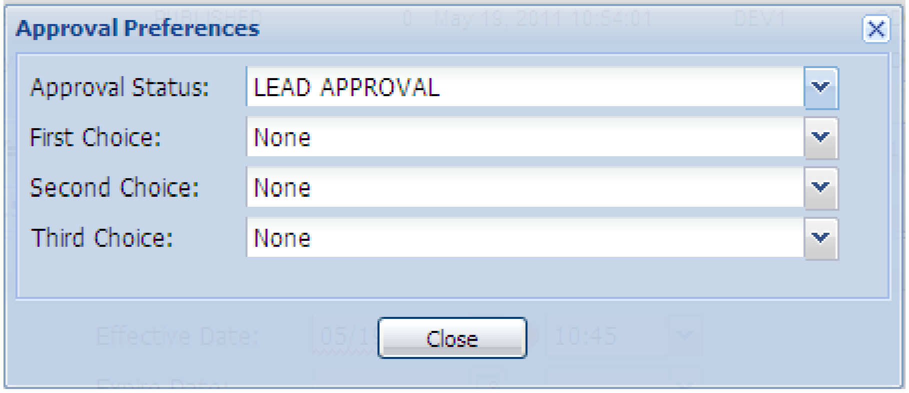
Comment:

Note: If the team member does not see LEAD APPROVAL in the dropdown list, either the member's eSF role entitlements are not configured correctly for this application or the necessary eSF role is not correctly associated with the member's login.

The status of your application changes to PREPARING and then SCHEDULED. Once the status becomes RUNNING, your application has been successfully deployed.

2.3.1 Configure Approvals

In the Application Profile panel, select an app and display its profile properties. Click **Configuration** -> **Approval Prefs**. In the Approval Preferences dialog, click the down arrow for Approval Status, such as LEAD APPROVAL, and then click the down arrow for one of the choices. From the list of authorized users, as defined by eSF role entitlements, select a user to handle the approvals for this status change. Click **Close**.



Approval Preferences

Approval Status: LEAD APPROVAL

First Choice: None

Second Choice: None

Third Choice: None

© 2012 State Street Corporation.

3. GET APPROVAL TO CHANGE STATUS TO RUNNING

To change an app's status to RUNNING requires approval for each app profile. The approval process varies by environment, as described in the table.

Environment	Approval Roles	App Promotion
DEV	Lead	One team lead developer can approve an app in PUBLISHED status. The app then moves to LEAD APPROVAL, SCHEDULED, INSTALLING, and finally RUNNING status in DEV. The app starts running according to its effective date or starts running immediately if the scheduled effective date has passed.
SYS	Lead	One team lead developer can approve an app in PUBLISHED status in the SYS environment.
UAT	Lead Manager (development) SQA Business	One team lead developer and three managers (development, SQA, and business) must approve a request to promote an app in PUBLISHED status in the UAT environment.
PROD	Lead Manager (development) SQA Business	One lead developer and three managers (development, SQA, and business) must approve a request to promote an app in PUBLISHED status in the PROD environment.
PROD (emergency)	Lead Manager (development) Emergency approver	In emergency workflow, one lead developer, a development manager, and an emergency approver must approve a request to promote an app in PUBLISHED status in the PROD environment.
PROD (moratorium	Lead Manager (development) SQA Business Moratorium approvers	In moratorium workflow, one lead developer, a development manager, an SQA manager, a business manager, and 2 moratorium approvers must approve a request to promote an app in PUBLISHED status in the PROD environment.

You must create or clone a *new* app profile each time you publish an app in an environment.

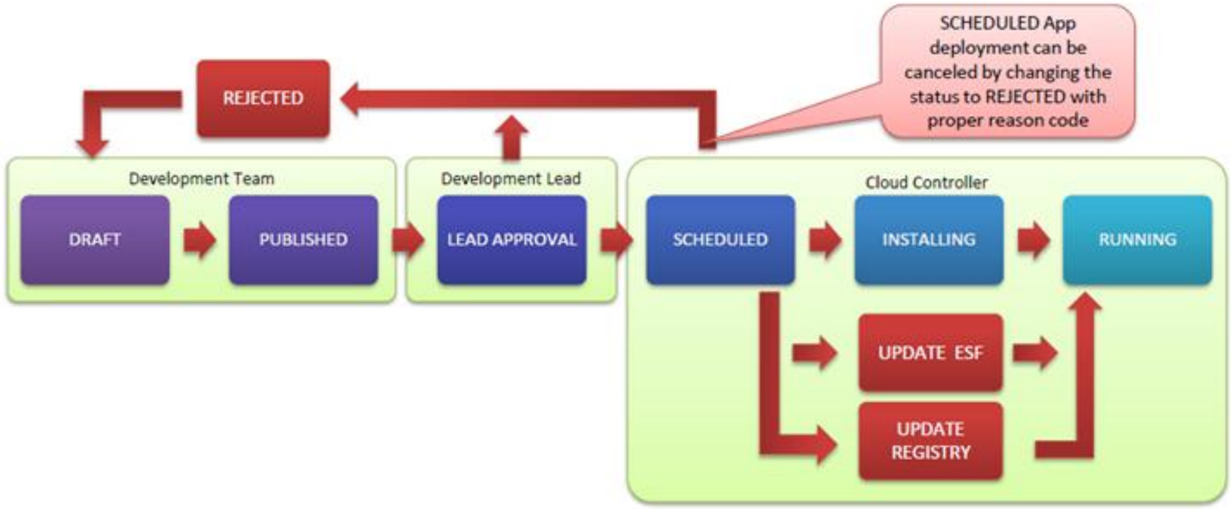
An approver can approve only one status change and/or app promotion per app profile in the deployment process. No approver can approve more than one app promotion for a particular app profile.

When an app profile is cloned, so that a new app image can be deployed and tested, the approval process starts again, so that the same lead developer can approve the app profile with the new app image.

© 2012 State Street Corporation.

3.1 POC/DEV/SYS Workflow and Approvals

The approval process for POC, DEV, and SYS requires one development lead approval.

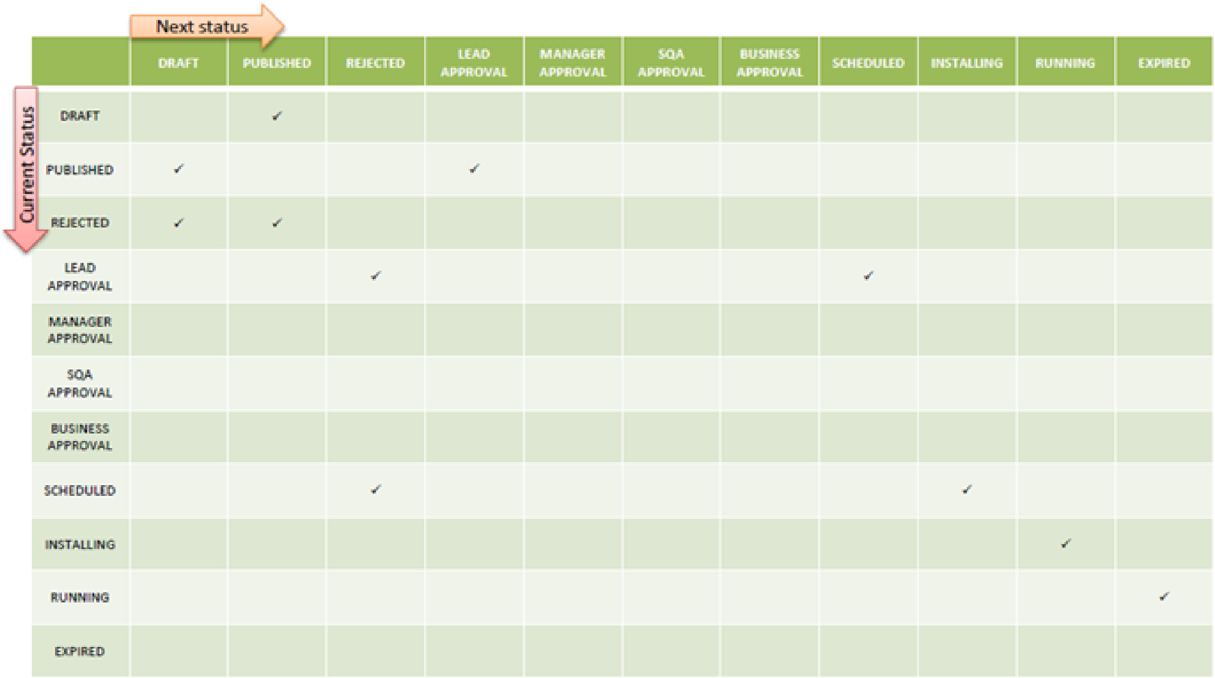


3.1.1 Workflow Status

- **DRAFT** –In the initial status of DRAFT, an app profile can be edited by the Development team.
- **PUBLISHED** – After completing the app profile and specifying the app image, a developer sets the status as PUBLISHED.
- **LEAD APPROVAL** - A lead developer has reviewed and approved the app profile.
- **SCHEDULED** – The Cloud Controller validates the app profile and schedules the app for deployment according to the effective date specified in the app profile.
- **INSTALLING** – While the Cloud Controller communicates with the provisioning module at the time of deployment, the status is INSTALLING. At the same time the Cloud Controller extracts the *service_inventory.xml* file, reads the metadata, including app role templates, functions, and function groups, and passes this information to the Service Registry and eSF.
- **RUNNING** – When the installation is complete, the status is RUNNING.

© 2012 State Street Corporation.

This table shows the approval process and the status timeline for DEV and SYS.



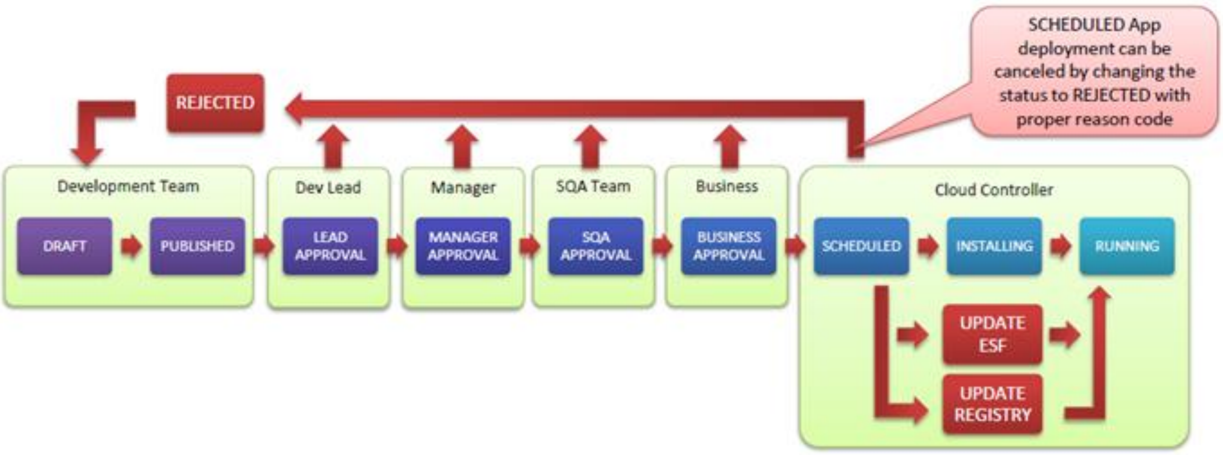
Next status
Current Status

	DRAFT	PUBLISHED	REJECTED	LEAD APPROVAL	MANAGER APPROVAL	SQA APPROVAL	BUSINESS APPROVAL	SCHEDULED	INSTALLING	RUNNING	EXPIRED
DRAFT		✓									
PUBLISHED	✓			✓							
REJECTED	✓	✓									
LEAD APPROVAL			✓					✓			
MANAGER APPROVAL											
SQA APPROVAL											
BUSINESS APPROVAL											
SCHEDULED			✓						✓		
INSTALLING										✓	
RUNNING											✓
EXPIRED											

AppProfileStatus transitions in UI are controlled by eSF using AppCode and ZoneEnvironment

3.2 UAT/PREPROD/PROD Workflow and Approvals

The approval process for UAT, PREPROD, and PROD requires 3 additional approvals.



3.2.1 Workflow Status

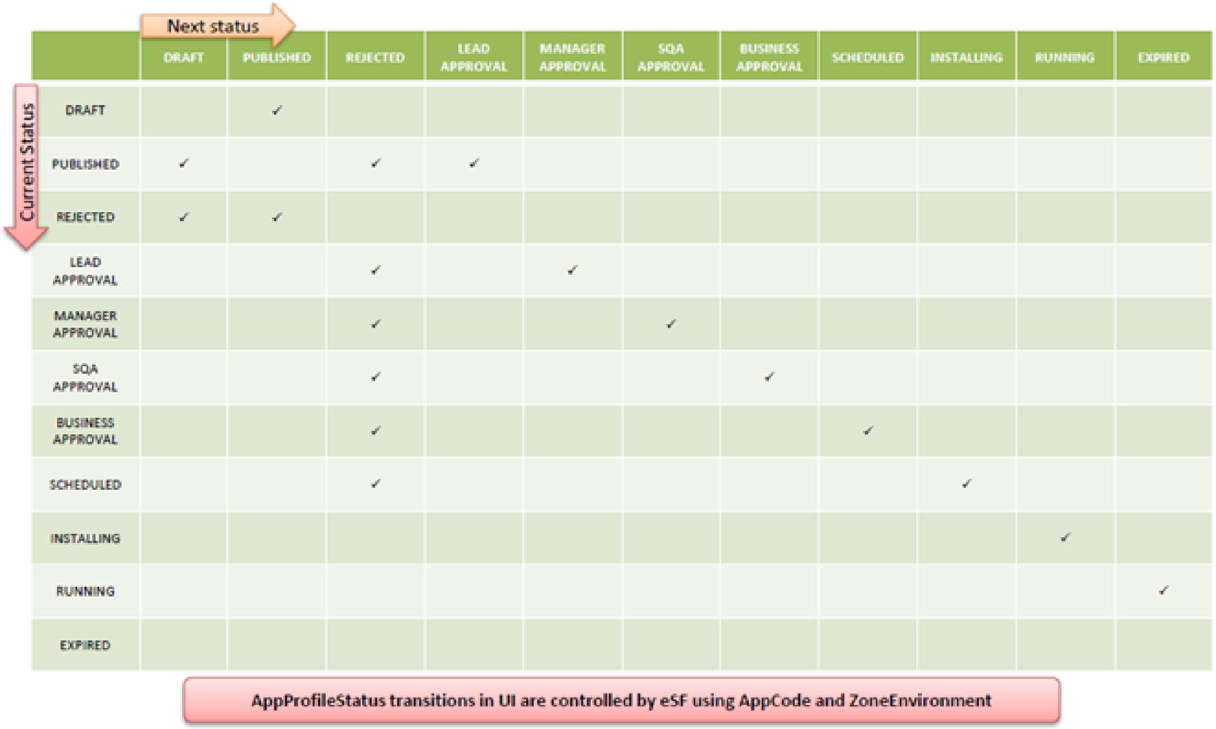
The 3 additional approvals are:

- **MANAGER APPROVAL** – After a lead developer approves, a development manager approves.

© 2012 State Street Corporation.

- **SQA APPROVAL** – After a development manager approves, an SQA manager approves.
- **BUSINESS APPROVAL** – After an SQA manager approves, a business manager, such as an senior vice-president, approves.

This table shows the approval process and the status timeline for UAT and PROD and shows that three approvals are required.



Next status
Current Status

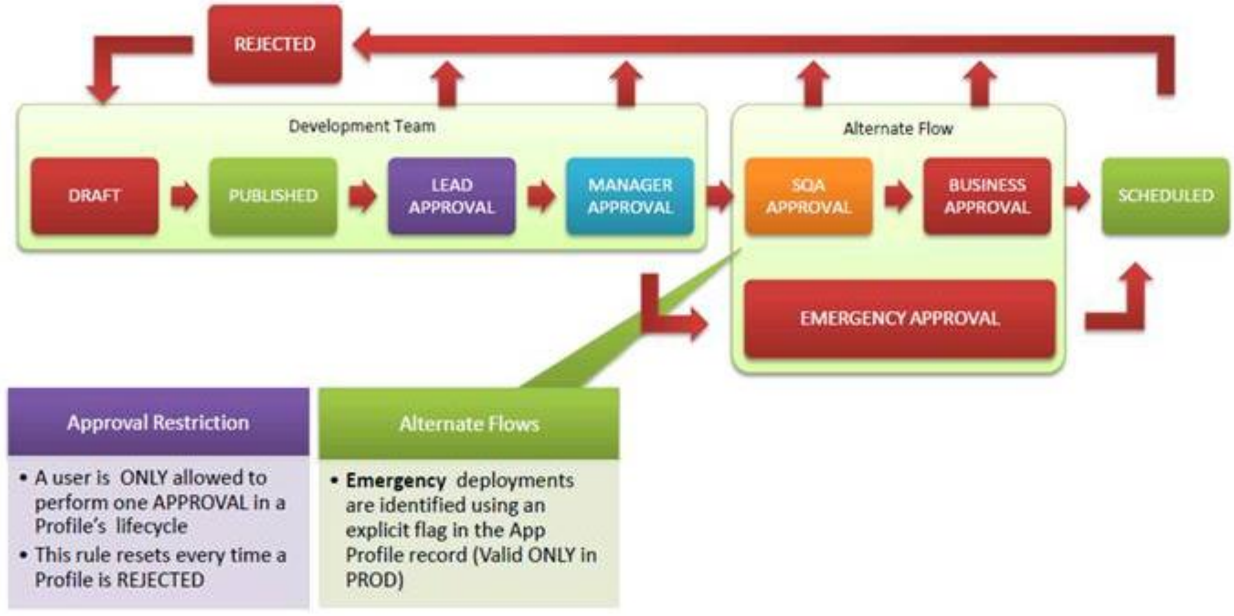
	DRAFT	PUBLISHED	REJECTED	LEAD APPROVAL	MANAGER APPROVAL	SQA APPROVAL	BUSINESS APPROVAL	SCHEDULED	INSTALLING	RUNNING	EXPIRED
DRAFT		✓									
PUBLISHED	✓		✓	✓							
REJECTED	✓	✓									
LEAD APPROVAL			✓		✓						
MANAGER APPROVAL			✓			✓					
SQA APPROVAL			✓				✓				
BUSINESS APPROVAL			✓					✓			
SCHEDULED			✓						✓		
INSTALLING										✓	
RUNNING											✓
EXPIRED											

AppProfileStatus transitions in UI are controlled by eSF using AppCode and ZoneEnvironment

© 2012 State Street Corporation.

3.3 Emergency Workflow and Approvals

Emergency workflow is geared toward deploying unexpected, but critical, technical changes that need to be moved urgently. If developers request emergency deployment, the approvers for SQA APPROVAL and BUSINESS APPROVAL are replaced by an approver who is authorized to make an EMERGENCY APPROVAL.



Approval Restriction

- A user is ONLY allowed to perform one APPROVAL in a Profile's lifecycle
- This rule resets every time a Profile is REJECTED

Alternate Flows

- **Emergency** deployments are identified using an explicit flag in the App Profile record (Valid ONLY in PROD)

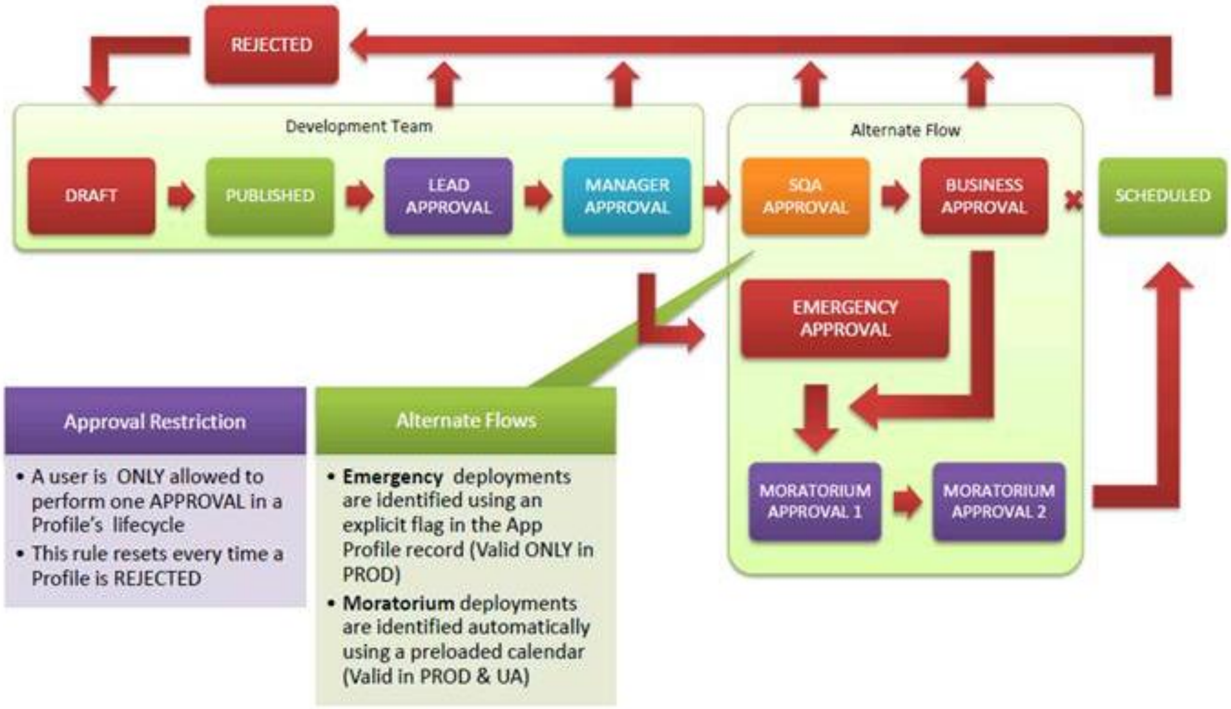
© 2012 State Street Corporation.

3.4 Moratorium Workflow and Approvals

When an app needs to move during the monthly moratorium period defined by the State Street Corporation, developers can request moratorium deployment.

A moratorium period usually coincides with the last and first business days of the month. During this period, changes to live production applications are restricted. Moratorium workflow is an exception.

In moratorium workflow, 2 authorized high level approvals (MORATORIUM APPROVAL 1 and MORATORIUM APPROVAL 2) are required to move the change.



- A user is ONLY allowed to perform one APPROVAL in a Profile's lifecycle
- This rule resets every time a Profile is REJECTED

- **Emergency** deployments are identified using an explicit flag in the App Profile record (Valid ONLY in PROD)
- **Moratorium** deployments are identified automatically using a preloaded calendar (Valid in PROD & UA)

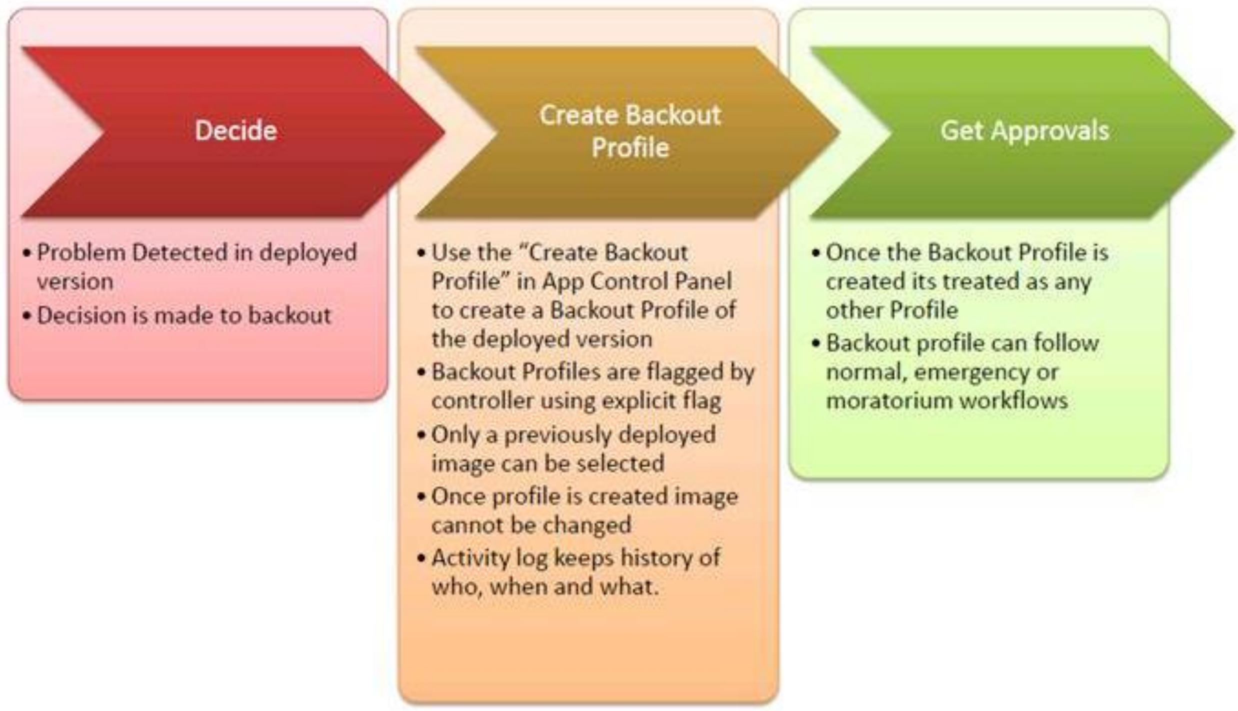
© 2012 State Street Corporation.

3.5 Designate an App Version as a Backout App

When an app deployment results in an unexpected malfunction in the app, the deployed version of the app can be backed out.

The IT and business teams collectively decide to back out when the problem with the app is detected.

When the backout decision is made, a developer creates a backout profile with an app image that was deployed and running without a malfunction before the attempt to deploy the current failed app. The backout profile can be deployed following normal, emergency, or moratorium workflows.



Decide

- Problem Detected in deployed version
- Decision is made to backout

Create Backout Profile

- Use the “Create Backout Profile” in App Control Panel to create a Backout Profile of the deployed version
- Backout Profiles are flagged by controller using explicit flag
- Only a previously deployed image can be selected
- Once profile is created image cannot be changed
- Activity log keeps history of who, when and what.

Get Approvals

- Once the Backout Profile is created its treated as any other Profile
- Backout profile can follow normal, emergency or moratorium workflows

© 2012 State Street Corporation.

4. SET UP ESF ROLES FOR USER ACCESS

When you deploy your app to the Cloud, the app role templates, functions, and function groups that you created in your *service_inventory.xml* file are uploaded to the service registry and eSF. You must login to eSF Self Service and complete the eSF role set up for user access to your app.

You must login to the eSF Self Service environment that corresponds to the environment to which you have deployed your app:

- **DEV and SYS eSF** – All DEV and SYS entitlements

  https://esf-dev.statestr.com/

  Use TSTCORP LAN ID to login. If you do not have a TSTCORP ID, you can self-register at https://idportal.statestr.com/ad/servlet/REGWelcome.
- **UAT eSF** – All UAT entitlements

  https://esf-uat.statestr.com/

  Use regular LAN ID to login.
- **Prod eSF** – All Prod entitlements

  https://esf.statestr.com/

  Use regular LAN ID to login.

For more information on eSF, steps for deploying an application into eSF, and eSF-related SOPs, go to the eSF Education and Awareness SharePoint Community:

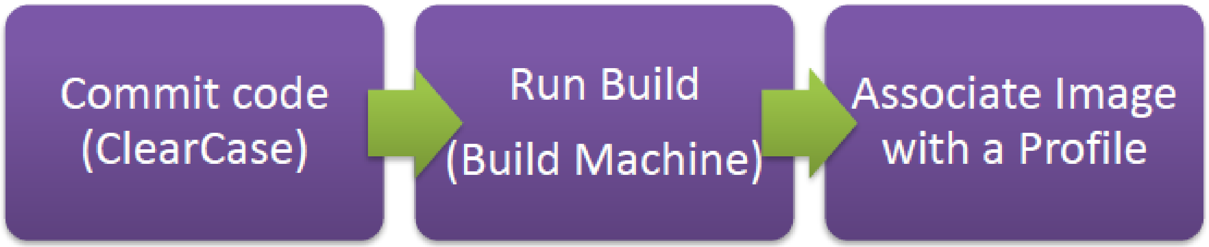
https://community.statestr.com/sites/eSFEducationAwareness/

For eSF questions and support, contact ESFProductionSupport@statestreet.com.

© 2012 State Street Corporation.

5. PERFORM A CERTIFIED BUILD

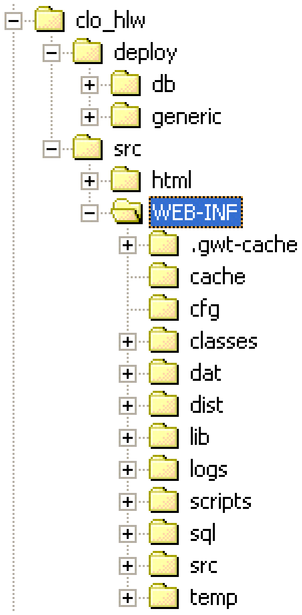
This section describes the steps for bundling an image through ClearCase for transmission to the Cloud.



The article *Certified Build Process* (http://cdt.statestr.com/?p=138) on the CDT site contains a link (http://cdt.statestr.com/wp-content/uploads/2012/05/ClearCase_build_process_sample_files_5_2_2012.zip) for downloading these sample files. The sample files can help you create versions for your app in ClearCase. The sample files are:

- build_cloud_image.xml
- cloud.properties
- build_wars.csh
- build_checkin_wars.csh
  Note: For each new project, the *.war* file does not initially exist in the jclass folder. You must checkout the jclass folder, make and checkin the *.war* file, and then checkin the jclass folder.
- cloud_bundler.csh
- build_complete.xml

As a best practice, create the ClearCase project directory structure the way it appears in Eclipse, for example:



```
⊟ clo_hlw
    ⊟ deploy
        ⊞ db
        ⊞ generic
    ⊟ src
        ⊞ html
        ⊟ WEB-INF
            ⊞ .gwt-cache
              cache
              cfg
            ⊞ classes
            ⊞ dat
            ⊞ dist
            ⊞ lib
            ⊞ logs
            ⊞ scripts
            ⊞ sql
            ⊞ src
            ⊞ temp
```

© 2012 State Street Corporation.

5.1 Verify Entries in Your UNIX .cshrc File

Make sure that the following entries are entered in your *.cshrc* file in your UNIX */usr* directory:

```
setenv TZ "US/Eastern"
setenv PATH /usr/atria/bin:$PATH
source /usr/local/clearquest/*.csh
alias ct /usr/atria/bin/cleartool
```

5.2 Bundle an Image Through ClearCase

5.2.1 Make the ClearCase View:

```
cleartool mkview -tag p473820_clo_hlw_01.00_int
-stream clo_hlw_01.00_integration@/vobs/clo01cp -stgloc nboc_viewstore
```

Note: Replace the login ID, p473820, with your own login, and replace the project path, name, and other details with your own.

5.2.2 Create a Clearquest Engineering Activity

In ClearCase, create a Clearquest activity for building *.war* files.

5.2.3 Build the .war *Files*

1. Login to *gdcpl3213* or *gdcpl3214* (ClearCase machines in Grafton) with your UNIX-dev id and password.
2. To build the .war files, enter these commands. Replace the login ID, p473820, with your own login, and replace the project path, name, and other details with your own. For example:

   ```
   cleartool lsview | grep p473820
   cleartool setview p473820_clo_hlw_01.00_int
   cd /vobs/clo01cv/clo_hlw/src/WEB-INF/scripts
   clearaudit build_wars.csh
   ```

3. Verify that the new *.war* files, both Normal and SQL (if applicable), are created in the WEB-INF/dist/temp/ build folder.
4. Check the timestamp of these files to ensure that they are new.
5. To move the *.war* files to the deploy folder, enter this command:

   ```
   clearaudit build_checkin_wars.csh
   ```

6. Verify that the new *.war* files, both Normal and SQL (if applicable), are moved from the build folder to the deploy/jclass folder.

5.2.4 Bundle the .war File and Create an Image

1. Login to *gdcpl3213* or *gdcpl3214* (ClearCase machines in Grafton) with your UNIX dev id and password.
2. Open the properties file with the VI editor, for example:

   ```
   cd /vobs/clo01cv/clo_hlw/src/WEB-INF/scripts
   ```

© 2012 State Street Corporation.

```
cleartool co -nc  /vobs/clo01cv/clo_hlw/src/WEB-
INF/scripts/cloud.properties
vi cloud.properties
```

3. In the cloud.properties file, modify the image version and baseline information. In this snippet from the properties file with SQL, the version and baseline entries are highlighted.
   Note: For Cloud properties without SQL, leave *blank* the values of the project.sql.war, image.sql.description, vob.sql.jclass.path properties.

   ```
   basedir=..
   antjar.path=${basedir}/lib/ant-contrib-0.6.jar
   project.distname.war=OWTHelloWorld.war

   ###### Specify the following properties for bundling the SQL .war file.

   project.sql.war=OWTHelloWorld_sql.war
   image.sql.description= OWTHelloWorld SQL WAR 24Mar2011

   ####### Specify the SQL .war file path relative to the deploy
   directory.

   vob.sql.jclass.path=deploy/db/sql/ora/jclass

   #######

   image.description= OWTHelloWorld WAR 24Mar2011

   ####### Specify the image version in the format shown.

   image.version=1.1.2b
   app.code=CLOHLW00259
   basl.name=clo_hlw_01.00_001_

   ####### Specify the .war file path relative to the deploy directory.

   vob.jclass.path=deploy/generic/jclass
   ```

4. Commit the changes to the properties file and transmit the image to the Cloud.

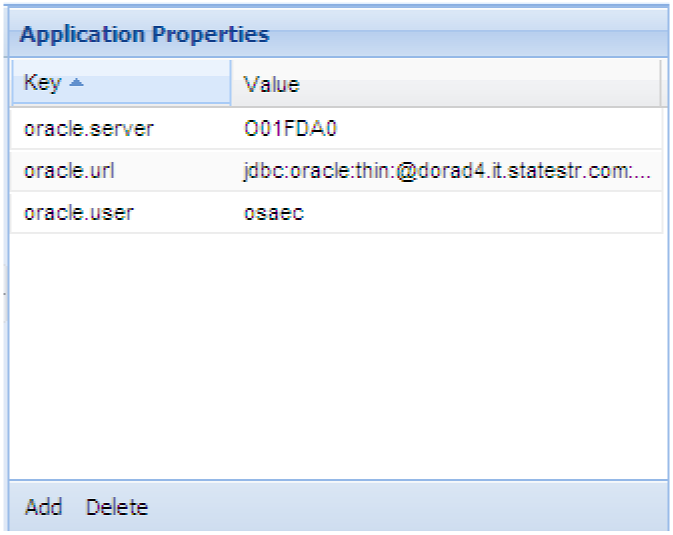
   ```
   cleartool ci -nc /vobs/clo01cv/clo_hlw/src/WEB-
   INF/scripts/cloud.properties
   sh cloud_bundler.csh
   ```

5. In the Cloud Image Browser, verify that the image was created with the new version number.

© 2012 State Street Corporation.

6. SET UP DATASOURCES FOR DIFFERENT ENVIRONMENTS

You can set up datasources for different environments in the Application Properties table that is part of the app profile. To view and edit the Application Properties table, go to the Application Profiles tab of the App Control Panel and then select your app. App profiles appear in the lower panel and the Application Properties table appears on the right, for example:



Application Properties

Key ▲	Value
oracle.server	O01FDA0
oracle.url	jdbc:oracle:thin:@dorad4.it.statestr.com:...
oracle.user	osaec

Note: To return the datasource object containing the property settings you need in your code, use this method: `GenConnectionPool.getDataSource(“myDataSource”).`

6.1 Deploy the App to the Cloud

Configuring different datasource parameters varies across cloud environments. First, create a *.war* file from the OWTHelloWorld project or your application and deploy the app to the Cloud.

The *.war* file contains a *settings.xml* file, for example:

```
<?xml version="1.0" encoding="UTF-8"?>
<settings>
   <FAW ServiceFor="CLOUD" ReloadConfigFiles="true">
      <LogManager ClassName="com.ssc.faw.common.LogFile"
         FilePath="${CONTEXT_ROOT}/WEB-INF/logs" LogLevel="0"
         FileSize="262144000"/>
      <log4j rootLogger="INFO, file_sys, console_sys" >
         <appender
            file_sys="com.ssc.faw.common.log4j.DailyRollingFileAppender"
            console_sys="org.apache.log4j.ConsoleAppender">
            <file_sys file="${FAW.LogManager.FilePath}/FAW_l4j.log"
               DatePattern=".yyyy-MM-dd-HH.'log'"
               layout="org.apache.log4j.PatternLayout"
                  layout.ConversionPattern="%-5p>%-2d{ISO8601} %C[%t]: %m%n"
               Append="true" zip="true" />
            <console_sys layout="org.apache.log4j.PatternLayout"
               layout.ConversionPattern="%-5p> %C[%t]: %m%n" threshold="INFO"
/>
```

© 2012 State Street Corporation.

```
            <category org.jgroups.protocols="ERROR"
org.jgroups.blocks="ERROR" />
         </appender>
      </log4j>

      <connectionPool timeOut="15000" enabled="false">

      <dataSources>
         <cloud server="${oracle.server}" url="${oracle.url}"
         driver="oracle.jdbc.driver.OracleDriver" user="${oracle.user}"
         password="" useMatrix="true" />
      </dataSources>

      </connectionPool>

      <intref idfPath="${CONTEXT_ROOT}/WEB-INF/dat" debug="false">

         <actor>
            <load handler="com.ssc.faw.intref2.IDFA_Load" />
            <script handler= "com.ssc.faw.intref2.xtreme.IDFA_Script" />
            <select handler="com.ssc.faw.intref2.IDFA_Select" />
            <select2 handler="com.ssc.faw.intref2.IDFA_Select2" />
            <parser handler="com.ssc.faw.intref2.IDFA_Parser" />
            <update handler="com.ssc.faw.intref2.IDFA_Update" />
            <insert handler="com.ssc.faw.intref2.IDFA_Insert" />
            <delete handler="com.ssc.faw.intref2.IDFA_Delete" />
            <ftp handler="com.ssc.faw.intref2.IDFA_Ftp" />
            <proc handler="com.ssc.faw.intref2.IDFA_OraProc" />
         </actor>

      </intref>
   </FAW>
</settings>
```

6.2 Set Application Profile Properties

The *settings.xml* file does *not* specify values for these database connection variables:

- Server name: ${oracle.server}
- URL: ${oracle.url}
- User: ${oracle.user}

The values are set as *key:value* pairs in the **Application Properties** table in the Application Control Panel in the Cloud Controller.

After the app profile is approved and deployed successfully, the app connects to the appropriate databas set by *key:value* pairs in the Application Properties table.

The name of the key must match the name of the corresponding database connection variable, such as *oracle.server* corresponding to *${oracle.server}*.

Values change depending on the intended environment of the app profile being configured.

© 2012 State Street Corporation.

6.2.1 Connect to the DEV database

Key	Value
oracle.server	O01FDA0
oracle.url	jdbc:oracle:thin:@dorad4.it.statestr.com:1525:O01FDA0
oracle.user	osaec

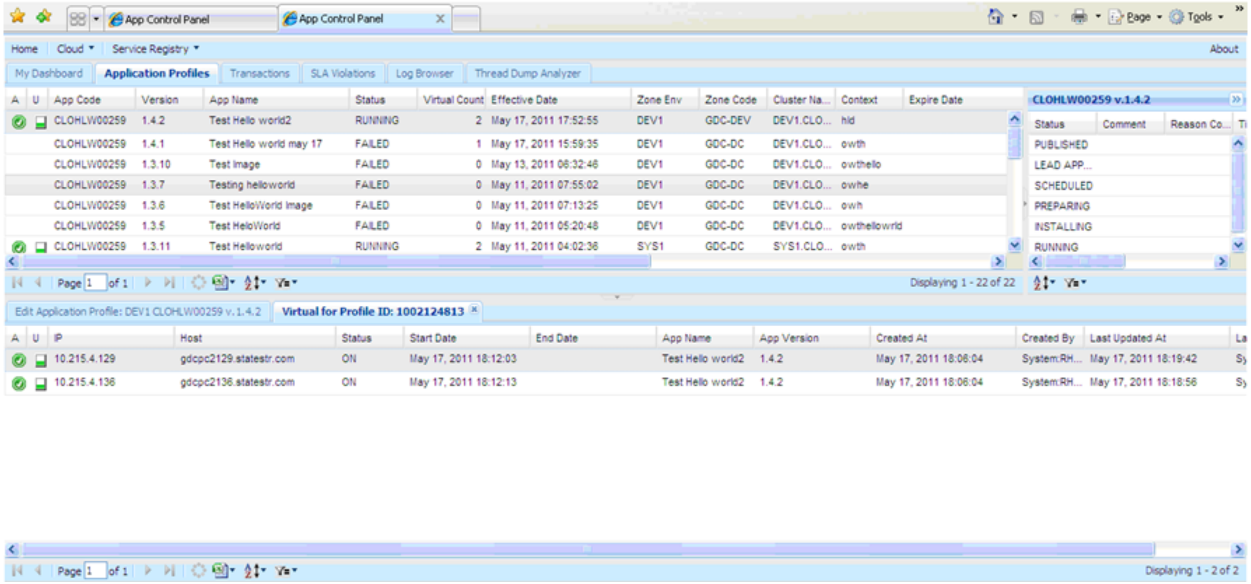
6.2.2 Connect to the Cloud beta database

Key	Value
oracle.server	O01CLD0
oracle.url	jdbc:oracle:thin:@10.1.196.8:1521:O01CLD0
oracle.user	cld_ctrl_proxy

6.3 Test the Datasource

The following screen captures show the Application Properties table and the results of testing the datasource.

1. Create a new application profile and setup database connection properties in the “Application Properties” table on the lower right of the app profile panel.
2. After successful deployment, observe the name of the VM to which the app was deployed in the highlighted row.



A	U	App Code	Version	App Name	Status	Virtual Count	Effective Date	Zone Env	Zone Code	Cluster Na...	Context	Expire Date
✓	□	CLOHLW00259	1.4.2	Test Hello world2	RUNNING	2	May 17, 2011 17:52:55	DEV1	GDC-DEV	DEV1.CLO...	hld	
		CLOHLW00259	1.4.1	Test Hello world may 17	FAILED	1	May 17, 2011 15:59:35	DEV1	GDC-DC	DEV1.CLO...	owth	
		CLOHLW00259	1.3.10	Test Image	FAILED	0	May 13, 2011 06:32:46	DEV1	GDC-DC	DEV1.CLO...	owthello	
		CLOHLW00259	1.3.7	Testing helloworld	FAILED	0	May 11, 2011 07:55:02	DEV1	GDC-DC	DEV1.CLO...	owhe	
		CLOHLW00259	1.3.6	Test HelloWorld Image	FAILED	0	May 11, 2011 07:13:25	DEV1	GDC-DC	DEV1.CLO...	owh	
		CLOHLW00259	1.3.5	Test HeloWorld	FAILED	0	May 11, 2011 05:20:48	DEV1	GDC-DC	DEV1.CLO...	owthellowrld	
✓	□	CLOHLW00259	1.3.11	Test Helloworld	RUNNING	2	May 11, 2011 04:02:36	SYS1	GDC-DC	SYS1.CLO...	owth	

CLOHLW00259 v.1.4.2

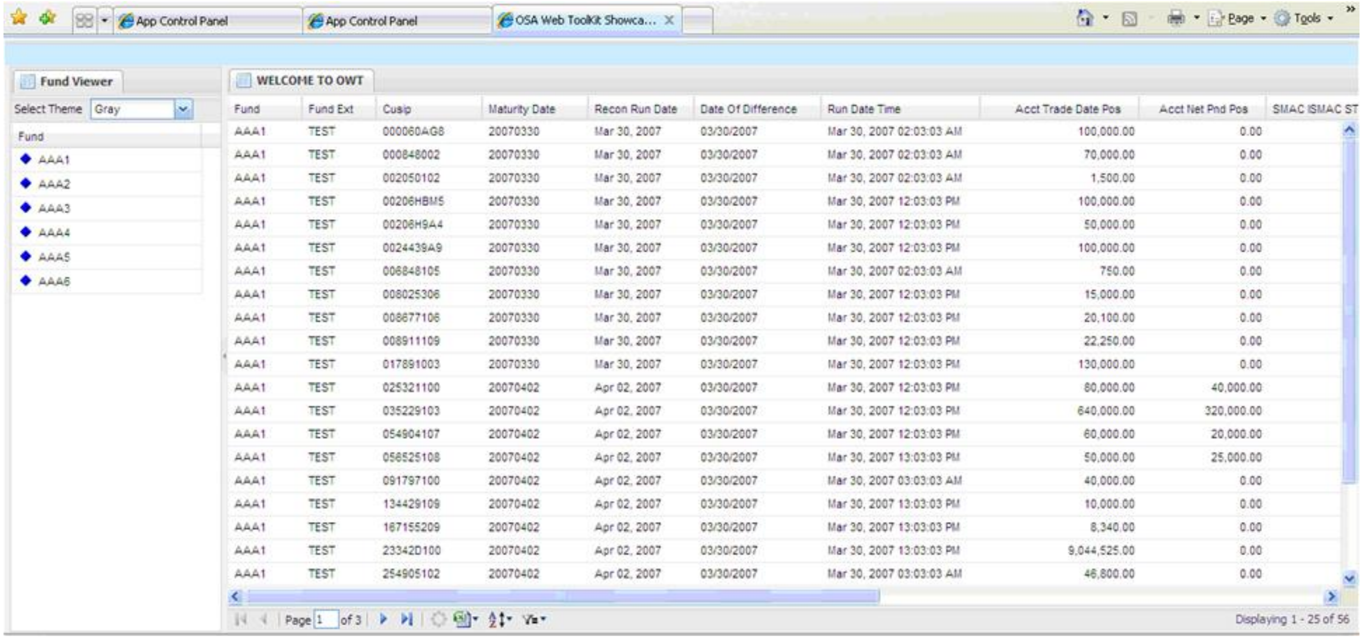
Status	Comment	Reason Co...	Ti
PUBLISHED			
LEAD APP...			
SCHEDULED			
PREPARING			
INSTALLING			
RUNNING			

A	U	IP	Host	Status	Start Date	End Date	App Name	App Version	Created At	Created By	Last Updated At	La
✓	□	10.215.4.129	gdcpc2129.statestr.com	ON	May 17, 2011 18:12:03		Test Hello world2	1.4.2	May 17, 2011 18:06:04	System:RH...	May 17, 2011 18:19:42	Sy
✓	□	10.215.4.136	gdcpc2136.statestr.com	ON	May 17, 2011 18:12:13		Test Hello world2	1.4.2	May 17, 2011 18:06:04	System:RH...	May 17, 2011 18:18:56	Sy

© 2012 State Street Corporation.

3. Test the database connection by accessing application:

   http://gdcpc2418.statestr.com:8080/owth/



Select Theme: Gray

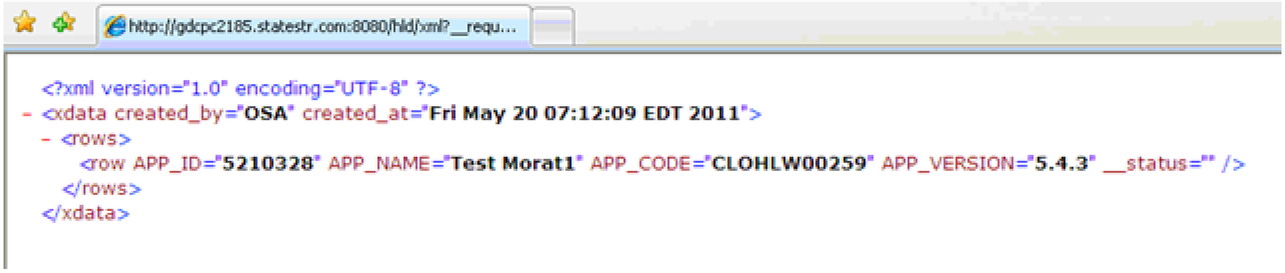
Fund	Fund Ext	Cusip	Maturity Date	Recon Run Date	Date Of Difference	Run Date Time	Acct Trade Date Pos	Acct Net Pnd Pos	SMAC ISMAC ST
AAA1	TEST	000060AG8	20070330	Mar 30, 2007	03/30/2007	Mar 30, 2007 02:03:03 AM	100,000.00	0.00	
AAA1	TEST	000848002	20070330	Mar 30, 2007	03/30/2007	Mar 30, 2007 02:03:03 AM	70,000.00	0.00	
AAA1	TEST	002050102	20070330	Mar 30, 2007	03/30/2007	Mar 30, 2007 02:03:03 AM	1,500.00	0.00	
AAA1	TEST	00206HBM5	20070330	Mar 30, 2007	03/30/2007	Mar 30, 2007 12:03:03 PM	100,000.00	0.00	
AAA1	TEST	00206H9A4	20070330	Mar 30, 2007	03/30/2007	Mar 30, 2007 12:03:03 PM	50,000.00	0.00	
AAA1	TEST	0024439A9	20070330	Mar 30, 2007	03/30/2007	Mar 30, 2007 12:03:03 PM	100,000.00	0.00	
AAA1	TEST	006848105	20070330	Mar 30, 2007	03/30/2007	Mar 30, 2007 02:03:03 AM	750.00	0.00	
AAA1	TEST	008025306	20070330	Mar 30, 2007	03/30/2007	Mar 30, 2007 12:03:03 PM	15,000.00	0.00	
AAA1	TEST	008677106	20070330	Mar 30, 2007	03/30/2007	Mar 30, 2007 12:03:03 PM	20,100.00	0.00	
AAA1	TEST	008911109	20070330	Mar 30, 2007	03/30/2007	Mar 30, 2007 12:03:03 PM	22,250.00	0.00	
AAA1	TEST	017891003	20070330	Mar 30, 2007	03/30/2007	Mar 30, 2007 12:03:03 PM	130,000.00	0.00	
AAA1	TEST	025321100	20070402	Apr 02, 2007	03/30/2007	Mar 30, 2007 12:03:03 PM	80,000.00	40,000.00	
AAA1	TEST	035229103	20070402	Apr 02, 2007	03/30/2007	Mar 30, 2007 12:03:03 PM	640,000.00	320,000.00	
AAA1	TEST	054904107	20070402	Apr 02, 2007	03/30/2007	Mar 30, 2007 12:03:03 PM	60,000.00	20,000.00	
AAA1	TEST	056525108	20070402	Apr 02, 2007	03/30/2007	Mar 30, 2007 13:03:03 PM	50,000.00	25,000.00	
AAA1	TEST	091797100	20070402	Apr 02, 2007	03/30/2007	Mar 30, 2007 03:03:03 AM	40,000.00	0.00	
AAA1	TEST	134429109	20070402	Apr 02, 2007	03/30/2007	Mar 30, 2007 13:03:03 PM	10,000.00	0.00	
AAA1	TEST	167155209	20070402	Apr 02, 2007	03/30/2007	Mar 30, 2007 13:03:03 PM	8,340.00	0.00	
AAA1	TEST	23342D100	20070402	Apr 02, 2007	03/30/2007	Mar 30, 2007 13:03:03 PM	9,044,525.00	0.00	
AAA1	TEST	254905102	20070402	Apr 02, 2007	03/30/2007	Mar 30, 2007 03:03:03 AM	46,800.00	0.00	

Displaying 1 - 25 of 56

4. Test the database connection by opening a web service, for example:

   http://gdcpc2185.statestr.com:8080/hld/xml?__request=2599060&PROFILE_ID=5210328

   This web service takes a Profile ID as a parameter, connects to the database, and returns application information (App_ID, APP_name, App_Code and App_version). The VM name is gdcpc2418.statestr.com and profile ID 5210328 is passed as a parameter. The operation returns application information (App_ID, APP_name, App_Code and App_version) from that database, as connected by the datasource.



```
  <?xml version="1.0" encoding="UTF-8" ?>
- <xdata created_by="OSA" created_at="Fri May 20 07:12:09 EDT 2011">
  - <rows>
      <row APP_ID="5210328" APP_NAME="Test Morat1" APP_CODE="CLOHLW00259" APP_VERSION="5.4.3" __status="" />
    </rows>
  </xdata>
```

© 2012 State Street Corporation.