



IBM Software Group

# IBM WebSphere Transformation Extender for the Absolute Beginner

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WebSphere® Support Technical Exchange



# Agenda

- Concepts
  - ▶ Any to Any Transformation
  - ▶ Execution Options
  - ▶ Execution Platforms
- Terminology
- The Eclipse Designer
- First Mappings
  - ▶ First Typetree
  - ▶ First Map
  - ▶ Second Map
- Summary
- Further reading
- Q & A



# Concepts – Any to Any Transformation

- WTX takes any kind of data as input...
  - ▶ XML
  - ▶ EDI
  - ▶ IDoc
  - ▶ ...etc
- ...and using no coding, both simple and complex transformations can be made....
- ....then output as the target data type.



# Concepts – Execution Options

- WTX maps can be executed in a number of ways:
  - ▶ Command Server
  - ▶ Launcher
  - ▶ WebSphere® Message Broker Node
  - ▶ API
  - ▶ Web Service
  - ▶ DataPower® Web Appliance
  - ▶ WebSphere® Application Server / WebSphere® Process Server

A common transformation engine...

...multiple deployment options



# Concepts – Execution Platforms

- WTX maps can be executed on a diverse range of architectures:
  - ▶ Windows®
  - ▶ Unix® (AIX, Solaris, HP-UX, Itanium) \*\*
  - ▶ Linux® \*\*
  - ▶ z/OS (Batch, IMS SDK, CICS)
  - ▶ z/OS USS \*\*

\*\* 32 and 64 bit availability

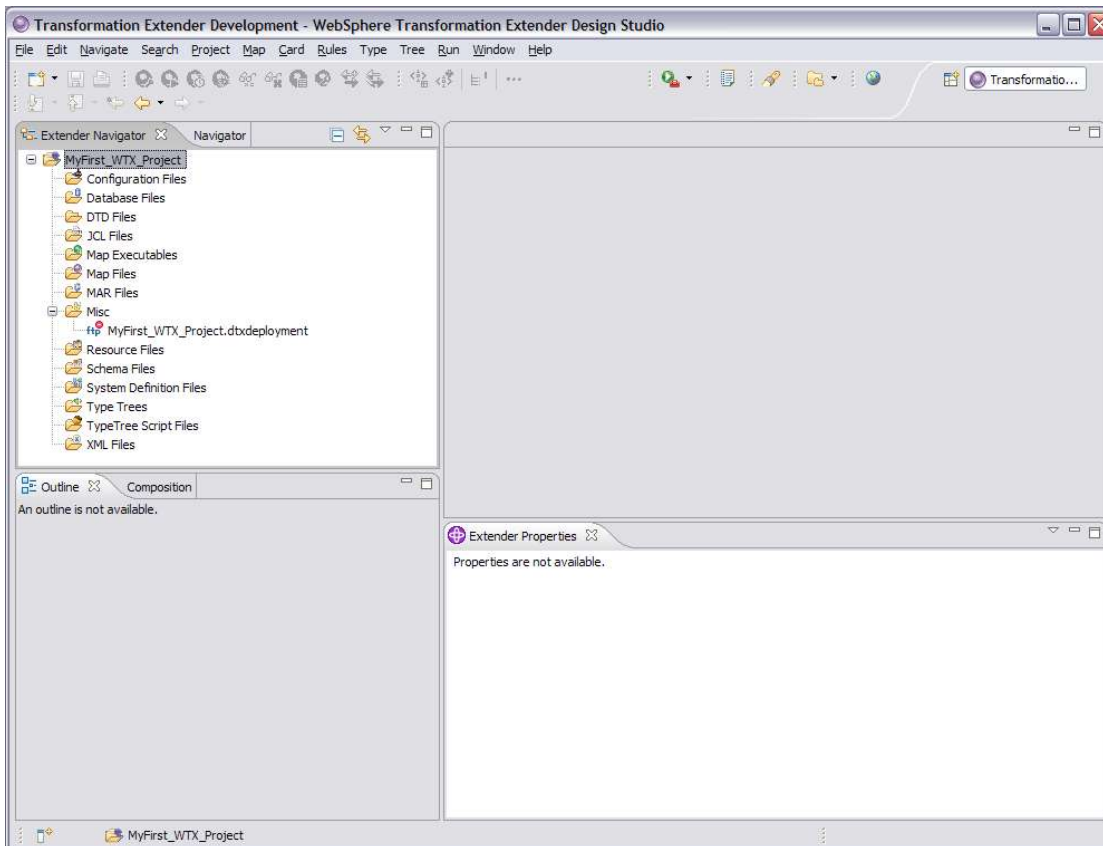


# Terminology

- Data -> Typetree Objects
  - ▶ Variables (Programming)
  - ▶ Cabinets, Draws, Pockets
- Business Rule -> Mapping
  - ▶ Program
    - Functional Maps = Subroutines
  - ▶ Filing clerk

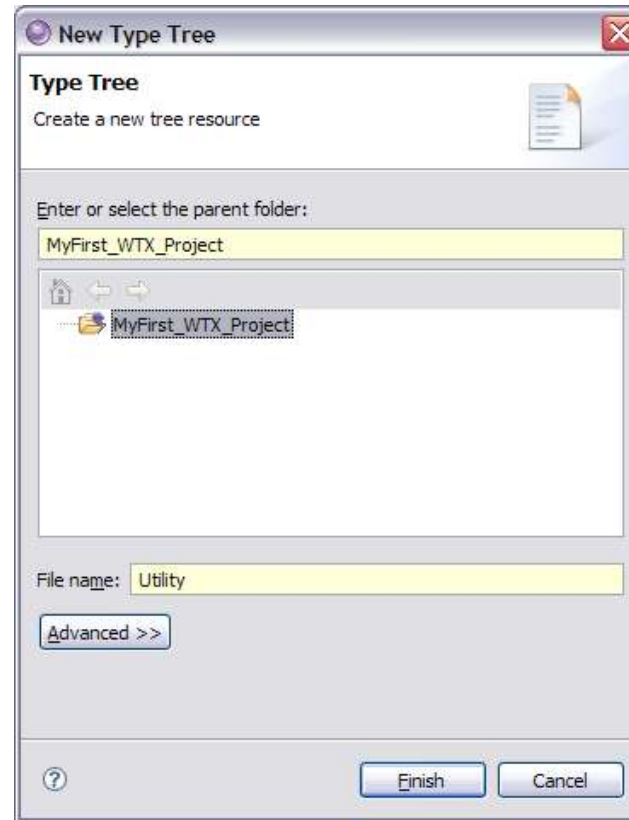
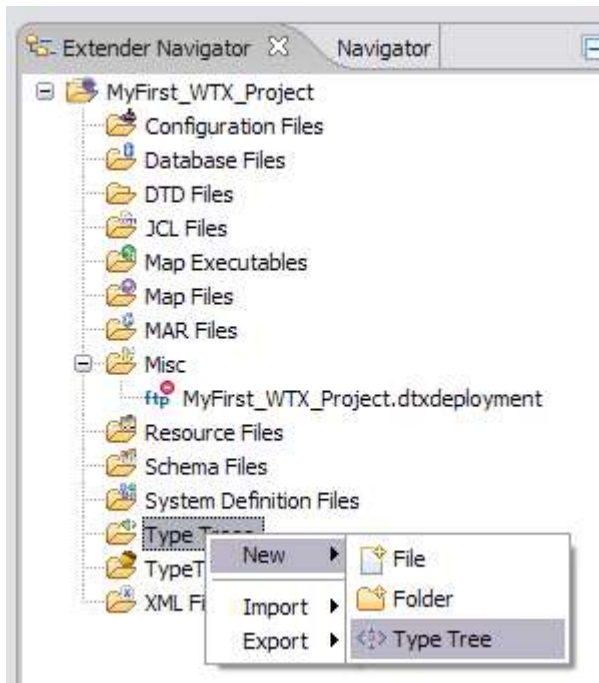


# The Eclipse Designer



A java based,  
standardised, open-  
source design  
environment

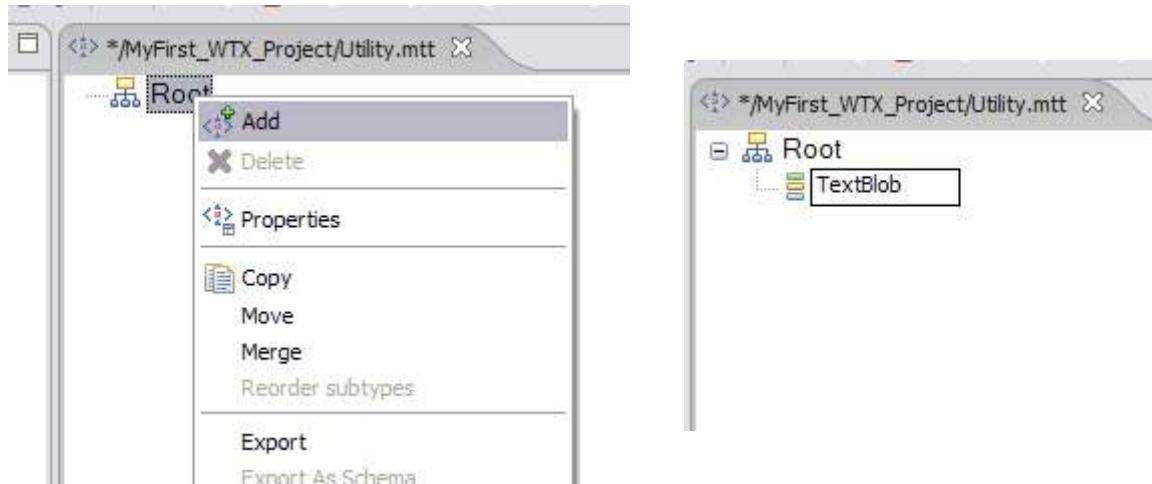
# First Mapping – First Typetree



A right-click on the Typetree branch of the project tree to start the creation of a new typetree.



# First Mapping – First Typetree

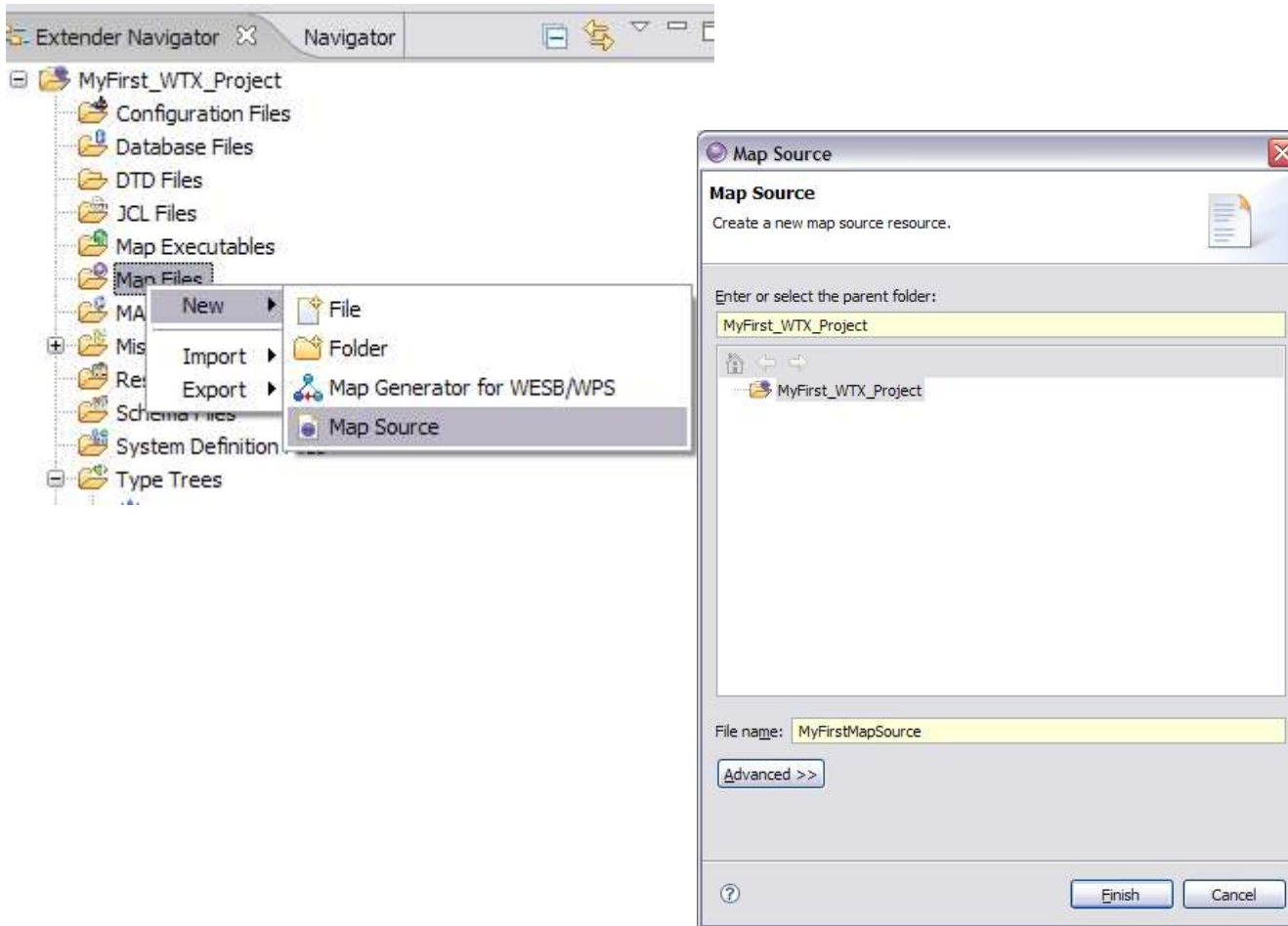


Right-click on the Root object, and choose Add to create a new object.



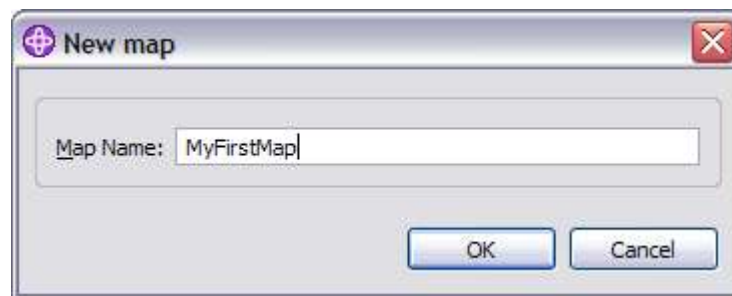
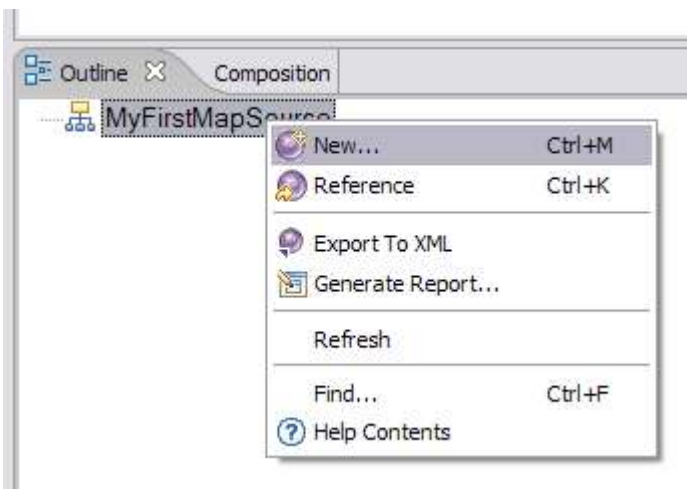
Change the object Class from Category to Item

# First Mapping – First Map



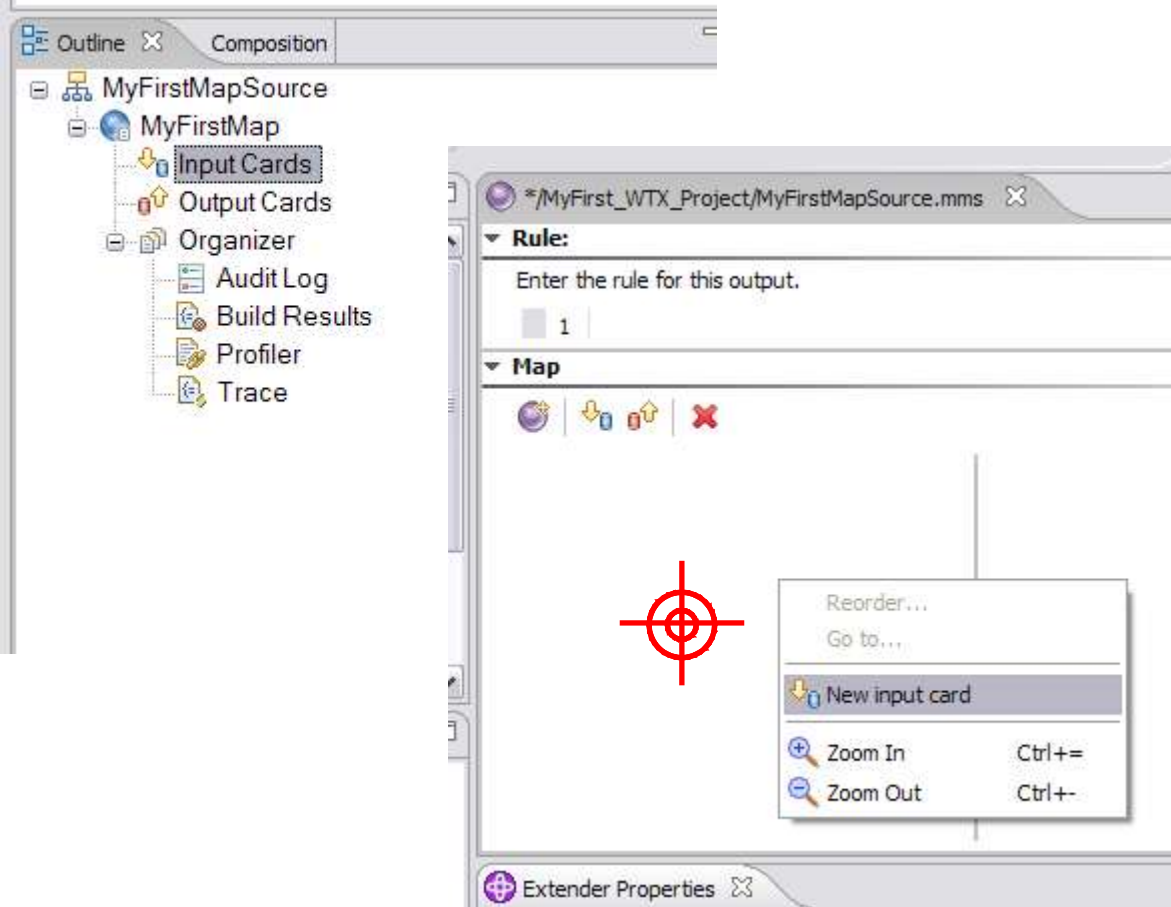
A right-click on the Map branch of the project tree to start the creation of a new Map Source.

# First Mapping – First Map



A right-click on the top-level object in the Outline window will allow the creation of a new map.

# First Mapping – First Map



Expand the outline view.

Add an input card.

# First Mapping – First Map



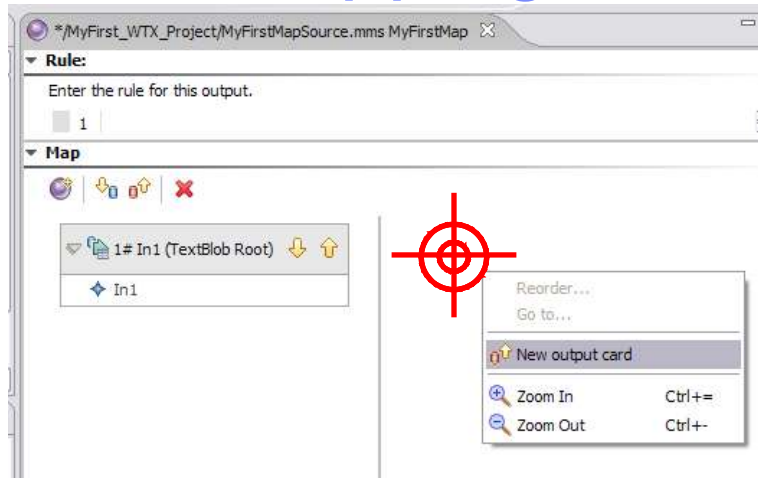
Name the card.

Choose the Typetree.

Choose the Typetree Object.

Choose the input file.

# First Mapping – First Map

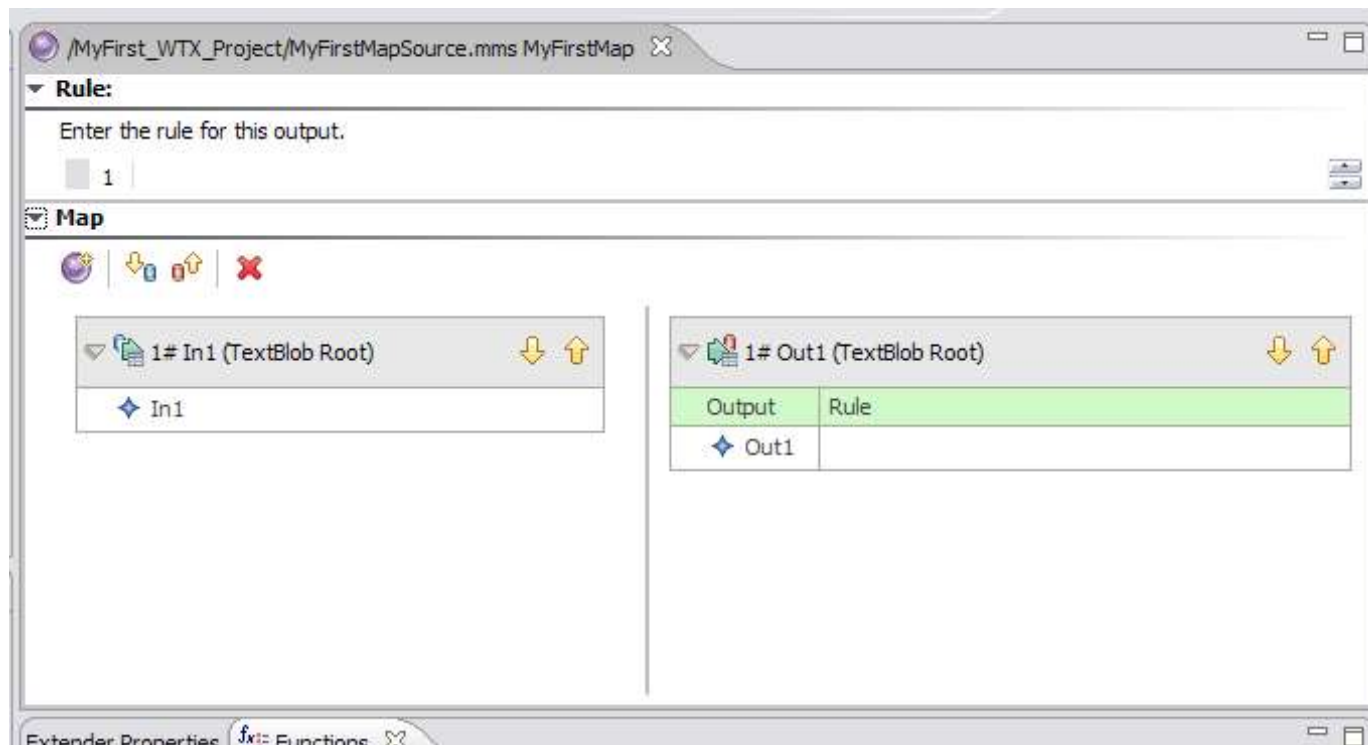


Now create an output card the same way.



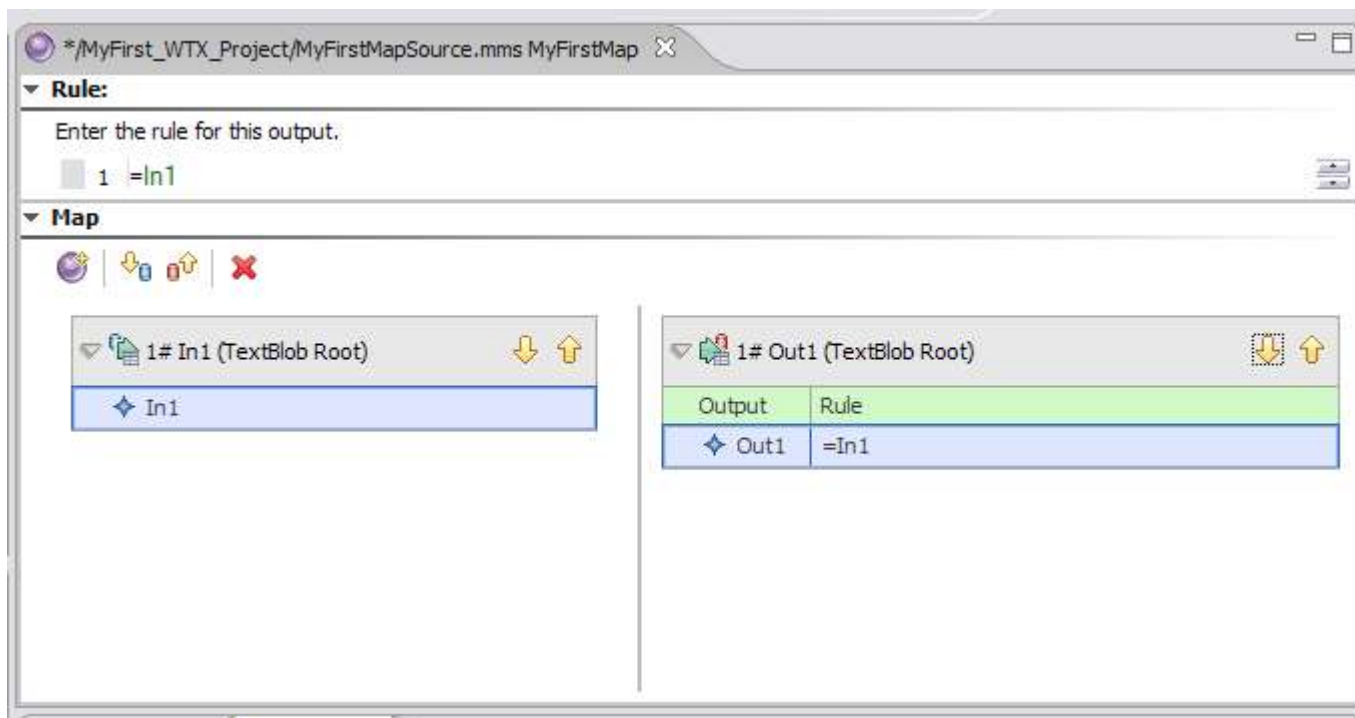
The cards must have unique names and in this case the output file is different to the input file.

# First Mapping – First Map



Your map design area should now look like this.

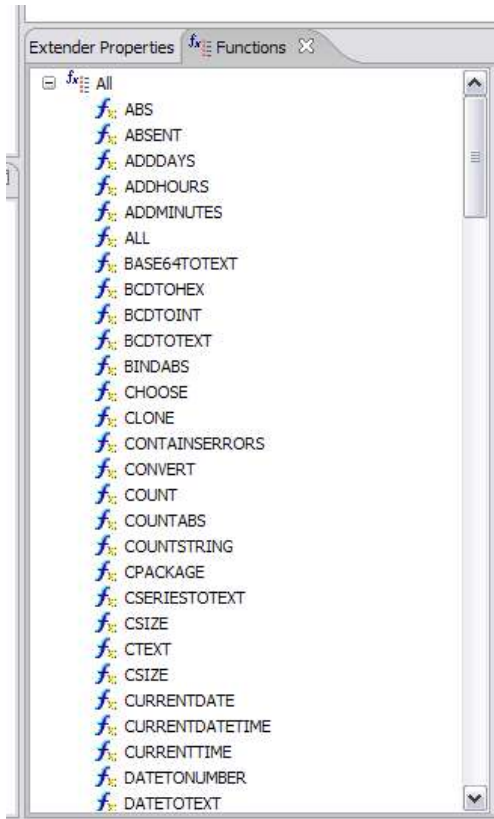
# First Mapping – First Map



Your completed map design area should now look like this.

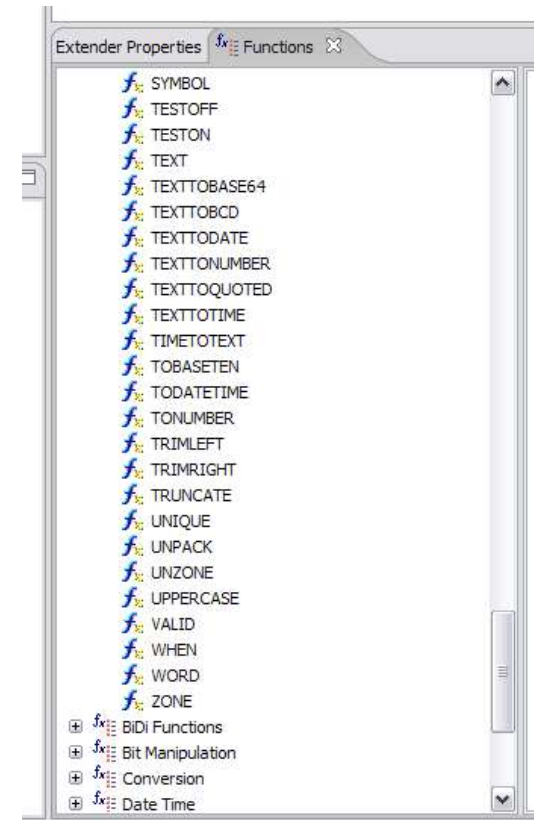


# First Mapping – First Map




The functions list box, with the 'All' category expanded.

The functions list box, with the 'UPPERCASE' function shown.

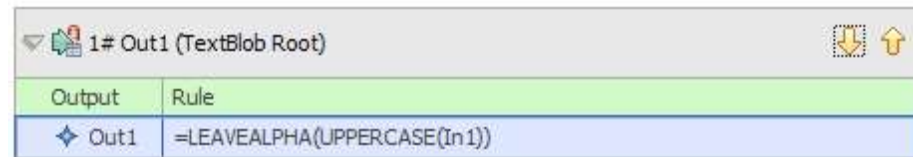


# First Mapping – First Map



Output	Rule
Out1	=UPPERCASE(In1)

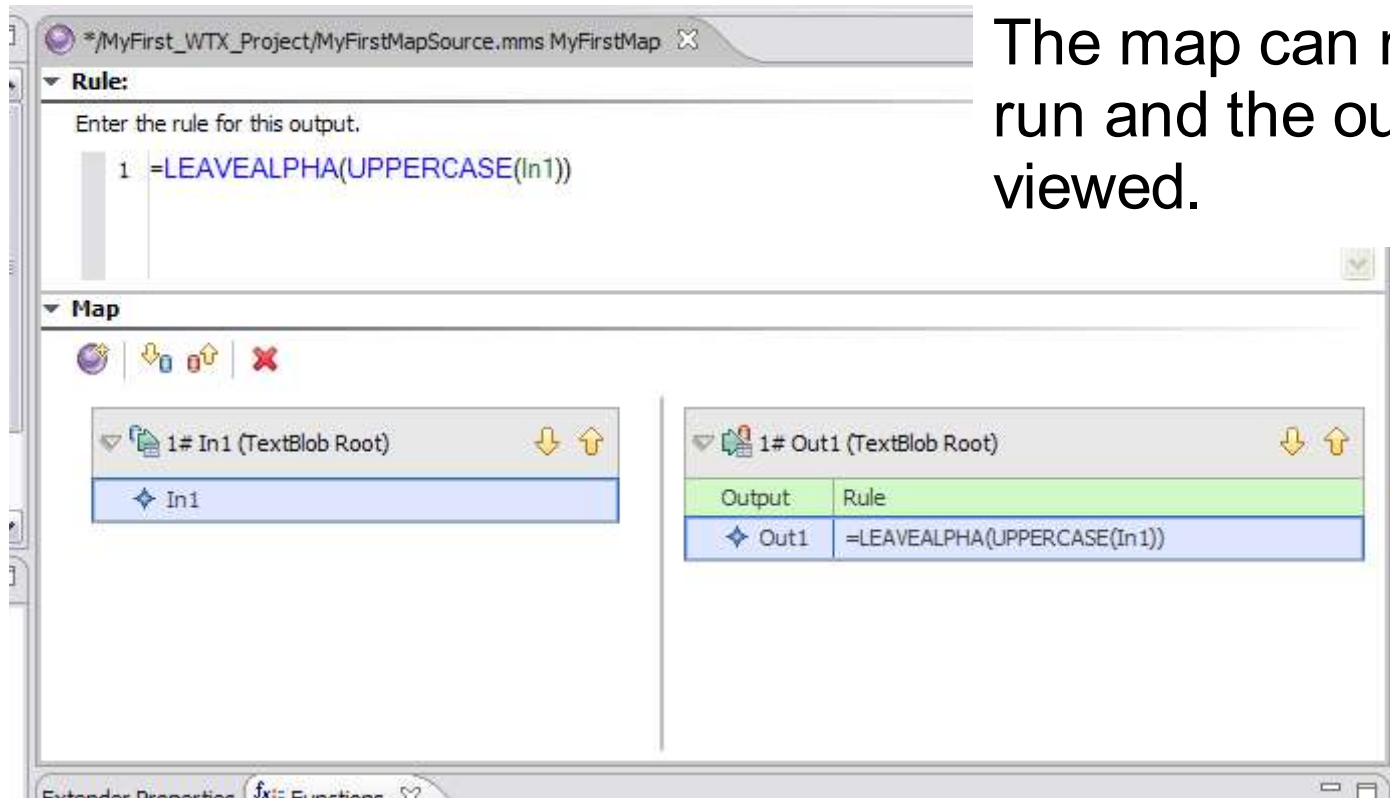
The function is added to the existing content



Output	Rule
Out1	=LEAVEALPHA(UPPERCASE(In1))

New functions added are compounded.

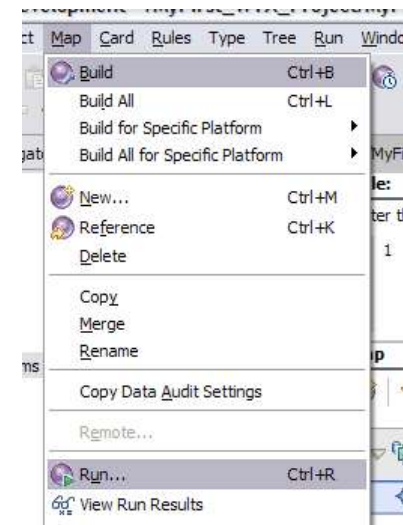
# First Mapping – First Map



The screenshot shows the IBM WebSphere Mapping Tool interface. The top section is titled "Rule:" and contains the text "Enter the rule for this output." followed by the rule definition: `1 =LEAVEALPHA(UPPERCASE(In1))`. Below this is the "Map" section, which displays a visual mapping diagram. On the left, there is an input node labeled "1# In1 (TextBlob Root)" with a sub-element "In1". On the right, there is an output node labeled "1# Out1 (TextBlob Root)". A table below the output node shows the mapping:

Output	Rule
Out1	=LEAVEALPHA(UPPERCASE(In1))

The map can now be run and the output viewed.



The screenshot shows a context menu for the mapping tool. The menu items are:

- Build (Ctrl+B)
- Build All (Ctrl+L)
- Build for Specific Platform
- Build All for Specific Platform
- New... (Ctrl+M)
- Reference (Ctrl+K)
- Delete
- Copy
- Merge
- Rename
- Copy Data Audit Settings
- Remote...
- Run... (Ctrl+R)
- View Run Results

# First Mapping – First Map

The screenshot displays the IBM WebSphere Transformation Studio interface. The main window shows a mapping rule configuration for a source file named `MyFirstMapSource.mms`. The rule is defined as `=LEAVEALPHA(UPPERCASE(In1))`. The mapping table shows a single row where the input `In1` is mapped to the output `Out1` using the same rule.

Below the mapping table, the execution results are shown in three panels:

- Input.txt:** Contains the text `Hello World!`.
- Output.txt:** Contains the transformed text `HELLOWORLD`.

Output	Rule
Out1	=LEAVEALPHA(UPPERCASE

# First Mapping – Second Map

The screenshot displays the IBM Business Process Manager interface for configuring a rule. The main window is titled "/MySecond\_WTX\_Project/StaffCalculations.mms SalaryPerDepartment".

**Rule Configuration:**

- Rule:** Enter the rule for this output. The rule editor contains the number "1".
- Map:**
  - Input 1# Departments (Departments root):**
    - Departments
    - Department (s)
      - Number Fields
      - Name Fields
  - Input 2# Employees (Employees root):**
    - Employees
    - Employee (s)
      - Number Fields
      - Department Fields
      - Name Fields
      - Salary Fields

**Output Mapping Table:**

Output	Rule
1# SalaryPerDepartment (Departments root)	
SalaryPerDepartment	
Department (s)	
Name Fields	
Salary Fields	

**Employees.txt:**

```
1001,5,John Smith,35000
1005,8,Henry Jones,28000
1017,10,Jane Doe,18000
1029,20,Ray Baines,19000
1032,20,Patrick Charles,17500
1037,20,Martin o'Connor,21000
1052,35,Paul Lettuce,16200
```

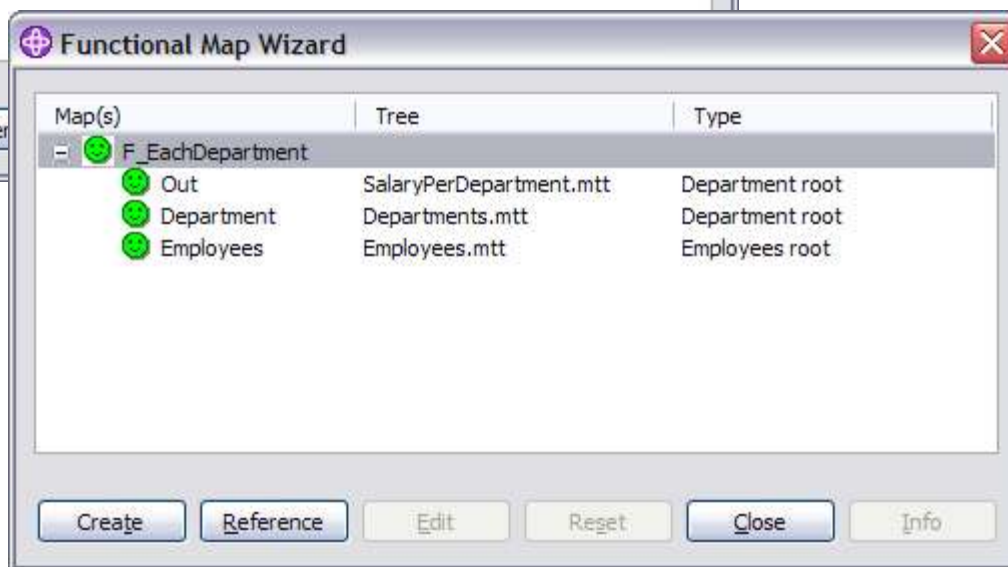
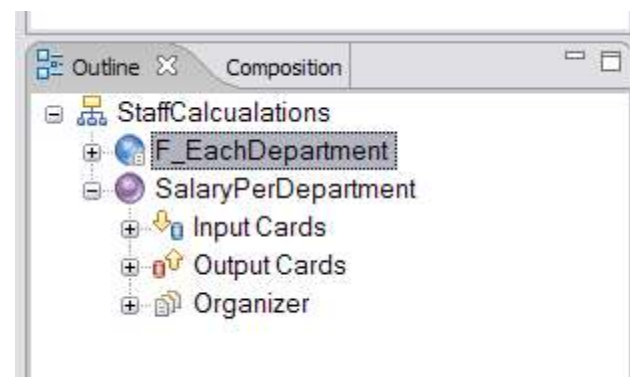
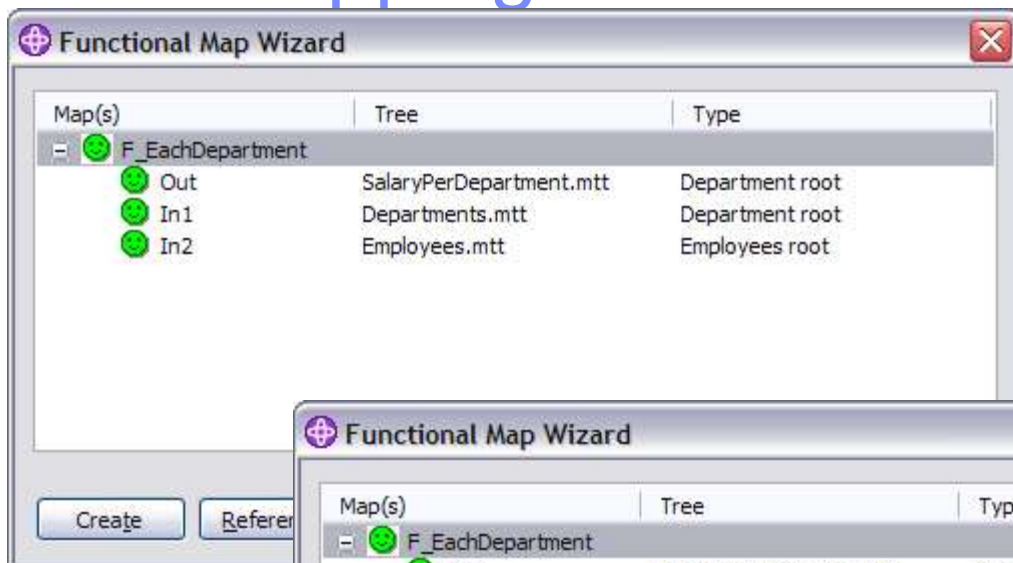
**Departments.txt:**

```
5,Directors
8,Middle Management
10,Personnel
20,Sales
35,Support
```

# First Mapping – Second Map

The screenshot displays the IBM Business Process Manager interface for configuring a rule. The main window title is `*/MySecond_WTX_Project/StaffCalculations.mms SalaryPerDepartment`. The **Rule** section contains the text: `1 =F_EachDepartment(Department:Departments,Employees)`. Below the rule, the **Map** section shows a tree view of the process. The tree is expanded to show the `1# SalaryPerDepartment (Departments root)` node, which contains an `Output` node and a `SalaryPerDepartment` node. The `SalaryPerDepartment` node is expanded to show its children: `Department (s)`, `Name Fields`, and `Salary Fields`. The `Department (s)` node is selected, and its rule is shown as `=F_EachDepartment(Department:Departments,Employees)`. A context menu is open over the rule, showing options such as `Open Type Tree...`, `Functional Map Wizard...`, `Add Breakpoint`, `Delete Breakpoint`, `Delete All Breakpoints`, `Show Breakpoints`, `Show Rule Properties...`, `Where Used`, `Show in Properties`, `Zoom In` (Ctrl+=), and `Zoom Out` (Ctrl+-). The `Department:SalaryPerDepartment` path is highlighted in the map view.

# First Mapping – Second Map



# First Mapping – Second Map

\*/MySecond\_WTX\_Project/StaffCalculations.mms F\_EachDepartment

**Rule:**

Enter the rule for this output.

1

**Map**

2# Employees (Employees root)

- Employees
  - Employee (s)
    - Number Fields
    - Department Fields
    - Name Fields
    - Salary Fields

1# Department (Department root)

- Department
  - Number Fields
  - Name Fields

1# Out (Department root)

Output	Rule
Out	
◆ Name Fields	
◆ Salary Fields	



# First Mapping – Second Map

Transformation Extender Development - /MySecond\_WTX\_Project/StaffCalculations.mms EachDepartment - WebSphere Tr...

File Edit Navigate Search Project Map Card Rules Type Tree Run Window Help

\*/MySecond\_WTX\_Project/StaffCalculations.mms EachDepartment

**Rule:**

Enter the rule for this output.

```
1 =SUM(EXTRACT(Salary Fields:Employee:Employees,Department Fields:Employee:Employee=Number Fields:Department))
```

**Map**

1# Department (Department root)

- Department
  - Number Fields
  - Name Fields

2# Employees (Employees root)

- Employees
  - Employee (s)
    - Number Fields
    - Department Fields
    - Name Fields
    - Salary Fields

1# Out (Department root)

Output	Rule
Out	
<ul style="list-style-type: none"> <li>Name Fields</li> </ul>	=Name Fields:Department
<ul style="list-style-type: none"> <li>Salary Fields</li> </ul>	=SUM(EXTRACT(Salary Fields:Employee:Employees,Department Fields:...

# First Mapping – Second Map

The screenshot displays the IBM Business Process Manager interface for configuring a rule. The main window is titled "/MySecond\_WTX\_Project/StaffCalculations.mms SalaryPerDepartment".

**Rule Configuration:**

- Rule:** Enter the rule for this output. The value "1" is entered in the text area.
- Map:**
  - 1# Departments (Departments root):**
    - Departments
    - Department (s)
      - Number Fields
      - Name Fields
  - 2# Employees (Employees root):**
    - Employees
    - Employee (s)
      - Number Fields
      - Department Fields
      - Name Fields
      - Salary Fields

**Output Rule Table:**

Output	Rule
SalaryPerDepartment	
Department (s)	=EachDepartment(Department:Depart
Name Fields	
Salary Fields	

**Input Data Files:**

- Departments.txt:**

```
5,Directors
8,Middle Management
10,Personnel
20,Sales
35,Support
```
- Employees.txt:**

```
1001,5,John Smith,35000
1005,8,Henry Jones,28000
1017,10,Jane Doe,18000
1029,20,Ray Baines,19000
1032,20,Patrick Charles,17500
1037,20,Martin o'Connor,21000
1052,35,Paul Lettuce,16200
```
- SalaryPerDepartment.txt:**

```
Directors,35000
Middle Management,28000
Personnel,18000
Sales,57500
Support,16200
```

# Summary

- As mentioned and demonstrated, WTX takes any kind of data as input
- Using no coding, I have shown some simple transformations that can be made with very little effort
- Using a step-by-step approach, and an understanding of your input data and output data requirements, mapping can be easy.



# Additional WebSphere Product Resources

- Discover the latest trends in WebSphere Technology and implementation, participate in technically-focused briefings, webcasts and podcasts at: <http://www.ibm.com/developerworks/websphere/community/>
- Learn about other upcoming webcasts, conferences and events: [http://www.ibm.com/software/websphere/events\\_1.html](http://www.ibm.com/software/websphere/events_1.html)
- Join the Global WebSphere User Group Community: <http://www.websphere.org>
- Access key product show-me demos and tutorials by visiting IBM Education Assistant: <http://www.ibm.com/software/info/education/assistant>
- View a Flash replay with step-by-step instructions for using the Electronic Service Request (ESR) tool for submitting problems electronically: <http://www.ibm.com/software/websphere/support/d2w.html>
- Sign up to receive weekly technical My Notifications emails: <http://www.ibm.com/software/support/einfo.html>



# IBM Support Wants to Hear From You!

## Tell us about your support needs and wants

1. Visit any product support pages on IBM.com.
2. Click on “Participate in Questionnaire” on top right of page.
3. Takes 5-10 minutes to complete.



The screenshot shows the IBM WebSphere support page. The page title is "WebSphere support" and the sub-page is "Overview". The main content area includes a "Choose from one of the following WebSphere products:" section with a "Select a category" dropdown menu. Below that is a "Search WebSphere support" section with a search bar. On the right side, there is a "Building client-focused electronic support" section with a red arrow pointing to a "Participate in questionnaire" link. The page also features a navigation menu on the left and a "Stay informed" section at the bottom right.

Or go to [https://www.ibm.com/survey/oid/wsb.dll/s/ag21f?wsb34=swg\\_user](https://www.ibm.com/survey/oid/wsb.dll/s/ag21f?wsb34=swg_user)

# Questions and Answers

