# MDUG

# Regreso al Futuro

## Dynamo en un Proyecto de Infraestructuras

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# Comienza el viaje…

- Trabajar sobre modelos de otros:
  a. proyecto con varios años de recorrido
  b. diseño al “90%”
  c. BIM no contractual
  d. LOD “200”
  e. modelos sin láminas ni vistas
- Versiones antiguas:
  a. empezó con Revit 2014 (Dynamo 0.82)
  b. acabará… ¿?
  c. no se puede actualizar
- Nuevas tecnologías:
  a. BIM
  b. coordinación digital, etc
  c. capacitación del equipo

# Auditar modelos

0.82_Audit_Model_Parameters

All Elements In Active View
elements
Watch
>
>
List.FilterByBoolMask
list
mask
in
out
Category.Name
category
string
String from Object
obj
str
==
x
y
var[]..[]
xxx
List.Map
list
f(x)
mapped
Code Block
{"CurtainGridLine",
"Curtain Panel",
"Mullion",
"ModelCurve"};
>
List.AnyTrue
seq
bool
Element.Parameters
element
Parameter[]

List.FilterByBoolMask
list
mask
in
out
Watch
List.OfRepeatedItem
item
amount
list
Element.GetParameterValueByName
element
parameterName
var[]..[]
List.Combine
comb
+
-
combined
list1
list2
List.Map
list
f(x)
mapped
Count
list
int
List.Combine
comb
+
-
combined
list1
list2
Element.Parameters
element
Parameter[]
Element.Name
element
string
Watch

File Path
Browse...
D:\...\COOR\Coordination_Models\ModelAudit_Test.xlsx
String from Object
obj
str
Code Block
"TEST";
Insert
list
var[]..[]
element
index
Code Block
0;
Code Block
0;
true;
Excel.WriteToFile
filePath
data
sheetName
startRow
startCol
data
overWrite
List.Combine
comb
combined
list1
list2
List.Combine
comb
combined
list1
list2
List.Transpose
lists
lists
List.Combine
comb
combined
list1
list2
List.Create
index0
list
index1

Revit 2014 Error Report
AUTODESK.
A software problem has caused Revit 2014 to close unexpectedly.
We apologize for the inconvenience. An error report has been generated. Please click Send Report to help us analyze the cause of the problem.
Learn more about how error reports are used
Benefits
Error Report - Cancelled
Your error report was cancelled before it was submitted to Autodesk.
OK
Details
Providing a step-by-step description of what you were doing when the problem occurred will help us resolve the issue:
Example description
View Report Details
Send Report

# Parámetros Compartidos

# Primera versión

# Segunda versión

<Click here to edit the group title>
1. Look for Parameter's Index
2. Select Index
27
3. Select Category
Sheets
Category
4. ¿Success?
Code Block
paramName List.GetItemAtIndex(paramName,3);
groupName List.GetItemAtIndex(groupName,0);
paramType List.GetItemAtIndex(paramType,7);
paramGroup List.GetItemAtIndex(paramGroup,5);
paramInstance List.GetItemAtIndex(paramInstance,8);
Code Block
paramName List.GetItemAtIndex(paramName,number);
number List.GetItemAtIndex(groupName,number);
groupName List.GetItemAtIndex(paramType,number);
paramType List.GetItemAtIndex(paramGroup,number);
paramGroup List.GetItemAtIndex(paramInstance,number);
paramInstance
==
x
y
var[]..[]
If
test
true
false
result
Code Block
"Type";
Code Block
false;
true;

<Click here to edit the group title>
String from Object
obj
str
Python Script
IN[0]
OUT
String from Object
obj
str
(paramName,number);
(groupName,number);
(paramType,number);
(paramGroup,number);
(paramInstance,number);
==
x
y
var[]..[]
IndexOf
list
element
int
String from Object
obj
str
Boolean
True
False
Parameter Group
Parameter Group
Code Block
out
number
out[number];
Code Block
a a;
b b;
c c;
d d;
e e;
f f;
g g;
Watch
Watch
Watch
Watch
Watch
Watch
Watch
Add Shared Parameter to Project
Parameter Name
Shared Parameter Group Name
Parameter Type
Visible?
Element Category
Parameter Group
Instance?
OUT

Edit Python Script...

```python
import clr
clr.AddReference('ProtoGeometry')
from Autodesk.DesignScript.Geometry import *

# Import DocumentManager and TransactionManager
clr.AddReference("RevitServices")
import RevitServices
from RevitServices.Persistence import DocumentManager
from RevitServices.Transactions import TransactionManager

# Import RevitAPI
clr.AddReference("RevitAPI")
import Autodesk
from Autodesk.Revit.DB import *
import System

paramType = IN[0]

textArea = str("Area")
textLength = str("Length")
textNumber = str("Number")
textSlope = str("Slope")
textText = str("Text")
textURL = str("URL")
textVolume = str("Volume")
textYesNo = str("YesNo")
textMaterial = str("Material")
textInteger = str("Integer")
textCurrency = str("Currency")

if paramType==textArea:
    OUT=Autodesk.Revit.DB.ParameterType.Area
elif paramType==textLength:
    OUT=Autodesk.Revit.DB.ParameterType.Length
elif paramType==textNumber:
    OUT=Autodesk.Revit.DB.ParameterType.Number
elif paramType==textSlope:
    OUT=Autodesk.Revit.DB.ParameterType.Slope
elif paramType==textText:
    OUT=Autodesk.Revit.DB.ParameterType.Text
elif paramType==textURL:
    OUT=Autodesk.Revit.DB.ParameterType.URL
elif paramType==textVolume:
    OUT=Autodesk.Revit.DB.ParameterType.Volume
elif paramType==textYesNo:
    OUT=Autodesk.Revit.DB.ParameterType.YesNo
elif paramType==textMaterial:
    OUT=Autodesk.Revit.DB.ParameterType.Material
elif paramType==textInteger:
    OUT=Autodesk.Revit.DB.ParameterType.Integer
elif paramType==textCurrency:
    OUT=Autodesk.Revit.DB.ParameterType.Currency

#Assign your output to the OUT variable
```

Accept Changes | Cancel

# Reordenar vistas

0.82_Views_Order_Browser.dyn

Code Block
"_BRW_View_1_General";
Element.GetParameterValueByName
element
parameterName
var[]..[]
==
x
y
var[]..[]
Code Block
"A-COORDINATION";
Get All Views
Renderings
Pressure Loss Reports
Panel Schedules
Walkthroughs
Elevations
Drawing Sheets
Drafting Views
Undefined Views
Details
Loads Reports
Cost Reports
Legends
3D Views
Column Schedules
Internal Views
Sections
Ceiling Plans
Floor Plans
Schedules
Area Plans
Engineering Plans
Reports
List.Create
index0
index1
index2
index3
index4
index5
index6
index7
index8
index9
index10
index11
index12
index13
index14
index15
index16
index17
index18
index19
index20
index21
list
Flatten
list
var[]

Element.SetParameterByName
element
parameterName
value
Element
Code Block
"C-WORK_IN_PROGRESS";
"NOT USED";
"ARC";
"";
Code Block
"_BRW_View_1_General";
"_BRW_View_2_Stage";
"_BRW_View_3_Discipline";
"_BRW_View_4_Category";
List.FilterByBoolMask
list
mask
in
out
==
x
y
var[]..[]
Manage.ReplaceNulls
Data
ReplaceWith
Element.GetParameterValueByName
Code Block
"Referencing Sheet";
Code Block
"";
REFERENCE IN SHEET
Code Block
"B-DOCUMENTATION";
"90DFO";
"ARC";
"REFERENCE VIEWS";

Edit Python Script...

```python
views = UnwrapElement(IN[0])
disc = str(IN[1])
vNames = []
vType = []
vScale = []

for v in views:
    if v.ViewType == ViewType.AreaPlan:
        vNames.append(str("500_" + disc + "_AREA PLAN" + "_1/") + str
        (v.Scale))
        vType.append(str(v.ViewType))
        vScale.append(str(v.Scale))
    elif v.ViewType == ViewType.FloorPlan:
        vNames.append(str("100_" + disc + "_PLAN" + "_1/") + str(v.Scale))
        vType.append(str(v.ViewType))
        vScale.append(str(v.Scale))
    elif v.ViewType == ViewType.CeilingPlan:
        vNames.append(str("400_" + disc + "_RCP" + "_1/") + str(v.Scale))
        vType.append(str(v.ViewType))
        vScale.append(str(v.Scale))
    elif v.ViewType == ViewType.Detail:
        vNames.append(str("700_" + disc + "_DETAIL" + "_1/") + str
        (v.Scale))
        vType.append(str(v.ViewType))
        vScale.append(str(v.Scale))
    elif ViewType == ViewType.DraftingView:
        vNames.append(str("700_" + disc + "_DRAFTING" + "_1/") + str
        (v.Scale))
        vType.append(str(v.ViewType))
        vScale.append(str(v.Scale))
    elif v.ViewType == ViewType.Elevation:
        vNames.append(str("200_" + disc + "_ELEVATION" + "_1/") + str
        (v.Scale))
        vType.append(str(v.ViewType))
        vScale.append(str(v.Scale))
    elif v.ViewType == ViewType.EngineeringPlan:
        vNames.append(str("600_" + disc + "_PLAN" + "_1/") + str(v.Scale))
        vType.append(str(v.ViewType))
        vScale.append(str(v.Scale))
    elif v.ViewType == ViewType.Legend:
        vNames.append(str("800_" +  + "_LEGEND" + "_1/") + str(v.Scale))
        vType.append(str(v.ViewType))
        vScale.append(str(v.Scale))
    elif v.ViewType == ViewType.Rendering:
        vNames.append(str("900_" + disc + "_RENDER" + "_1/") + str
        (v.Scale))
        vType.append(str(v.ViewType))
        vScale.append(str(v.Scale))
    elif v.ViewType == ViewType.Section:
        vNames.append(str("300_" + disc + "_SECTION" + "_1/") + str
        (v.Scale))
        vType.append(str(v.ViewType))
        vScale.append(str(v.Scale))
```

# Renombrar familias

Element Types
Family
Types
All Elements of Type
element type
elements
Watch
String from Object
obj
str
Code Block
"DJV";
String.Contains
str
searchFor
ignoreCase
bool
List.FilterByBoolMask
list
mask
in
out
Element.Name
element
string
Code Block
"AYE";
String.Replace
str
searchFor
replaceWith
str
Element.SetName
element
name
Success
Fail

# Recrear láminas

0.82_Sheets_Create.dyn*
File Path
Browse...
[redacted]
File.FromPath
path
file
String
Drawing List
Boolean
True
False
Excel.ReadFromFile
file
sheetName
readAsStrings
data
Code Block
2;
List.DropItems
list
amount
List.Transpose
lists
Code Block
11;
List.GetItemAtIndex
list
index
item
Code Block
9;
Family Types
A0 metric:A0 metric
Family Type
Code Block
"TitleBlock";
DraftingView.ByName
name
DraftingView
Code Block
a a;
b b;
c c;
d d;
Sheet.ByNameNumberTitleBlockAndView
sheetName
sheetNumber
titleBlockFamilySymbol
view
Sheet

# Validación de datos

0.82_Coordination_Model.dyn*

Edit Python Script...

```python
import clr
clr.AddReference('RevitAPI')
from Autodesk.Revit.DB import *

clr.AddReference("RevitNodes")
import Revit
clr.ImportExtensions(Revit.Elements)

clr.AddReference("RevitServices")
import RevitServices
from RevitServices.Persistence import DocumentManager

doc = DocumentManager.Instance.CurrentDBDocument

activeLocation = Document.ActiveProjectLocation.GetValue(doc)
siteLocation = Document.SiteLocation.GetValue(doc)
filename = Document.PathName.GetValue(doc)
title = Document.Title.GetValue(doc)

OUT = activeLocation, siteLocation, filename, title
```

Accept Changes | Cancel

<Click here to edit the group title>
List.FilterByBoolMask
list
mask
in
out
TextElement.Text
element
str
List.Map
list
f(x)
mapped
String.Contains
str
searchFor
ignoreCase
bool
Code Block
"PACKAGE_NAME";
<Click here to edit the group title>
Get All Elements From Linked Model
LinkDoc
Category
Elements
Python Script.GetElementsFromLink
IN[0]
IN[1]
OUT
Categories
TextNotes
Category
TextElement.Text
element
str
List.Map
list
f(x)
mapped
<Click here to edit the group title>
List.FilterByBoolMask
list
mask
in
out
TextElement.Text
element
str
List.Map
list
f(x)
mapped
Code Block
"BIM";
String.Contains
str
searchFor
ignoreCase
bool
Code Block
"Notes:";
String.Contains
str
searchFor
ignoreCase
bool
List.Map
list
f(x)
mapped

## Original (elementos)

Edit Python Script...

```python
#Copyright(c) 2015, Konrad Sobon
# @arch_laboratory, http://archi-lab.net

# This node is based on Julien Benoit's Element.GetElementFromLinkedFile
# node. Some slight improvements were made removing unnecessary imports/
references.
# Big thank you to Julien for sharing his work.

import clr
clr.AddReference('ProtoGeometry')
from Autodesk.DesignScript.Geometry import *

# Import RevitAPI
clr.AddReference("RevitAPI")
import Autodesk
from Autodesk.Revit.DB import *

import System

import sys
pyt_path = r'C:\Program Files (x86)\IronPython 2.7\Lib'
sys.path.append(pyt_path)

#The inputs to this node will be stored as a list in the IN variable.
dataEnteringNode = IN

_linkDoc = IN[0]
_category = IN[1]

try:
    errorReport = None
    filter = ElementCategoryFilter(System.Enum.ToObject(BuiltInCategory,
    _category.Id))
    result = FilteredElementCollector(_linkDoc).WherePasses
    (filter).WhereElementIsNotElementType().ToElements()
except:
    # if error accurs anywhere in the process catch it
    import traceback
    errorReport = traceback.format_exc()

#Assign your output to the OUT variable
if errorReport == None:
    OUT = result
else:
    OUT = errorReport
```

## Modificado (listas)

Edit Python Script...

```python
#Copyright(c) 2015, Konrad Sobon
# @arch_laboratory, http://archi-lab.net

# This node is based on Julien Benoit's Element.GetElementFromLinkedFile
# node. Some slight improvements were made removing unnecessary imports/
references.
# Big thank you to Julien for sharing his work.

import clr
clr.AddReference('ProtoGeometry')
from Autodesk.DesignScript.Geometry import *

# Import RevitAPI
clr.AddReference("RevitAPI")
import Autodesk
from Autodesk.Revit.DB import *

import System

import sys
pyt_path = r'C:\Program Files (x86)\IronPython 2.7\Lib'
sys.path.append(pyt_path)

#The inputs to this node will be stored as a list in the IN variable.
dataEnteringNode = IN

_linkDoc = list(IN[0])
_category = IN[1]
resultList = list()

for l in _linkDoc:

    try:
        errorReport = None
        filter = ElementCategoryFilter(System.Enum.ToObject
        (BuiltInCategory, _category.Id))
        result = FilteredElementCollector(l).WherePasses
        (filter).WhereElementIsNotElementType().ToElements()
        resultList.append(result)
    except:
        # if error accurs anywhere in the process catch it
        import traceback
        errorReport = traceback.format_exc()

    #Assign your output to the OUT variable
    if errorReport == None:
        OUT = resultList
    else:
        OUT = errorReport
```

Original (OUT) Modificado (IN/OUT)

```python
doc = IN[0]
worksetsList = list()

for d in doc:

    try:
        errorReport = None
        viewWorksets = FilteredWorksetCollector(d).OfKind(WorksetKind.ViewWorkset)
        names, ids = [], []
        for i in viewWorksets:
            names.append(i.Name)
            ids.append(i.Id.IntegerValue)
        worksetsList = [list(viewWorksets),list(names),list(ids)]

    except:
        # if error accurs anywhere in the process catch it
        import traceback
        errorReport = traceback.format_exc()

    #Assign your output to the OUT variable
    if errorReport == None:
        OUT = worksetsList
    else:
        OUT = errorReport
```

Boolean
True
False
Python Script
IN[0]
OUT
Document.StartingView
toggle
view
Collector.ElementsInView
view(s)
element(s)
refresh
TextElement.Text
element
str
Flatten
list
var[]
Element.Location
element
points
curveEndpoints
curves
isPoint
isCurve
hasLocation
List.FilterByBoolMask
list
mask
in
out
TextElement.Text
element
str
TextNote.ByStringAndPosition
text
view
point
rotation
width
textAlignFlag
textNote
String
Test
DraftingView.ByName
name
DraftingView
Code Block
0;
10;
Code Block
"Left";
TextElement.SetText
element
text
success
fail

# … y al final…

GRACIAS

# MDUG