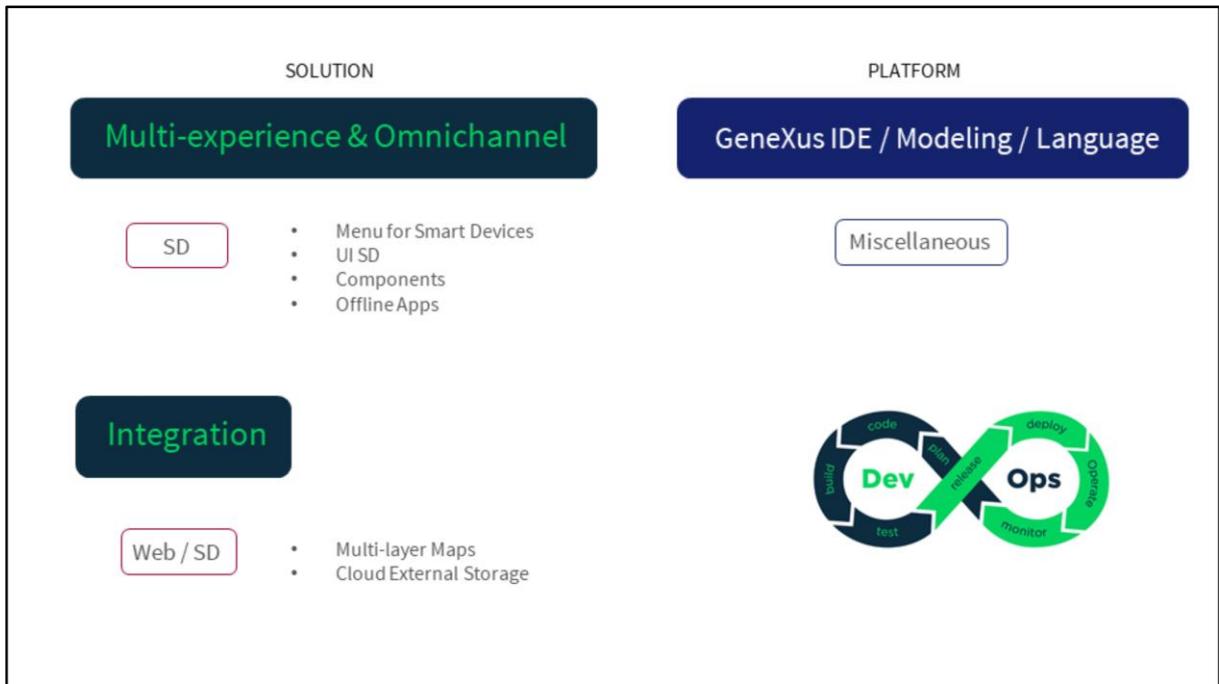


GeneXus[™]
The power of doing

Web/SD
Miscellaneous

GeneXus™ 16



In what follows we will see more features that have been incorporated from the different upgrades of GeneXus 15 up to version 16.

We will study the new in what we can do with the maps, and also some improvements in what makes the external storage of multimedia files in the supported clouds.

We will see some aspects related to the GeneXus platform.

Menu for Smart Devices

Menu for Smart Devices

New Object

Select a Category: Select a Type:

Common
Workflow
Reporting
Documentation
Web
Smart Devices

Menu for Smart Devices
Panel for Smart Devices
Theme for Smart Devices
Work With for Smart Devices

ex Dashboard!

Show application options using different layouts.

Name:

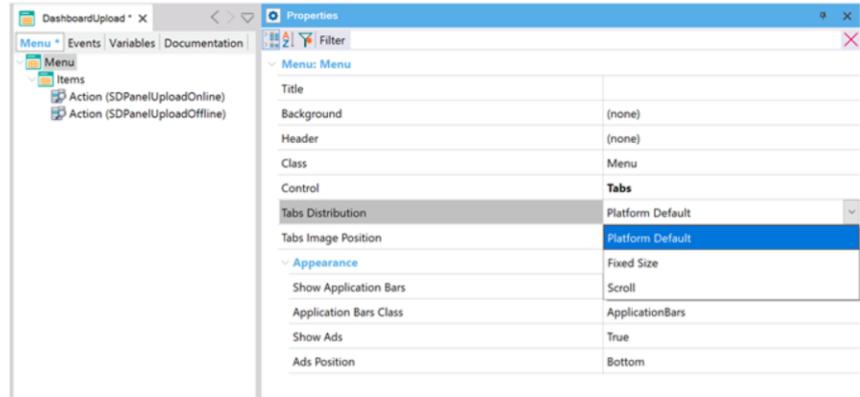
Description:

Module/Folder:

Create Cancel

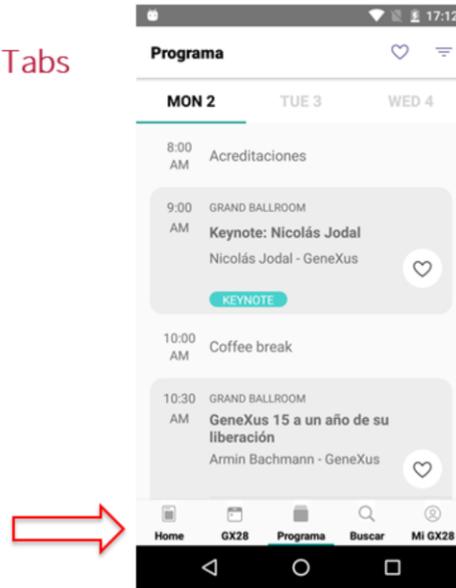
Menu for Smart Devices/ Tabs Control

- Tabs Distributions property

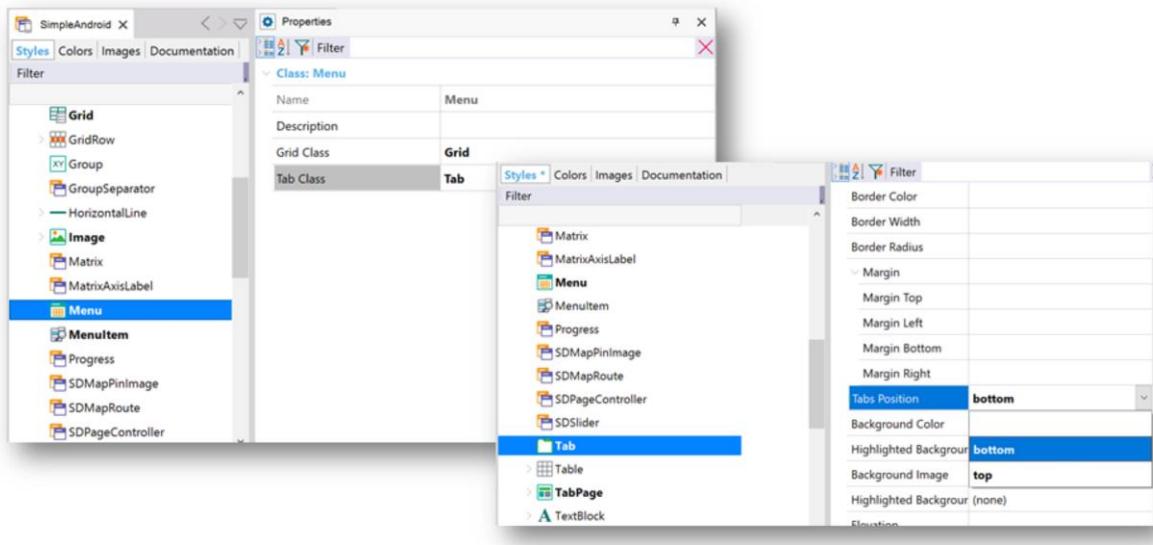


Menu for Smart Devices / Control Tabs

- Control Tabs for Android
 - Top / Bottom

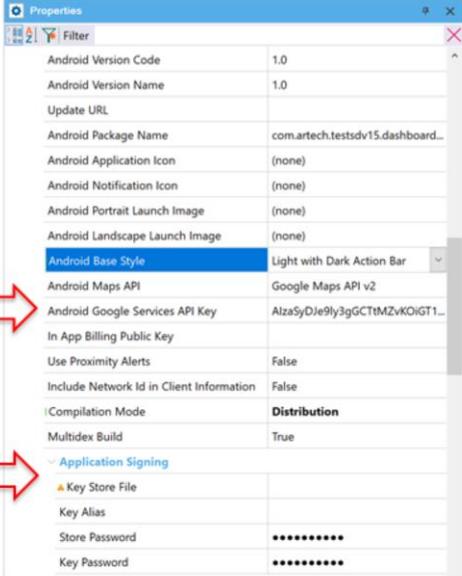


Menu for Smart Devices/ Control Tabs / Android



Properties on Main Objects

Also, some properties at Smart Devices generator level have been moved or copied to the main object properties level.



Property	Value
Android Version Code	1.0
Android Version Name	1.0
Update URL	
Android Package Name	com.artech.testsdv15.dashboard...
Android Application Icon	(none)
Android Notification Icon	(none)
Android Portrait Launch Image	(none)
Android Landscape Launch Image	(none)
Android Base Style	Light with Dark Action Bar
Android Maps API	Google Maps API v2
Android Google Services API Key	AlzaSyDje9ly3gGCTtMZvKOIGT1...
In App Billing Public Key	
Use Proximity Alerts	False
Include Network Id in Client Information	False
Compilation Mode	Distribution
Multidex Build	True
Application Signing	
Key Store File	
Key Alias	
Store Password	*****
Key Password	*****

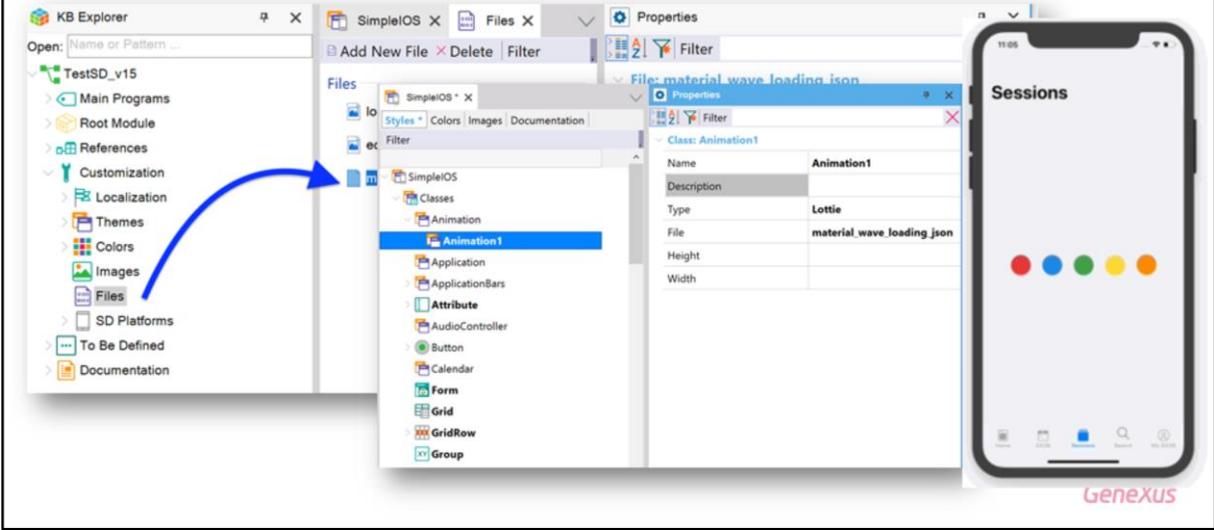
Animations

Lottie Animations

<https://www.lottiefiles.com>

GeneXus

Animations: how to incorporate to the KB



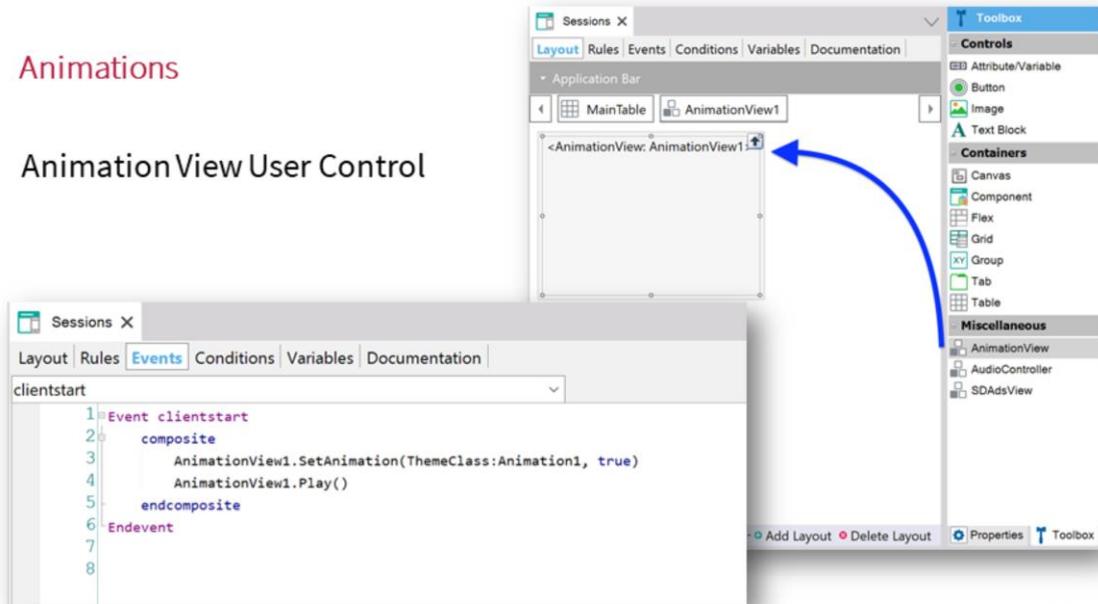
Lottie Animations

There are four ways to make the Integration:

- 1. Animation View User Control**

Animations

Animation View User Control



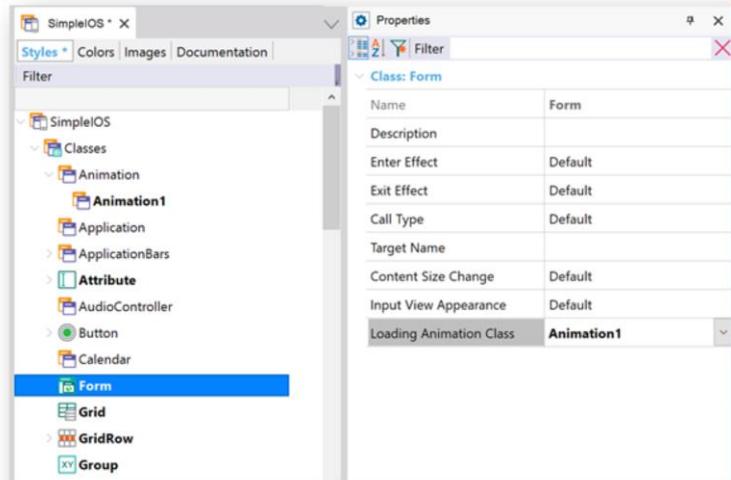
Lottie Animations

There are four ways to make the Integration:

1. Animation View User Control
- 2. Customize the loading of Form and Grids**
- 3. Customize the Launch Screen**

Animations

Customize the loading of
Form and Grids



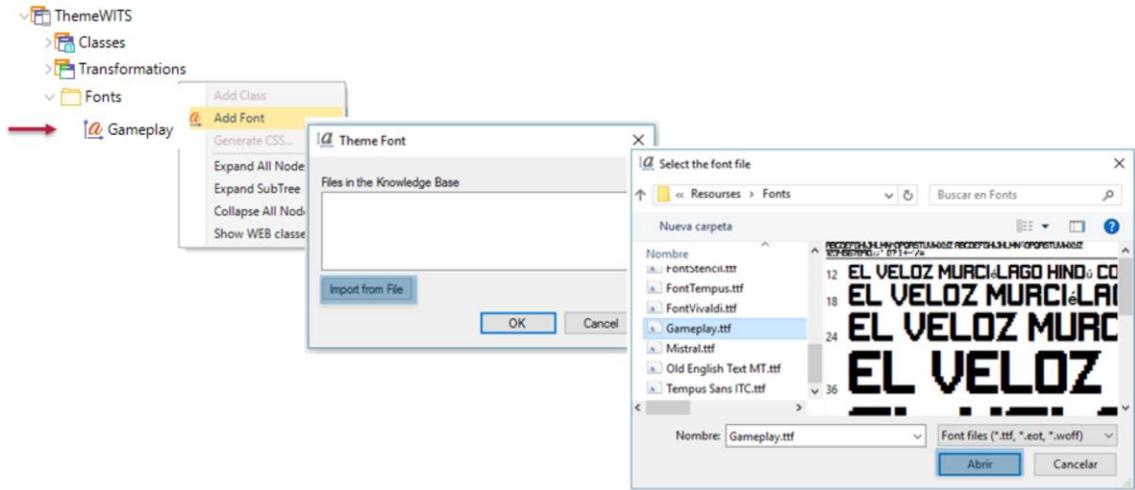
Lottie Animations

There are four ways to make the Integration:

1. Animation View User Control
2. Customize the loading of Form and Grids
3. Customize the Launch Screen
- 4. Customize the Progress Indicator control**

Fonts

Adding Fonts



Adding Fonts

The image shows a software development environment with a tree view on the left and a table on the right. The tree view is expanded to show the 'ButtonStart' class. A red arrow points from 'ButtonStart' to the table. The table lists font properties for the 'ButtonStart' widget.

Font	bold_25dip Gameplay _
Font Weight	bold
Font Style	
Font Size	25dip
Font Family	Gameplay
Font Category	

Components

SD Components created in runtime too

Now you can use `Component.Create(...)`!

GeneXus

Component: QuizComponent	
Control Name	QuizComponent
Object	PanelGameQuiz
Parameters	

Offline Applications

Features in GX 16

- More things/functions are generated on the device (offline generators)
- Security Improvements
- Support for multiple offline apps in the same KB
- Synchronization by TimeStamp

Synchronization Receive Granularity Criteria

- By Table
- By Row
 - Using Hash
 - Using Timestamp

Receive By Table

For each table involved in the synchronization, if the table was changed, it sends **all table records** from the server to the device.



Sync
Receive

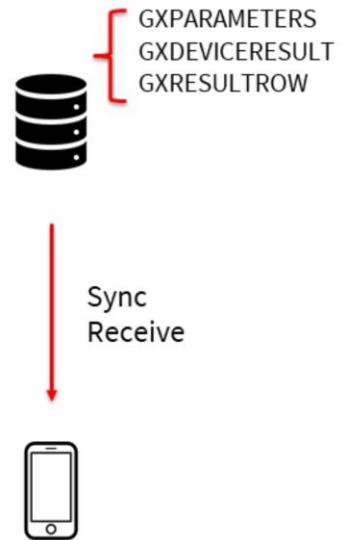


GeneXus

Receive By Row using Hash

For each table involved in the synchronization, if the table was changed, it sends **only the modified rows** (inserted, updated or deleted) from the server to the device.

Differences are computed by using **row hashes**.



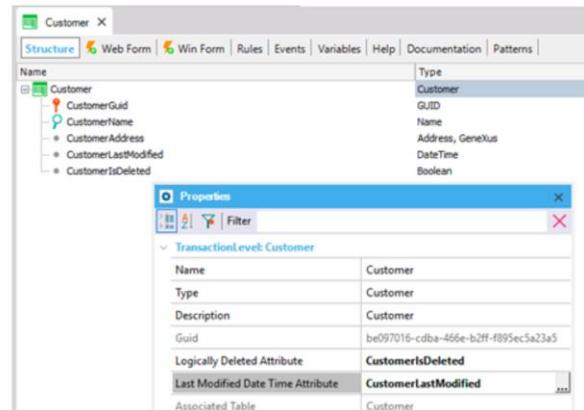
Receive By Row using Timestamp

Sends **only the modified rows** (inserted, updated or deleted) from the server to the device.

Differences are computed by using **row timestamp**.

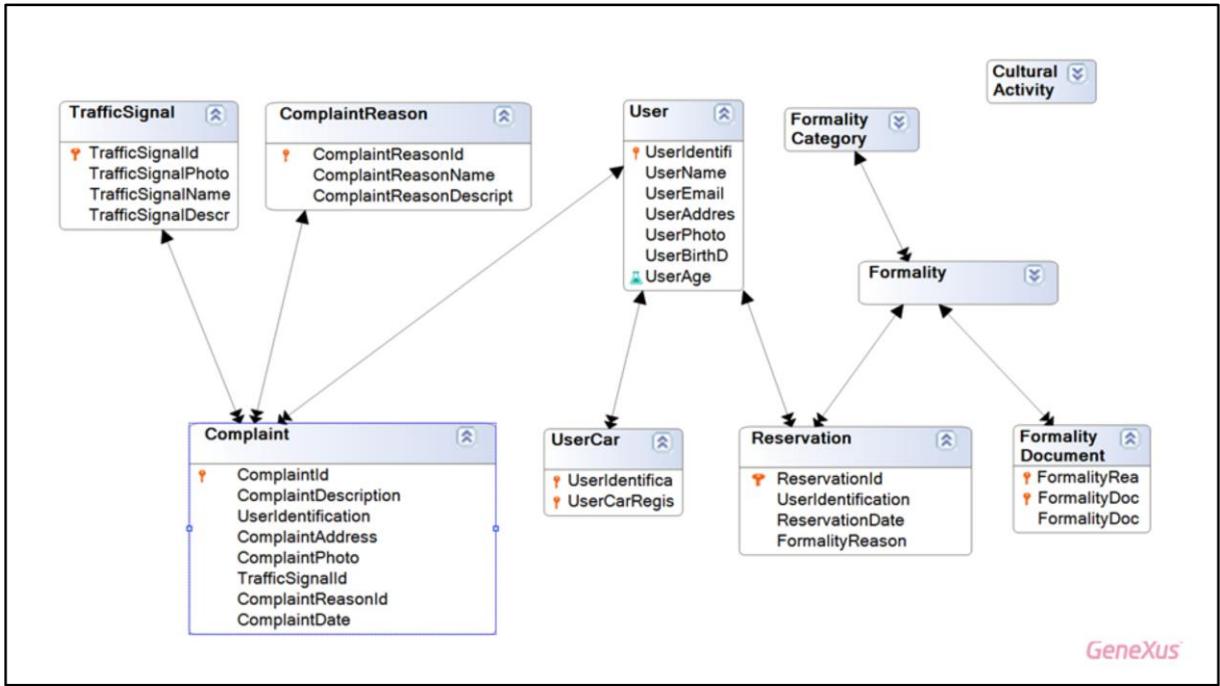
Requires the addition of two attributes:

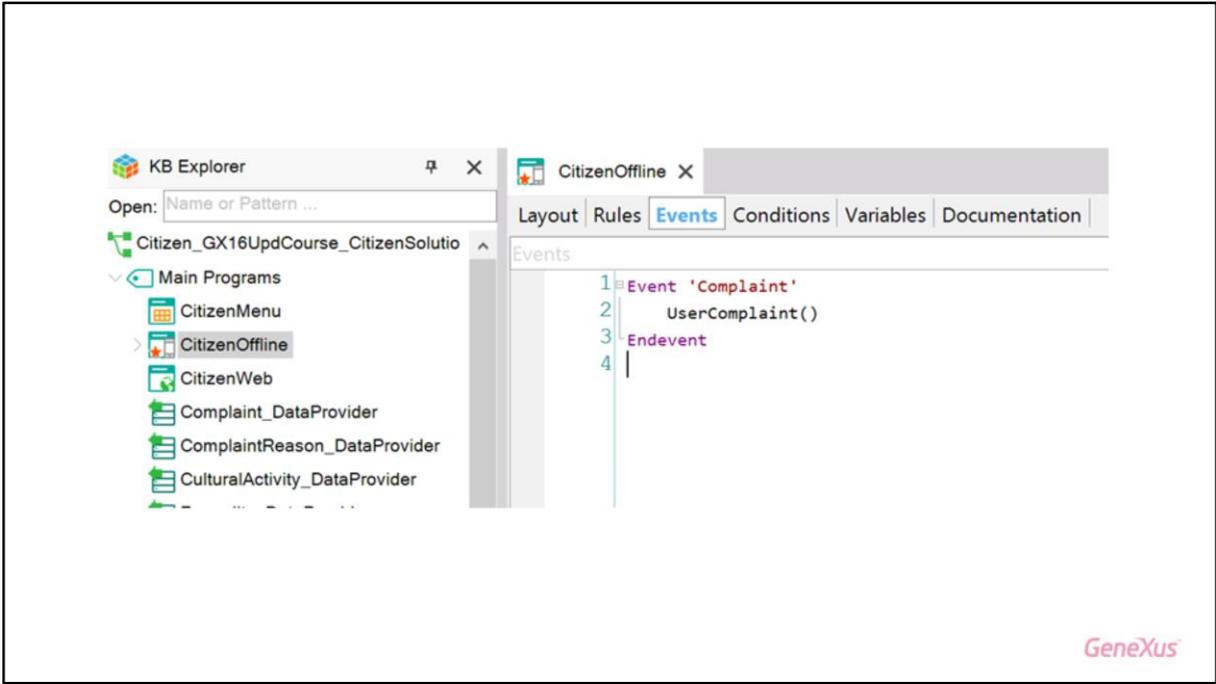
- Last Modified Date Time Attribute
- Logically Deleted Attribute

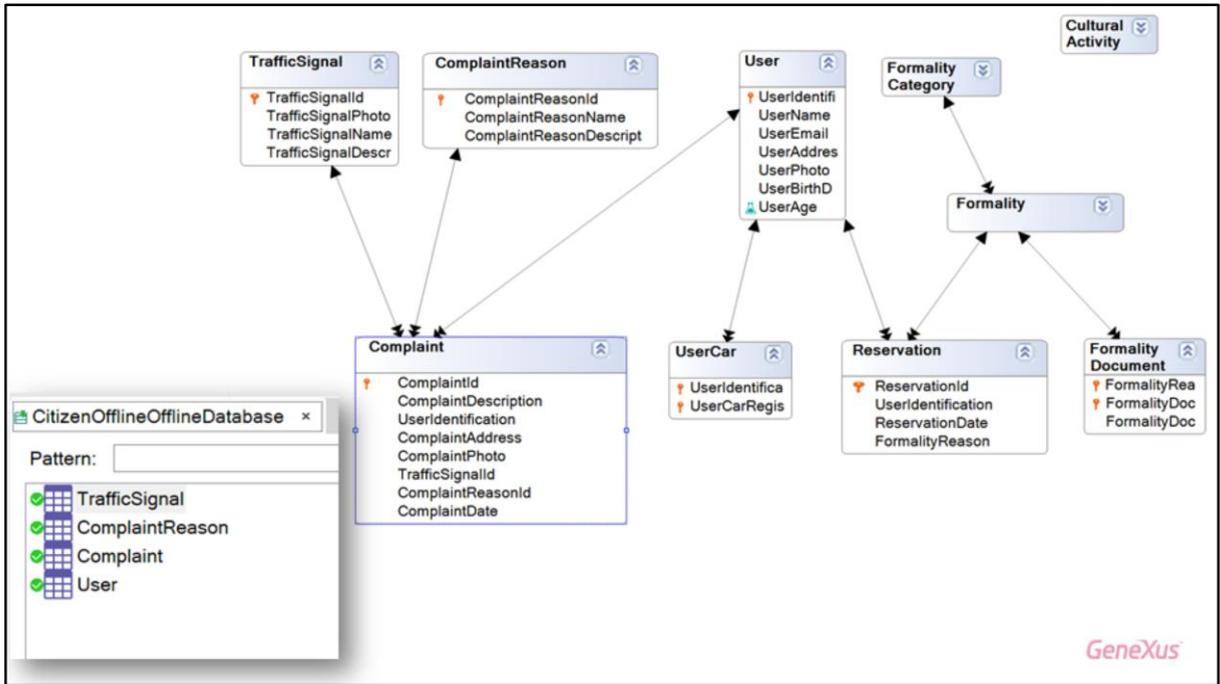


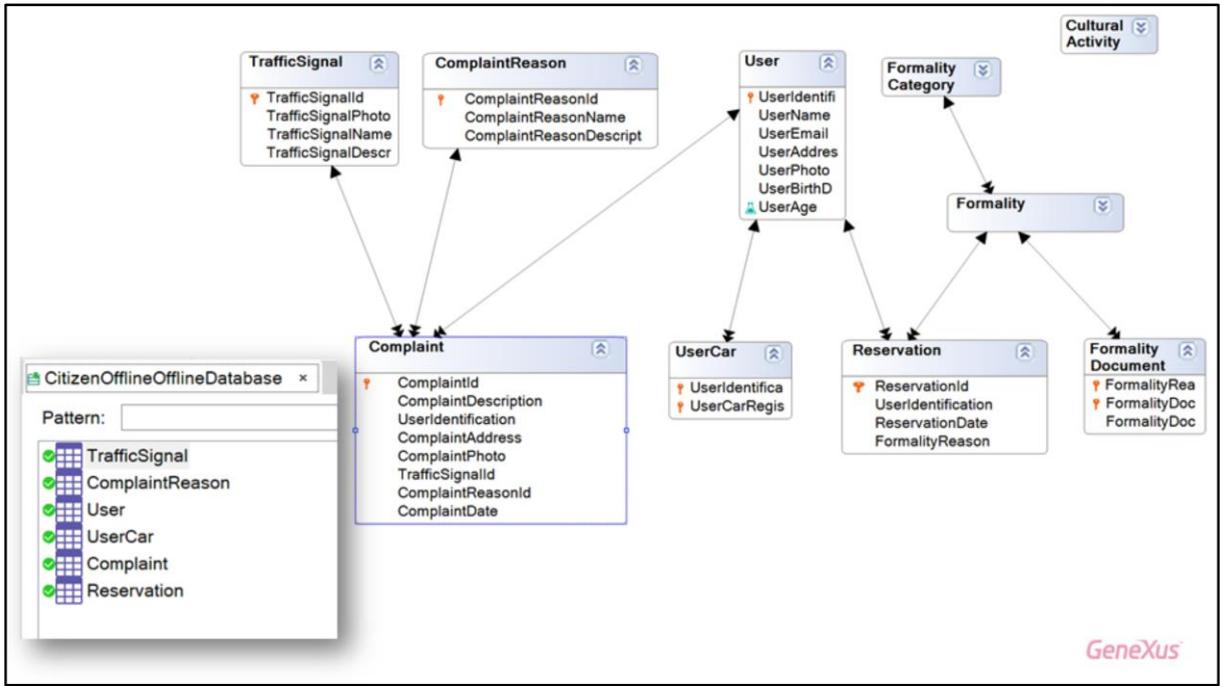
Offline Applications

**Special considerations about
Synchronization.Receive**









Event Synchronize by hash for Complaint (Line: 13)

For Each Complaint (Line: 13)

Order: [ComplaintId](#)
Index: ICOMPLAINT
Navigation filters: Start from: FirstRecord
Loop while: NotEndOfTable

=[Complaint](#) ([ComplaintId](#))

Load into Complaint

Event Synchronize by hash for User (Line: 18)

For Each User (Line: 18)

Order: [UserIdentification](#)
Index: IUSERS
Navigation filters: Start from: FirstRecord
Loop while: NotEndOfTable

=[User](#) ([UserIdentification](#))

Load into User

The image shows a screenshot of the KB Explorer application. The window title is "KB Explorer" and it has a search bar with the text "Open: Name or Pattern ...". The left pane displays a tree view with the following structure:

- Citizen_GX16UpdCourse_CitizenSolutio
- Main Programs
 - CitizenMenu
 - CitizenOffline
 - CitizenOfflineOfflineDatabase
 - CitizenWeb

The right pane shows the "Conditions" tab selected, with the following code:

```
UserIdentification = &GetCurrentUserUserId;
```

Event Synchronize by hash for Complaint (Line: 13)

For Each Complaint (Line: 13)

Order: [UserIdentification](#)
Index: ICOMPLAINT1
Navigation filters: Start from: [UserIdentification](#) = &GetCurrentUserUserId
Loop while: [UserIdentification](#) = &GetCurrentUserUserId



 [Complaint](#) ([ComplaintId](#))

Load into Complaint

Event Synchronize by hash for User (Line: 18)

For First User (Line: 18)

Order: [UserIdentification](#)
Index: IUSERS
Navigation filters: Start from: [UserIdentification](#) = &GetCurrentUserUserId
Loop while: [UserIdentification](#) = &GetCurrentUserUserId



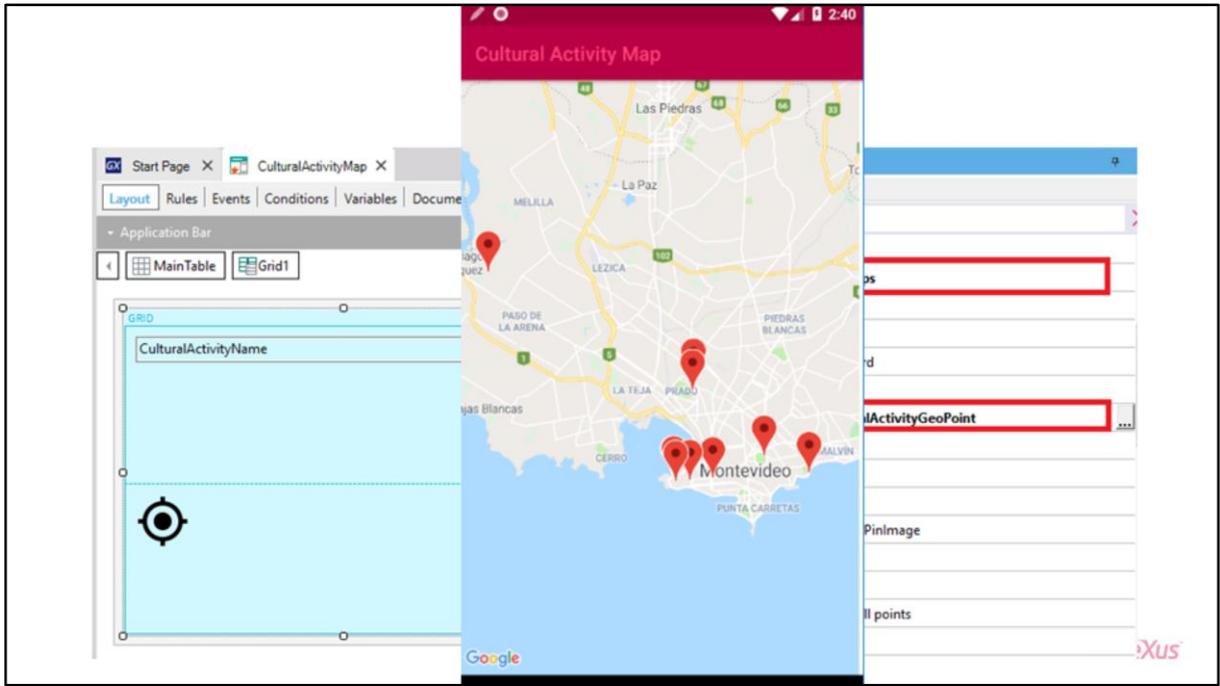
 [User](#) ([UserIdentification](#))

Load into User

Synchronization Receive Summary

- Check involved tables and their load conditions
 - <Main>OfflineDatabase database report
 - <Main>OfflineDatabase navigation report
- Minimum time between receives
- Data Receive granularity

Multi Layers - SDMaps

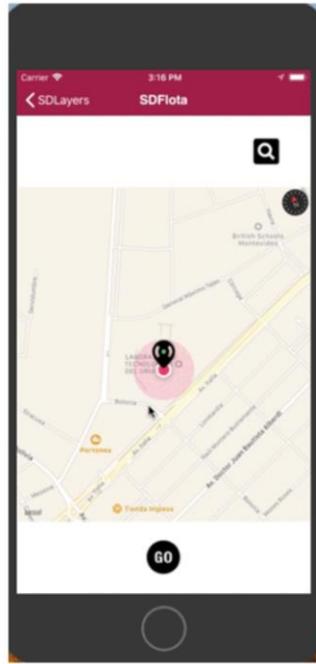


<https://wiki.genexus.com/commwiki/servlet/wiki?15309,SD+Maps+Control>,
<https://wiki.genexus.com/commwiki/servlet/wiki?36729,PickLocation%20Method>

Transport application



EASY TAXI



eXus

Maps, tracking & localization Uber-like

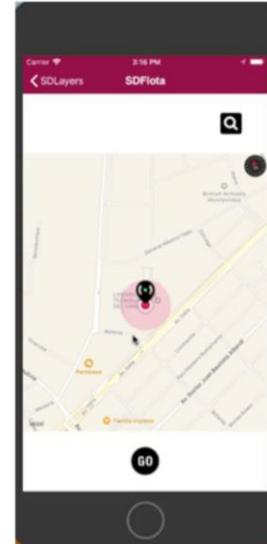
Selection Layer

General Class

```
event Grid1.ControlValueChanged(&geopoint)
  composite
    msg("controlvaluechanged")
    msg(&geopoint.ToString())
  endcomposite
endevent

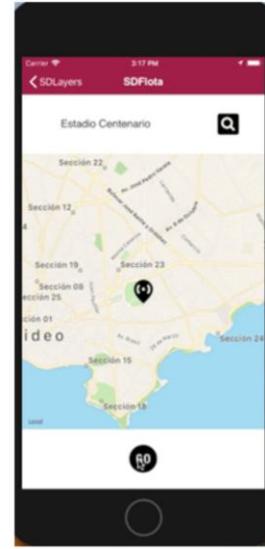
Event Grid1.ControlValueChanging(&geopoint)
  ...
endevent
```

Control Type	Show all points
Auto Grow	
Show My Location	
Map Type	
User Can Choose M	
Location Attribute	
Pin Show My Locat	
Pin Image	
Pin Image Attribute	
Pin Image Class	
Show Navigation o	
Show Traffic	
Initial Zoom	
Center	My location
Selection Layer	True
Location Selection Target Image	locationBlack
Selection Target Image Class	SDMapPinImage
Directions Layer	False



Direction Layer

General	Class
Control Type	SD Maps
Auto Grow	False
Show My Location	True
Map Type	Standard
User Can Choose Map Type	False
Location Attribute	RouteGeoPoint
Pin Image Class	SDMapPinImage
Show Navigation on Full Screen	True
Show Traffic	False
Initial Zoom	Show all points
Center	Default
Selection Layer	False
Directions Layer	True
Transport Type	Driving
Default Route Class	SDMapRoute



Direction - External object

The image shows a development environment with a class structure on the left and code on the right. The class structure is for a class named 'Maps'. It has two methods, both named 'CalculateDirections', and one event named 'DirectionsCalculated'. The first method has parameters '@ sourceLocation' and '@ destinationLocation'. The second method has parameters '@ sourceLocation', '@ destinationLocation', '@ transportType', and '@ requestAlternateRoutes'. The event has parameters '@ routes' and '@ errorMessage'.

```
Event Go.Tap //GO
| Maps.CalculateDirections(&geopoint,&mygeopoint)
| Endevent

Event Maps.DirectionsCalculated(&routes, &messages)
| composite
| if &messages.Count = 0
|   &i = 1
|   do While &routes.Count >= &i
|     &geoline = &Routes.Item(&i).geoline
|     Grid1.DrawGeoline(&geoline,"Class")
|     &i= &i + 1
|   enddo
| else
|   msg(&messages.Item(1).Description)
| endif
| endcomposite
| endevent
```

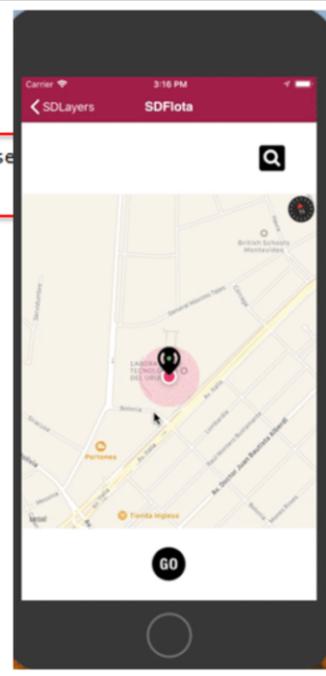
How to programming Transport application

```
Event ClientStart
  composite
    &GetMyLocation = GeneXus.Common.Geolocation.GetMyLocation(0,0,false)
    &myposition = &GetMyLocation.Location
    InsertRouteGeoPoint(&myposition)
  endcomposite
Endevent

event Grid1.ControlValueChanged(&destinationpoint)
  ...
endevent

Event ImgGo.Tap
  composite
    InsertRouteGeoPoint(&destinationpoint)
    Grid1.SelectionLayer = false
    Grid1.DirectionsLayer = true

    Grid1.Refresh()
  endcomposite
Endevent
```



IOS Map Providers



Main Object Property – Apple Maps API



Cloud External Storage

Cloud external storage

Storage Provider Property

- AmazonS3
- Microsoft Azure
- Ibm Bluemix
- Google Cloud Storage
- Local (default)
- OpenStack

Generator: Default (Java)

Name	Default
User Interface	Web

General

Use Native Soap	No
Java package name	com.teststore
Use decimal arithmetic	Yes

Java specific

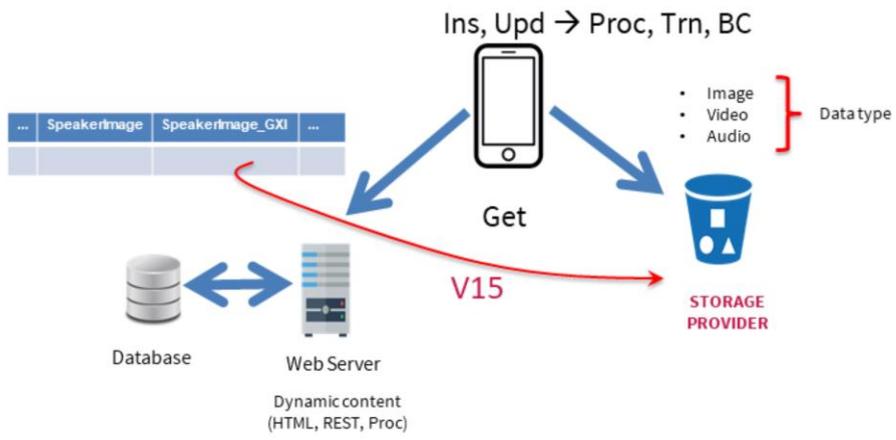
SMTP server (for mail functions)	
Log JDBC Activity	No

Services

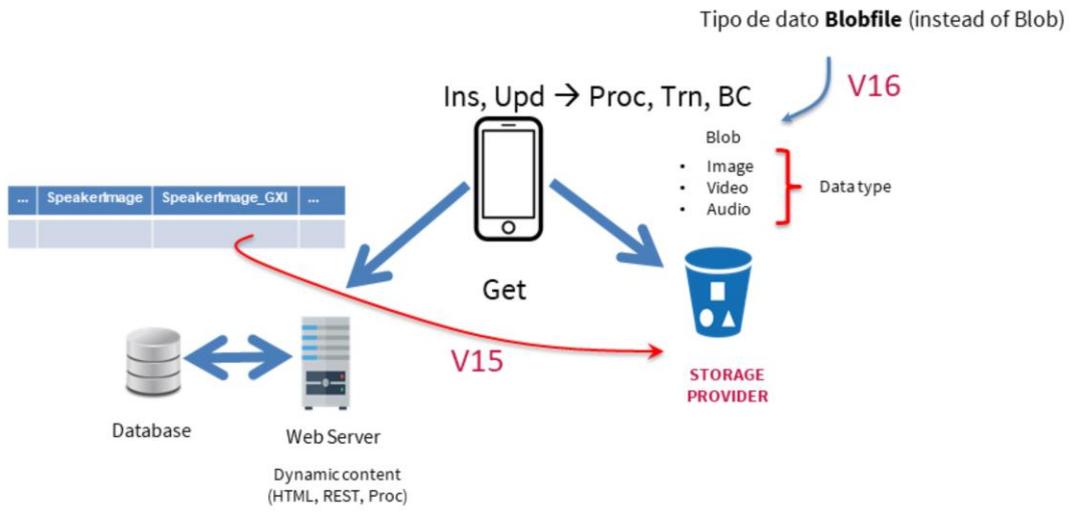
Storage configuration

Storage Provider	Amazon S3
Bucket Name	genexuss3test
Folder Name	test
Storage Access Key ID	1234567890
Storage Secret Access Key	*****
Storage Region	US Standard/US East (N. Virginia)

Cloud external storage



Cloud external storage



GeneXus IDE

Associated Tables

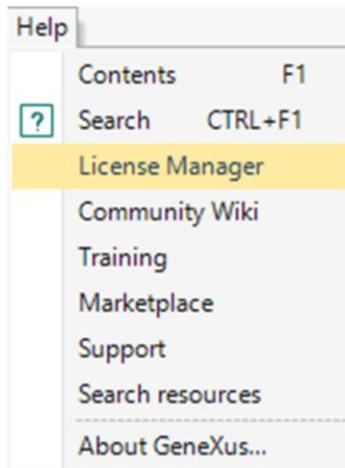
The screenshot displays the GeneXus IDE interface. On the left, the 'KB Explorer' pane shows a tree view of entities under 'Entities_Trns'. The 'CulturalActivity' entity is expanded, and its 'Associated Tables' sub-folder is selected, showing a table named 'CulturalActivity'.

The main workspace shows the 'Structure' view for the selected 'CulturalActivity' table. It contains a table with the following columns: Name, Type, Description, and Formula.

Name	Type	Description	Formula
CulturalActivity ...		Cultural Activity	
● CulturalActi...	Id	Cultural Activity Id	
● CulturalActi...	VarChar(60)	Cultural Activity Name	
● CulturalActi...	VarChar(1K)	Cultural Activity Descri...	
● CulturalActi...	CulturalActivitiesC...	Cultural Activities Cate...	
● CulturalActi...	Image	Cultural Activity Photo	
● CulturalActi...	Boolean	Cultural Activity Featured	
● CulturalActi...	GeoPoint	Cultural Activity Geo P...	
● CulturalActi...	Image	Cultural Activity Static ...	

GeneXus IDE

License Manager



Language/Modeling - For each

Foreach *BaseTransaction*

SKIP *expression* **COUNT** *expression*

order *att₁, att₂, ..., att_n* [**when** *condition*]

order *att₁, att₂, ..., att_n* [**when** *condition*]

unique *att₁, att₂, ..., att_n*

using *DataSelector*(*parm₁, parm₂, ..., parm_n*)

where *condition* [**when** *condition*]

where *condition* [**when** *condition*]

where *att* **IN** *DataSelector*(*parm₁, parm₂, ..., parm_n*)

blocking *N*

Main_code

When duplicate

When_duplicate_code

When none

When_none_code

Endfor

Paging

```
Event Grid1.Load()
  for each Session
    skip &pageSize*(&pageNumber-1) count &pageSize
    order SessionName
      &SessionName = SessionName
      Load
    endfor
Endevent
```

New SKIP-COUNT clauses for Paging in a for each.

Modeling

Unique Grid Property

The screenshot displays a modeling tool interface. On the left, a design canvas shows a grid control with a unique property icon (a target symbol) and the text 'CulturalActivityName'. The right side features a 'Properties' panel for 'Grid1' with various configuration options. The 'Data' section is expanded, showing 'Unique' set to 'CulturalActivityName'.

Control Name	Grid1
Collection	
Default Action	<default>
Selection Type	Platform Default
Enable Multiple Selection	False
Pull To Refresh	False
Inverse Loading	False
Default Selected Item Layout	(none)
Control Info	
Appearance	
Data Selector	
Layout Behavior	
Cell Information	
Refresh timeout	
Data	
Orders	(0 orders)
Search	(0 filters)
Conditions	
Base Tm	
Unique	CulturalActivityName

Data types

- DateTime data type: soporte de milisegundos
- File data type: New GetURI method added (Storage Provider API)
- Video data type: Youtube videos supports start-time through "t" and "start" query strings

<https://youtu.be/frdj1zb9sMY?t=1m51s>

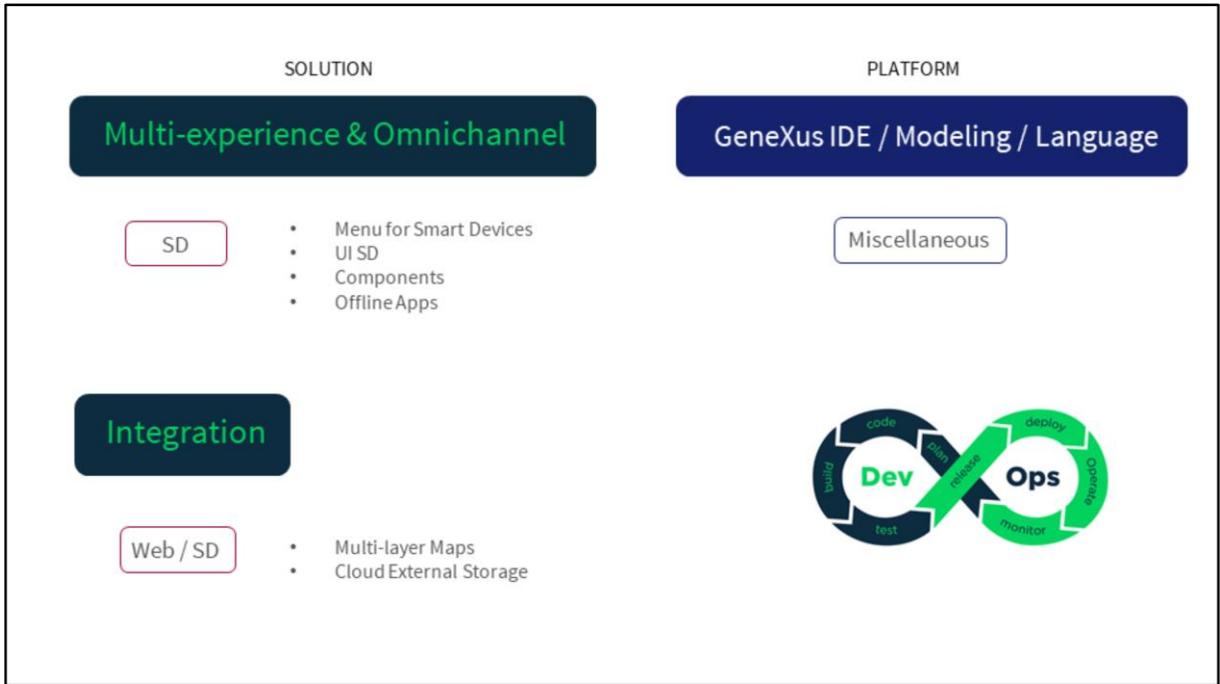
<https://www.youtube.com/embed/frdj1zb9sMY?start=111>

- Blobfile data type

File data type: New GetURI method added

(for cases when working with files returned by StorageProvider API methods (u9)), The consistency of GetPath, GetName and GetAbsolute methods have been improved (Results differ respect to previous versions when working with files returned by Storage Provider API methods) (u9)

<https://wiki.genexus.com/commwiki/servlet/wiki?40420,BlobFile%20data%20type>



In this section we saw all this. Let's see some more aspects of integration.

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