

# Web Panels

Cómo implementar cortes de control en Grids anidados

GeneXus™

## Web Panel with SEVERAL Grids

En otro video estudiamos cómo se determinaban las tablas base y la navegación de un web panel con varios grids.

## With several Grids: nested

```
Web Form | Rules | Events | Conditions | Variables |
1 param( in: CountryId );
```

Country Name

GRID

City Name

GRID

Attraction Id	Attraction Name	Trips			
<input type="text" value="AttractionId"/>	<input type="text" value="AttractionName"/>	<input type="text" value="Trips"/>	<input type="text" value="update2"/>	<input type="text" value="newTrip"/>	

Total Trips

Total Attractions

Country Name

GRID

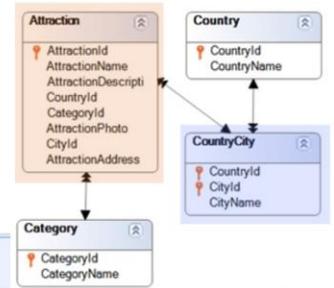
City Name

GRID

Attraction Id	Attraction Name	Trips			
<input type="text" value="AttractionId"/>	<input type="text" value="AttractionName"/>	<input type="text" value="Trips"/>	<input type="text" value="update2"/>	<input type="text" value="newTrip"/>	

Total Trips

Total Attractions



Y en particular vimos un ejemplo de grids anidados que realizaban un **join**.

Es decir, el grid externo recorría una tabla con una relación 1 a N con la tabla que recorría el grid interno, ya fuera que esos grids se implementaran con o sin tabla base.

En ambas soluciones el web panel recibía por parámetro un identificador de país, y en el grid externo se mostraban las ciudades de ese país, es decir, iba a recorrer CountryCity; y en el interno se mostraban las atracciones turísticas de esa ciudad. Es decir, iba a recorrer Attraction.

## With several Grids: nested

Web Form **Rules** Events Conditions Variables

```
1 param( in: CountryId );
```

Grid1 and Grid2 with Base Tables

Pseudo-code

```
Event Grid1.Refresh
  &totalAttractions = 0
endevent

For each Country.City
  where CountryId = @CountryId

  Event Grid1.Load
    &attractions = Count(AttractionName)
    &totalAttractions = &totalAttractions + &attractions
  endevent

  Load

  Event Grid2.Refresh
    &totalTrips = 0
  Endevent

  For each Attraction order AttractionName
    where CountryId = @CountryId
    where CityId = @CityId

    Event Grid2.Load
      &trips = Count(TripDate)
      &totalTrips = &totalTrips + &trips
    Endevent

    Load

  endfor
endfor
```

Para el caso de grids con tabla base, ese join se establecía automáticamente, sin tener que hacer nada. GeneXus lo detectaba y agregaba el filtro en su programa fuente.

## With several Grids: nested

Web Form **Rules** | Events | Conditions | Variables

1 param( in: CountryId );

Country Name &CountryName

GRID

City Name &cityName

GRID

Attraction Id	Attraction Name	Trips		
&AttractionId	&AttractionName	&trips	&update2	&newTrip

Total Trips &totalTrips

Total Attractions &totalAttractions

Grid and Grid2 without Base Tables

Pseudo-code

```

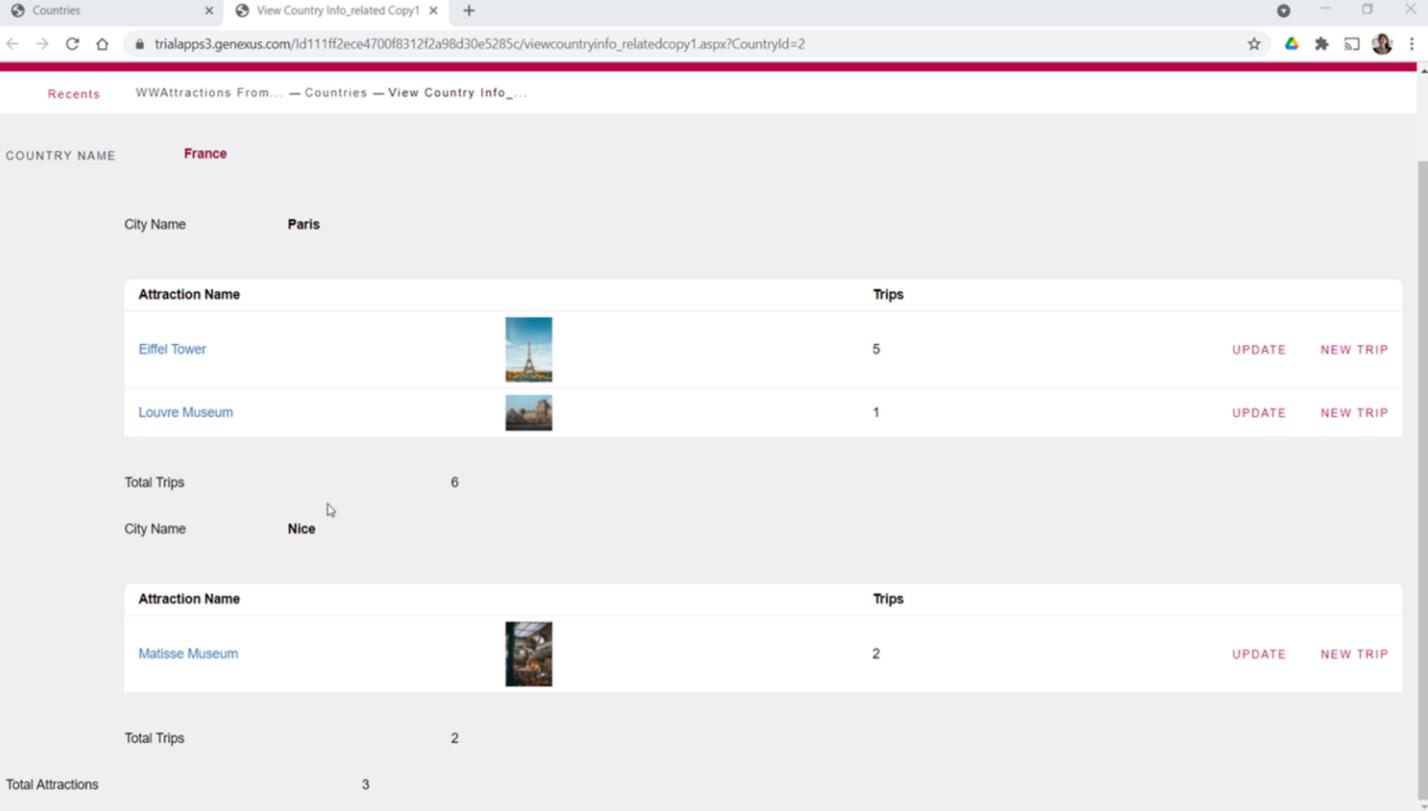
Event Grid1.Refresh
    &totalAttractions = 0
endevent

Event Grid1.Load
    For each Country.City
        &CountryName = CountryName
        &cityName = CityName
        &attractions = Count(AttractionName)
        &totalAttractions = &totalAttractions + &attractions
    Load
    endfor
endevent

Event Grid2.Refresh
    &totalTrips = 0
Endevent

Event Grid2.Load
    For each Attraction order AttractionName
        where CityName = &cityName
            &AttractionId = AttractionId
            &AttractionName = AttractionName
            &AttractionPhoto = AttractionPhoto
            &trips = Count(TripDate)
            &totalTrips = &totalTrips + &trips
        Load
    endfor
Endevent
endfor
  
```

En cambio, para el caso de grids sin tabla base, teníamos que especificarlo nosotros en el for each que implementábamos para cargar el grid anidado (y solo filtrábamos por ciudad, porque el filtro por país ya se encontraba implícito por recibirlo por parámetro en el atributo CountryId).



Aquí tenemos el web panel con ambos grids **con tabla base**. Hemos agregado una acción en el pattern Work With de países, para invocar a este web panel.

Si elegimos Francia: aquí vemos las atracciones de París y las de Niza, que son las dos ciudades que tenemos ingresadas en el sistema.



COUNTRY NAME	<b>Brazil</b>								
City Name	<b>Rio de Janeiro</b>								
<table><thead><tr><th>Attraction Name</th><th></th><th>Trips</th><th></th></tr></thead><tbody><tr><td><a href="#">Christ the Redemmer</a></td><td></td><td>0</td><td><a href="#">UPDATE</a> <a href="#">NEW TRIP</a></td></tr></tbody></table>		Attraction Name		Trips		<a href="#">Christ the Redemmer</a>		0	<a href="#">UPDATE</a> <a href="#">NEW TRIP</a>
Attraction Name		Trips							
<a href="#">Christ the Redemmer</a>		0	<a href="#">UPDATE</a> <a href="#">NEW TRIP</a>						
Total Trips	0								
City Name	<b>Sao Paulo</b>								
<table><thead><tr><th>Attraction Name</th><th></th><th>Trips</th><th></th></tr></thead><tbody></tbody></table>		Attraction Name		Trips					
Attraction Name		Trips							
Total Trips	0								
Total Attractions	1								

Ahora, veamos qué pasa si en lugar de elegir Francia elegimos Brasil, por ejemplo, que tiene también dos ciudades ingresadas.

Vemos que para la primera, Rio de Janeiro, se muestra una atracción turística, pero para la segunda, Sao Paulo, no se muestra ninguna. Esto es así, justamente, por tratarse de un **join**.

## With several Grids: nested

Web Form **Rules** Events Conditions Variables

1 parm( in: CountryId );

Country Name

---

GRID

City Name

---

GRID

Attraction Id	Attraction Name		Trips	&update2	&newTrip
<input type="text" value="AttractionId"/>	<input type="text" value="AttractionName"/>		<input type="text" value="&amp;trips"/>	<input type="text" value="&amp;update2"/>	<input type="text" value="&amp;newTrip"/>

Grid1.Refresh()

Grid1 → Load → Rio de Janeiro

Grid2.Refresh()

Grid2 → Load → Christ the Redemmer

Grid1 → Load() → Sao Paulo

Grid2.Refresh()

Control Break instead of Join

Ya que primero se ejecutará el Refresh del grid externo, y luego, posicionados en la primera ciudad, Rio de Janeiro, se la cargará en el Grid1, e inmediatamente se ejecutará el Refresh del grid anidado, y a continuación se cargarán las atracciones de Rio de Janeiro, que en este caso es solo una, el Cristo Redentor.

Luego se pasará a la siguiente ciudad, Sao Paulo, se la cargará y se hará el Refresh del grid anidado. Pero cuando se vaya a recorrer la tabla de atracciones para cargar únicamente las de Sao Paulo, no se encontrará ninguna.

Para que solo se muestren las ciudades con atracciones, necesitamos implementar un **corte de control** y no un **join**.

## With several Grids: nested

Web Form **Rules** Events Conditions Variables

```
1 param( in: CountryId );
```

Country Name

GRID

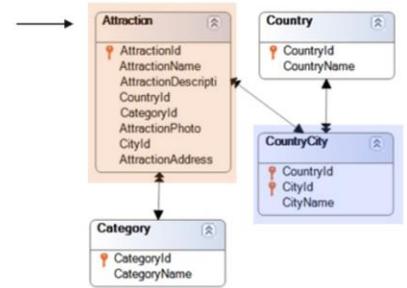
Attraction Id <input type="text" value="AttractionId"/>	Attraction Name <input type="text" value="AttractionName"/>		Trips <input type="text" value=" &amp;trips"/>	update2 <input type="text" value=" &amp;update2"/>	new Trip <input type="text" value=" &amp;newTrip"/>
--	--	--	---	---	--

GRID

City Name

← Attraction

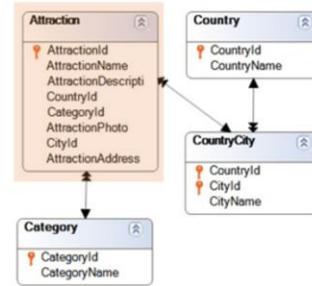
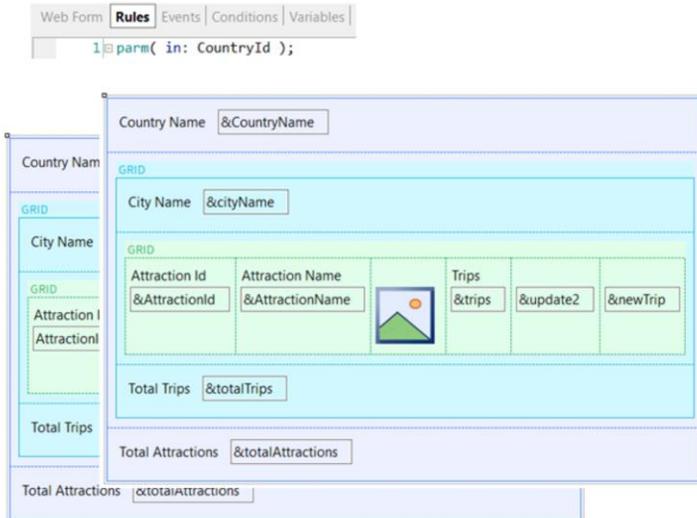
← Attraction



Habíamos dejado esbozado un caso donde se produciría un corte de control indeseado, en lugar de un join. Pero solo habíamos atendido a ese efecto a partir de no especificar transacción base para el grid anidado. Que parecía ser CountryCity, pero en verdad sería Attraction. Pero no nos habíamos adentrado en la navegación.

Ahora lo haremos, con nuestro ejemplo.

## With several Grids: nested



```
For each Attraction order CountryId, CityId
```

```
  print CountryName
  print CityName
```

```
  For each Attraction
    print AttractionName, AttractionPhoto, etc.
  endfor
```

```
endfor
```

Necesitamos, como para el caso de un listado, que ambos for eachs (sean implícitos, es decir, provengan de grids **con** tabla base, o sean explícitos, es decir, provengan de grids **sin** tabla base) tengan la misma tabla base, Attraction. Y que el primero conforme el grupo que va a realizar el corte por país/ciudad.

Para ello, entonces, alcanza con modificar la **transacción base** y agregar el **order** al primer grid.

Dependerá de si se implementaron los grids con o sin tabla base, para ver cómo hacerlo.

## WITH Base Tables

Empecemos por el caso en el que el web panel se implementó con ambos grids con tabla base

## With several Grids: nested

## Grid1 and Grid2 with Base Tables

Web Form **Rules** Events Conditions Variables

```
1 param( in: CountryId );
```

Country Name

GRID

City Name

GRID

Attraction Id	Attraction Name	trips
AttractionId	AttractionName	<input type="button" value="trips"/> <input type="button" value="update"/> <input type="button" value="newTrip"/>

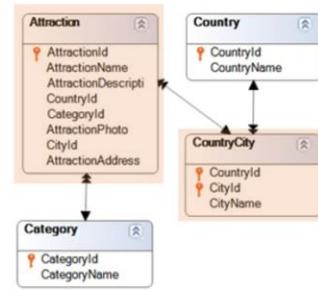
**Properties**

General Class

Filter

Free Style Grid: Grid1

Control Name	Grid1
Collection	
Rendering Mode	Responsive
Save State	False
Base Trn	Attraction
Order	CountryId, CityId
Conditions	
Unique	



For each Attraction order CountryId, CityId

```
print CountryName
print CityName
```

```
For each Attraction
  print AttractionName, AttractionPhoto, etc.
endfor
```

```
endfor
```

En este caso el objetivo se consigue modificando las propiedades que vemos del grid externo, por estas otras.

## Demo

The screenshot shows the GeneXus Web Layout Designer interface. The main workspace displays a form with the following elements:

- Country Name: CountryName
- City Name: CityName
- Grid 1 (Free Style Grid): A table with columns: Attraction Id (AttractionId), Attraction Name (AttractionName), Trips (&trips), &update2, and &newTrip. It includes a small image icon.
- Total Trips: &totalTrips
- Total Attractions: &totalAttractions

Two property windows are open:

**Properties - Free Style Grid: Grid1**

Control Name	Grid1
Collection	
Rendering Mode	Responsive
Save State	False
Base Trn	Country.City
Order	
Conditions	
Unique	

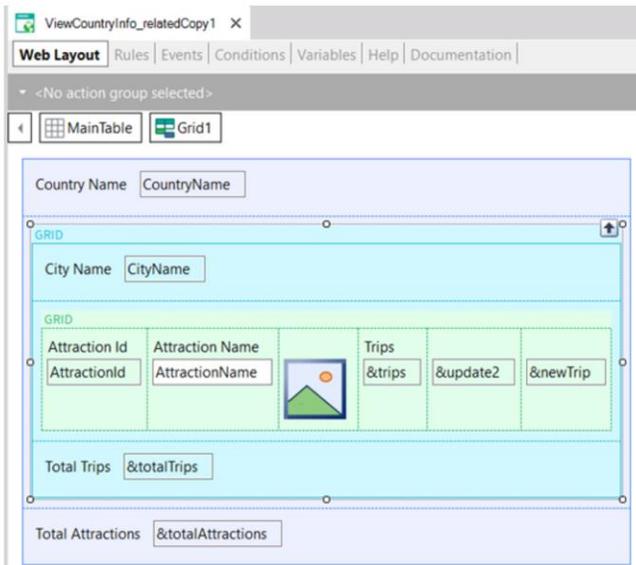
**Properties - Grid: Grid2**

Control Name	Grid2
Collection	
Base Trn	Attraction
Order	AttractionName
Conditions	
Unique	
Data Selector	(none)

Antes de hacerlo, vayamos a GeneXus. Vemos las propiedades de ambos grids: el primero tiene Base Trn Country.City, y ningún order.

El segundo tiene Base Trn Attraction y un order por AttractionName.

## Demo



```

Event Grid1.Refresh
    &totalAttractions = 0
endevent

Event Grid2.Refresh
    &totalTrips = 0
Endevent

Event Grid1.Load
    &attractions = Count(AttractionName)
    &totalAttractions = &totalAttractions + &attractions
Endevent

Event Grid2.Load
    &trips = Count(TripDate)
    &totalTrips = &totalTrips + &trips
Endevent

Event &update2.Click
    Attraction(trnMode.Update, AttractionId)
Endevent

Event &newTrip.Click
    &trips = NewTrip(AttractionId)
    Refresh
endevent

Event AttractionName.Click
    ViewAttractionFromScratch(AttractionId)
Endevent

```

Y en los eventos vemos que se han programado los Refresh y Load de cada grid, únicamente para inicializar y sumarizar o contar en variables (las que mostrarán el total de atracciones cargadas y el total de excursiones -trips- en los que esas atracciones se encuentran).

Después tenemos eventos de usuario para llamar a diversos objetos. Aquí no importan para nada.

## Demo

▲ spc0038 There is no index for order **AttractionName**; poor performance may be noticed in grid 'Grid2'.

Event Grid1.Load

```

Order:      CountryId
Index:      ICOUNTRYCITY
Navigation filters: Start from: CountryId = @CountryId
                Loop while:  CountryId = @CountryId
Join location: Server

CountryCity ( CountryId, CityId ) INTO CityId CityName
Country ( CountryId ) INTO CountryName
count( AttractionName ).navigation ( CountryId, CityId )

```

Formulas

```

Navigation to evaluate: count( AttractionName )
Given: CountryId CityId
Index:  ICOUNTRYCITY
Group by: CountryId CityId

Attraction

```

Event Grid2.Load

```

Grid1
Order:      AttractionName
            No index
Navigation filters: Start from: FirstRecord
                Loop while:  NotEndOfTable
Constraints: CountryId = @CountryId
            CityId = @CityId
Join location: Server

Attraction ( AttractionId ) INTO CountryId CityId AttractionPhoto AttractionPhoto.Uri AttractionName AttractionId
count( TripDate ).navigation ( AttractionId )

```

Formulas

```

Navigation to evaluate: count( TripDate )
Given: AttractionId
Index:  IATTRACTION
Group by: AttractionId

TripAttraction
Trip ( TripId )

```

Observemos en GeneXus el listado de navegación del web panel.

Vemos claramente la tabla base del primer grid: CountryCity, y que va a filtrar por el país recibido por parámetro. Y luego vamos al Load anidado, que tiene como tabla base Attraction, y filtra por el país y la ciudad del grid exterior.

Vemos, claro, el join.

Observemos, además, que ordena el primer For each implícito por CountryId, y el segundo por AttractionName, para el que informa que no hay un índice.

## With several Grids: nested

Web Form **Rules** Events Conditions Variables  
 1 param( in: CountryId );

Country Name

GRID

City Name

GRID

Attraction Id	Attraction Name	Trips	&update2	&newTrip
AttractionId	AttractionName	&trips	&update2	&newTrip

Total Trips

Total Attractions

Grid1 and Grid2 with Base Tables

```
Event Grid1.Refresh
  &totalAttractions = 0
endevent
```

```
For each Country, City
  where CountryId = @CountryId

  Event Grid1.Load
    &attractions = Count(AttractionName)
    &totalAttractions = &totalAttractions + &attractions
  endevent

  Load

  Event Grid2.Refresh
    &totalTrips = 0
  Endevent

  For each Attraction order AttractionName
    where CountryId = @CountryId
    where CityId = @CityId

    Event Grid2.Load
      &trips = Count(TripDate)
      &totalTrips = &totalTrips + &trips
    Endevent

    Load

  endfor
endfor
```

endfor

El pseudo-código del fuente que programará GeneXus será más o menos como vemos. Donde la propiedad Base Transaction del Grid1 se utilizó para programar la base Transaction del For each implícito.

En el segundo for each se colocó como cláusula order lo que había en la propiedad Order del grid, que era AttractionName, y por eso vimos los índices elegidos que vimos.

En definitiva, se va a disparar el Refresh del grid externo y a continuación el For each implícito que estamos viendo, que con el interno conformarán **un join**.

## With several Grids: nested

The screenshot displays the GeneXus IDE interface. On the left, a web form is shown with a 'Country Name' field, a 'City Name' field, and two nested grids. The first grid, 'Grid1', contains 'Attraction Id' and 'Attraction Name' fields. The second grid, 'Grid2', is nested within 'Grid1' and also contains 'Attraction Id' and 'Attraction Name' fields. Below the grids are 'Total Trips' and 'Total Attractions' fields. A 'Properties' window for 'Free Style Grid: Grid1' is open, showing its configuration. On the right, the code for the grids is shown, including events for 'Grid1.Refresh', 'Grid1.Load', and 'Grid2.Refresh', and nested 'For each' loops for 'CountryId' and 'CityId'.

```

Web Form Rules Events Conditions Variables
1 parm( in: CountryId );

Country Name CountryName

GRID
City Name CityName

GRID
Attraction Id Attraction Name
AttractionId AttractionName

Total Trips &totalTrips

Total Attractions &totalAttractions

Properties
General Class
Filter
Free Style Grid: Grid1
Control Name Grid1
Collection
Rendering Mode Responsive
Save State False
Base Trn Attraction
Order CountryId, CityId
Conditions
Unique

Event Grid1.Refresh
  &totalAttractions = 0
endevent

For each Attraction order CountryId, CityId
  where CountryId = @CountryId

  Event Grid1.Load
    &attractions = Count(AttractionName)
    &totalAttractions = &totalAttractions + &attractions
  endevent

  Load

  Event Grid2.Refresh
    &totalTrips = 0
  Endevent

  For each Attraction order AttractionName
    where CountryId = @CountryId
    where CityId = @CityId

    Event Grid2.Load
      &trips = Count(TripDate)
      &totalTrips = &totalTrips + &trips
    Endevent

    Load

  endfor
endfor

```

Grid1 and Grid2 with Base Tables

Ahora sí, modifiquemos las propiedades del Grid1, el externo.

Al hacerlo, la propiedad Base Transaction del grid hará que se modifique la Base Transaction del For each implícito. Y la propiedad Order se convertirá en la cláusula order de ese for each. Con eso ya alcanzará.

Porque se va a disparar el Refresh del grid externo y a continuación el for each implícito que estamos viendo, que con el interno conformarán un **corte de control**. Por tanto, se van a agrupar las atracciones turísticas por ciudades del país (el filtro por CountryId se debe al parámetro).

Por tanto, por **cada grupo** de atracciones turísticas conformado por cada ciudad se va a disparar una vez el evento Load. Luego se va a cargar en el grid la primera línea, con el CityName de la ciudad del primer grupo de atracciones (y por supuesto, su CountryName, que será, para todos, el mismo).

Y luego se va a disparar el evento Refresh del grid anidado, a continuación del cual se ejecutará el for each implícito, que va a recorrer únicamente las atracciones del grupo, es decir, las de ese país y ciudad. Por cada una de esas atracciones del grupo va a disparar el evento Load y el comando Load para cargarla en el grid anidado.

Y así sucesivamente con todas las grupos.

### Web Panel ViewCountryInfo\_relatedCopy1Copy1 Navigation Report

<b>Name:</b> ViewCountryInfo_relatedCopy1Copy1 <b>Description:</b> View Country Info_related Copy1 Copy1	<b>Environment:</b> Default (C#) <b>Spec. Version:</b> 17_0_3-148529 <b>Form Class:</b> HTML <b>Program Name:</b> ViewCountryInfo_relatedCopy1Copy1 <b>Parameters:</b> in: CountryId
---	--

Grid1 and Grid2 with Base Tables

---

**Warnings**

▲ spe0038 There is no index for order CountryId, CityId, AttractionName; poor performance may be noticed in grid "Grid2".

**Event Grid1.Load**

Order: CountryId, CityId, AttractionName  
No index!

Navigation filters: Start from: CountryId = @CountryId  
 Loop while: CountryId = @CountryId  
 Join location: Server

=Attraction (AttractionId) INTO CityId AttractionPhoto AttractionPhoto  
 =Country (CountryId) INTO CountryName  
 =CountryCity (CountryId, CityId) INTO CityName  
 =count(AttractionName).navigation (AttractionId, CountryId)

**Formulas**

Navigation to evaluate: count(AttractionName)

Given: AttractionId CountryId CityId  
 Index: IATTRACTION  
 Group by: AttractionId CountryId CityId

=Attraction (AttractionId, CountryId, CityId)

**Event Grid2.Load**

Grid1  
 Order: CountryId, CityId, AttractionName  
No index!

Navigation filters: Loop while: CountryId = @CountryId and CityId = @CityId  
 Join location: Server

=Attraction (AttractionId) INTO AttractionPhoto AttractionPhoto.Uri, AttractionName AttractionId  
 =count(TripDate).navigation (AttractionId)

**Formulas**

Navigation to evaluate: count(TripDate)

Given: AttractionId  
 Index: IATTRACTION  
 Group by: AttractionId

=TripAttraction  
 =Trip (TripId)

Si observamos el listado de navegación, vemos claramente que ambos grids navegarán la misma tabla, Attraction, utilizando un índice compuesto por los atributos de la propiedad Order del primer grid, más el orden del grid anidado.

Y vemos claramente que para el grid anidado solamente se recorrerán las atracciones que correspondan al país y ciudad del primer grid.

## Demo

**Travel Agency**

Recents Countries — View Country Info\_...

COUNTRY NAME **China**

City Name **Beijing**

Attraction Name		Trips	
Forbidden city		0	UPDATE
Meet the Emperor		0	UPDATE
The Great Wall		0	UPDATE

Total Trips 0

Total Attractions 1

Recents Countries — View Country Info\_...

COUNTRY NAME **France**

City Name **Paris**

Attraction Name		Trips		
Eiffel Tower		5	UPDATE	NEW TRIP
Louvre Museum		1	UPDATE	NEW TRIP

Total Trips 6

City Name **Nice**

Attraction Name		Trips		
Matisse Museum		2	UPDATE	NEW TRIP

Total Trips 2

Total Attractions 2

Si lo probamos ahora en ejecución... vemos exactamente lo que queríamos.

Observemos por ejemplo, China. Perfecto.

Y si vamos a Francia... en este caso no notamos ninguna diferencia con el caso de join.

Pero las atracciones no se están contando bien. ¿Por qué?

## With several Grids: nested

Web Form **Rules** Events Conditions Variables  
 1 param( in: CountryId );

Country Name

GRID

City Name

GRID

Attraction Id	Attraction Name		Trips		
AttractionId	AttractionName		&trips	&update2	&newTrip

Total Trips

Total Attractions

Grid1 and Grid2 with Base Tables

```
Event Grid1.Refresh
  &totalAttractions = 0
endevent
```

**For each Attraction order CountryId, CityId**

where CountryId = @CountryId

Event Grid1.Load

&attractions = Count(AttractionName)

&totalAttractions = &totalAttractions + &attractions

endevent

**Load**

Event Grid2.Refresh

&totalTrips = 0

Endevent

**For each Attraction order AttractionName**

where CountryId = @CountryId

where CityId = @CityId

Event Grid2.Load

&trips = Count(TripDate)

&totalTrips = &totalTrips + &trips

Endevent

**Load**

endfor

endfor

Es que en el Grid1 estamos utilizando la fórmula Count para contar las atracciones que corresponden a ese país y ciudad. Esto funcionaba cuando la tabla base del for each era CountryCity, pero no ahora que es Attraction.

**Web Panel ViewCountryInfo\_relatedCopy1Copy1 Navigation Report**

**Name:** ViewCountryInfo\_relatedCopy1Copy1  
**Description:** View Country Info\_related Copy1

**Environment:** Default (C#)  
**Spec. Version:** 17\_0\_3-148529  
**Form Class:** HTML  
**Program Name:** ViewCountryInfo\_relatedCopy1Copy1  
**Parameters:** in: CountryId

**Warnings**

▲ spc0038 There is no index for order **CountryId, CityId, AttractionName**; poor performance may be noticed in grid 'Grid2'.

**Event Grid1 Load**

**Order:** CountryId, CityId, AttractionName  
**No index!**  
**Navigation filters:** Start from: CountryId = @CountryId  
 Loop while: CountryId = @CountryId  
**Join location:** Server

Attraction ( AttractionId ) INTO CityId AttractionPhoto AttractionPhotoUri  
 Country ( CountryId ) INTO CountryName  
 CountryCity ( CountryId, CityId ) INTO CityName  
 count( AttractionName ) navigation ( AttractionId, CountryId )

**Formulas**

**Navigation to evaluate:** count( AttractionName )

**Given:** AttractionId CountryId CityId  
**Index:** IATTRACTION  
**Group by:** AttractionId CountryId CityId

Attraction ( AttractionId, CountryId, CityId )

**Event Grid2 Load**

**Grid1**  
**Order:** CountryId, CityId, AttractionName  
**No index!**  
**Navigation filters:** Loop while: CountryId = @CountryId and CityId = @CityId  
**Join location:** Server

Attraction ( AttractionId ) INTO AttractionPhoto AttractionPhotoUri AttractionName AttractionId  
 count( TripDate ) navigation ( AttractionId )

**Formulas**

**Navigation to evaluate:** count( TripDate )

**Given:** AttractionId  
**Index:** IATTRACTION  
**Group by:** AttractionId

TripAttraction  
 Trip ( TripId )

Grid1 and Grid2 with Base Tables

El problema con la fórmula del primer grid se ve claro en el listado de navegación.

No podemos recorrer una tabla y realizar una agregación sobre la misma tabla.

Demo

### Web Panel ViewCountryInfo\_relatedCopy1Copy1 Navigation Report

<b>Name:</b> ViewCountryInfo_relatedCopy1Copy1 <b>Description:</b> View Country Info_related Copy1 Copy1	<b>Environment:</b> Default (C#) <b>Spec. Version:</b> 17_0_3-148529 <b>Form Class:</b> HTML <b>Program Name:</b> ViewCountryInfo_relatedCopy1Copy1 <b>Parameters:</b> in: CountryId
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**Warnings**

▲ spc0038 There is no index for order **CountryId, CityId, AttractionName**; poor performance may be noticed in grid 'Grid2'.

<b>Event Grid1.Load</b> <p>Order: CountryId, CityId, AttractionName            No index!</p> <p>Navigation filters: Start from: CountryId = @CountryId            Loop while: CountryId = @CountryId            Join location: Server</p> <p>             =Attraction ( AttractionId ) INTO CityId AttractionPhoto AttractionPhoto              =Country ( CountryId ) INTO CountryName              =CountryCity ( CountryId, CityId ) INTO CityName              =count( AttractionName ) navigation ( AttractionId, CountryId           </p> <p><b>Formulas</b></p> <p>Navigation to evaluate: count( AttractionName )</p> <p>Given: AttractionId CountryId CityId            Index: IATTRACTION            Group by: AttractionId CountryId CityId</p> <p>=Attraction ( AttractionId, CountryId, CityId )</p>	<b>Event Grid2.Load</b> <p>Grid1            Order: CountryId, CityId, AttractionName            No index!</p> <p>Navigation filters: Loop while: CountryId = @CountryId and CityId = @CityId            Join location: Server</p> <p>             =Attraction ( AttractionId ) INTO AttractionPhoto AttractionPhoto.Un AttractionName AttractionId              =count( TripDate ) navigation ( AttractionId )           </p> <p><b>Formulas</b></p> <p>Navigation to evaluate: count( TripDate )</p> <p>Given: AttractionId            Index: IATTRACTION            Group by: AttractionId</p> <p>=TripAttraction            =Trip ( TripId )</p>
---	---

error spc0211: Unique clause in break group not supported in grid 'Grid1'. (Web Panel 'ViewCountryInfo\_rel: Failed: Specification

**Properties**

General Class

Filter

Free Style Grid: Grid1

Control Name	Grid1
Collection	
Rendering Mode	Responsive
Save State	False
Base Trn	Attraction
Order	CountryId, CityId
Conditions	
Unique	CountryName, CityName

Para que eso nos funcione tendríamos que utilizar la **cláusula unique**, que en este caso no nos sirve, porque no se soporta para cortes de control (nos referimos al corte de control entre el grid 1 y el grid 2).

## With several Grids: nested

Country Name

City Name

Attraction Id	Attraction Name	Trips	&update2	&newTrip
AttractionId	AttractionName	&trips	&update2	&newTrip

Total Trips

Total Attractions

Grid1 and Grid2 with Base Tables

```
Event Grid1.Refresh
  &totalAttractions = 0
endevent
```

```
For each Attraction order CountryId, CityId
  where CountryId = @@CountryId

  Event Grid1.Load
    &attractions = 0
    for each Attraction
      &attractions = &attractions + 1
    endfor
    &totalAttractions = &totalAttractions + &attractions
  endevent

  Load

  Event Grid2.Refresh
    &totalTrips = 0
  Endevent

  For each Attraction order AttractionName
    where CountryId = @@CountryId
    where CityId = @@CityId

    Event Grid2.Load
      &trips = Count(TripDate)
      &totalTrips = &totalTrips + &trips
    Endevent

    Load

  endfor
endfor
```

Por tanto, se nos podría ocurrir realizar ese cálculo con otro For each, implementando otro corte de control, anidado al for each más externo.

Pero esto no nos sirve. Tendríamos **un** corte de control **partido** en dos instancias, pero el primero agotaría todas las atracciones de la ciudad en su recorrida, y el segundo se quedaría sin atracciones para recorrer.

## With several Grids: nested

Country Name

GRID

City Name

GRID

Attraction Id	Attraction Name		Trips		
AttractionId	AttractionName		&trips	&update2	&newTrip

Total Trips

Total Attractions

Grid1 and Grid2 with Base Tables

```
Event Grid1.Refresh
  &totalAttractions = 0
endevent
```

```
For each Attraction order CountryId, CityId
  where CountryId = @CountryId
  Load
  Event Grid2.Refresh
  &totalTrips = 0
  Endevent

  For each Attraction order AttractionName
    where CountryId = @CountryId
    where CityId = @CityId

    Event Grid2.Load
    &trips = Count(TripDate)
    &totalTrips = &totalTrips + &trips
    &totalAttractions = &totalAttractions + 1
    Endevent

    Load

  endfor
endfor
```

Pero tenemos una solución mucho más sencilla: dado que la cantidad de atracciones será la suma de registros que se carguen en total en el Grid 2, podríamos haber eliminado el evento Load del Grid 1, y haber agregado la suma al Load del Grid 2, sin reinicializar nunca más que en el Refresh la variable...

Así quedó mucho más simple.

## Demo

Recents Countries — View Country Info, ...

COUNTRY NAME **France**

City Name **Paris**

Attraction Name		Trips		
Eiffel Tower		5	UPDATE	NEW TRIP
Louvre Museum		1	UPDATE	NEW TRIP

Total Trips 6

City Name **Nice**

Attraction Name		Trips		
Matisse Museum		2	UPDATE	NEW TRIP

Total Trips 2

Total Attractions 3

Travel Agency 

Recents Countries — View Country Info, ...

COUNTRY NAME **Brazil**

City Name **Rio de Janeiro**

Attraction Name		Trips		
Christ the Redeemer		0	UPDATE	NEW TRIP

Total Trips 0

Total Attractions 1

Travel Agency 

Recents Countries — View Country Info, ...

COUNTRY NAME **China**

City Name **Beijing**

Attraction Name		Trips		
Forbidden city		0	UPDATE	NEW TRIP
Meet the Emperor		0	UPDATE	NEW TRIP
The Great Wall		0	UPDATE	NEW TRIP

Total Trips 0

Total Attractions 3

Si ejecutamos... vemos para Francia, por ejemplo, con sus dos ciudades que ni se percibe una diferencia con la implementación con join, porque ambas ciudades tienen atracciones.

Pero en cambio si elegimos Brasil sí vemos la diferencia. O China, por ejemplo.

Y ahora sí se están contando bien las atracciones.

## WITHOUT Base Tables

Ahora pasemos al caso de implementación sin tabla base.

## With several Grids: nested

Web Form **Rules** Events Conditions Variables

1 param( in: CountryId );

Country Name &CountryName				
GRID				
City Name &cityName				
GRID				
Attraction Id &AttractionId	Attraction Name &AttractionName		Trips &trips	&update2 &newTrip
Total Trips &totalTrips				
Total Attractions &totalAttractions				

Grid1 and Grid2 ~~without~~ Base Tables

```

Event Grid1.Refresh
    &totalAttractions = 0
endevent

Event Grid1.Load
    For each Country.City
        &CountryName = CountryName
        &cityName = CityName
        Load
    endfor
endevent

Event Grid2.Refresh
    &totalTrips = 0
Endevent

Event Grid2.Load
    For each Attraction order AttractionName
        where CityName = &cityName
            &AttractionId = AttractionId
            &AttractionName = AttractionName
            &AttractionPhoto = AttractionPhoto
            &trips = Count(TripDate)
            &totalTrips = &totalTrips + &trips
            &totalAttractions = &totalAttractions + 1
            Load
        endfor
    Endevent

```

Teníamos este web panel que implementaba el mismo join del principio, pero sin tablas base. Observemos que en la pantalla únicamente tenemos variables y no hay atributos en las propiedades de ninguno de los grids.

Era en los eventos donde realizábamos, explícitamente, la carga de la base de datos. Hagamos un Save us para dejar este como estaba, con join. E implementar el corte de control en otro. Ya aprovechamos y quitamos el Count de attractions del primer Load, y hacemos la cuenta en el segundo, para dejarlo todo más simple.

Modifiquemos ahora la acción del Work With Country para invocar ahora a este web panel.

Recents Countries — View Country Info\_...

COUNTRY NAME **France**

City Name **Paris**

Attraction Name		Trips		
Eiffel Tower		5	UPDATE	NEW TRIP
Louvre Museum		1	UPDATE	NEW TRIP

Total Trips 6

City Name **Nice**

Attraction Name		Trips		
Matisse Museum		2	UPDATE	NEW TRIP

Total Trips 2

Total Attractions 3

Recents Countries — View Country Info\_...

COUNTRY NAME **China**

City Name **Beijing**

Attraction Name		Trips		
Forbidden city		0	UPDATE	NEW TRIP
Meet the Emperor		0	UPDATE	NEW TRIP
The Great Wall		0	UPDATE	NEW TRIP

Total Trips 0

City Name **Hong Kong**

Attraction Name		Trips		

Total Trips 0

Total Attractions 3

Ejecutemos... y veamos las atracciones de Francia. Y ahora las de China. Se percibe claramente el **join** y no el **corte de control**.

## With several Grids: nested

Web Form **Rules** | Events | Conditions | Variables |

1 param( in: CountryId );

Country Name &CountryName					
GRID					
City Name &cityName					
GRID					
Attraction Id &AttractionId	Attraction Name &AttractionName		Trips &trips	&update2	&newTrip
Total Trips &totalTrips					
Total Attractions &totalAttractions					

Grid1 and Grid2 without Base Tables

```
Event Grid1.Refresh
  &totalAttractions = 0
endevent

Event Grid1.Load
  For each Country.City
    &CountryName = CountryName
    &cityName = CityName
    Load
  endfor
endevent
```

Control Break?

```
Event Grid2.Refresh
  &totalTrips = 0
Endevent

Event Grid2.Load
  For each Attraction order AttractionName
    where CityName = &cityName
      &AttractionId = AttractionId
      &AttractionName = AttractionName
      &AttractionPhoto = AttractionPhoto
      &trips = Count(TripDate)
      &totalTrips = &totalTrips + &trips
      &totalAttractions = &totalAttractions + 1
    Load
  endfor
Endevent
```

Aunque el comando Load del primer grid dispare el evento Refresh e inmediatamente el Load del segundo grid, verdaderamente no anida los for eachs. Es como si se invocara a una subrutina, digamos.

Es como si el For each del grid anidado se ejecutara aislado. Es por ello que GeneXus no está encontrando un join automático y es por ello que tuvimos que filtrar explícitamente las atracciones de la ciudad que quedó cargada en la variable &cityName, que sí fue cargada por el evento Load que invocó al Load del grid anidado. No tuvimos que colocar también filtro por CountryId ya que se instancia por venir en el parámetro.

Tengamos esto en mente, porque será lo que hará a este caso menos evidente de lo que a primera vista podría parecer.

La pregunta es: ¿cómo hacemos para que el For each correspondiente al grid1 cambie su tabla base a Attraction y establezca un corte de control por país, ciudad?

## With several Grids: nested

Web Form **Rules** Events | Conditions | Variables

1 param( in: CountryId );

Country Name &CountryName

GRID

City Name &cityName

GRID

Attraction Id	Attraction Name	Trips
&AttractionId	&AttractionName	&trips

Total Trips &totalTrips

Total Attractions &totalAttractions

Properties: Free Style Grid: Grid1

Control Name	Grid1
Collection	
Rendering Mode	Responsive
Save State	False
Base Trn	
Order	
Conditions	
Unique	

```

Event Grid1.Refresh
    &totalAttractions = 0
endevent

Event Grid1.Load
    For each Attraction order CountryId, CityId
        &CountryName = CountryName
        &cityName = CityName
        Load
    endfor
endevent

Event Grid2.Refresh
    &totalTrips = 0
Endevent

Event Grid2.Load
    For each Attraction order AttractionName
        where CityName = &cityName
            &AttractionId = AttractionId
            &AttractionName = AttractionName
            &AttractionPhoto = AttractionPhoto
            &trips = Count(TripDate)
            &totalTrips = &totalTrips + &trips
            &totalAttractions = &totalAttractions + 1
        Load
    endfor
Endevent

```

Grid1 and Grid2 without Base Tables

No será agregando Base Trn ni Order a las propiedades del Grid 1 (porque si lo hiciéramos, transformaríamos la implementación en una con tabla base), sino al For each explícito del evento Load del Grid1.

Por tanto parece obvio que lo primero será modificar el primer for each para que tenga como Base Transaction a Attraction...

Y también parecería evidente que debemos colocar cláusula order para establecer los criterios de agrupamiento por los que queremos que se establezca el corte de control en relación al for each del Grid2.

## Demo

**Web Panel ViewCountryInfo\_relatedCopy2Copy1 Navigation Report**

Name: ViewCountryInfo\_relatedCopy2Copy1  
 Description: View Country Info\_related Copy2 Copy1

Environment: Default (C#)  
 Spec. Version: 17\_0\_3-148529  
 Form Class: HTML  
 Program Name: ViewCountryInfo\_relatedCopy2Copy1  
 Parameters: in: CountryId

Warnings

▲ spc0038 There is no index for order AttractionName: poor performance may be noticed in group starting at line 26.

Event Grid Load

For Each Attraction (Line: 14)

Order: CountryId CityId  
 Index: IATTRACTION1

Navigation Start from: CountryId = @CountryId  
 filters: Loop while: CountryId = @CountryId  
 Join location: Server

Attraction ( AttractionId ) INTO CityId  
 Country ( CountryId ) INTO CountryName  
 CountryCity ( CountryId, CityId ) INTO CityName

This is not a Control Break!

Event Grid2 Load

For Each Attraction (Line: 26)

Order: AttractionName  
 No index

Navigation Start from: FirstRecord  
 filters: Loop while: NotEndOfTable  
 Constraints: CountryId = @CountryId  
 CityName = &cityName  
 Join location: Server

Attraction ( AttractionId ) INTO CityId CountryId AttractionPhoto.Uri  
 AttractionPhoto AttractionName AttractionId  
 CountryCity ( CountryId, CityId ) INTO CityName  
 count1 TripDate.1.navigation ( AttractionId )

Formulas

Sin embargo, si observamos el listado de navegación...

Aparece algo raro, y es que si bien cada for each en apariencia hace lo que debe hacer, no eligió como order de cada uno el mismo, para utilizar un único índice y hacer eficiente la recorrida. Algo no anda bien.

Evidentemente no entendió que deberá hacer un corte de control.

View Country Info\_related Copy1 x +

trialapps3.genexus.com/ld111ff2ece4700f8312f2a98d30e5285c/viewcountryinfo\_relatedcopy1.aspx?CountryId=2

Recents Countries — View Country Info\_...

COUNTRY NAME **France**

City Name **Paris**

Attraction Name		Trips		
Eiffel Tower		5	UPDATE	NEW TRIP
Louvre Museum		1	UPDATE	NEW TRIP

Total Trips 6

City Name **Nice**

Attraction Name		Trips		
Matisse Museum		2	UPDATE	NEW TRIP

Total Trips 2

Total Attractions 3

Y esto lo constatamos si ejecutamos.

Veamos que para las atracciones de Francia sale dos veces París, que coincide con las dos atracciones de París que hay.

## Travel Agency



Recent Countries — View Country Info...

COUNTRY NAME		China
City Name		Beijing
Attraction Name	Trips	
Forbidden city		0
Meet the Emperor		0
The Great Wall		0
Total Trips		0
City Name		Beijing
Attraction Name	Trips	
Forbidden city		0
Meet the Emperor		0
The Great Wall		0
Total Trips		0
City Name		Beijing
Attraction Name	Trips	
Forbidden city		0
Meet the Emperor		0
The Great Wall		0
Total Trips		0
Total Attractions		0

## Travel Agency



Recent Countries — View Country Info...

COUNTRY NAME		Brazil
City Name		Rio de Janeiro
Attraction Name	Trips	
Christ the Redeemer		0
Total Trips		0
Total Attractions		1

Para las de China, sale tres veces Beijing, que coincide con las tres atracciones de Beijing que hay.

Y para Brasil solo una vez, coincidiendo con las atracciones de Río que hay.

¿Qué está pasando?

## With several Grids: nested

```

Event Grid1.Refresh
  &totalAttractions = 0
endevent

Event Grid1.Load
  For each Attraction order CountryId, CityId
    &CountryName = CountryName
    &CityName = CityName
    Load
    Event Grid2.Refresh
      &totalTrips = 0
    Endevent
    Event Grid2.Load
      For each Attraction order AttractionName
        where CityName = &CityName
        &AttractionId = AttractionId
        &AttractionName = AttractionName
        &AttractionPhoto = AttractionPhoto
        &trips = Count(TripDate)
        &totalTrips = &totalTrips + &trips
        &totalAttractions = &totalAttractions + 1
        Load
      endfor
    endevent
  endfor
endevent

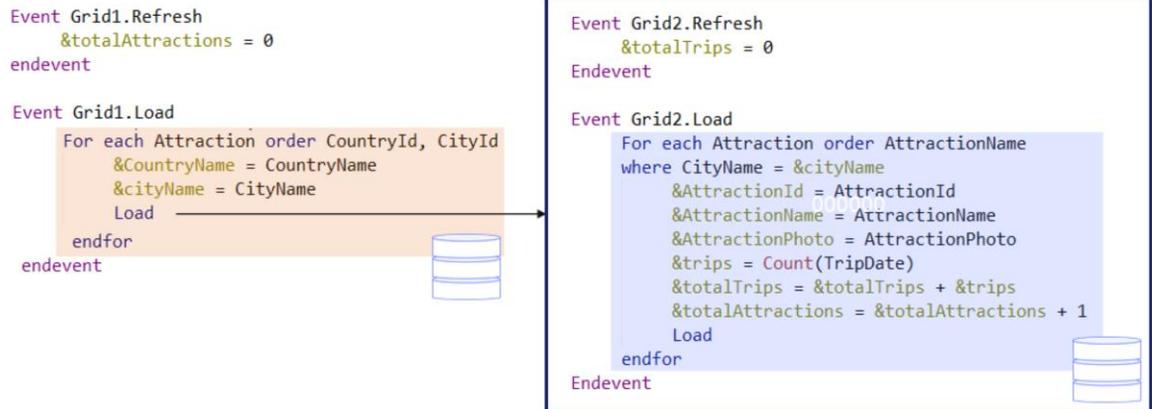
```



Evidentemente no está encontrando que debe hacer un corte de control.

Es que, como ya anticipamos, no anida **realmente** las navegaciones.

## With several Grids: nested



Es como si fueran dos for eachs independientes, solo que desde uno se invoca la ejecución del otro, pero a través de dos consultas separadas a la base de datos.

## With several Grids: nested

Attraction Id	Attraction Name		Trips		
&AttractionId	&AttractionName		&trips	&update2	&newTrip

Grid1 and Grid2 **without** Base Tables

Control Break could not be implemented between nested grids

Esto equivale a decir que no podemos implementar **realmente** un corte de control entre dos grids anidados sin tablas base.

## With several Grids: nested

```

Event Grid1.Refresh
    &totalAttractions = 0
endevent

Event Grid1.Load
    For each Attraction order CountryId, CityId
        unique CountryName, CityName
        &CountryName = CountryName
        &cityName = CityName
        Load
    endfor
endevent

Event Grid2.Refresh
    &totalTrips = 0
Endevent

Event Grid2.Load
    For each Attraction order AttractionName
        where CityName = &cityName
            &AttractionId = AttractionId
            &AttractionName = AttractionName
            &AttractionPhoto = AttractionPhoto
            &trips = Count(TripDate)
            &totalTrips = &totalTrips + &trips
            &totalAttractions = &totalAttractions + 1
        Load
    endfor
Endevent

```

La solución que tenemos por el momento es utilizar, para el primer For each, la cláusula unique. Es decir, que de la tabla Attraction si varios registros tienen el mismo país y ciudad, se quede con uno solo de ellos. Y para éste, cargue las variables y ejecute el evento Refresh e inmediatamente Load del grid2, que ejecutará su for each como si fuera independiente por completo del anterior. Y es justamente por ello que esta vez sí nos permitirá utilizar la cláusula unique.

▲ spc0038 There is no index for order AttractionName: poor performance may be noticed in group starting at line 27.

Event Grid1.Load

For Each Attraction (Line: 14)

Order: CountryId , CityId  
 Index: IATTRACTION1  
 Unique: CountryName , CityName  
 Navigation Start from: CountryId = @CountryId  
 filters: Loop while: CountryId = @CountryId  
 Join location: Server

Attraction ( AttractionId ) INTO CityId  
 Country ( CountryId ) INTO CountryName  
 CountryCity ( CountryId , CityId ) INTO CityName

Event Grid2.Load

For Each Attraction (Line: 27)

Order: AttractionName  
 No index  
 Navigation Start from: FirstRecord I  
 filters: Loop while: NotEndOfTable  
 Constraints: CountryId = @CountryId  
CityName = &cityName  
 Join location: Server

Attraction ( AttractionId ) INTO CityId CountryId AttractionPhoto Uri  
 AttractionPhoto AttractionName AttractionId  
 CountryCity ( CountryId , CityId ) INTO CityName  
 count( TripDate ) navigation ( AttractionId )

Si ahora vemos el listado de navegación... parece que así sí va a funcionar.

Demo

Travel Agency



Recents Countries — View Country Info...

COUNTRY NAME **China**

City Name **Beijing**

Attraction Name	Trips		
Forbidden city	0	UPDATE	NEW TRIP
Meet the Emperor	0	UPDATE	NEW TRIP
The Great Wall	0	UPDATE	NEW TRIP

Total Trips 0

Total Attractions 3

Travel Agency



Recents Countries — View Country Info...

COUNTRY NAME **Brazil**

City Name **Rio de Janeiro**

Attraction Name	Trips		
Christ the Redemmer	0	UPDATE	NEW TRIP

Total Trips 0

Total Attractions 1

Ejecutemos...

Lo hemos conseguido.

WITH or WITHOUT Base Tables?

Grid1 and Grid2 **with** Base Tables

Free Style Grid: Grid1	
Control Name	Grid1
Collection	
Rendering Mode	Responsive
Save State	False
Base Trn	Attraction
Order	CountryId, CityId
Conditions	
Unique	

```
Event Grid1.Refresh
    &totalAttractions = 0
Endevent
```

```
Event Grid2.Refresh
    &totalTrips = 0
Endevent
```

```
Event Grid2.Load
    &trips = Count(TripDate)
    &totalTrips = &totalTrips + &trips
    &totalAttractions = &totalAttractions + 1
Endevent
```

Grid1 and Grid2 **without** Base Tables

```
Event Grid1.Refresh
    &totalAttractions = 0
Endevent
```

```
Event Grid1.Load
    For each Attraction order CountryId, CityId
        unique CountryName, CityName
        &CountryName = CountryName
        &cityName = CityName
        Load
    Endfor
Endevent
```



```
Event Grid2.Refresh
    &totalTrips = 0
Endevent
```

```
Event Grid2.Load
    For each Attraction order AttractionName
        where CityName = &cityName
        &AttractionId = AttractionId
        &AttractionName = AttractionName
        &AttractionPhoto = AttractionPhoto
        &trips = Count(TripDate)
        &totalTrips = &totalTrips + &trips
        &totalAttractions = &totalAttractions + 1
        Load
    Endfor
Endevent
```



Así es que, por el momento, nos está resultando mucho más sencillo implementar un corte de control, cuando los grids **tienen tabla base**.

Estrictamente hablando, solo en ese caso se tratará de un **verdadero corte de control**.

En el segundo caso, cuando los grids no tienen tabla base, tan solo lo estamos simulando, pero en verdad habrá dos consultas independientes a la tabla Attraction y no una sola que resuelva todo, como sucede en el verdadero corte de control.

Te invitamos a que pruebes todo lo que hemos visto.

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