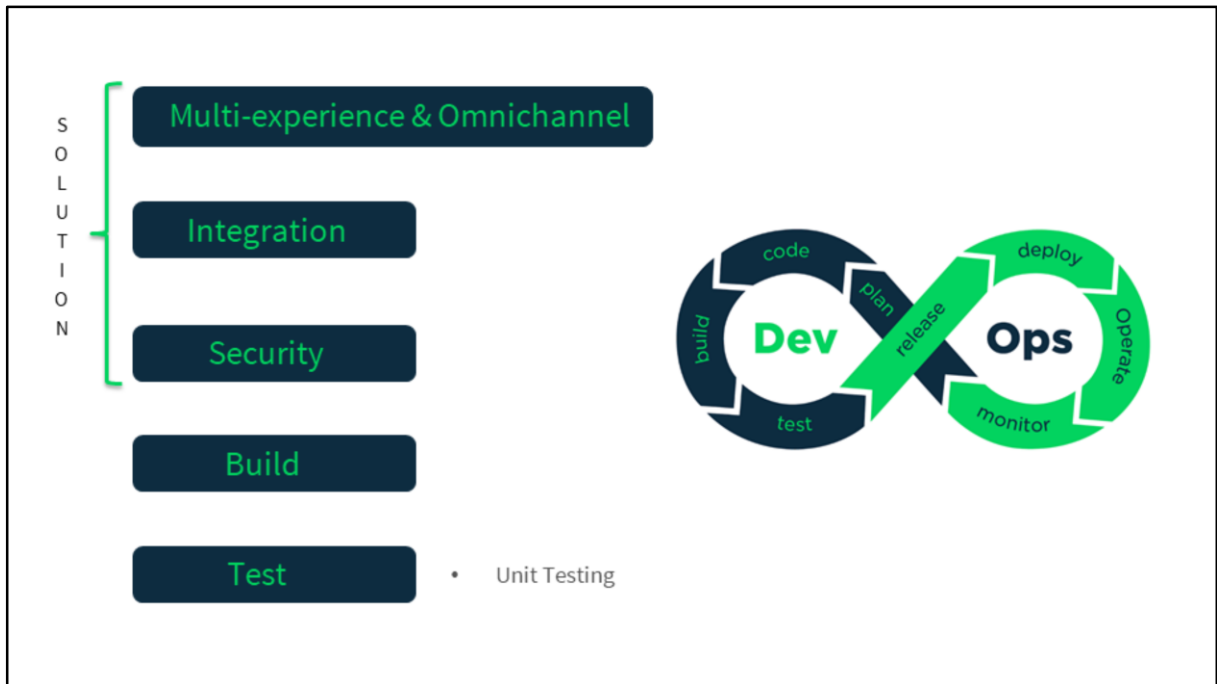
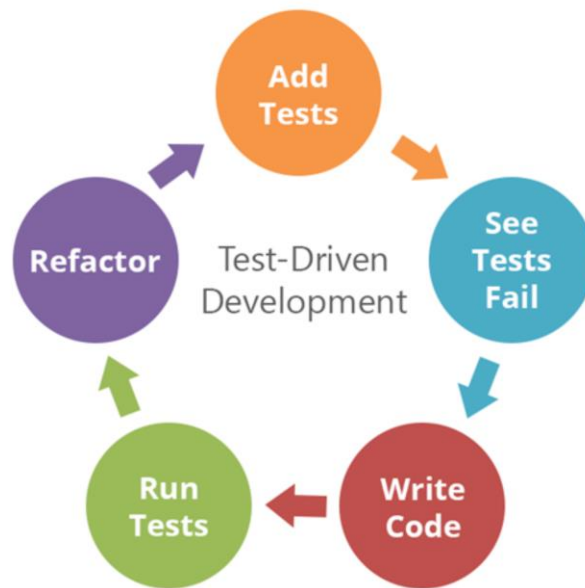


GeneXus™
The power of doing



So far we have gone through the first parts of the DevOps diagram, aspects that make the application we are developing and how to do it with GeneXus. On Build we already talked in the introduction and something else will be said later.

Now we'll see what's new in Testing, and then move on to what it does to Operations, the green part of the diagram.



Unit Tests

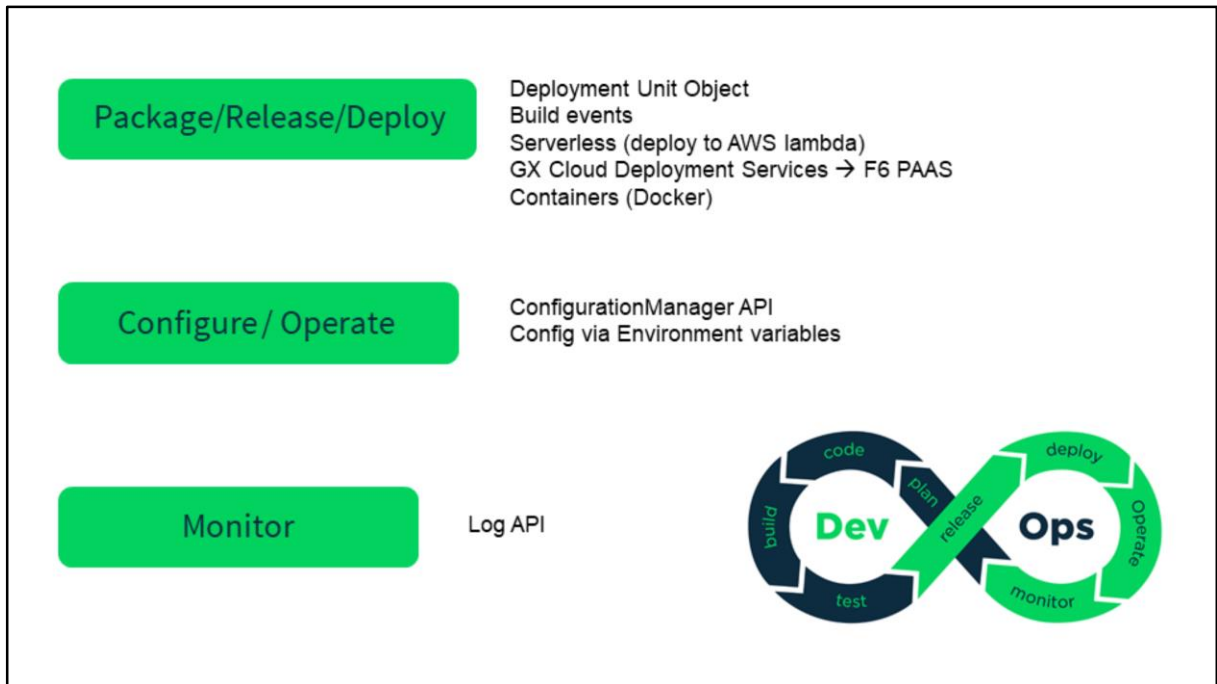
Test

- Unit Tests for Procedures and Data Providers
- Easy to Create Tests
- Easy to Add Test-Cases
- Allows us to use TDD practices
- Each unit tests adds to the test-suite that we can use to validate each Build



Continuous development /
Continuous integration

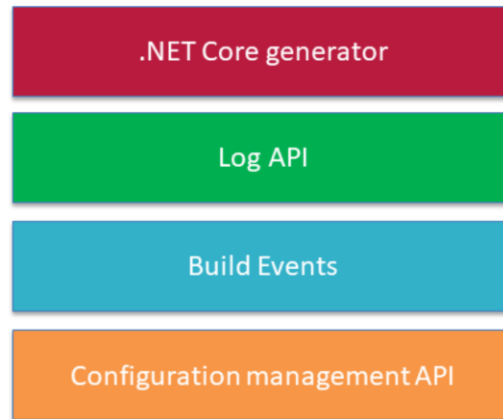
GeneXus™ 16



In the introduction we separate the functionalities that make the Operations. Now we will see the aspects of Package, Release, Deploy.

Build

Build



Build

.NET Core generator

Generation in .NET Core language
is available!

The default is still .NET, for now
both generators are going to
coexist.

<https://wiki.genexus.com/commwiki/servlet/wiki?38603>

GeneXus

<https://wiki.genexus.com/commwiki/servlet/wiki?38603>

Build

Log API

Log external object allows the developer to write messages in the log system in different levels:
Fatal, Error, Warning, Info or Debug

Default Log Level Property
Log Output = File

<https://wiki.genexus.com/commwiki/servlet/wiki?37872>

GeneXus

Build

Build Events

Allows you to program simple tasks before or after the build process takes place. Using Build -> Build Events menu, you access a simple interface where you can type your commands.

<https://wiki.genexus.com/commwiki/servlet/wiki?39474>

GeneXus

Build

Configuration management API

ConfigurationManager external object allows you to read the application configuration at runtime, stored in:

- Environment variables
- Configuration files (web.config, client.cfg, cloudservices.config, etc.)

Methods:

- **HasValue**
- **GetValue**

<https://wiki.genexus.com/commwiki/servlet/wiki?40085>

GeneXus

Deployment

Deployment

✓ Export Reorganization

✓ Improvements to Application Deployment Tool

✓ Changes in GeneXus Cloud Deployment Services

GeneXus

Deployment:

Export Reorganization

Use: Build / Export Reorganization

- **Java environment : a .jar file is created**
- **.Net environment: a .zip file is created**

Deployment:

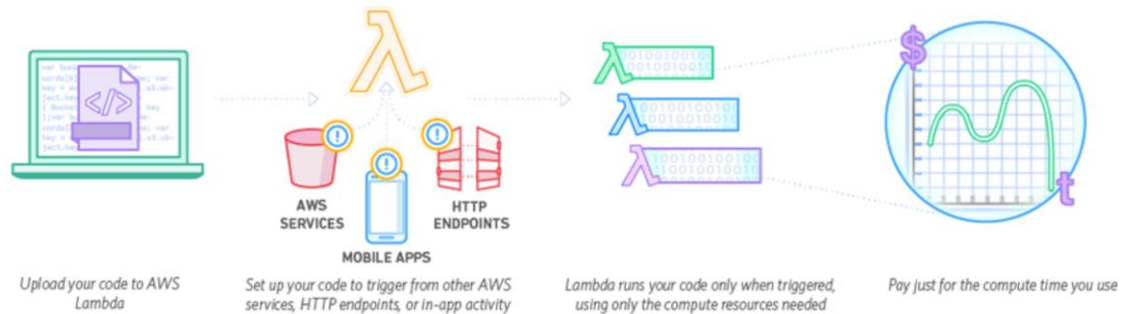
Improvements to Application Deployment Tool

Now it's possible to deploy to:

- **AWS Lambda & API Gateways Serverless**
- **Enterprise Application aRchive (EAR)**
- **Docker containers**
- **Deployment Unit Object**

GeneXus

Deployment AWS Lambda - Amazon API Gateways - Serverless

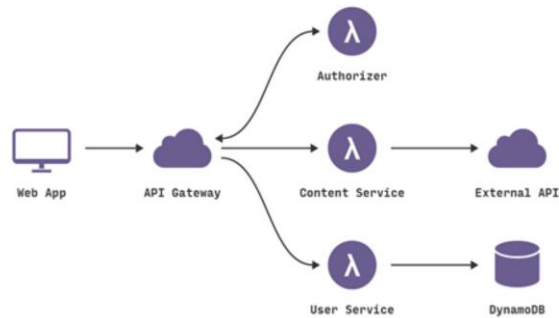


AWS Lambda is a compute service that runs your code in response to events and automatically manages the compute resources, making it easy to build applications that respond quickly to new information.

GeneXus

Deployment

AWS Lambda - Amazon API Gateways - Serverless



Benefits:

- Integrates with AWS Lambda to allow you to create completely serverless APIs
- You create REST APIs that let you call publicly available AWS services through your code running in AWS Lambda
- You pay only for calls made to your APIs and data transfer out.

Deployment

AWS Lambda - Amazon API Gateways - Serverless

Build / Deploy Application

Target: AWS Serverless Deploy [Options](#)

Display Name: Genexus Web Citizen_GX16updCourse

Deploy Target: AWS Serverless Deploy

AWS Access Key ID	
AWS Secret Access Key	
AWS Default Region	US Standard/US East (N. Virginia)

Deploy Settings

Application Name	
Stage Name (Version name)	

AWS Lambda Settings

Memory Size	512
-------------	-----

Advanced Settings

IAM Use custom Role	False
IAM Role Name	gx-aws-serverless-role

Security

Application Encryption Key	13272DAF6A1946D18DD9C3A68A4950C8
----------------------------	----------------------------------

Java

Target JRE	JRE 9 (or higher)
Package Format	Automatic

 Deploy

GeneXus

Deployment

Enterprise Application aRchive (EAR)

- In previous version there was a EAR Deployment Wizard (part of Deployment Wizard)
- Now is generated by the **Application Deployment Tool** if some selected object (or a called one) is an Enterprise Java Beans
- The .EAR file created will have:
 - One web application with all the servlets and static contents
 - One EJB application with all the EJB defined
 - All the JAR files required by the application

Deployment

Changes in GX Cloud Deployment Services

F6 to PaaS providers:

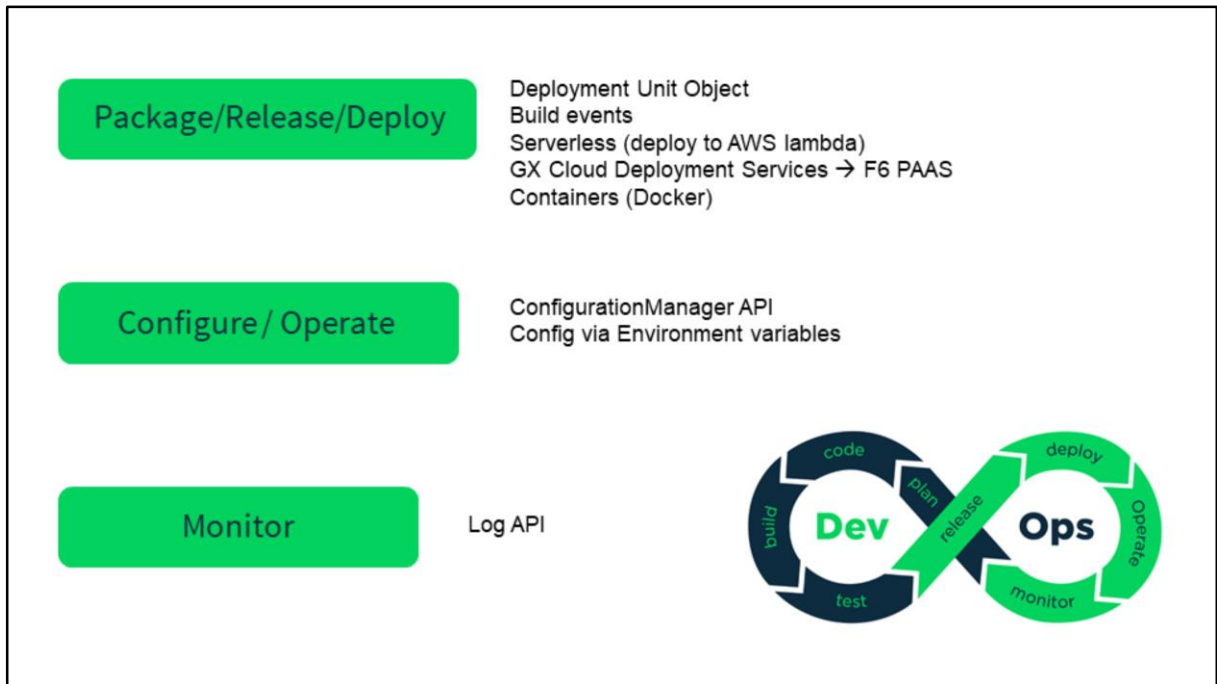
The diagram illustrates the workflow for deploying an application to a cloud provider. It consists of two side-by-side dialog boxes, connected by a red arrow pointing from left to right. Above the dialog boxes are logos for various cloud providers: Amazon web services, Microsoft Azure, Google Cloud Platform, IBM, and SAP HANA Cloud Platform.

Left Dialog Box: Titled "Deploy a new Application to your Cloud". It contains fields for "User" and "Password", and a "Remember me" checkbox. At the bottom are "Cancel" and "Authenticate" buttons. A red arrow labeled "F6" points to this dialog.

Right Dialog Box: Also titled "Deploy a new Application to your Cloud". It contains a "Name" field with the value "TestDeployGX16", and two dropdown menus: "Cloud" (set to "Sandbox") and "Target" (set to "NetSQL"). The "Cloud" dropdown is circled in red. At the bottom are "Cancel" and "Deploy" buttons. A red arrow points from the left dialog to this one.

GeneXus

Deployment to a Docker Container



On the configuration apis and the Api Log we have no more to add than what was said in the introduction. But...

DevOps

Multi-experience & Omnichannel

Integration

Security

Build

Test

Package/Release/Deploy

Configure / Operate

Monitor



¿Pipeline control?

We have seen how GeneXus helps us in each of the stages of the DevOps cycle,
Now ... how do we make the flow of this cycle easier?

GeneXus Server



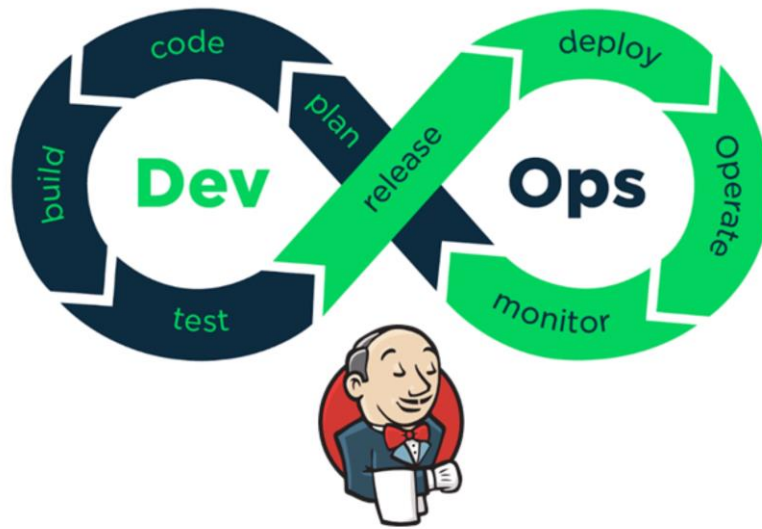
First of all we are going to see now some news in GXServer that is a key piece - when we work as a team - to be able to integrate the code in a simple way

In this version there are improvements that are aimed at simplifying the management and maintenance of server installations.

GeneXus Server Extensions, UC & Pattern Management

- An Extension, UC or Pattern needs to be installed in GeneXus only if it is actually USED in the Knowledge Base being run.
- A GeneXus IDE that doesn't have the Extension, UC or Pattern can work with the objects that DON'T use it even if other objects in the Knowledge Base use it.

Continuos Integration





Jenkins

Jenkins >



[New Item](#)



People



Build History



Manage Jenkins



My Views



Credentials



New View

Build Queue



No builds in the queue.

Build Executor Status

1 Idle

2 Idle

Jenkins All

Enter an item name

CitizenBuild

* Required field



Freestyle project

This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.



Maven project

Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuration.



Pipeline

Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.



External Job

This type of job allows you to record the execution of a process run outside Jenkins, even on a remote machine. This is designed so that you can use Jenkins as a dashboard of your existing automation system.

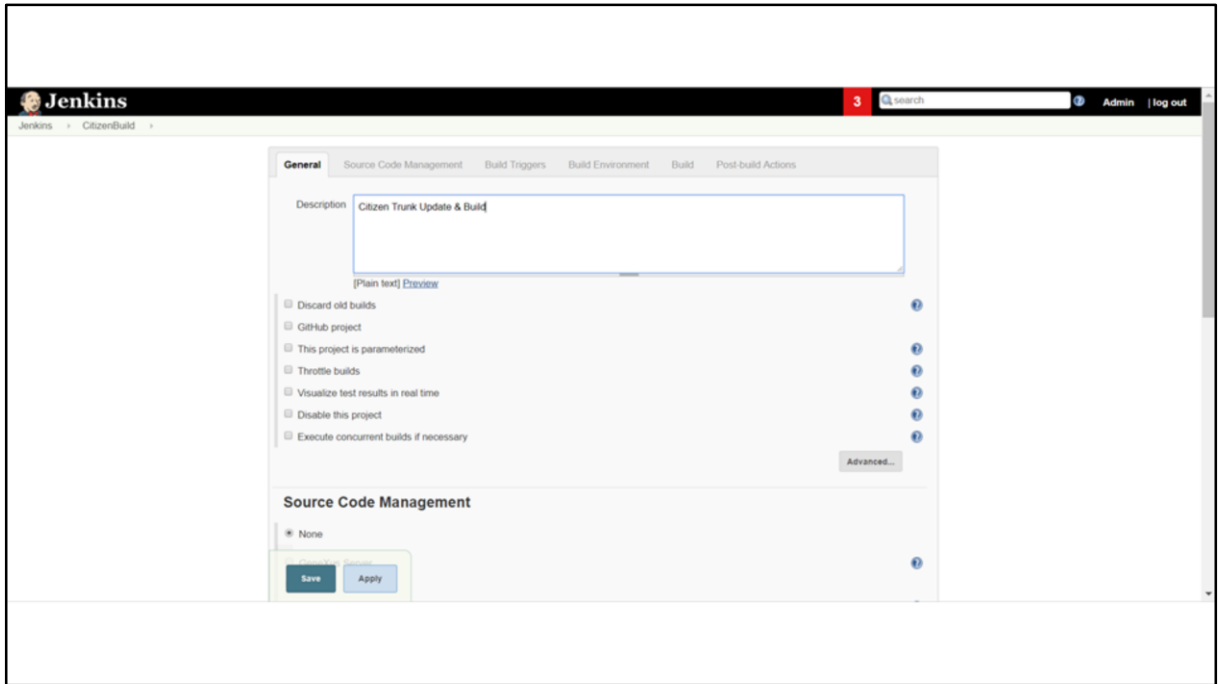


Multi-configuration project

Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.



Folder
Acts as a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder creates a separate namespace, so you can have multiple things of the same name as long as they are in different folders.



Jenkins

CitizenBuild

General

Source Code Management

Build Triggers

Build Environment

Build

Post-build Actions

Source Code Management

None

*

GeneXus Server

GeneXus Installation

(Default)

GeneXus Server URL

http://samples.genexusserver.com/v16

GeneXus Server Credentials

admin***** (GxServer Admin)

Advanced Options...

Knowledge Base Name

Citizen_GX16UpdCourse

Version

Git

Subversion

Build Triggers

Trigger builds remotely (e.g., from scripts)

Build after other projects are built

Build periodically

Build triggers are enabled for

GitScm polling

Save

Apply

General

Source Code Management

Build Triggers

Build Environment

Build

Post-build Actions

Source Code Management

☐ None

☒ GeneXus Server

GeneXus Installation

(Default)

GeneXus Server URL

GeneXus U5
GeneXus I10

GeneXus Server Credentials

admin***** (GxServer Admin)

Add

Knowledge Base Name

Citizen_GX16UpdCourse

Version

Advanced Options...

☐ Git

☐ Subversion

Build Triggers

☐ Trigger builds remotely (e.g., from scripts)

☐ Build after other projects are built

☐ Build periodically

Get build triggers from SCM polling

Save

Apply

Jenkins > Trunk_Update >

GeneralSource Code ManagementBuild TriggersBuild EnvironmentBuildPost-build Actions

Build Triggers

☐ Trigger builds remotely (e.g., from scripts)

☐ Build after other projects are built

☐ Build periodically

☐ GitHub hook trigger for GITScm polling

☒ Poll SCM

Schedule

H* * * * *

Would last have run at Thursday, September 27, 2018 11:06:18 PM UYT, would next run at Thursday, September 27, 2018 11:11:18 PM UYT.

Ignore post-commit hooks

☐

Build Environment

☐ Delete workspace before build starts

☐ Use secret text(s) or file(s)

☐ Abort the build if it's stuck

☐ Add timestamps to the Console Output

Save

Apply

JenkinsTrunk_Update

GeneralSource Code ManagementBuild TriggersBuild EnvironmentBuildPost-build Actions

Build Environment

☐ Delete workspace before build starts

☐ Use secret text(s) or file(s)

☐ Abort the build if it's stuck

☐ Add timestamps to the Console Output

☐ Show tests in progress

☐ With Ant

Build

Build GeneXus KB

GeneXus InstallationGeneXus 110

Knowledge Base PathC:\Models\Citizen_GX16\UpdCourse

Version

EnvironmentJava Environment

Advanced Options...

SaveApply

Jenkins > Trunk_Update >

GeneralSource Code ManagementBuild TriggersBuild EnvironmentBuildPost-build Actions

Build

Build GeneXus KB

GeneXus InstallationGeneXus I10

Knowledge Base PathC:\CruiseControlData\TIReplication\TiendaInglesaFull_U10

Version

EnvironmentJava Environment

Force rebuilding all objects

Add build step

Post-build Actions

Build other projects

Projects to buildTrunk_Deploy

Trigger only if build is stable

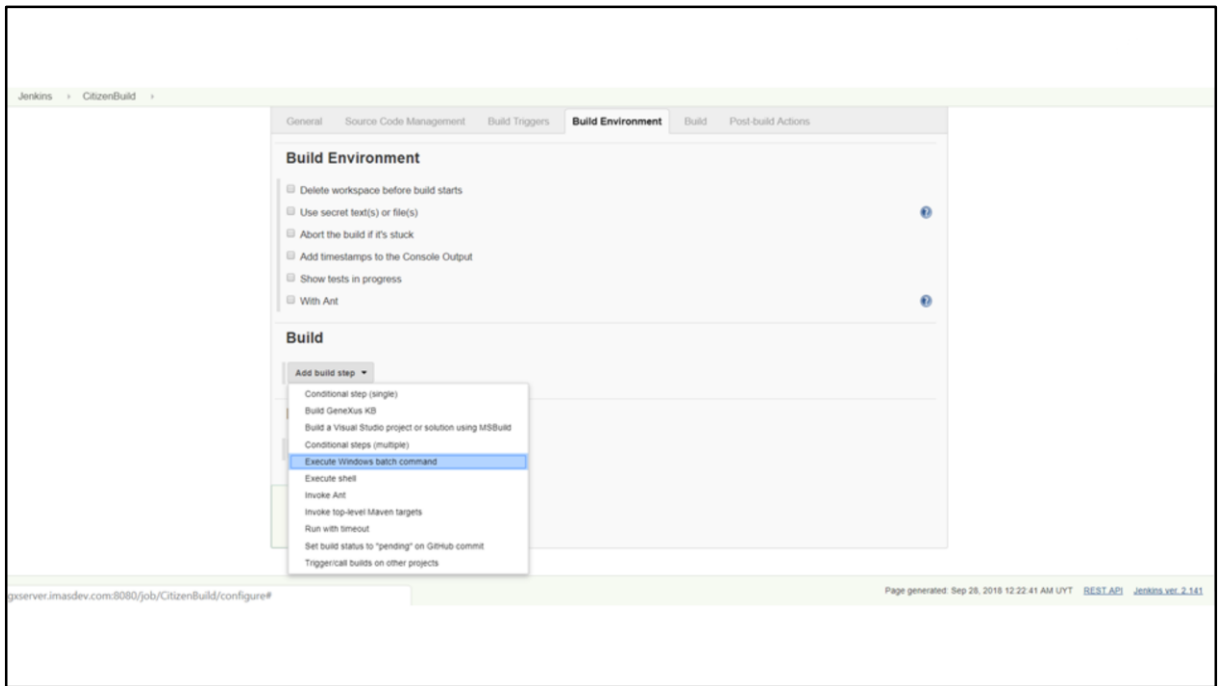
Trigger even if the build is unstable

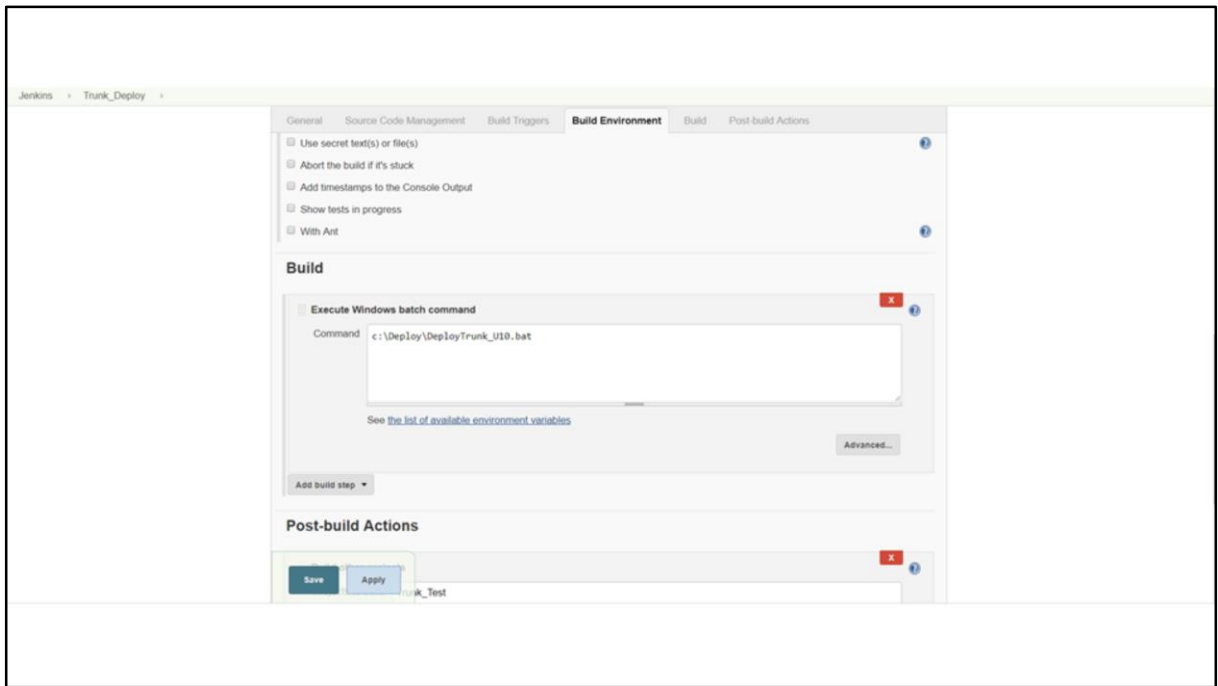
Trigger even if the build fails

Save

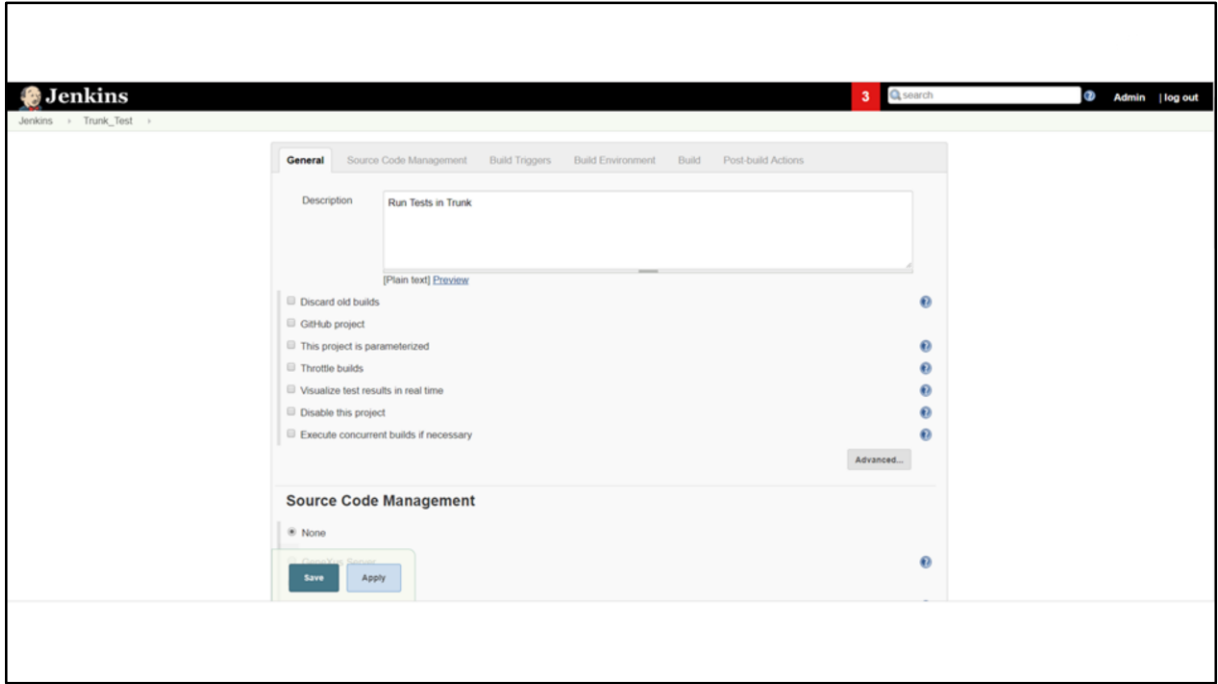
Apply

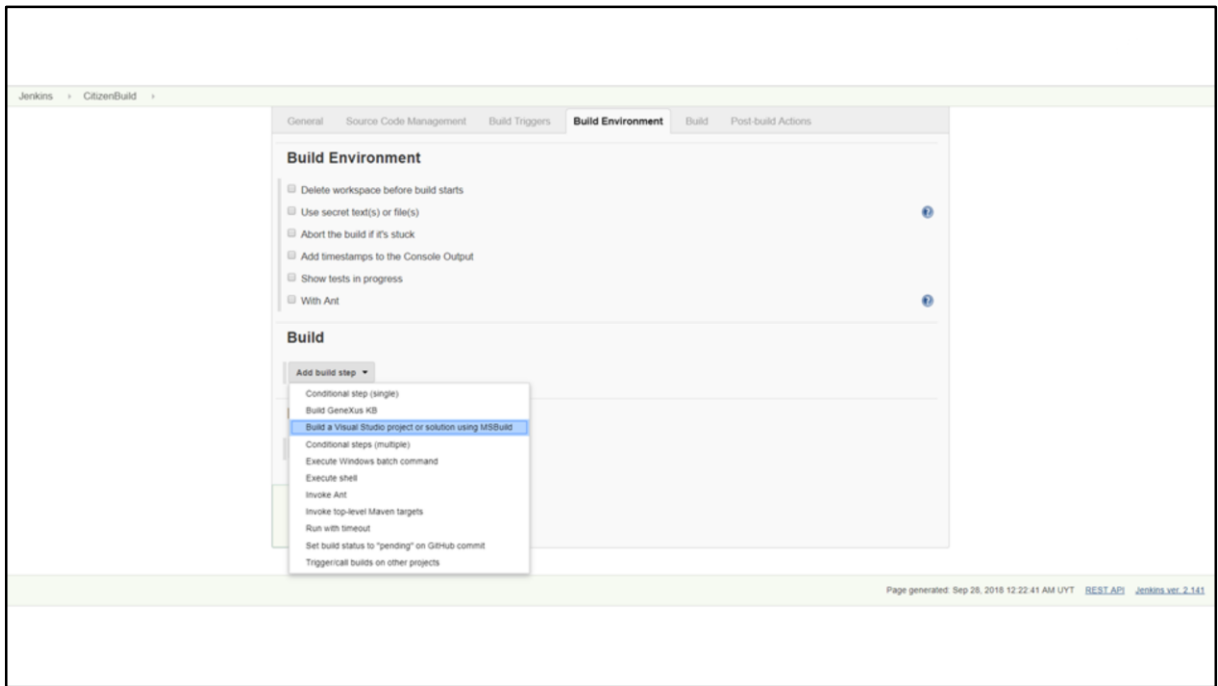












Jenkins > Trunk_Test >

GeneralSource Code ManagementBuild TriggersBuild EnvironmentBuildPost-build Actions

Build

Build a Visual Studio project or solution using MSBuild

MSBuild VersionMSBuild

MSBuild Build FileC:\GXServerClient\RunUnitTests.msbuild

Command Line Arguments
t RunAllTests
/p:MSBuildPath="C:\Models\Citizen_GX16\UpdCourse"
/p:GX_PROGRAM_DIR="C:\Program Files (x86)\GeneXus\GeneXus15U10"
/p:EnvironmentName="UnitTest"
/p:JUnitTestFilePath="C:\Program Files (x86)\Jenkins\workspace\Trunk_Test\TestResults"

Pass build variables as properties☐

Do not use chcp command☐

Advanced...

Add build step

Post-build Actions

Publish JUnit test result report

Test report XMLs/TestResults*.xml

saveApply

Fileset 'includes' setting that specifies the generated raw XML report files, such as 'msreport\test\test-reports*.xml'. Baseurl of the fileset is the workspace root

Jenkins

CitizenBuild

General

Source Code Management

Build Triggers

Build Environment

Build

Post-build Actions

Show tests in progress

With Ant

Build

Add build step

Post-build Actions

Build other projects

Projects to build

Trunk_Deploy

Trigger only if build is stable

Trigger even if the build is unstable

Trigger even if the build fails

Add post-build action

Save

Apply

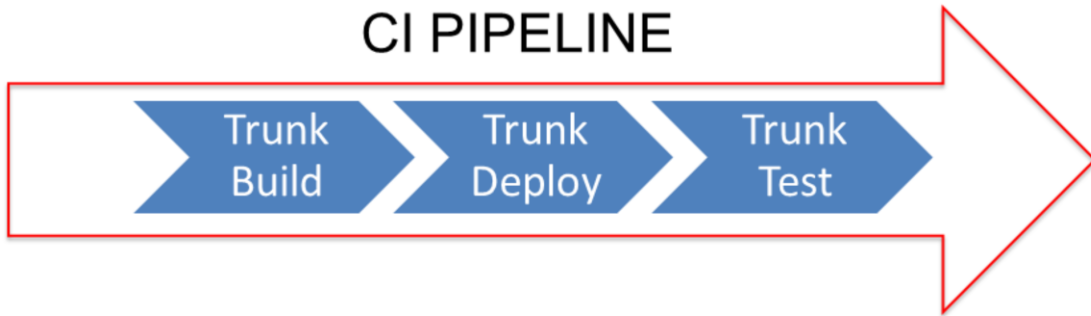
Page generated: Sep 26, 2016 1:18:26 AM UYT

[BESTAD](#)

[jenkins_vnc_2_141](#)



CI PIPELINE



Jenkins

TrunkPipeline

New Item

People

Build History

Edit View

Delete View

Manage Jenkins

My Views

Credentials

New View

Build Queue

No builds in the queue.

Build Executor Status

1 Idle

2 Idle

Name

TrunkPipeline

Description

[Plain text]

Preview

Filter build queue

Filter build executors

Build Pipeline View Title

Trunk

Pipeline Flow

Layout

Based on upstream/downstream relationship

This layout mode derives the pipeline structure based on the upstream/downstream trigger relationship between jobs. This is the only out-of-the-box supported layout mode, but is open for extension.

Upstream / downstream config

Select Initial Job

Trunk_Update

Trigger Options

Build Cards

Standard build card

Use the default build cards

OK

Apply

Jenkins

3

search

Admin | log out

Jenkins > TrunkPipeline > ENABLE AUTO REFRESH

Build Pipeline: Trunk

Run

History

Configure

Add Step

Delete

Manage

Pipeline

#344

#344 Trunk_Update

Step 27: 2018 2 21 21 PM

2 min 14 sec

#286 Trunk_Deploy

Step 27: 2018 2 23 41 PM

2 min 18 sec

#136 Trunk_Test

Step 27: 2018 2 26 56 PM

2 min 26 sec

Pipeline

#343

#343 Trunk_Update

Step 27: 2018 12 31 19 PM

2 min 28 sec

#285 Trunk_Deploy

Step 27: 2018 12 33 55 PM

2 min 15 sec

#135 Trunk_Test

Step 27: 2018 12 35 29 PM

2 min 35 sec

Pipeline

#342

#342 Trunk_Update

Step 27: 2018 11 26 28 AM

2 min 19 sec

#284 Trunk_Deploy

Step 27: 2018 11 28 49 AM

2 min 12 sec

#134 Trunk_Test

Step 27: 2018 11 30 55 AM

2 min 24 sec



<https://wiki.genexus.com/commwiki/servlet/wiki?38329,Typical%20GeneXus%20development%20cycle%20for%20Agile>

[https://wiki.genexus.com/commwiki/servlet/wiki?20649,Version+Management+and+Work+Methodology+with+GeneXus+Server,](https://wiki.genexus.com/commwiki/servlet/wiki?20649,Version+Management+and+Work+Methodology+with+GeneXus+Server)





DevOps

Multi-experience & Omnichannel

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Build

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Package/Release/Deploy

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With this we have seen the most important changes between the GeneXus version 15 released and the GeneXus version 16.

GeneXus™
The power of doing