



3DEXPERIENCE®

3DEXPERIENCE Platform

Widget Development

2019.06.18

VS Korea VSCC

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Agenda

Widget Overview

Widget Architecture

Widget Capabilities

Widget Development

Widget Debugging

Widget Reference



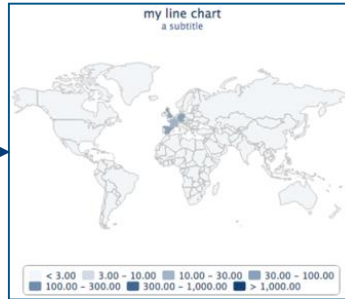
Widget Overview

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Prerequisites

- ▶ Before working with this, user should be familiar with Languages **HTML** and **CSS**. User should have a basic knowledge of and understanding of **ENOVIA Customizing, WebService** and some experience with **JavaScript** Language.

```
// Ex 5: Map graph.  
// -----  
var GraphControl = new Graph({  
  container: widget.body,  
  className: 'my-graph',  
  title: 'my line chart',  
  subtitle: 'a subtitle',  
  type: Graph.TYPE_MAP,  
  unit: 'millions of tons / year',  
  series: [{  
    data: {  
      'fr': 28,  
      'uk': 48,  
      'de': 45,  
      'es': 32  
    }  
  }  
});
```



ENOVIA 개발 경력 3년
이상 추천

- ✓ Java / JPO
- ✓ REST Web Services
- ✓ JavaScript & UWA
- ✓ HTML5
- ✓ CSS

Object Oriented JavaScript
(OOJS)

Why do we need Widget?

usages of widget

► Access management

▷ Licensing, rigths, Access, Roles

► Data management

▷ Share views, models, tabs etc

▷ CRUD (Create, Read, Update, Delete), navigation (queries) anywhere anyplace

► Automation

▷ To avoid human error and provide an up-to-date data

▷ Metrics generation

Why do we need Widget?

usages of widget

- ▶ **Collaboration**

- ▷ Chat service

- ▶ **Real time sharing**

- ▷ Subscription mechanisms

- ▶ **UI Visualization & 3D (This is available from 3DEXPERIENCER 2016x)**

- ▷ Being able to modify models Rendering textures, shades, etc

- ▶ **Monitoring**

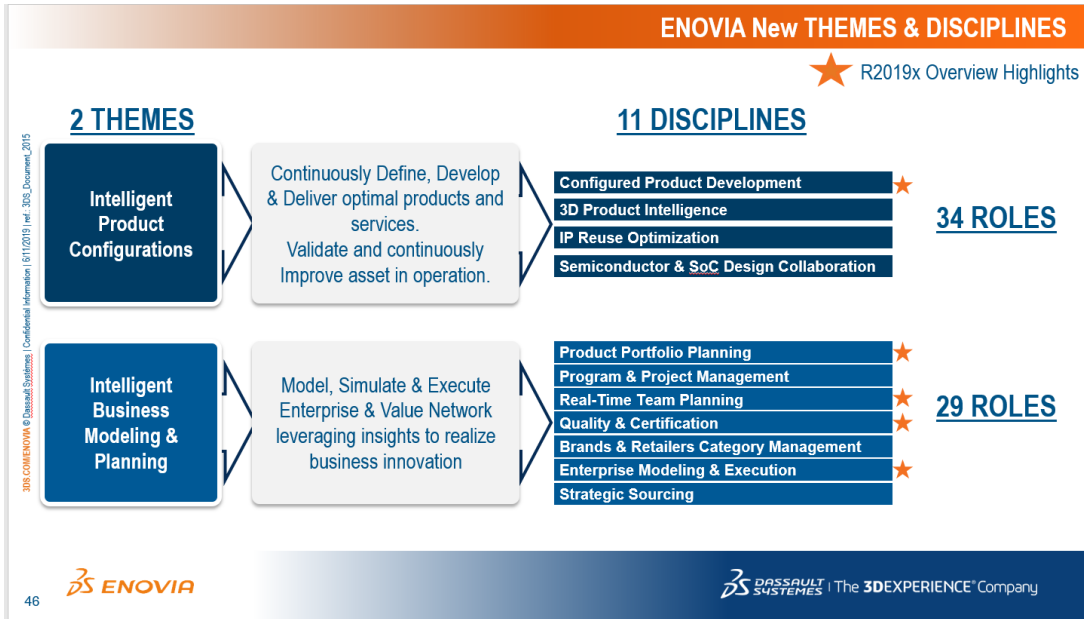
- ▷ To assess situation in a global picture

- ▷ Live monitoring to have trends on quality metrics for everyone

Why do we need Widget?

usages of widget

ENOVIA에서 3DDashboard 이동 중



Advantage

- Easy
- Productivity
- Deploy
- Upgrade
- JavaScript Open Source
- Single Code (CV5, CV6, Platform)

Disadvantage

- OOTB Widget Customize
- No Rule

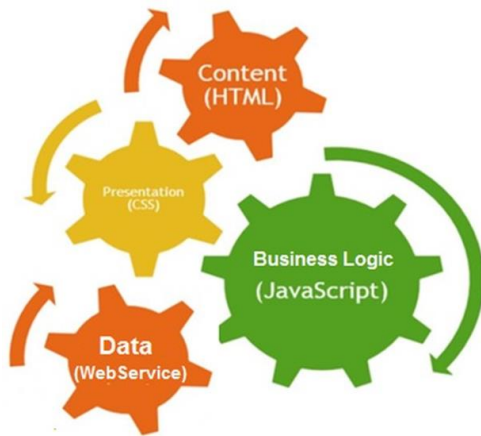


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Widget Architecture

Widget Architecture Components

- ▶ The Widget is HTML file compliant with **UWA Protocol (Universal Web App)** with:
 - ▷ Should be compliant with IFWE Compass User Experience fundamentals
 - ▷ **Business logic** written in **JavaScript**
 - ▷ **StyleSheet** made in **CSS**
 - ▷ Use of **WebService** to access data.



Widget Architecture Components

- ▶ **Data:** The data model defines the resources.
- ▶ **HTML/CSS:** The presentation consists in widgets enabling the end-user to control/manage the resources
- ▶ **JavaScript:** The business logic guarantees the resource integrity
- ▶ **WebService :** The web services gives an access to the resources (data model or business logic).











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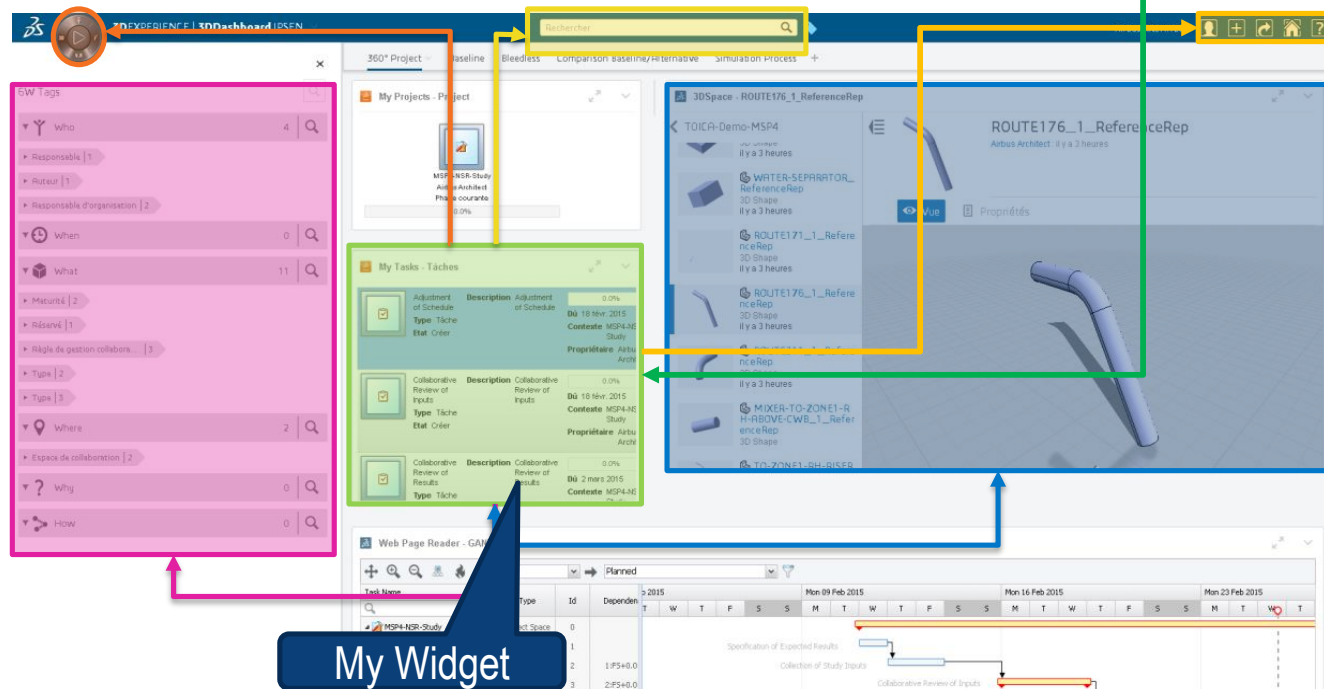
Widget Capabilities

Technical Information Widget Capabilities

Some WEB Services

With :

-  Others widgets
-  3D Compass
-  3D Search
-  6W Tagger
-  Top Bar
-  WEB Services



My Widget



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Widget Development



Deactivate 3DDashboard Cache

► On your server go to :

▷ Windows : C:\3ds\3ddashboard\webapps\3ddashboard\WEB-INF\classes\

► Modify the file :

▷ context.properties

► Change :

`uwp.cache.type = ehcache` → `uwp.cache.type = nocache`

Require and Define

AMD design pattern
(Asynchronous Module Definition)

- ▶ Require and Define are 2 js functions
 - ▷ Require is used to load and use some JS Modules (APIs)
 - ▷ Define is used to declare a new JS Module
 - ▶ The return of the define function callback will be an object representing the module with all its function

▶ Example :

```
require([], function(){ ... }); //Require nothing

require(["DS/LibA/ModuleB", "DS/LibC/ModuleA"], function(modB, modA){ ... }); //Require ModuleB from LibA/LibA.js
and ModuleA from LibC/LibC.js

define("DS/NewModule/ModuleA", ["DS/LibA/ModuleB", "DS/LibC/ModuleA"], function(modB, modA){
    var moduleCustom = { ... };
    return moduleCustom; //moduleCustom will be the object returned when using the module "DS/NewModule/ModuleA"
});
```

Some Definitions

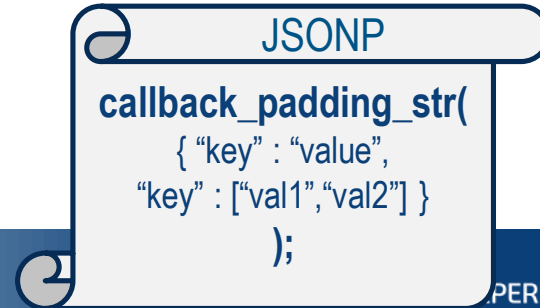
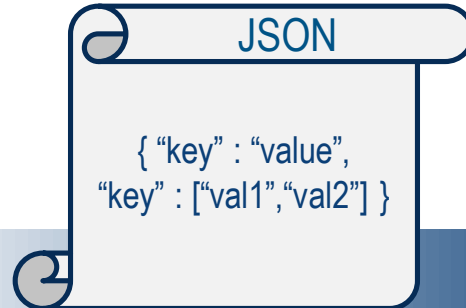
► CORS:

- ▷ Cross-Origin Resource Sharing
- ▷ Mechanism to allow the exchange of data between pages of different domains.
- ▷ Read about it : <https://developer.mozilla.org/en-US/docs/Web/HTTP/CORS>

► JSONP :

- ▷ JavaScript Object Notation with Padding
- ▷ Format that can be used to **exchange data Cross-Domain**

Format of data returned :



1 - First widget « Hello World »



HelloWorld.zip



First widget « Hello World »

- On your server go to :

▷ C:\R2019x\3DSpace\win_b64\code\tomee\webapps\3dspace\webapps\

- Step 1 : Add your own folder

▷ Example : HelloWorld

- Step 2 : Add the “Hello World” Widget

▷ Example : HelloWorld.html

- Step 3 : Update the “HelloWorld.html”

```
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Create Person</title>
<meta name="author" content="SCIT" />
<meta name="description" content="Create Person Widget" />
<meta name="apiVersion" content="1.0" />
<meta name="debugMode" content="true" />
<meta name="strictMode" content="false" />

<!-- Widget files -->
<link rel="stylesheet" type="text/css" href="styles/HelloWorld.css" />
<script>
<![CDATA[
require(['DS/HelloWorld/scripts/HelloWorld'],
function (HelloWorld)
{
    'use strict';
    if (document.readyState === 'complete') {
        HelloWorld.onLoadWidget();
    } else {
        widget.addEventListener('onLoad', HelloWorld.onLoadWidget);
    }

    widget.addEventListener('onRefresh', HelloWorld.onLoadWidget);
    widget.addEventListener('onSearch', HelloWorld.onSearchWidget);
    widget.addEventListener('onResetSearch', HelloWorld.onResetSearchWidget);
});
//]]>
</script>
<!-- Application JS End -->
</head>
<body>
<p>Widget is Loading...</p>
</body>
</html>
```

Copy & Paste

Step 3

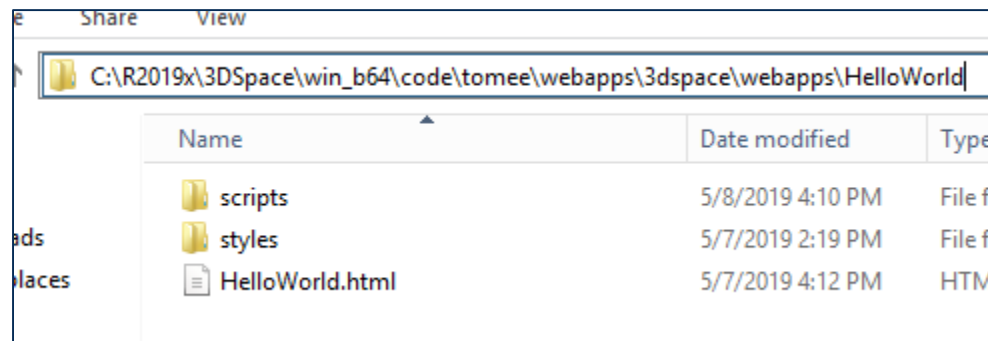


First widget « Hello World »

- ▶ On your server go to :
 - ▷ C:\R2019x\3DSpace\win_b64\code\tomee\webapps\3dspace\webapps\HelloWorld

- ▶ Step 4: Add your sub folder
 - ▷ Example : scripts

- ▶ Step 5 : Add your sub folder
 - ▷ Example : styles





First widget « Hello World »

► On your server go to :

▷ C:\R2019x\3DSpace\win_b64\code\tomee\webapps\3dspace\webapps\HelloWorld\styles

► Step 6 : Add the “Hello World” CSS

▷ Example : HelloWorld.css

► Step 7 : Update the “HelloWorld.css”

```
1
2 p {
3     border-bottom: 1px solid grey;
4 }
5
```

Copy & Paste

Step 7

```
p {
    border-bottom: 1px solid grey;
}
```



First widget « Hello World »

- ▶ On your server go to :
 - ▷ C:\R2019x\3DSpace\win_b64\code\tomee\webapps\3dspace\webapps\HelloWorld\scripts
- ▶ Step 8 : Add the “Hello World” JavaScript
 - ▷ Example : HelloWorld.js
- ▶ Step 9 : Update the “HelloWorld.js”

```
define('DS/HelloWorld/scripts/HelloWorld',  
function() {  
    var myWidget = {  
        onLoadWidget: function() {  
            widget.body.innerHTML="Hello World";  
        }  
    };  
    return myWidget;  
});
```

Copy & Paste

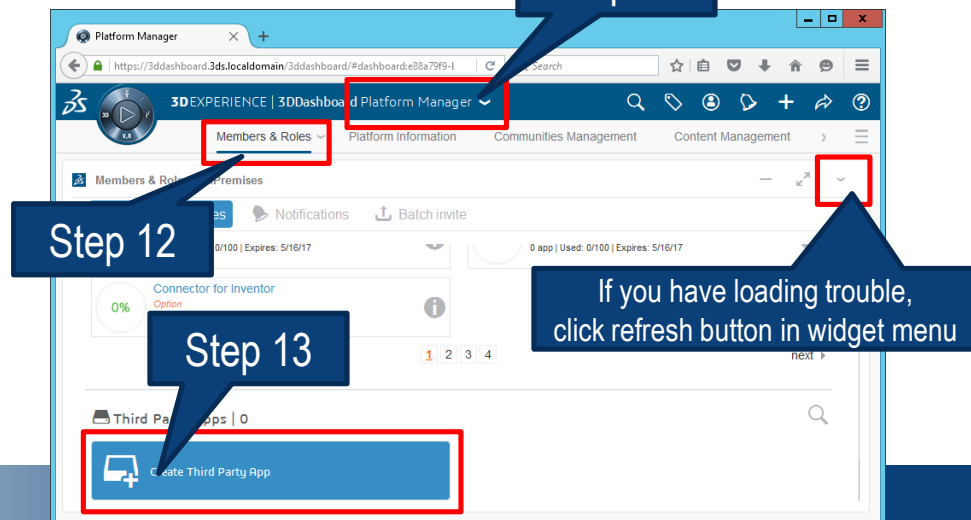
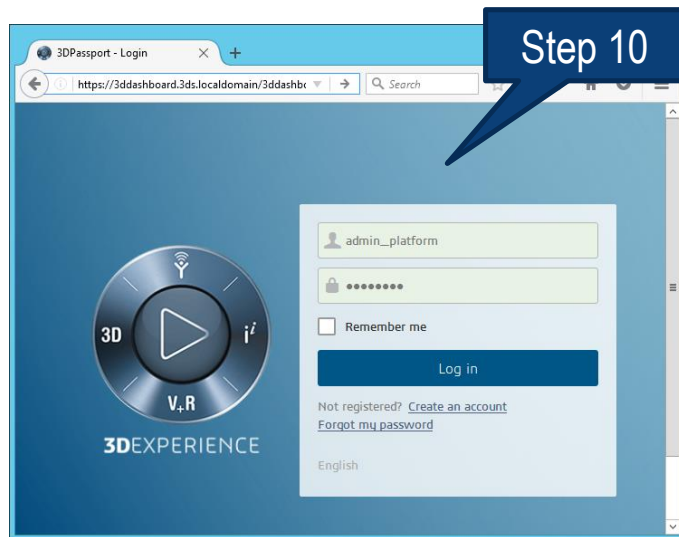
```
define('DS/HelloWorld/scripts/HelloWorld',  
function(){  
    var myWidget = {  
        onLoadWidget: function(){  
            widget.body.innerHTML="Hello World";  
        }  
    };  
    return myWidget;  
});
```

Step 9



First widget « Hello World »

- ▶ Add widget to 3DEXPERIENCE Platform
 - ▷ Login to 3DDashboard as a admin
 - ▷ Change dashboard to “Platform Manager”
 - ▷ Click “Create Third Party App” in the “Members & Roles” Tap





First widget « Hello World »

► Add widget to 3DEXPERIENCE Platform

Widget's Name

Select Widget

Select Widget's Location in 3DCompass

Input Widget file's location

Drag & Drop Icon (option)

Step 14

Save Cancel

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Create Third Party App

Short Name (appears in the Compass) *

Hello World

Long Name (appears in the tooltip)

Hello World

Compass Quadrant *

My Information Intelligence Apps

Type *

Widget

Source code URL *

<https://3dspace.3ds.localdomain/3dspace/webapps/HelloWorld/HelloWorld.html>

Configuration file URL

☒ Available to all members

Preview

My Information Intelligence Apps

Hello World

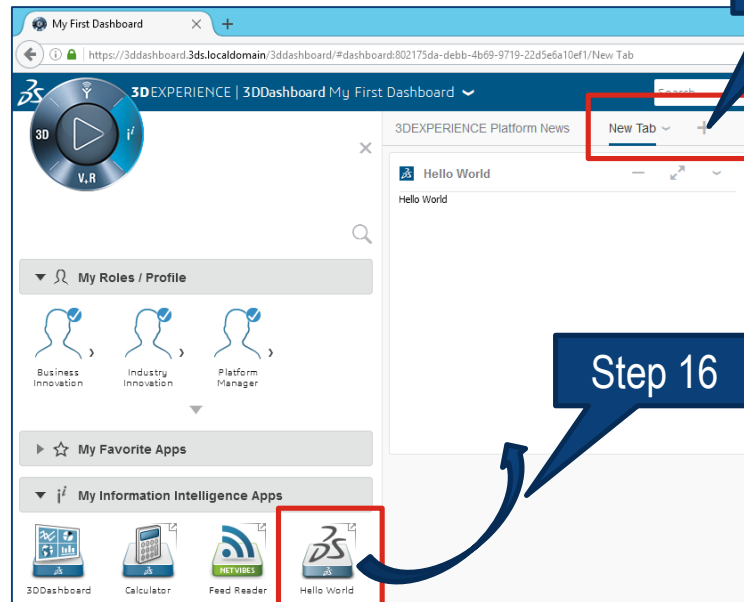
<https://3dspace.3ds.localdomain/3dspace/webapps/HelloWorld/HelloWorld.html>



First widget « Hello World »

► Instantiate a widget in a tab of a 3D Dashboard

- ▷ Add New Dashboard
- ▷ Drag & Drop



2 - Working with WEB Services

Get Project Information

HelloWorld.js

Copy & Paste

```
define('DS/HelloWorld/scripts/HelloWorld',
['DS/WAFData/WAFData', 'DS/i3DXCompassServices/i3DXCompassServices'],
function(WAFData, i3DXCompassServices) {
    var myWidget = {
        _3dspaceURL: "",
        dataFull: [],
        displayData: function(arrData, iTmp) {
            var tableHTML, oTMP, classRow;
            var iPS=0, iS=0, iPST=0, iST=0;

            tableHTML=<div class='no-native-scrollbars use-themed-scroller-content' style='right: -17px; bottom: 0px;'>
            tableHTML=tableHTML+<table><thead><tr><th>Name</th><th>Type</th></tr></thead><tbody>

            for(var i=0; i<arrData.length; i++){
                classRow=(i%2===0?"rowEven":"rowOdd");
                tableHTML=tableHTML+<tr class='"+classRow+"'>
                tableHTML=tableHTML+<td>
                tableHTML=tableHTML+arrData[i].Name+</td>
                tableHTML=tableHTML+<td>
                tableHTML=tableHTML+arrData[i].Type+</td>
                tableHTML=tableHTML+</tr>
            }
            tableHTML=tableHTML+</tbody></table></div>

            widget.body.innerHTML=tableHTML;
        },
        callData: function() {
            var methodWAF="GET";
            urlWAF=myWidget._3dspaceURL+"resources/HelloWorldBase/ProjectSpace";
            WAFData.authenticatedRequest(urlWAF, {
                method: methodWAF,
                proxy: 'passport',
                data: dataWAF,
                type: 'json',
                onComplete: function (dataResp) {
                    if(dataResp.msg=="OK") {
                        myWidget.dataFull=dataResp.data;
                        myWidget.displayData(myWidget.dataFull);
                        console.log(myWidget.dataFull);
                    } else {
                        widget.body.innerHTML += "<p>Error in WebService Response</p>";
                        widget.body.innerHTML += "<p>JSON stringly: <pre>"+dataResp+</pre>";
                    }
                }
            });
            if (dataResp.error) {
                widget.body.innerHTML += "<p>Call Failure</p>";
                widget.body.innerHTML += "<p>JSON stringly: <pre>"+dataResp+</pre>";
            }
        },
        get3DSpaceURL: function(callback) {
            i3DXCompassServices.getService({
                serviceName: '3DSpace',
                platform: widget.getValue('XSPPlatform'),
                onComplete: function(dataCompass) {
                    if (typeof dataCompass === "string") {
                        myWidget._3dspaceURL=dataCompass;
                        callback();
                    }
                }
            });
            if (dataCompass.error) {
                alert("Impossible to retrieve 3DSpace Service URL");
            }
        },
        onLoadedWidget: function() {
            myWidget.get3DSpaceURL(myWidget.callData);
        }
    };
    return myWidget;
};
```

편의상 파일 이름은 변경하지 않음

```
define('DS/HelloWorld/scripts/HelloWorld',
['DS/WAFData/WAFData', 'DS/i3DXCompassServices/i3DXCompassServices'],
function(WAFData, i3DXCompassServices) {
    var myWidget = {
        _3dspaceURL: "",
        dataFull: [],
        displayData: function(arrData, iTmp) {
            var tableHTML, oTMP, classRow;
            var iPS=0, iS=0, iPST=0, iST=0;

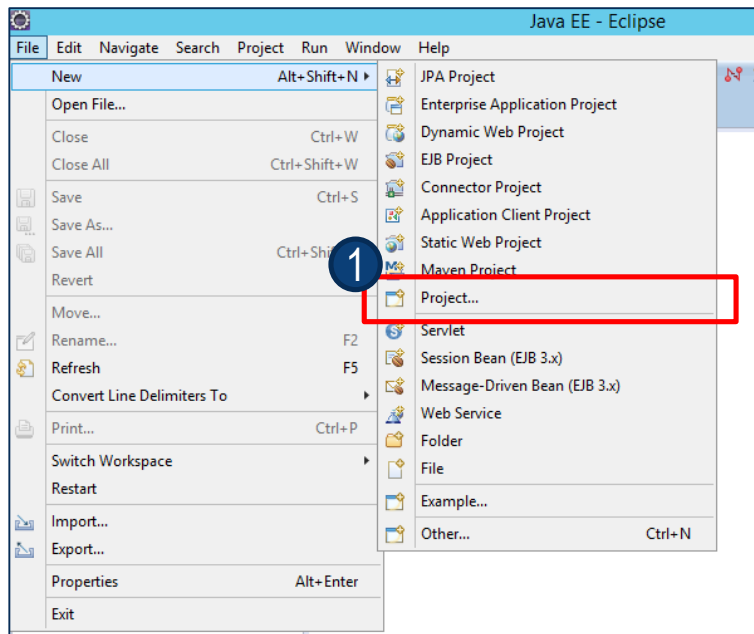
            tableHTML=<div class='no-native-scrollbars use-themed-scroller-content' style='right: -17px; bottom: 0px;'>
            tableHTML=tableHTML+<table><thead><tr><th>Name</th><th>Type</th></tr></thead><tbody>

            for(var i=0; i<arrData.length; i++){
                classRow=(i%2===0?"rowEven":"rowOdd");
                tableHTML=tableHTML+<tr class='"+classRow+"'>
                tableHTML=tableHTML+<td>
                tableHTML=tableHTML+arrData[i].Name+</td>
                tableHTML=tableHTML+<td>
                tableHTML=tableHTML+arrData[i].Type+</td>
                tableHTML=tableHTML+</tr>
            }
            tableHTML=tableHTML+</tbody></table></div>

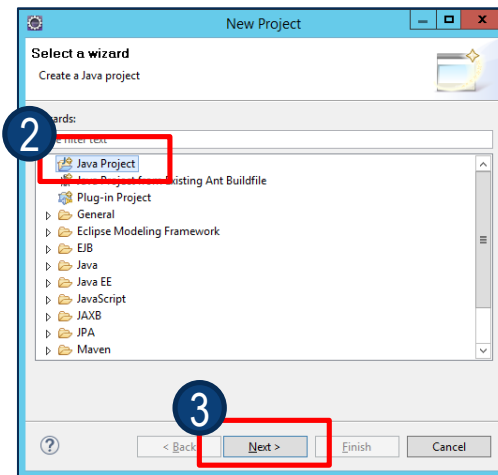
            widget.body.innerHTML=tableHTML;
        },
        callData: function() {
            var methodWAF="GET";
            urlWAF="";
            urlWAF=myWidget._3dspaceURL+"resources/HelloWorldBase/ProjectSpace";
            WAFData.authenticatedRequest(urlWAF, {
                method: methodWAF,
                proxy: 'passport',
                data: dataWAF,
                type: 'json',
                onComplete: function (dataResp) {
                    if (dataResp.msg=="OK") {
                        myWidget.dataFull=dataResp.data;
                        myWidget.displayData(myWidget.dataFull);
                        console.log(myWidget.dataFull);
                    } else {

```

Set Develop Environment



Java project 생성



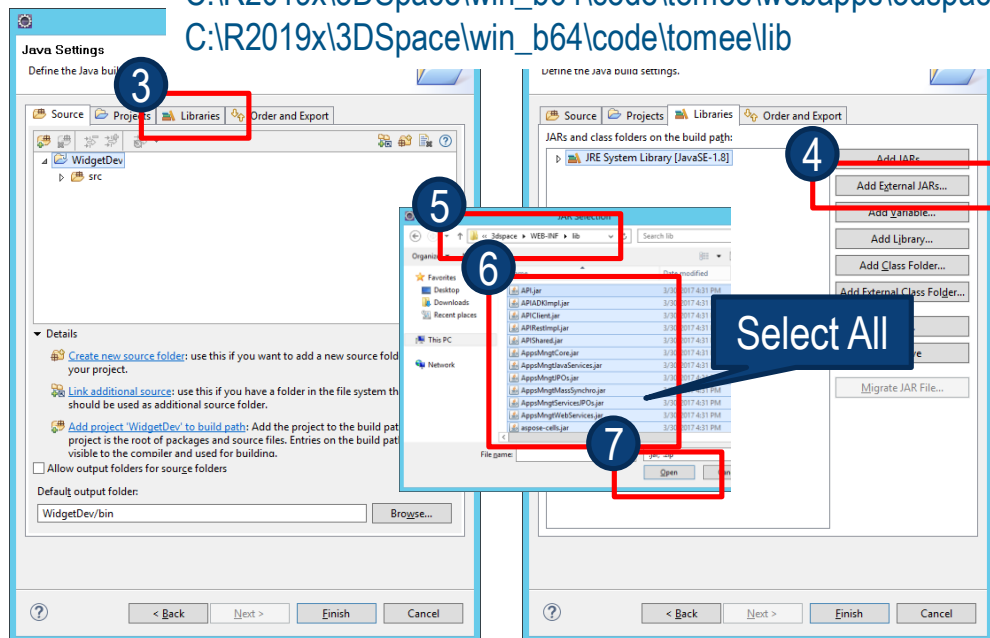
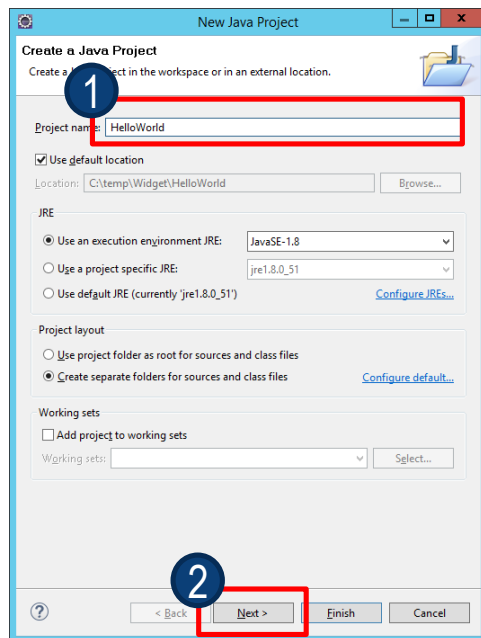
Set Develop Environment

Project 이름 : HelloWorld

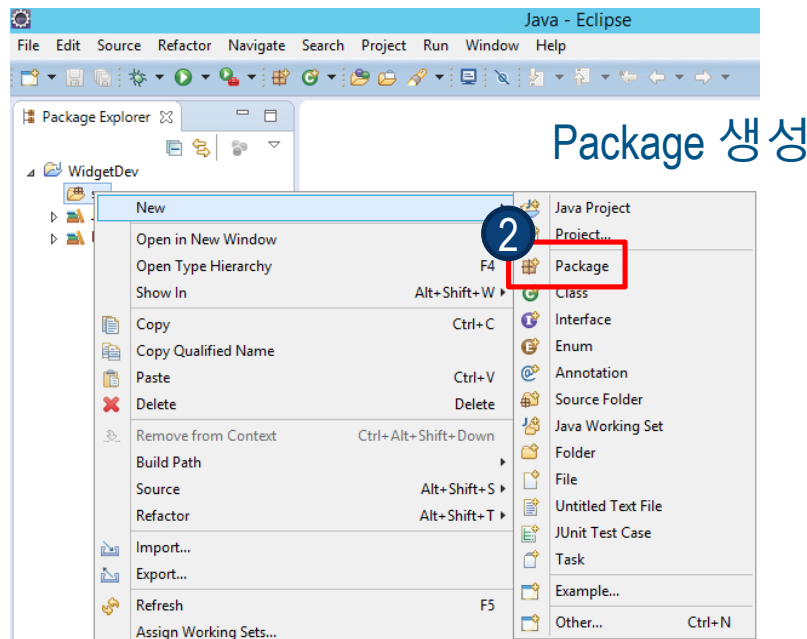
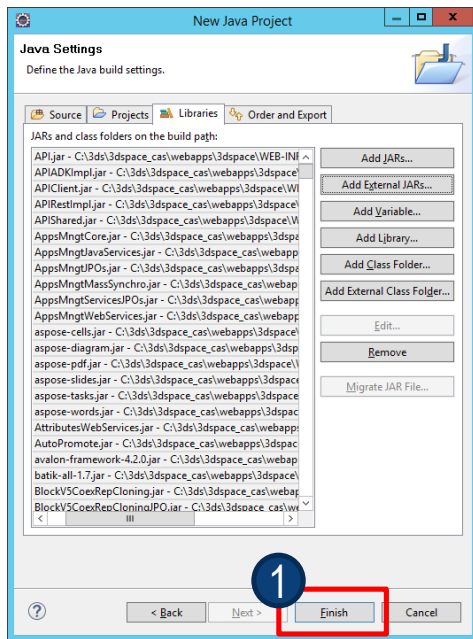
아래 폴더의 모든 jar 파일 로딩

C:\R2019x\3DSpace\win_b64\code\tomee\webapps\3dspace\WEB-INF\lib

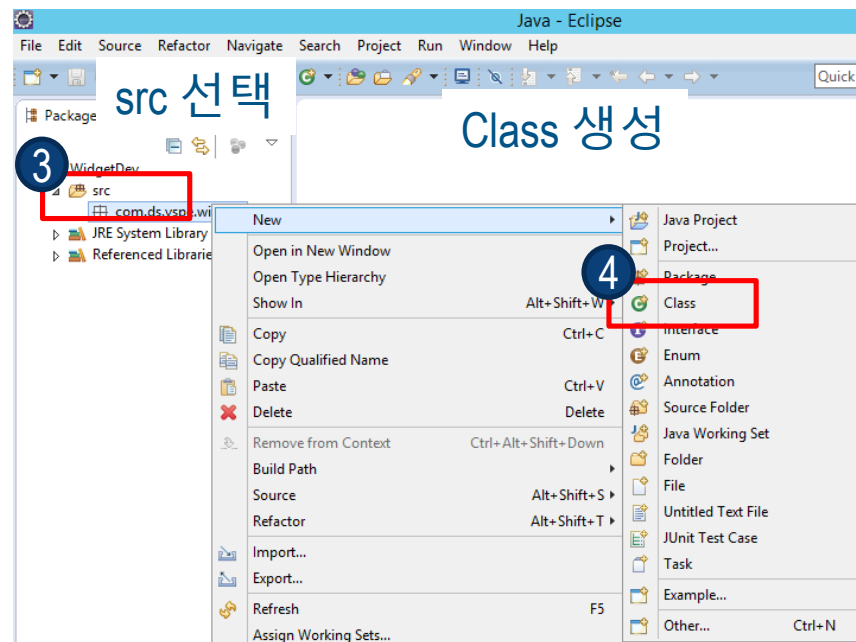
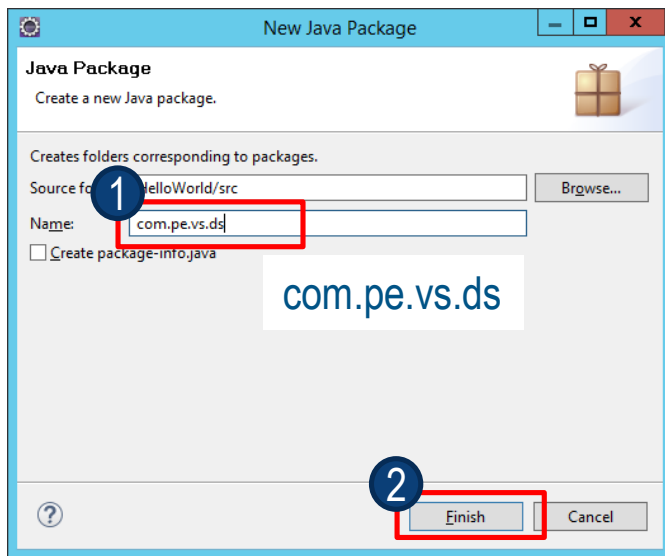
C:\R2019x\3DSpace\win_b64\code\tomee\lib



Set Develop Environment



Set Develop Environment



Set Develop Environment

HelloWorldBase Class 생성

The screenshot shows the 'Java Class' dialog box with the following fields and options:

- Source folder: HelloWorld/src
- Package: com.pe.vs.ds
- Enclosing type: (empty)
- Name: HelloWorldBase (highlighted with a red box and circled with a blue '1')
- Modifiers: ☐ public ☐ package ☐ private ☐ protected
- ☐ abstract ☐ final ☐ static
- Superclass: java.lang.Object
- Interfaces: (empty)
- Which method stubs would you like to create?
 - ☐ public static void main(String[] args)
 - ☐ Constructors from superclass
 - ☒ Inherited abstract methods
- Do you want to add comments? (Configure templates and default value [here](#))
 - ☐ Generate comments
- Buttons: Finish (highlighted with a red box and circled with a blue '2'), Cancel

ProjectSpace Class 생성

The screenshot shows the 'Java Class' dialog box with the following fields and options:

- Source folder: HelloWorld/src
- Package: com.pe.vs.ds
- Enclosing type: (empty)
- Name: ProjectSpace (highlighted with a red box and circled with a blue '3')
- Modifiers: ☐ public ☐ package ☐ private ☐ protected
- ☐ abstract ☐ final ☐ static
- Superclass: java.lang.Object
- Interfaces: (empty)
- Which method stubs would you like to create?
 - ☐ public static void main(String[] args)
 - ☐ Constructors from superclass
 - ☒ Inherited abstract methods
- Do you want to add comments? (Configure templates and default value [here](#))
 - ☐ Generate comments
- Buttons: Finish (highlighted with a red box and circled with a blue '4'), Cancel

HelloWorldBase.java

HelloWorldBase.java extends ModelerBase

```
package com.pe.vs.ds;

import javax.ws.rs.*;
import com.dassault_systemes.platform.restServices.ModelerBase;

@ApplicationPath(ModelerBase.REST_BASE_PATH + "/HelloWorldBase")
public class HelloWorldBase extends ModelerBase {

    @Override
    public Class<?>[] getServices() {

        // TODO Auto-generated method stub

        return new Class<?>[] {ProjectSpace.class};

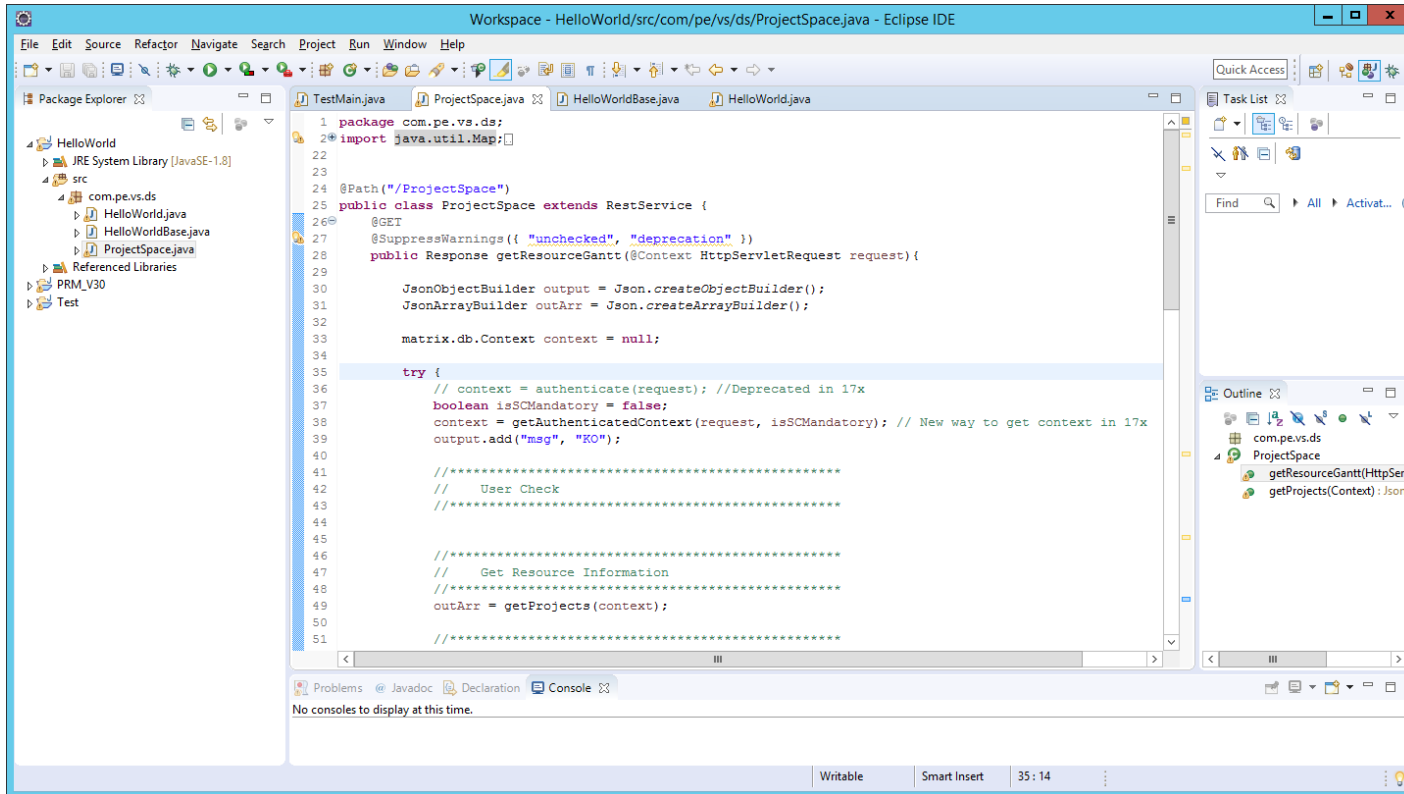
    }

}
```

Copy & Paste

ProjectSpace.java

ProjectSpace.java extends RestServices



The screenshot shows the Eclipse IDE with the following components:

- Package Explorer:** Shows the project structure with 'HelloWorld' containing 'src' and 'Test' folders. The 'src' folder contains 'com.pe.vs.ds' which includes 'HelloWorld.java', 'HelloWorldBase.java', and 'ProjectSpace.java'.
- Editor:** Displays the code for 'ProjectSpace.java'. The code defines a REST service that extends 'RestService' and implements 'getResourceGantt'.
- Task List:** Empty.
- Outline:** Shows the class hierarchy and methods: 'com.pe.vs.ds', 'ProjectSpace', 'getResourceGantt(HttpServletResponse request)', and 'getProjects(Context) : Json'.
- Console:** Shows 'No consoles to display at this time.'

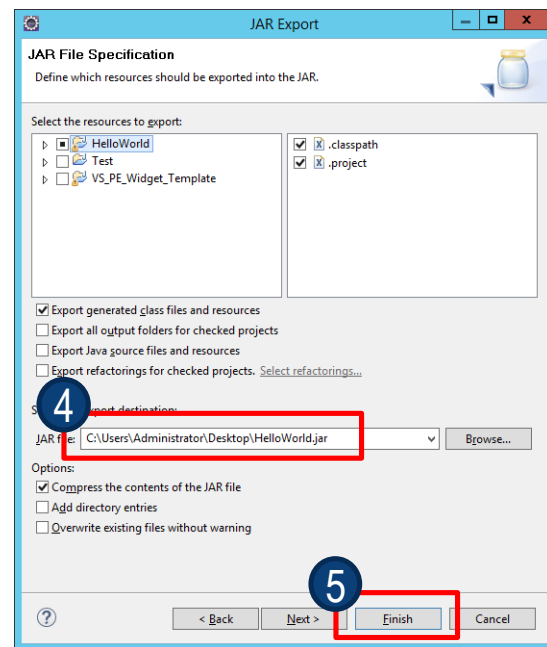
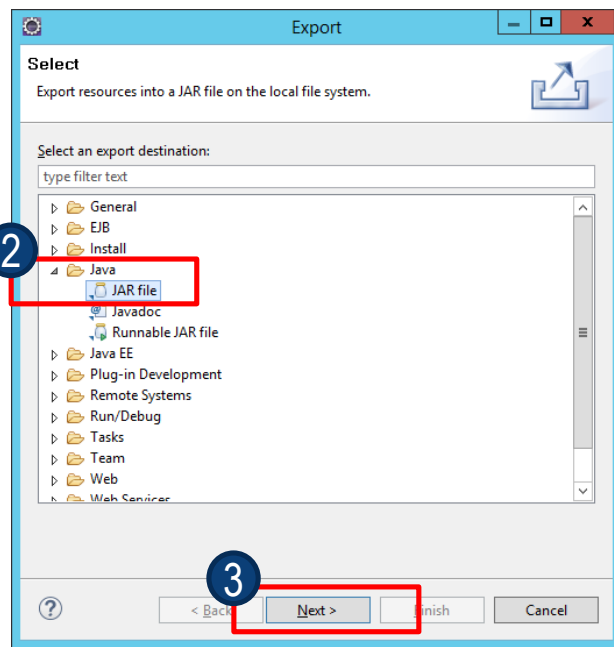
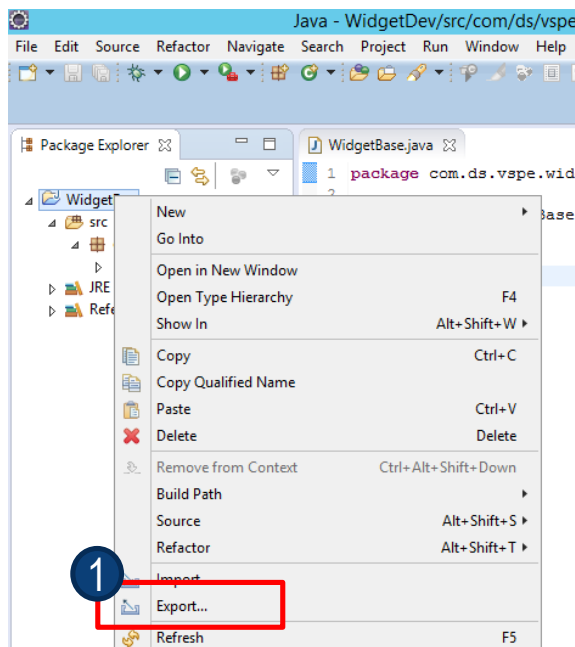
```
1 package com.pe.vs.ds;
2 import java.util.Map;
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24 @Path("/ProjectSpace")
25 public class ProjectSpace extends RestService {
26     @GET
27     @SuppressWarnings({ "unchecked", "deprecation" })
28     public Response getResourceGantt(@Context HttpServletRequest request){
29
30         JsonObjectBuilder output = Json.createObjectBuilder();
31         JsonArrayBuilder outArr = Json.createArrayBuilder();
32
33         matrix.db.Context context = null;
34
35         try {
36             // context = authenticate(request); //Deprecated in 17x
37             boolean isSCMandatory = false;
38             context = getAuthenticatedContext(request, isSCMandatory); // New way to get context in 17x
39             output.add("msg", "KO");
40
41             //*****
42             // User Check
43             //*****
44
45
46             //*****
47             // Get Resource Information
48             //*****
49             outArr = getProjects(context);
50
51             //*****
```

Copy & Paste



Java_Source.txt

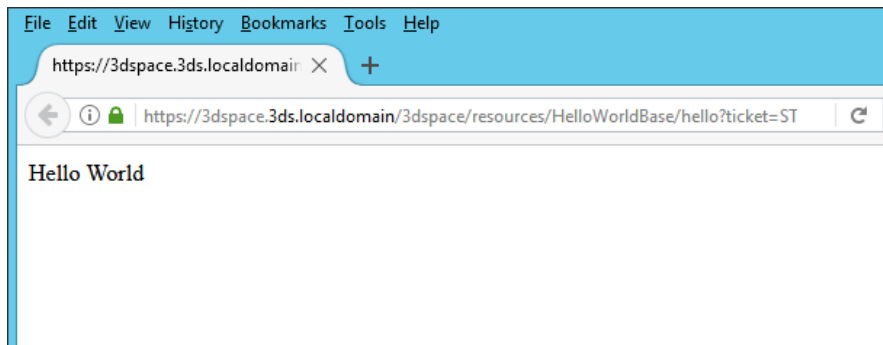
Deploy jar file



C:\Users\Administrator\Desktop\HelloWorld.jar

Deploy jar file

1. 바탕화면에 HelloWorld.jar를 export
2. 3dspace_cas Tomee Service Shutdown
3. 해당 jar파일을 아래 폴더에 이동
C:\R2019x\3DSpace\win_b64\code\tomee\webapps\3dspace\WEB-INF\lib
4. 3dspace_cas Tomee Startup
5. 결과 체크
 1. Platform에 로그인
 2. Web Browser에 아래 URL 입력
ex) <https://3dspace.3ds.localdomain/3dspace/resources/HelloWorldBase/hello>



File Edit View History Bookmarks Tools Help

My First Dashboard x 3dspace.3ds-prm.com/3dspace/res x +

← → ↻ https://3ddashboard.3ds ...

3DDashbaord

My First Dashboard ▾ 🔍 🏷️ ☰

Getting Started Learn the Experience New Tab

3D Hello World

Name	Type
P-0000100	Project Space
T-0000100	Phase
T-0000104	Task
T-0000103	Task
T-0000102	Phase
T-0000107	Task
T-0000108	Task
T-0000101	Phase
T-0000106	Task
T-0000105	Task

File Edit View History Bookmarks Tools Help

My First Dashboard x 3dspace.3ds-prm.com/3dspace/res x +

← → ↻ https://3dspace.3ds-prm ...

3DDashbaord

```
{
  "msg": "OK",
  "data": [
    {
      "ID": "64950.37357.41890.38008",
      "Name": "P-0000100",
      "Type": "Project Space"
    },
    {
      "ID": "64950.37357.4528.30061",
      "Name": "T-0000100",
      "Type": "Phase"
    },
    {
      "ID": "64950.37357.54163.29589",
      "Name": "T-0000104",
      "Type": "Task"
    },
    {
      "ID": "64950.37357.54163.29349",
      "Name": "T-0000103",
      "Type": "Task"
    },
    {
      "ID": "64950.37357.4528.34139",
      "Name": "T-0000102",
      "Type": "Phase"
    },
    {
      "ID": "64950.37357.74.51532",
      "Name": "T-0000107",
      "Type": "Task"
    },
    {
      "ID": "64950.37357.74.53701",
      "Name": "T-0000108",
      "Type": "Task"
    },
    {
      "ID": "64950.37357.4528.33192",
      "Name": "T-0000101",
      "Type": "Phase"
    },
    {
      "ID": "64950.37357.13028.14005",
      "Name": "T-0000106",
      "Type": "Task"
    },
    {
      "ID": "64950.37357.13028.13932",
      "Name": "T-0000105",
      "Type": "Task"
    }
  ]
}
```

```
{
  "msg": "OK",
  "data": [
    {
      "ID": "64950.37357.41890.38008", "Name": "P-0000100", "Type": "Project Space"
    },
    {
      "ID": "64950.37357.4528.30061", "Name": "T-0000100", "Type": "Phase"
    },
    {
      "ID": "64950.37357.54163.29589", "Name": "T-0000104", "Type": "Task"
    },
    {
      "ID": "64950.37357.54163.29349", "Name": "T-0000103", "Type": "Task"
    },
    {
      "ID": "64950.37357.4528.34139", "Name": "T-0000102", "Type": "Phase"
    },
    {
      "ID": "64950.37357.74.51532", "Name": "T-0000107", "Type": "Task"
    },
    {
      "ID": "64950.37357.74.53701", "Name": "T-0000108", "Type": "Task"
    },
    {
      "ID": "64950.37357.4528.33192", "Name": "T-0000101", "Type": "Phase"
    },
    {
      "ID": "64950.37357.13028.14005", "Name": "T-0000106", "Type": "Task"
    },
    {
      "ID": "64950.37357.13028.13932", "Name": "T-0000105", "Type": "Task"
    }
  ]
}
```

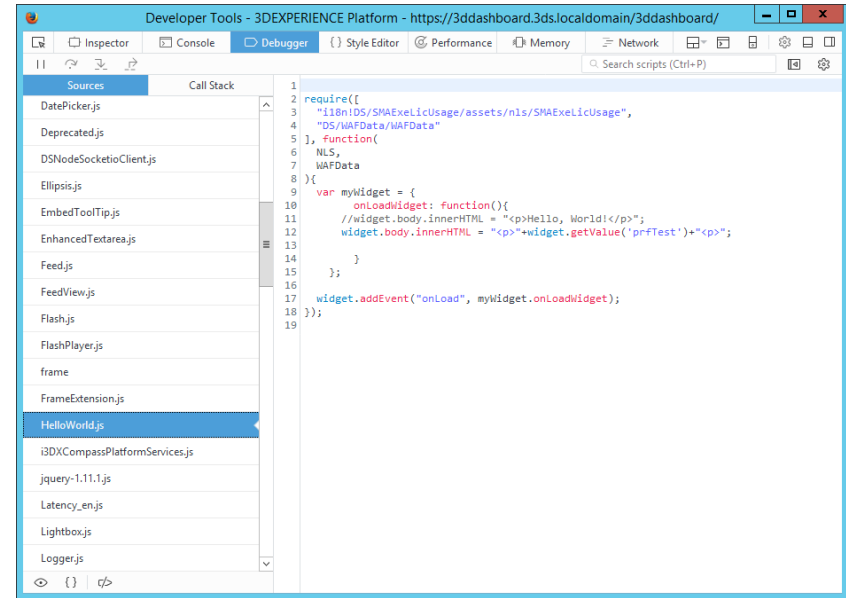
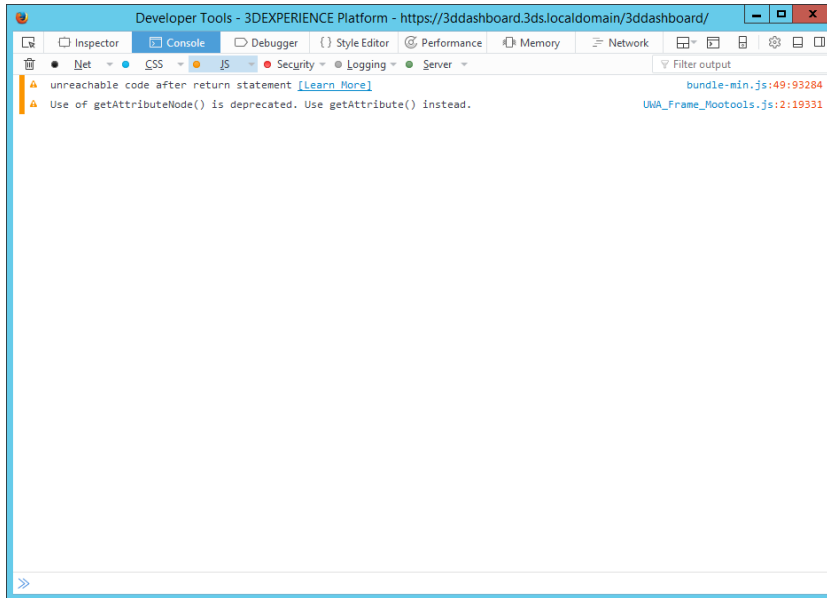


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Widget Debugging

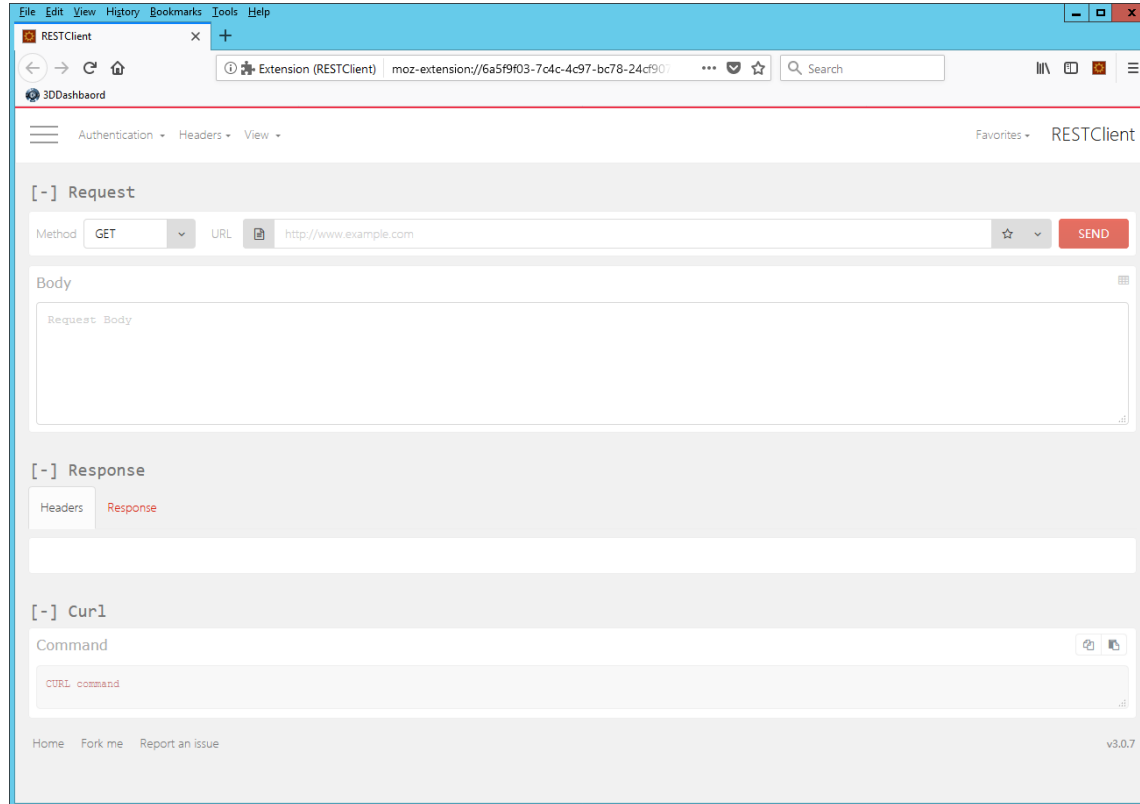
Tip : How to Debugging Widget?

► Web Browser (F12 key) developer tool :

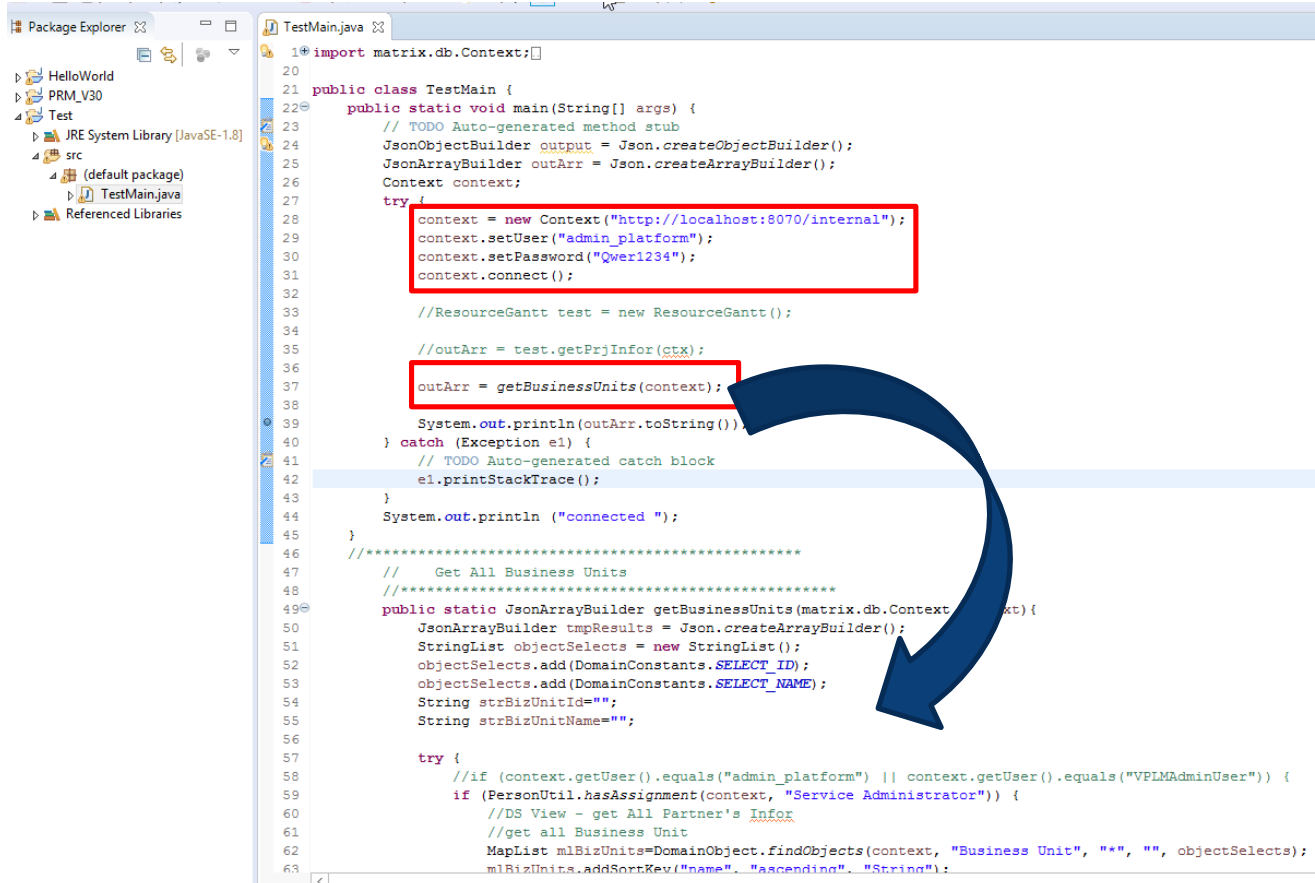


Tip : How to Debugging Widget?

► Rest Client (Extension Program)



Tip : How to Debugging Widget?



```
1+ import matrix.db.Context;
20
21 public class TestMain {
22     public static void main(String[] args) {
23         // TODO Auto-generated method stub
24         JsonObjectBuilder outObj = Json.createObjectBuilder();
25         JsonArrayBuilder outArr = Json.createArrayBuilder();
26         Context context;
27         try {
28             context = new Context("http://localhost:8070/internal");
29             context.setUser("admin_platform");
30             context.setPassword("Qwer1234");
31             context.connect();
32
33             //ResourceGantt test = new ResourceGantt();
34
35             //outArr = test.getPrjInfor(ctx);
36
37             outArr = getBusinessUnits(context);
38
39             System.out.println(outArr.toString());
40         } catch (Exception e1) {
41             // TODO Auto-generated catch block
42             e1.printStackTrace();
43         }
44         System.out.println ("connected ");
45     }
46     //*****
47     // Get All Business Units
48     //*****
49     public static JsonArrayBuilder getBusinessUnits(matrix.db.Context context){
50         JsonArrayBuilder tmpResults = Json.createArrayBuilder();
51         StringList objectSelects = new StringList();
52         objectSelects.add(DomainConstants.SELECT_ID);
53         objectSelects.add(DomainConstants.SELECT_NAME);
54         String strBizUnitId="";
55         String strBizUnitName="";
56
57         try {
58             //if (context.getUser().equals("admin_platform") || context.getUser().equals("VPLMAdminUser")) {
59             if (PersonUtil.hasAssignment(context, "Service Administrator")) {
60                 //DS View - get All Partner's Infor
61                 //get all Business Unit
62                 MapList mBizUnits=DomainObject.findObjects(context, "Business Unit", "", "", objectSelects);
63                 mBizUnits.addSortKey("Name", "ascending", "String");
```




Widget Reference

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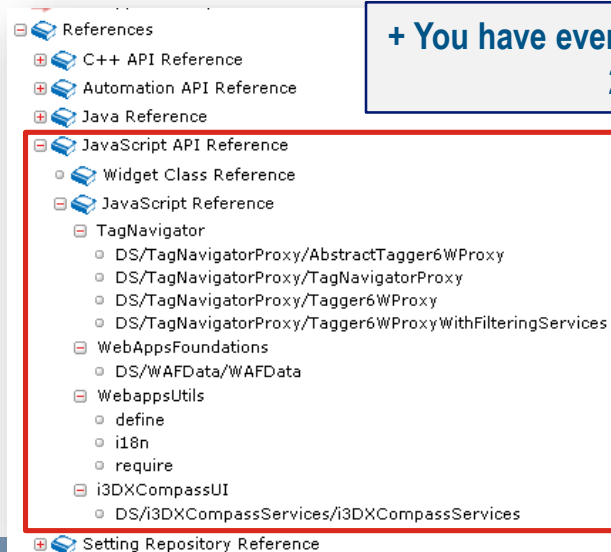
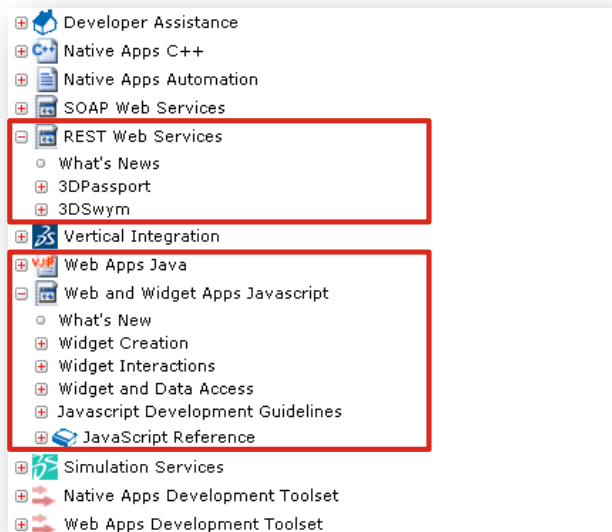
Where ?

#1 Source of Information

► Dsdoc:

▷ In the CAA documentation :

- <http://dsdoc/devdoc/3DEXPERIENCER2018x/en/DSInternalDoc.htm> (Internal View)
- <http://dsdoc/devdoccaa/3DEXPERIENCER2018x/en/DSDoc.htm> (Customer View)



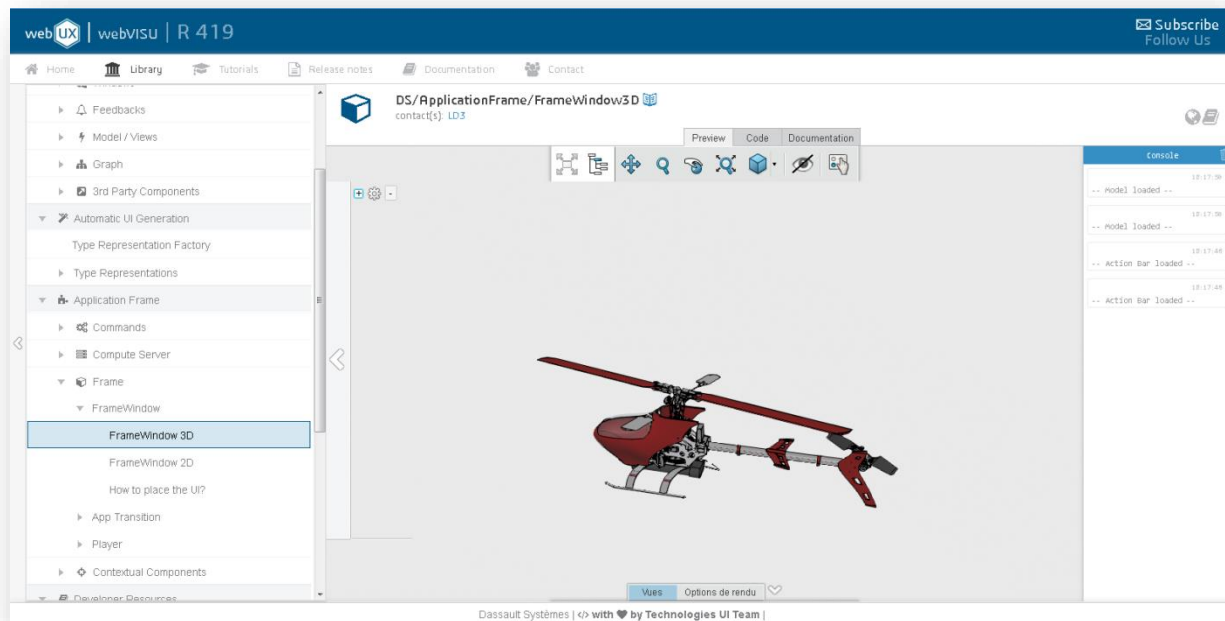
+ You have even more information in the 2019x doc

Where ?

Internal Use : Not exposed for customers

► Web3DInfra components :

▷ <http://webux/r420/UIPortal/#r/420/>



Where ?

► Semantic UI

► <https://semantic-ui.com/elements/icon.html#user-actions>

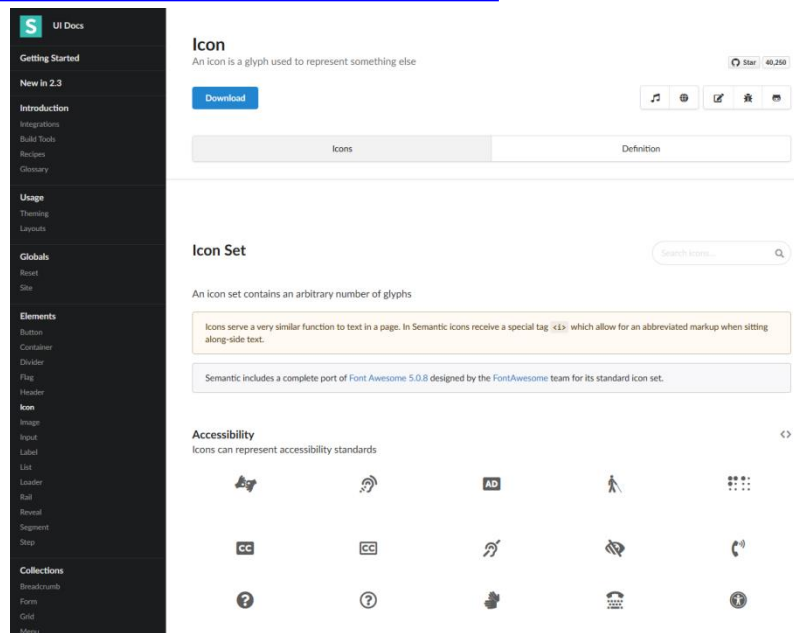
► MIT license

► A lot of UI Components

► Not a DS Lib at all

► Use it but no DS support

► We use it in BT WW Team



Where ?

► Swym :

▷ Communities for Widgets developers :

► 3DS Widget Factory:

▷ <https://dsext001-eu1-215dsi0708-3dswym.3dexperience.3ds.com/#community:1208/blog>

► UWA Dev:

▷ <https://dsext001-eu1-215dsi0708-3dswym.3dexperience.3ds.com/#community:908/blog>

► 3DExperience for developers: **have a look at the wiki : getting started guide**

▷ <https://dsext001-eu1-215dsi0708-3dswym.3dexperience.3ds.com/#community:740/blog>

▷ Posts of Mounir KEBLI (on WW Technical Sales Community):

► REST WS example:

▷ <https://dsext001-eu1-215dsi0708-3dswym.3dexperience.3ds.com/#community:268/post:108293>

► TechExp June 2015 Widget Dev Introduction:

▷ <https://dsext001-eu1-215dsi0708-3dswym.3dexperience.3ds.com/#community:268/post:118775>

Where ?

- ▶ Tutorials on the Web for HTML5, Javascript, CSS
- ▶ Widget are developed using modules, to understand this design pattern, have a look at Require.js documentation:
 - ▷ <http://requirejs.org/>
 - ▷ Widgets are using the AMD design pattern (Asynchronous Module Definition)
- ▶ You can use **external JS Libraries** but be careful with eventual the license
 - ▷ + **Not supported by DS**
 - ▷ JQuery and JQuery UI are OK
 - ▷ **Highchart requires licenses for commercial use**
 - ▶ prefer using DS component instead (see W3DXComponents)
 - ▶ Contact the Legal Department for any question about licensing
 - ▶ **Don't forget to try the widget : Metrics Reader !**



Metrics Reader



Automation of Add Third Party App

- ▶ The 3DCompass Web Services are documented :
 - ▷ Use the “Add Third Party App” Web service to automate the addition of your Web Services via script
 - ▷ Use the “List Third Party App” Web service to retrieve the id of the Apps
 - ▷ Use the “Edit Third Party App” Web service to update the existing Apps
 - ▷ Script / small application need to be written
 - ▷ You will need to manage the **Authentication** through **3DPassport** as a **dmin** before being able to contact the Web Service in your script

- Developer Assistance
 - Native Apps C++
 - Native Apps Automation
 - SOAP Web Services
 - REST Web Services
 - Vertical Integration
 - Web Apps Java
 - Dashboard Apps JavaScript
 - Simulation Services
 - Native Apps Development Toolset
 - Web Apps Development Toolset
- References
 - C++ API Reference
 - Automation API Reference
 - Java Reference
 - REST Web Service Reference
 - 3DPassport
 - 3DSwym
 - 3DSpace
 - 3DCompass**
 - Third Party App Definition
 - Get Third Party App
 - List Third Party Apps
 - Add Third Party App
 - Edit Third Party App
 - Delete Third Party App
 - JavaScript API Reference
 - Setting Repository Reference





Ajax?

Location 객체

Navigator 객체

창 제어

DOM

제어 대상을 찾기

jQuery

제어 대상을 찾기 (jQuery)

HTMLElement

HTMLCollection

jQuery 객체

Element 객체

식별자 API

조회 API

속성 API

jQuery 속성 제어 API

jQuery 조회 범위 제한

Node 객체

Node 관계 API

노드 종류 API

노드 변경 API

jQuery 노드 변경 API

Ajax (1/3) 소개

<http://opentutorials.org/module/904>

JavaScript For Web Browser

4:55

웹브라우저는 대단히 정적인 시스템이었다. 내용이 바뀌면 페이지 새로고침을 해서 내용을 새롭게 변경해야 했다. 이것은 웹이 전자 문서를 염두에 두고 고안된 시스템이기 때문에 당연하게 생각 되었다.

그러다 Ajax 개념이 도입되면서 모든 것이 바뀌었다. Ajax는 웹브라우저와 웹서버가 내부적으로 데이터 통신을 하게 된다. 그리고 변경된 결과를 웹페이지에 프로그래밍적으로 반영함으로써 웹페이지의 로딩 없이 서비스를 사용할 수 있게 한다.

Ajax는 Asynchronous JavaScript and XML의 약자다. 한국어로는 비동기적 자바스크립트와 XML 정도로 직역할 수 있는데 자바스크립트를 이용해서 비동기적으로 서버와 브라우저가 데이터를 주고 받는 방식을 의미한다. 이 때 사용하는 API가 XMLHttpRequest이다. 그렇다고 꼭 XML을 사용해서 통신해야 하는 것은 아니다. 사실 XML 보다는 JSON을 더 많이 사용한다.

IE5.6에서는 XMLHttpRequest 객체 대신 ActiveXObject("Msxml2.XMLHTTP.6.0")을 사용해야 한다. 여기서는 다루지 않는다.

<https://opentutorials.org/course/1375/6843>

JSON?

JSON - 생필코딩 x

안전함 | <https://opentutorials.org/course/1375/6844>

HTML에서 JavaScript 로드하기

Object Model

BOM

- 전역객체 Window
- 사용자와 커뮤니케이션 하기
- Location 객체
- Navigator 객체
- 창 제어

DOM

- 제어 대상을 찾기
- jQuery
- 제어 대상을 찾기 (jQuery)
- HTMLElement
- HTMLCollection
- jQuery 객체
- Element 객체
 - 식별자 API
 - 조회 API
 - 속성 API
- iQuery: 조회 범위 제한

JavaScript - JSON (1/4) : 소개

JSON (1/4)
소개

<http://opentutorials.org/module/904>

JavaScript
For Web Browser

4:18

JSON이란?

JSON(JavaScript Object Notation)의 약자로 JavaScript에서 객체를 만들 때 사용하는 표현식을 의미한다. 이 표현식은 사람도 이해하기 쉽고 기계도 이해하기 쉬우면서 데이터의 용량이 작다. 이런 이유로 최근에는 JSON이 XML을 대체해서 설정의 저장이나 데이터를 전송등에 많이 사용된다. JSON에 대한 자세한 내용은 아래 JSON의 공식홈페이지를 참조한다.

<http://www.json.org/json-ko.html>

<https://opentutorials.org/course/1375/6844>

JSONP?

자바스크립트 예제로 살펴보는 JSONP의 기본원리

JSONP는 한 웹페이지에서 도메인이 다른 웹페이지로 데이터를 요청할 때 사용하는 자바스크립트 개발 방법론입니다.

기본적으로 웹 브라우저는 도메인이 다른 웹 페이지로는 Ajax 등의 방법으로 접근하지 못하게 제한하고 있는데, 이것을 **동일출처원칙(Same-origin policy)**이라고 합니다. 그러나 실무에서는 부득이 다른 도메인에 연결된 서버로 데이터를 요청해야만 하는 상황을 만나게 됩니다. JSONP는 바로 이러한 경우에 동일출처원칙을 회피하는 일종의 편법입니다.

JSONP는 동일출처원칙을 회피하기 위해 `<script>` 요소를 이용합니다. 본래 자바스크립트에서는 Ajax를 비롯한 어떠한 방법으로도 직접 다른 도메인의 웹페이지로 데이터를 요청할 수 없습니다. 그러나 `<script>` 요소는 도메인이 다른 스크립트 파일이라 하더라도 임베드할 수 있기 때문에, 이 성질을 이용하는 것입니다.

국내 웹에서 JSONP에 대해 검색을 하면, jQuery를 사용하여 간편하게 JSONP를 구현한 방법을 소개하는 포스팅이 주류를 이루고 있습니다. 이 방법은 Ajax를 구현할 때와 유사한 방식으로 쉽고 간편하게 JSONP를 구현할 수 있게 해주지만, 한편으로는 JSONP의 기본원리에 대해서는 소홀하게 만드는 양면성을 가지고 있습니다.

금번 포스팅에서는 JSONP의 기본원리를 설명하기 위하여, 순수 자바스크립트로 JSONP를 구현한 예제코드를 소개합니다. 또한 Ajax와의 비교를 통해 JSONP의 효용과 한계에 대해서 짚어볼 것입니다. 마지막으로 실무에서 활용하기 좋은 jQuery에서의 JSONP 구현방법까지 살펴보고 나면 글을 마치게 될 것입니다.

- Notice
- Web Development
 - PHP
 - jQuery
 - Django / Python
 - Javascript
 - CSS
 - HTML5
 - HTML
- Data Mining
 - R
- NoSQL
 - MongoDB
- Essay
 - Inspection Report
 - IT Service

RSS / Links

- RSS Feed
- Epiloum Widget (개발도구모음)

새로운 글

- 쿼트로 풀어보는 CSS z-index 속성의 3가지 포인트

<http://dev.epiloum.net/1311>