

**IBM Cognos TM1:  
Design and Develop Models (v9.5)**  
Instructor Guide Volume 2  
**CourseCode: P6502**

*IBM® Cognos® TM1: Design and Develop  
Models (v9.5)*

P6502

ERC: 2.0

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**Information Management**



# **Using Rules for Advanced Modeling**

IBM Cognos TM1 9.5



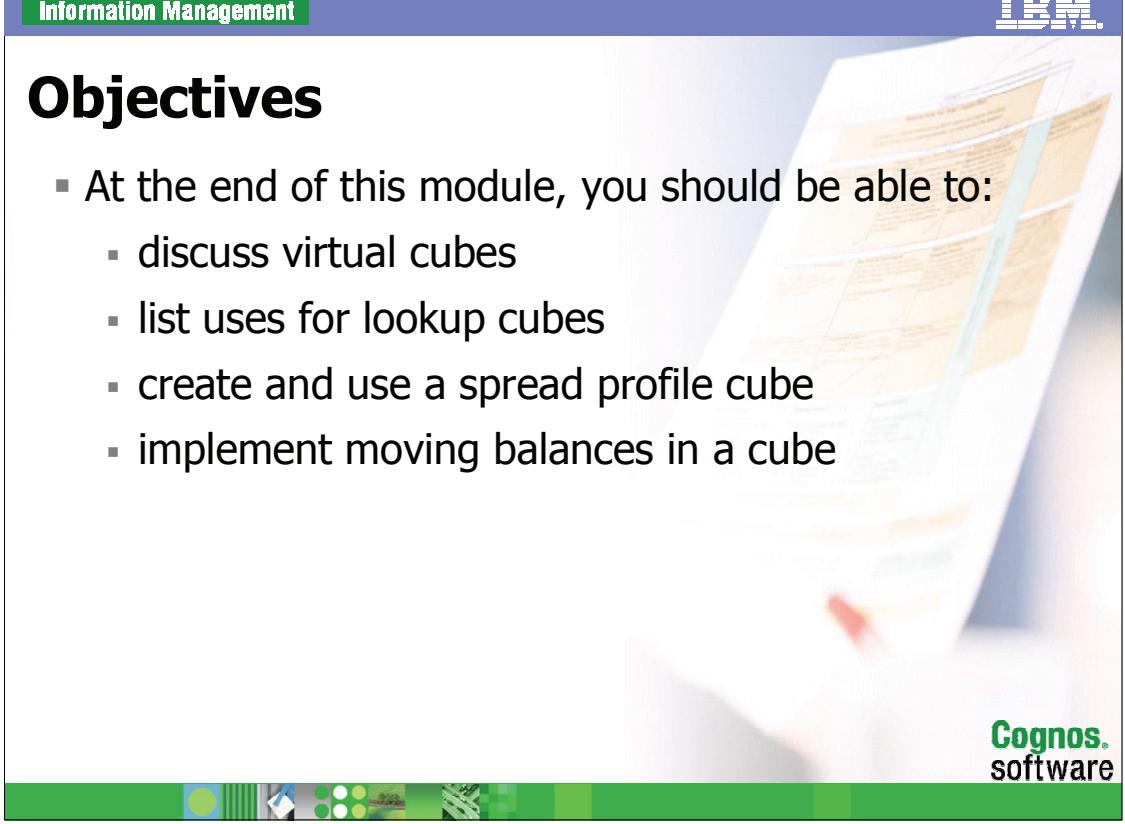
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# Objectives

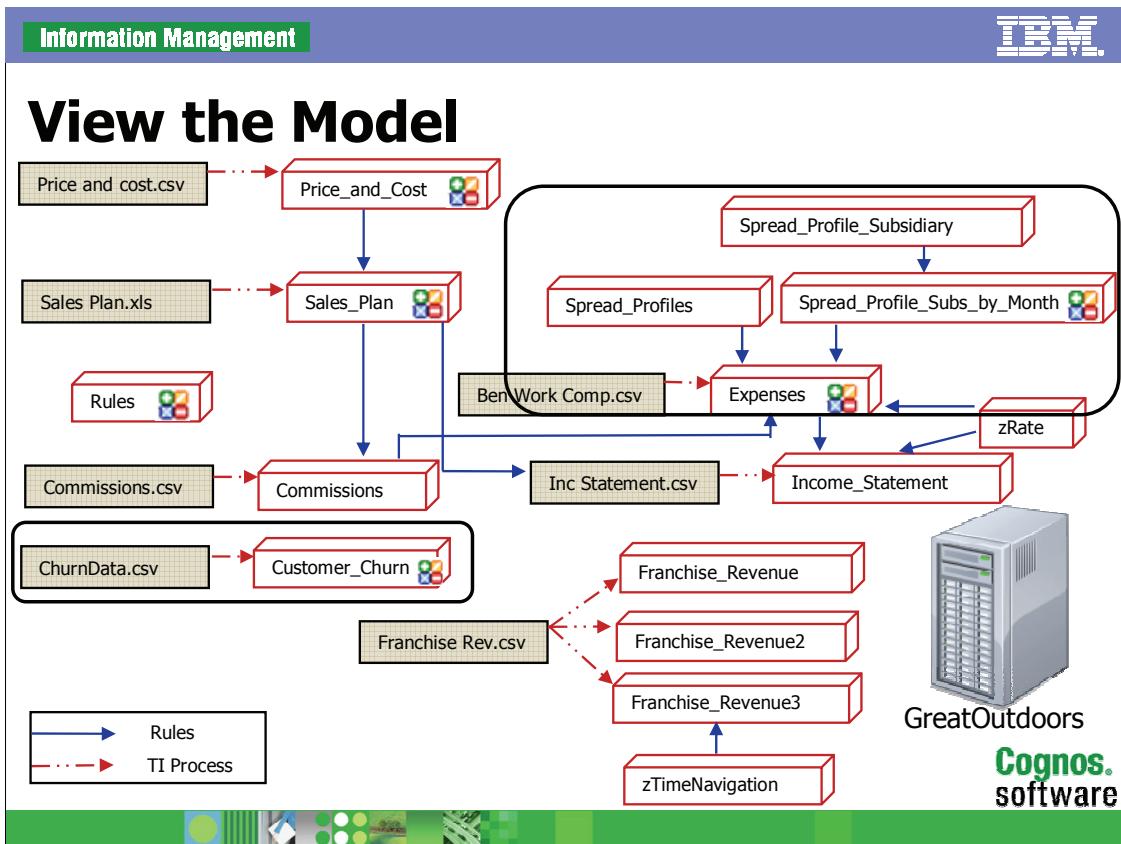
- At the end of this module, you should be able to:
  - discuss virtual cubes
  - list uses for lookup cubes
  - create and use a spread profile cube
  - implement moving balances in a cube



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**INTERACTION - Star Sticker:** Use a star next to each objective when discussing it



In this module, you will create the following new cubes:

- Spread\_Profiles
- Spread\_Profile\_Subsidy
- Spread\_Profile\_Subs\_by\_Month
- Expenses
- Customer\_Churn

## Discuss a Virtual Cube

- Virtual cubes:
  - are 100% driven by rules
  - do not store data
- Used for:
  - summary data or for reporting
  - rules in other cubes
    - instead of browsing the cube directly

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Virtual cubes are often given special names that identify them to the application developer.

You may wish to give the cube a prefix so it is sorted in the Server Explorer window with other virtual cubes.

Virtual cubes may be used simply to combine data from other cubes.

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Another example of a virtual cube is to summarize data. You may have a large cube with a lot of data. If others need to see similar data at a higher level or minus a dimension you might use a rule to pull over the data in real time.

**INTERACTION - Microphone:** Ask if anyone can think of other examples. Does anyone currently have any in existing models.

## Utilize a Lookup Cube

- Lookup cubes are used to:
  - 'lookup' data in one column
  - return corresponding data from another column
    - using a rule
- Not usually used for direct reporting or browsing
  - data may be manually input

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Lookup cubes may have a prefix such as:

- zCube
- lu\_Moving\_Balance

---

In Microsoft Excel, you might call them a lookup table.

**INTERACTION - Text Chat:** Ask for examples of lookup tables or cubes in models.

## Use Relative Spreading

- Use spreading to distribute data among cells
  - writes data back to the cubes
  - data is inserted into the leaf level cells
- Relative spread options
  - use other cubes' data patterns as a basis
  - must share a common dimension
    - between the source and target cubes



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## Use a Spread Profile Cube

- Create a lookup cube for the relative spread patterns
- It should contain a dimension that also exists in the target cube

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### Instructor Notes

For more information regarding spreading methods, please see the TM1 Users Guide - Module 5 Using Data Spreading.

## Demo 1: Create the Expenses Cube

### Purpose:

You need to create an Expenses cube. This cube will be populated in part by data from spreadsheets, rules and user input. Users will need to spread data in order to project some of the Overhead expenses into different regions.

### Task 1. Create the Expense dimension.

TM1 Server: **greatoutdoors**

TM1 Architect: **Server Explorer**

UserName: **admin**

Password: **<blank>**

1. Ensure that the greatoutdoors TM1 server is started in the task bar, and then launch **TM1 Architect: Server Explorer**.
2. Expand **TM1**, double-click **greatoutdoors**, in the **UserName** box, type **admin**, and then click **OK**.
3. Create a new Turbo Integrator process.

Source: **Text**

Data Source Name:

**C:\Edcognos\P6502\GreatOutdoors\SourceFiles\Expenses.csv**

4. Click **OK**, to close the warning and then click **Preview**.

The results in the Preview pane, should appear as follows:

V1	V2	V3
Salaries: direct	SALARIES	TOTAL COMPENSA
Salaries: indirect	SALARIES	TOTAL COMPENSA
Commission	SALARIES	TOTAL COMPENSA
Pension Plan %		
PENSION PLAN	BENEFITS	TOTAL COMPENSA
Social Security %		
SOCIAL SECURITY	BENEFITS	TOTAL COMPENSA
Health Insurance %		
HEALTH INSURAN	BENEFITS	TOTAL COMPENSA
Workers Compensat	BENEFITS	TOTAL COMPENSA

5. Click the **Variables** tab.
6. Rename the variables in the following order:
- **vExpenses**
  - **vExpenseCategory**
  - **vTotalExpenses**
7. Assign the **Contents** the following:
- **vExpenses = Element**
  - **vExpenseCategory = Consolidation**
  - **vTotalExpenses = Consolidation**

The result appears as follows:

Data Source	Variables	Maps	Advanced	Schedule
	Variable Name	Variable Type	Sample Value	Contents
1	<b>vExpenses</b>	String	▼ Salaries: direct	Element ▼
2	<b>vExpenseCategory</b>	String	▼ SALARIES	Consolidation ▼
3	<b>vTotalExpenses</b>	String	▼ TOTAL COMPENSATIO	Consolidation ▼

8. Click the **Maps** tab, and then click the **Dimensions** tab.
9. In the **Dimension** column, type **Expenses**, and then click **By Input**.
10. Click **Automatic**, click **Hierarchy**, and then click **OK** to close.

Cube	Dimensions	Data	Consolidations	Attributes				
Element Variable	Sample Value	Dimension	Order In Cube	Action	Element Type	Element Order		
vExpenses	Salaries: direct	Expenses ▾	▼	Create ▾	Numeric ▾	By Hierarchy		

11. Click the **Consolidations** tab, and then in the first row under **Child Variable**, select **vExpenses**.
12. In the second row under **Child Variable** select **vExpenseCategory**.

The result appears as follows:

Cube	Dimensions	Data	Consolidations	Attributes				
Cons. Variable	Dimension	Child Variable	Weight	Sample Value	Component Order			
vExpenseCategory	Expenses ►	vExpenses ►	1.000000	SALARIES	By Input			
vTotalExpenses	Expenses ►	vExpenseCategory ►	1.000000	TOTAL COMPEN	By Input			

13. Click the **Advanced** tab, and then click the **Prolog**, **Metadata**, **Data** and **Epilog** tabs.
14. Click **Save** and name the process **CreateExpenseCSV**.
15. Run the process.



16. Click **Yes**, and then double-click the first line.

This will open the log file and report an error that the three elements were not able to load as consolidations. This is fine as you will not be using these elements in our cube.

You may double-click entries that contain a log file name (e.g., <TM1Process\_xx\_xx.log>) to view the contents of the log file.

```
"Pension Plan %","","Data Source line (4) Error: MetaData procedure line (6): Consolidated Element "" not found.  
Error: MetaData procedure line (6):   error repeats 1 times  
"Social Security %","","Data Source line (6) Error: MetaData procedure line (6): Consolidated Element "" not found.  
Error: MetaData procedure line (6):   error repeats 1 times  
"Health Insurance %","","Data Source line (8) Error: MetaData procedure line (6): Consolidated Element "" not found.  
Error: MetaData procedure line (6):   error repeats 1 times
```

17. Close **Turbo Integrator** and all error messages.

18. Double-click the **Expenses** dimension to open in the Subset Editor.

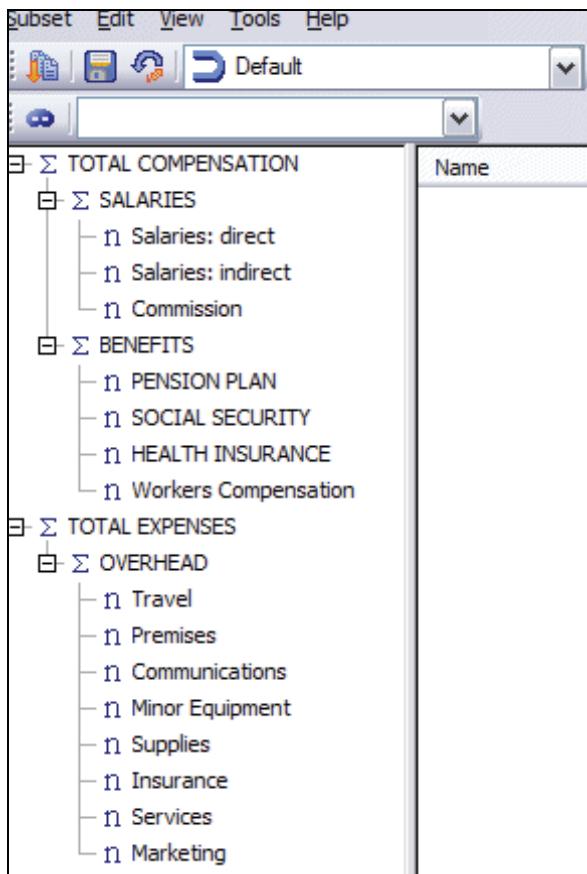
You will remove these elements from the subset but they will remain as part of the dimension. If you deleted them using the Dimension Editor, the elements would be permanently removed.

19. Select the three elements with % signs, and then click **Delete** .

You are not removing these elements from the dimension, simply creating a default subset excluding these elements. They still exist in the dimension and will appear when the All button is clicked.

20. Save this as the public, **Default** subset.

The result appears as follows:

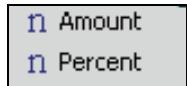


21. Close the **Subset Editor**.

## Task 2. Manually create the Expense Measures.

1. In Server Explorer, right-click **Dimensions**, and click **Create New Dimension**.
2. Insert two new simple elements, **Amount** and **Percent**.

The result appears as follows:

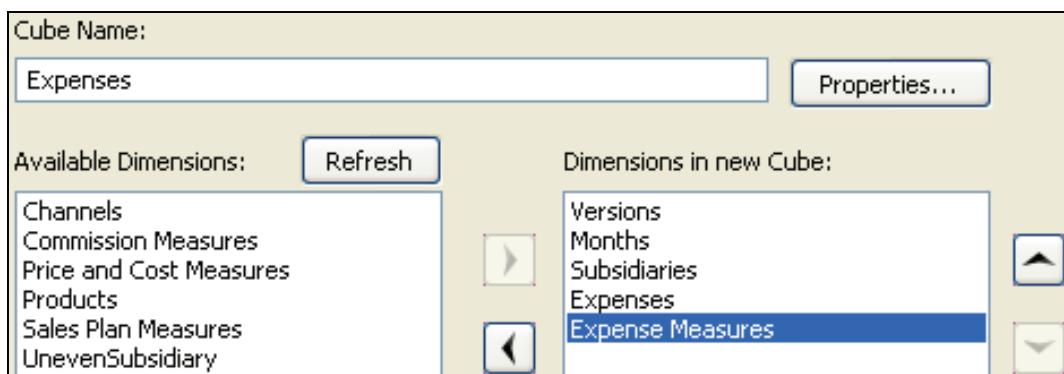


3. Save the dimension as **Expense\_Measures**, and close the Dimension Editor.

## Task 3. Create the Expenses cube.

1. In Server Explorer, right-click **Cubes** and then click **Create new cube**.
2. In the Cube Name box type **Expenses**.
3. Double-click the following dimensions:
  - **Versions**
  - **Months**
  - **Subsidiaries**
  - **Expenses**
  - **Expense\_Measures**

The result appears as follows:



4. Click **Create Cube**.

You should now see the Expenses cube under Cubes.

## Task 4. Create processes to load Percent values.

1. Create a new Turbo Integrator process, loading text data from **C:\Edcognos\P6502\GreatOutdoors\SourceFiles\Ben Work Comp.csv**.
2. Beside **Number of title records**, type **1**, and then click **Preview**.

### Instructor Notes

The dimensions listed are not listed in the optimal order. After loading data into this cube, you may wish to demonstrate the Cube Optimizer utility. Simply right click on the cube and click ReOrder Dimensions. Use the up and down arrows to internally reorder the dimensions and click Test to see if the Percent Change increases or decreases. This does not physically reorder the cube but it does remap dimensions internally so that functions and worksheets still work properly.

3. Click the **Variables** tab.
4. Create a new variable called **vMeasures** and type the following formula:  
**vMeasures='Percent';**

You do not have a Percent element in the data source. Creating a variable with this value will assume all data read into the cube will be assigned to the Percent element to which it is assigned.

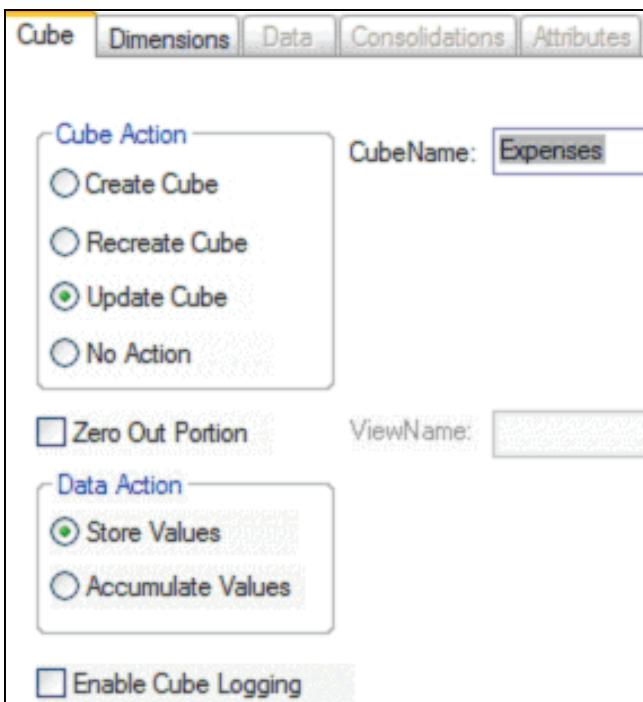
5. Click **Evaluate**, and then click **OK**.
6. Change the Variable Type to **String**.
7. Rename the other variables and set the contents to the following:

Variable Name	Variable Type	Sample Value	Contents
Versions	String	Budget version 1	Element
Subsidiaries	String	GO Americas	Element
vMonth	String	Jan	Element
vPension	Numeric	0.93	Data
vSocialSec	Numeric	0.53	Data
vHealth	Numeric	0.28	Data
vWorkersComp	Numeric	30149.22	Ignore
vMeasures	String	Percent	Element

You will load the Workers Comp data in another process. It would not be loaded into the Percent element but instead it would be assigned to the amount element. Because it is not used in this TI process, it may be ignored.

8. Click the **Maps** tab, and then on the **Cube** tab, click **Update Cube**.

9. Click the down arrow beside **CubeName**, and then click **Expenses**.



10. Click the **Dimensions** tab and map to **Dimension** column as follows:

Element Variable	Sample Value	Dimension
Versions	Budget version 1	Versions ▾
Subsidiaries	GO Americas	Subsidiaries ▾
vMonth	Jan	Months ▾
vMeasures	Percent	Expense_Measures ▾
(Data Variables)		Expenses ▾

11. Click the **Data** tab and map the data to elements as follows:

Element Variable	Element	Element Type	Sample Value
vPension	PENSION PLAN ►	Numeric ▾	0.93
vSocialSec	SOCIAL SECURITY ►	Numeric ▾	0.53
vHealth	HEALTH INSURANCE ►	Numeric ▾	0.28

12. Click all tabs under the **Advanced** tab.
13. Save the process as **LoadBenWorkCompCSVPercent**.
14. Click **Run**, and then click **OK**.
15. Close **Turbo Integrator**.
16. Double-click the **Expenses** cube, and then set **Versions** to **Budget Version 1**.
17. Click **Recalculate**.

The result appears as follows:

Expense_Measures		
Expenses:Default	Amount	Percent
-- TOTAL COMPENS	0	105.24
-- SALARIES	0	0
Salaries: dire	0	0
Salaries: ind	0	0
Commission	0	0
-- BENEFITS	0	105.24
PENSION PL	0	57.36
SOCIAL SEC	0	32.64
HEALTH INS	0	15.24

## Task 5. Create process to load Dollar values.

1. Open the **LoadBenWorkCompCSVPercent** process.
2. Click **File** and then click **Save As**.
3. In the Name box type **LoadBenWorkCompCSVAmount**, and then click **OK**.
4. Click the **Variables** tab, and then next to **vMeasures**, click **Formula**.

5. Change '**Percent**' to '**Amount**'.

The result appears as follows:

Formula:
vMeasures='Amount';

6. Click **OK**.

7. Next to **vPension**, **vSocialSec**, and **vHealth**, change the **Contents** to **Ignore**.
8. Next to **vWorkersComp**, change the **Contents** to **Data**.
9. Create a new variable **vExpense='Workers Compensation'**;
10. Change the **Variable Type** to **String** and the **Contents** to **Element**.

The result appears as follows:

	Variable Name	Variable Type	Sample Value	Contents	Formula
1	Versions	String	Budget version 1	Element	
2	Subsidiaries	String	GO Americas	Element	
3	vMonth	String	Jan	Element	
4	vPension	Numeric	0.93	Ignore	
5	vSocialSec	Numeric	0.53	Ignore	
6	vHealth	Numeric	0.28	Ignore	
7	vWorkersComp	Numeric	30149.22	Data	
8	vMeasures	String	Amount	Element	Formula
9	vExpense	String	Workers Compensation	Element	Formula

11. Click the **Maps** tab, and then click the **Dimensions** tab.

12. Map **vExpense** to the **Expenses** dimension.

The result appears as follows:

Element Variable	Sample Value	Dimension
Versions	Budget version 1	Versions
Subsidiaries	GO Americas	Subsidiaries
vMonth	Jan	Months
vMeasures	Amount	Expense_L
vExpense	Workers Compensation	Expenses

Because there is only one data element and it matches an element in our measures dimension, we do not have to map it manually.

13. Click the **Advanced** tab and all tabs under it.

Be sure the scripts on the Data tab now refer to 'Workers Compensation'.

14. Click **Save**, and then click **Run**.

15. Click **OK**, close the Turbo Integrator, and then recalculate the view.

The result appears as follows:

Expense_Measures		
Expenses:Default	Amount	Percent
-- TOTAL COMPENS	1826304.96	105.24
-- SALARIES	0	0
Salaries: dire	0	0
Salaries: ind	0	0
Commission	0	0
-- BENEFITS	1826304.96	105.24
PENSION PL	0	57.36
SOCIAL SEC	0	32.64
HEALTH INS	0	15.24
Workers Comp	1826304.96	0

16. Save this as the **default** view.

Leave the view open for the next Task.

## Task 6. Create a rule to populate Commissions.

This cube will have some stored data, loaded via TI. In addition, it will also pull data from other cubes. In this task you will create rules to pull commissions from the Commissions cube.

1. Double-click the **Months** dimension, in the Subset Editor, expand **Q1**, and then click **Jan**.
2. Click **OK**, and then double-click the **Subsidiaries** dimension.
3. Expand **GO AMERICAS REGION**, click **GO Americas**, and then click **OK**.
4. Click **Recalculate**, and then save this as the **GO Americas** view.

The result appears as follows:

Expense_Measures		
Expenses:Default	Amount	Percent
-- TOTAL COMPENS	30149.22	1.74
-- SALARIES	0	0
Salaries: dire	0	0
Salaries: ind	0	0
Commission	0	0
-- BENEFITS	30149.22	1.74
PENSION PL	0	0.93
SOCIAL SEC	0	0.53
HEALTH INS	0	0.28
Workers Con	30149.22	0

Leave this view open but move it aside so we can see the list of cubes in the Server Explorer window.

5. In Server Explorer, right-click the **Expenses** cube and click **Create Rule**.
6. On line 1, type: **SKIPCHECK**; and then press **Enter**.
7. Click the **Brackets** and then double-click **Expenses**.
8. Click **Commission** and then click **OK**.
9. Inside the square brackets, after 'Commission', type , 'Amount' and then press the End key.
10. Type = **N:** , and then click **Insert Cube Reference**.
11. In the Cube list, click the **Commissions** cube.
12. Click the Subset Editor icon for **Commission\_Measures**.
13. Click **Commission** and then click **OK** twice.
14. Type a ; at the end of the line, save the rule, and then Recalculate the GO Americas view.

The result appears as follows:

```
SKIPCHECK;
['Commission', 'Amount'] = N: DB('Commissions', !Subsidiaries,
!Months, !Versions, 'Commission');
```

## Task 7. Create a feeder in the Commissions cube for the Commission rule (in the Expenses cube).

1. Add the following feeder to the Rules in the **Commissions** cube under the FEEDERS; statements:

```
['Commission%' ] => DB('Expenses', !Versions, !Months,
!Subsidiaries, 'Commission', 'Amount') ;
```

Note: Because the Commissions cube contains the source of the feeder, the Feeder statement must be placed in the Commissions cube. The DB() function is not permitted on the left side of the =>.

```
FEEDERS;
['Commission%' ] => ['Commission'], ['Commission_hold'], ['Commission_count'];
[!Commission%!] => DB('Expenses', !Versions, !Months, !Subsidiaries, 'Commission', 'Amount') ;
```

2. Save the rule, and then close the Rules Editors for both cubes.
3. Double-click the **Expenses** cube, select **Jan** for **Months**, and **GO Americas** for **Subsidiaries**.
4. Click **Recalculate**.

The result appears as follows:

		Expense_Measures	
Expenses:Default		Amount	Percent
-- TOTAL COMPENS		1445074.8874298	1.74
-- SALARIES		1414925.6674298	0
Salaries: dire		0	0
Salaries: ind		0	0
Commission		1414925.6674298	0
-- BENEFITS		30149.22	1.74
PENSION PL		0	0.93
SOCIAL SEC		0	0.53
HEALTH INS		0	0.28
Workers Com		30149.22	0
-- TOTAL EXPENSES		0	0
-- OVERHEAD		0	0
Travel		0	0

You may assign a currency format to the **Amount** element in the **Expense\_Measures** dimension to make it easier to read the values.

5. Leave the cube viewer open for the next task.
6. In Server Explorer, right-click **Expense\_Measures** and then click **Edit Element Attributes**.
7. Click **Amount**, click **Format**, click **Currency** and click **OK** twice.

## Task 8. Create rules to calculate benefits.

1. Open the **Rules Editor** for the **Expenses** cube.
2. On line 3, click the **Brackets**, and then double-click **Expenses**.
3. Click **PENSION PLAN**, and then click **OK**.
4. Inside the square brackets, after 'PENSION PLAN', type , 'Amount', and then press the **End** key.

The result appears as follows:

```
[ 'PENSION PLAN' , 'Amount' ]
```

5. Type the following :
- $$= N:[ 'SALARIES' , 'Amount' ] * [ 'PENSION PLAN' , 'Percent' ] ;$$
6. Repeat steps 2-5 for **SOCIAL SECURITY** and **HEALTH INSURANCE**.

The result appears as follows:

```
1 SKIPCHECK;
2 [ 'Commission' , 'Amount' ] = N: DB( 'Commissions' , /Subsidiaries, /Months, /Versions, 'Commission' ) ;
3 [ 'PENSION PLAN' , 'Amount' ] = N: [ 'SALARIES' , 'Amount' ] *[ 'PENSION PLAN' , 'Percent' ] ;
4 [ 'SOCIAL SECURITY' , 'Amount' ] = N: [ 'SALARIES' , 'Amount' ] *[ 'SOCIAL SECURITY' , 'Percent' ] ;
5 [ 'HEALTH INSURANCE' , 'Amount' ] = N: [ 'SALARIES' , 'Amount' ] *[ 'HEALTH INSURANCE' , 'Percent' ] ;
```

7. Click **Check Syntax**, click **Save** and then close the Rules Editor.

8. In the Cube Viewer, click **Recalculate**.

Budget Version 1	Jan	GO Americas
Expense_Measures		
Expenses:Default	Amount	Percent
-- TOTAL COMPENS	\$1,445,074.89	1.74
-- BENEFITS	\$30,149.22	1.74
HEALTH INS	\$396,179.19	0.28
PENSION PL	\$1,315,880.87	0.93
SOCIAL SEC	\$749,910.60	0.53
Workers Comp	\$30,149.22	0
-- SALARIES	\$1,414,925.67	0
Commission	\$1,414,925.67	0

The BENEFITS consolidation is only aggregating Workers Compensation because only that rule has feeders. Next, you will write feeders for the rest of the benefits. These calculations use elements that exist within the Expenses cube so this is where you will write the feeder.

9. On line 7, create the following feeders in the Expenses cube:

### FEEDERS;

```
['SALARIES', 'Amount'] => ['HEALTH INSURANCE','Amount'],
['PENSION PLAN','Amount'],['SOCIAL SECURITY','Amount'];
```

The result appears as follows:

```

1 SKIPCHECK;
2 ['Commission', 'Amount' ] = N: DB('Commissions', /Subsidiaries, /Months, /Versions, 'Commission') ;
3 ['PENSION PLAN', 'Amount' ] = N: ['SALARIES', 'Amount'] *['PENSION PLAN', 'Percent' ] ;
4 ['SOCIAL SECURITY', 'Amount' ] = N: ['SALARIES', 'Amount'] *['SOCIAL SECURITY', 'Percent' ] ;
5 ['HEALTH INSURANCE', 'Amount' ] = N: ['SALARIES', 'Amount'] *['HEALTH INSURANCE','Percent' ] ;
6
7 FEEDERS;
8 ['SALARIES', 'Amount'] => ['PENSION PLAN', 'Amount'], ['SOCIAL SECURITY', 'Amount'],
9 ['HEALTH INSURANCE', 'Amount'] ;
```

10. Click **Save** in the Rules Editor and close it.
11. Recalculate the view.

The result appears as follows:

Expense_Measures		
Expenses:Default	Amount	Percent
-- TOTAL COMPENS	\$3,907,045.55	1.74
-- BENEFITS	\$2,492,119.88	1.74
HEALTH INS	\$396,179.19	0.28
PENSION PL	\$1,315,880.87	0.93
SOCIAL SEC	\$749,910.60	0.53
Workers Com	\$30,149.22	0
-- SALARIES	\$1,414,925.67	0
Commission	\$1,414,925.67	0

All consolidations should have values if the child elements have values. If they do not, they are not being fed properly.

12. Close the **Cube Viewer**, save the view as **GO Americas** if prompted.

### Result:

You have created a new cube that contains expenses. The salary and benefit information has been populated by data in a text file and through calculations. The data for the other expenses will come from user input through spreading.

## Demo 2: Create Spread Profile Cube

### Purpose:

You just created the Expenses cube that contains salary and benefit expense information. Those using this application will also need to perform some what-if scenarios for planning purposes on the overhead expenses.

You will need to create a new cube for your users so they can employ proportional spreading by month, by subsidiary or both. This cube will have a variety of spreading options. You will then test the proportional spreading function to ensure the lookup cubes have been constructed properly.

### Task 1. Create the SpreadMethod dimension.

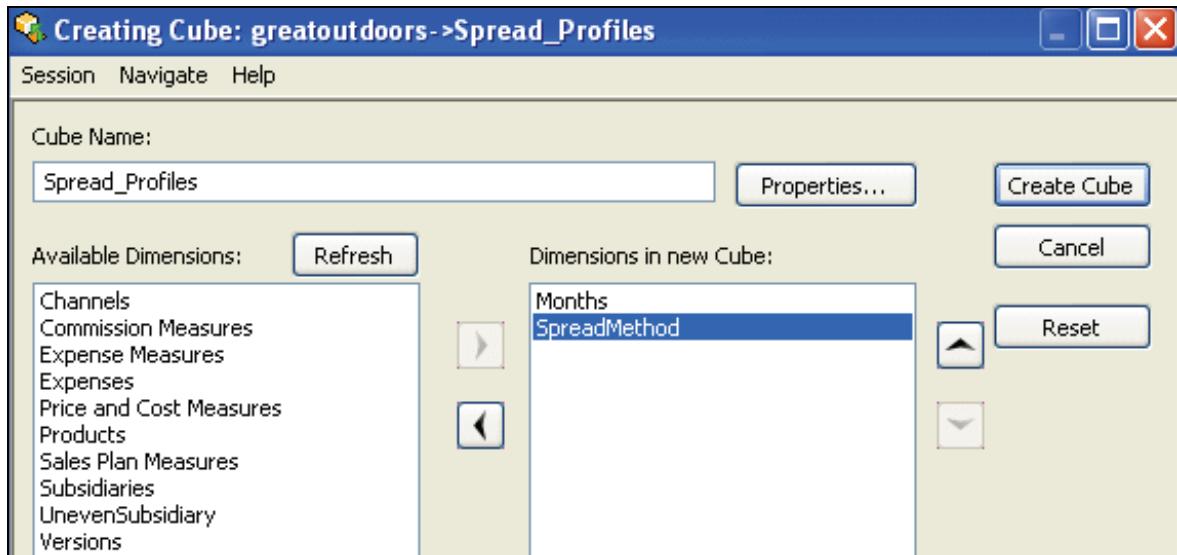
1. In Server Explorer, right-click **Dimensions** and then click **Create New Dimension**.
2. Insert the following leaf elements:
  - Flat
  - Quarterly
  - 4 4 5
  - Business
3. Save the dimension as **SpreadMethod**, and then close the dimensions editor.

### Task 2. Create the Spread\_Profiles cube.

1. In Server Explorer, right-click **Cubes** and then click **Create new cube**.
2. In the Cube Name box type, **Spread\_Profiles**.

3. Move the following dimensions to the list of Dimensions in new Cube:
- Months
  - SpreadMethod

The result appears as follows:



4. Click **Create Cube**.

### Task 3. Populate the Spread\_Profiles cube.

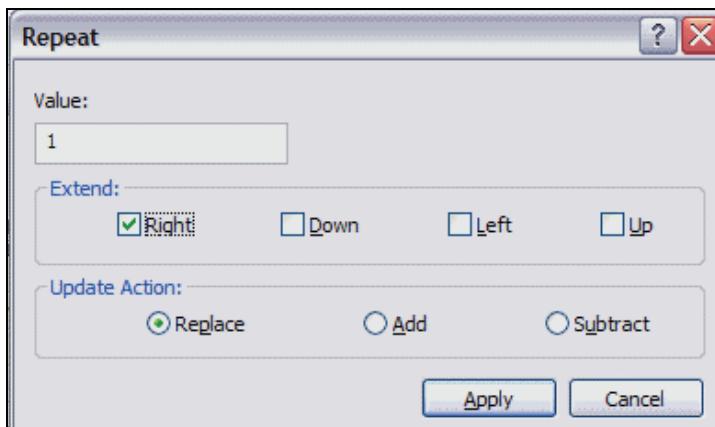
1. In Server Explorer, double-click the **Spread\_Profiles** cube.
2. Swap the **Months** and **SpreadMethod** dimensions.  
Spread\_Method is in the row area and Months is in the column area.
3. Click the **Months** dimension select the leaf level elements, click **OK**, and then click **Recalculate**.

The result appears as follows:

	Months											
SpreadMethod	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Flat	0	0	0	0	0	0	0	0	0	0	0	0
Quarterly	0	0	0	0	0	0	0	0	0	0	0	0
4 4 5	0	0	0	0	0	0	0	0	0	0	0	0
Business	0	0	0	0	0	0	0	0	0	0	0	0

4. Right-click the **Flat, Jan** cell, point to **Data Spread**, and then click **Repeat**.
5. In the Value box type **1**, and then click **Right**.

The result appears as follows:



6. Click **Apply**.
7. Now enter the rest of the values.

The result appears as follows:

	Months											
SpreadMethod	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Flat	1	1	1	1	1	1	1	1	1	1	1	1
Quarterly	0	0	1	0	0	1	0	0	1	0	0	1
445	4	4	5	4	4	5	4	4	5	4	4	5
Business	6	6	6	7	8	10	10	11	10	8	7	11

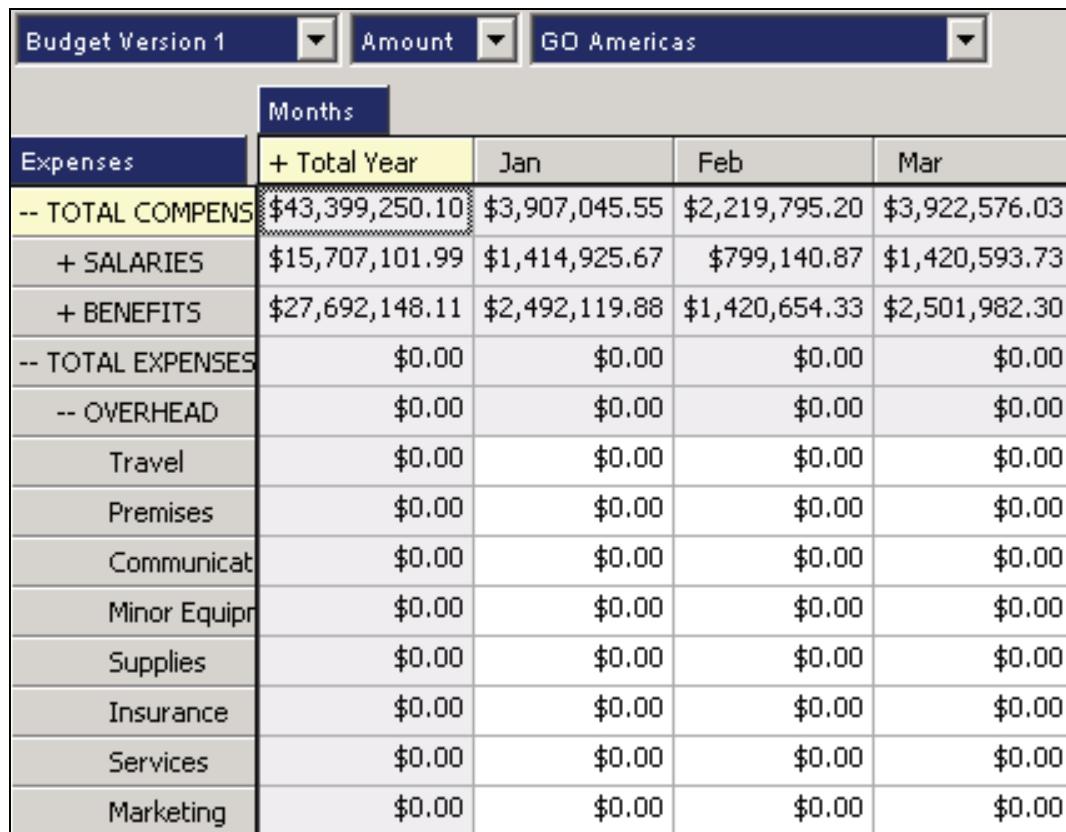
This cube now contains a pattern of data by month, which may be used as the basis for relational proportional spreading by any other cube that contains the Months dimension.

8. Click **Recalculate**, click **Save**, click **Default**, deselect **Private** and then click **OK**.
9. Close the **Cube Viewer**.

## Task 4. Spread data to Expenses using the **Spread\_Profiles** cube.

1. Open the **GO Americas** view of **Expenses**.
2. Swap **Expense\_Measures** and **Months**.
3. Click **Recalculate**, and then collapse **SALARIES** and **BENEFITS**.
4. Double-click **Months**, and then click **All**.
5. Ctrl+click **Total Year** and leaf elements from **Months**, click **OK**, and then recalculate.

The result appears as follows:



The screenshot shows a budgeting application window titled "Budget Version 1". The top menu bar includes "Amount" and "GO Americas". The main area displays a grid of expenses categorized by type (e.g., SALARIES, BENEFITS) and measured by month (Jan, Feb, Mar). The grid has a header row labeled "Months" and a column labeled "Expenses". The first row contains the total for "TOTAL COMPENSATION". Subsequent rows show the breakdown of compensation into "SALARIES" and "BENEFITS". Below these, there are rows for "OVERHEAD" and various expense categories like "Travel", "Premises", "Communicat", "Minor Equipm", "Supplies", "Insurance", "Services", and "Marketing". All values are listed in US dollars.

		Months			
Expenses		Jan	Feb	Mar	
-- TOTAL COMPENSATION	+ Total Year	\$43,399,250.10	\$3,907,045.55	\$2,219,795.20	\$3,922,576.03
+ SALARIES	\$15,707,101.99	\$1,414,925.67	\$799,140.87	\$1,420,593.73	
+ BENEFITS	\$27,692,148.11	\$2,492,119.88	\$1,420,654.33	\$2,501,982.30	
-- TOTAL EXPENSES	\$0.00	\$0.00	\$0.00	\$0.00	
-- OVERHEAD	\$0.00	\$0.00	\$0.00	\$0.00	
Travel	\$0.00	\$0.00	\$0.00	\$0.00	
Premises	\$0.00	\$0.00	\$0.00	\$0.00	
Communicat	\$0.00	\$0.00	\$0.00	\$0.00	
Minor Equipm	\$0.00	\$0.00	\$0.00	\$0.00	
Supplies	\$0.00	\$0.00	\$0.00	\$0.00	
Insurance	\$0.00	\$0.00	\$0.00	\$0.00	
Services	\$0.00	\$0.00	\$0.00	\$0.00	
Marketing	\$0.00	\$0.00	\$0.00	\$0.00	

6. Save the public view as **GO Americas Expenses**.

Now we will try Spreading our Travel Expenses for the Americas. They seem to take on the 4 4 5 pattern where they are greater during the last month of the quarter. The budget for Travel Expenses is supposed to be 1,000,000 or less for the year.

7. Click **TOTAL COMPENSATION** to collapse it.
8. Right-click **Travel, Total Year**, point to **Data Spread**, and then click **Relative Proportional Spread**.

Relative Proportional Spread will look at the pattern of values in the reference cells and then spread the data in the current cells, following the same pattern.

You want to use the same pattern as the **4 4 5** cells in the **Spread\_Profiles** cube.

9. Under Cube, click **Spread\_Profiles**.
10. Under Dimensions, click **SpreadMethod**, click **4 4 5**, and then click **OK**.

The result appears as follows:

Cube:	
Spread_Profiles	
Dimensions: Element name:	
Months	Total Year
SpreadMethod ...	4 4 5

11. Click **Select**, and then in the Value box type **1000000** and then click **Apply**.

The result appears as follows:

		Months		
Expenses	+ Total Year	Jan	Feb	Mar
+ TOTAL COMPENS	\$43,399,250.10	\$3,907,045.55	\$2,219,795.20	\$3,922,576.03
-- TOTAL EXPENSES	\$1,000,000.00	\$76,923.08	\$76,923.08	\$96,153.85
-- OVERHEAD	\$1,000,000.00	\$76,923.08	\$76,923.08	\$96,153.85
Communication	\$0.00	\$0.00	\$0.00	\$0.00
Insurance	\$0.00	\$0.00	\$0.00	\$0.00
Marketing	\$0.00	\$0.00	\$0.00	\$0.00
Minor Equipment	\$0.00	\$0.00	\$0.00	\$0.00
Premises	\$0.00	\$0.00	\$0.00	\$0.00
Services	\$0.00	\$0.00	\$0.00	\$0.00
Supplies	\$0.00	\$0.00	\$0.00	\$0.00
Travel	\$1,000,000.00	\$76,923.08	\$76,923.08	\$96,153.85

You can see the 1,000,000 was spread into the months in the same proportion as the values in the Spread\_Profiles cube. The proportions in the 4 4 5 cells were the same for Jan and Feb (4) and Mar was more (5). The result in the Expenses cube is following that same pattern.

12. Close the **GO Americas Expenses** view, saving changes if prompted.

---

It is important to note, the Months dimension exists in both the Spread\_Profiles cube and the Expenses cube. Only cubes that share common dimensions can be used as a spreading basis for a relational proportional spread. Also you don't have to create a specific cube to do this, you can use a reporting cube as the basis as long as it contains a common dimension.

You may wish to show this by right-clicking on Overhead (a consolidation in the Expenses dimension) for the Total Year. Click Data Spread and then click Relative Proportional Spread. You no longer can select the Spread Profiles cube because Spread Profiles does not contain the Expenses dimension therefore you must choose a leaf level element from this dimension (like Travel).

## Task 5. Create another spread profile cube for Subsidiaries.

1. In Server Explorer, right-click the **SpreadMethod** dimension and then click **Edit Dimension Structure**.
2. Click **Business**.
3. Add a new element called **Subsidiary**.
4. Save and close the dimension.
5. Right-click **Cubes** and then click **Create new cube**.
6. Include **Subsidiaries** and **SpreadMethod** in the cube.
7. Name it **Spread\_Profile\_Subsidary**.
8. Double-click the **Spread\_Profile\_Subsidary** cube to open it in the cube viewer.
9. Click the **Subsidiaries** dimension, click **All**, and then click **Filter by Level**.
10. Click **0**, and then click **OK** twice.
11. Click the **SpreadMethod** dimension and then click **All**.
12. Click **Subsidiary**, and then click **OK**.
13. Click **Recalculate** and then save a **public, default** view.

The result appears as follows:

Subsidiaries	SpreadMethod	
	Subsidiary	
GO Americas	0	
GO Asia Pacific	0	
GO Accessories GmbH	0	
GO Central Europe	0	
GO Northern Europe	0	
GO Southern Europe	0	

14. Enter the following values for each Subsidiary.

The result appears as follows:

Subsidiaries	SpreadMethod
	Subsidiary
GO Americas	0.32
GO Asia Pacific	0.16
GO Accessories GmbH	0.09
GO Central Europe	0.13
GO Northern Europe	0.17
GO Southern Europe	0.13

15. Recalculate and close the view (without saving).

We can use this view as a basis to spread data by Subsidiary. However, it is common for different subsidiaries to have different monthly proportions. We will create a third spread profile cube that will combine the 4 4 5 proportion by subsidiary to accommodate this need.

## Task 6. Create the Spread\_Profile\_SubsByMonth cube.

1. Create a new cube called **Spread\_Profile\_SubsByMonth**.
2. Include three dimensions.
  - **Months**
  - **Subsidiaries**
  - **SpreadMethod**
3. Create a default, public view.
4. Swap **Months** and **SpreadMethod**.
5. In the **SpreadMethod** list, click **Subsidiary**.
6. Click **Recalculate**, and then click **Q1** to expand.
7. Click **Subsidiaries**, click **All**, and then click **OK**.

## 8. Click Recalculate.

The result appears as follows:

Subsidiary	Months	-- Total Year	-- Q1	Jan	Feb	Mar	+ Q2
Subsidiaries							
-- TOTAL COMPANY		0	0	0	0	0	0
-- GO AMERICAS		0	0	0	0	0	0
GO Americas		0	0	0	0	0	0
-- GO ASIA PACI		0	0	0	0	0	0
GO Asia Pac		0	0	0	0	0	0
-- GO EUROPE G		0	0	0	0	0	0
GO Accessor		0	0	0	0	0	0
GO Central E		0	0	0	0	0	0
GO Northern		0	0	0	0	0	0
GO Southern		0	0	0	0	0	0

You can leave this view open. Instead of typing values into this cube, you will write a rule to allocate spread proportions by month and subsidiary.

9. In Server Explorer, right-click the **Spread\_Profile\_SubsByMonth** and then click **Create Rule**.

10. Create the following rule:

```
[Subsidiary]=DB('Spread_Profile_Subsidy', !Subsidiaries,
'Subsidiary')*DB('Spread_Profiles', !Months, '4 4 5');
```

11. Save the rule, and then close the editor.

1	[Subsidiary] = DB('Spread_Profile_Subsidy', !Subsidiaries, 'Subsidiary') *
2	DB('Spread_Profiles', !Months, '4 4 5') ;

12. Recalculate the **Spread\_Method\_SubsByMonth** cube.

The result appears as follows:

Subsidiary		Months					
Subsidiaries		-- Total Year	-- Q1	Jan	Feb	Mar	+ Q2
-- TOTAL COMPANY		52	13	4	4	5	13
-- GO AMERICAS		16.64	4.16	1.28	1.28	1.6	4.16
GO Americas		16.64	4.16	1.28	1.28	1.6	4.16
-- GO ASIA PACI		8.32	2.08	0.64	0.64	0.8	2.08
GO Asia Pac		8.32	2.08	0.64	0.64	0.8	2.08
-- GO EUROPE G		27.04	6.76	2.08	2.08	2.6	6.76
GO Accessori		4.68	1.17	0.36	0.36	0.45	1.17
GO Central E		6.76	1.69	0.52	0.52	0.65	1.69
GO Northern		8.84	2.21	0.68	0.68	0.85	2.21
GO Southern		6.76	1.69	0.52	0.52	0.65	1.69

Review the Total Year/Total Company values. They both roll up to 52. This indicates the 4 4 5 proportion was allocated properly by Subsidiary. You can also see the 4 4 5 proportions along the TOTAL COMPANY for each month. This matches the Spread\_Profiles (by month) cube proportions.

Next you can spread data to the Expenses cube based on these proportions by Subsidiary and Month for 4 4 5.

13. Close **Spread\_Profile\_SubsbyMonth**.

14. Open the **GO Americas Expenses** view of the Expenses cube.

15. Change the **Subsidiaries** dimension to display **GO AMERICAS REGION**, and then click **Recalculate**.

16. Right-click **Total Year** and **Premises**, click **Data Spread** and then click **Relative Proportional Spread**.

17. In the **Cube** list, select **Spread\_Profile\_SubsByMonth**.

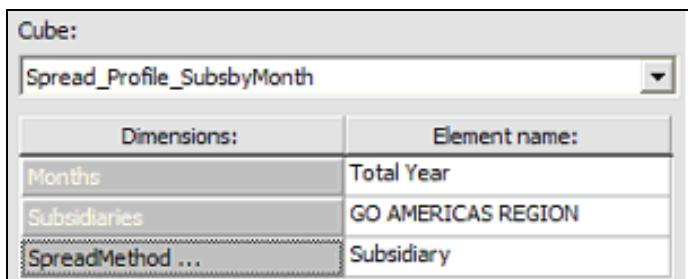
We are using these cubes for spreading but they can also be used in calculations or other rules.

We don't have to create feeders in this cube, mainly because there is so little data. The only time you do not create feeders are for very small and/or very dense cubes.

The Spread\_Profile\_SubsByMonth cube is an example of a virtual cube. It contains no physical data but instead is populated by a calculation that allocated spread ratios among Subsidiaries and Months dimensions.

18. Under **Dimensions**, click **SpreadMethod**, click **Subsidiary**, and then click **OK**.

The results appear as follows:



19. Click **Select**.

20. In the **Value** box (displaying 16.64), type **2000000** and then click **Apply**.

The result appears as follows:

	Budget Version 1	Amount	GO AMERICAS REGION		
		Months	Jan	Feb	Mar
Expenses	+ Total Year				
+ TOTAL COMPENS	\$43,399,250.10	\$3,907,045.55	\$2,219,795.20	\$3,922,576.03	
-- TOTAL EXPENSES	\$3,000,000.00	\$230,769.23	\$230,769.23	\$288,461.54	
-- OVERHEAD	\$3,000,000.00	\$230,769.23	\$230,769.23	\$288,461.54	
Travel	\$1,000,000.00	\$76,923.08	\$76,923.08	\$96,153.85	
Premises	\$2,000,000.00	\$153,846.15	\$153,846.15	\$192,307.69	
Communicat	\$0.00	\$0.00	\$0.00	\$0.00	
Minor Equipm	\$0.00	\$0.00	\$0.00	\$0.00	
Supplies	\$0.00	\$0.00	\$0.00	\$0.00	
Insurance	\$0.00	\$0.00	\$0.00	\$0.00	
Services	\$0.00	\$0.00	\$0.00	\$0.00	
Marketing	\$0.00	\$0.00	\$0.00	\$0.00	

The result has been allocated along two dimensions both Months and Subsidiaries.

21. Close all **Cube Viewer** windows without saving changes.

**Results:**

You have created three spread profile cubes that can be used to spread data to other cubes. These are lookup cubes. You have also created one virtual cube (Spread\_Profiles\_SubsByMonth) that allocates data from one cube (Spread\_Profiles) by the Subsidiaries dimension in another (Spread\_Profiles\_Subsidary) cube.

## Use Attributes in Rules

- Element attributes can be used to lookup information
  - similar to a lookup cube
  - use the ATTRN/ATTRS functions
- Easier maintenance
  - attributes can be created/updated in the Turbo Integrator process
  - keeps similar data together

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Instead of using a DB function to pull data from another cube, we will pull data from the attributes of a dimension using the ATTRS function. ATTRS returns a string attribute for a specified element of a dimension. ATTRN returns a numeric attribute for a specified element.

ATTRS(dimension, element, attribute) or

ATTRN(dimension, element, attribute)

<b>Argument</b>	<b>Description</b>
dimension	A valid dimension name.
element	An element name in the dimension.
attribute	The attribute name to retrieve. It must be a valid attribute of the element

It is frequently used to 'look up' an element based on the value of an attribute.

## Demo 3: Move Balances from Last Month to Next Month

### Purpose:

The Great Outdoors offers its customers a subscription to an outdoors magazine that includes specially-priced merchandise. Subscribers typically take advantage of these offers (about 90% of customers). The marketing department has projected figures for new subscriptions in each period, subscriber attrition rates, and average purchase amount per subscriber. Based on this information you want to calculate the number of active subscribers in each month and the expected revenue from special offers.

### Task 1. Create **Churn\_Measures** dimension.

TM1 Server: **greatoutdoors**

TM1 Architect: **Server Explorer**

User Name: **admin**

Password: **<blank>**

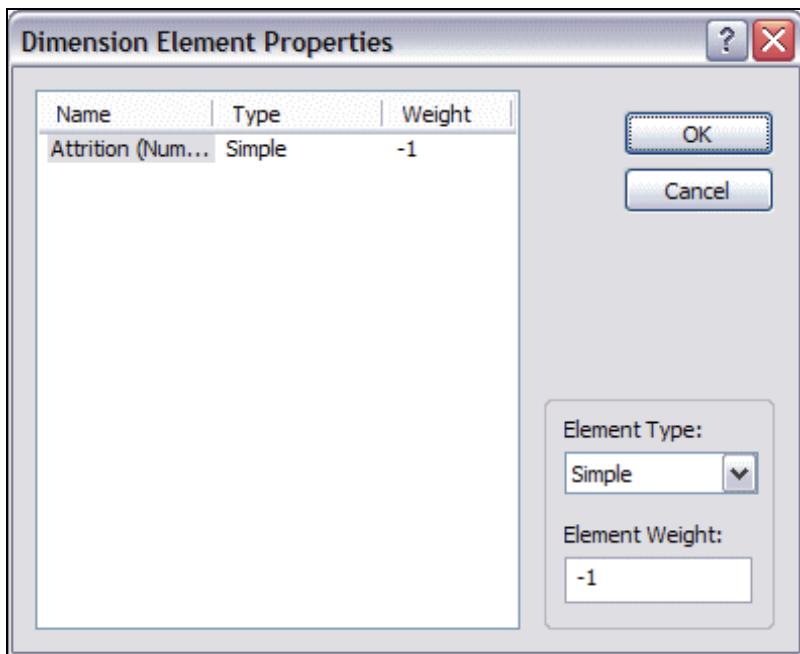
1. In Microsoft Excel, open **C:\Edcognos\P6502\GreatOutdoors\SourceFiles\ChurnCalc.csv** and copy cells **A1:A9**.
2. In Server Explorer, create a new dimension.
3. In the Dimension Editor, click **Edit** and then click **Paste**.
4. Save the dimension as **Churn\_Measures**.

Next you will alter the hierarchy in this dimension.

5. Copy the following elements:
  - **Customers at Start of Period**
  - **New Customers**
  - **Attrition (Numbers)**

6. Click **PROJECTED CUSTOMERS AT THE END OF THE PERIOD**.
7. Click **Edit** and then click **Paste as Child**.
8. Right-click **Attrition (numbers)**(child of PROJECTED CUSTOMERS AT THE END OF THE PERIOD), and then click **Element Properties**.
9. In the **Element Weight** box type **-1**.

The result appears as follows:



**10. Click **OK**.**

The result appears as follows:

The screenshot shows the Dimension Editor interface. On the left, there is a tree view of dimensions. At the top level, it shows 'Existing Customers (Pd1)', 'Customers at Start of Period', 'New Customers', 'Attrition Rate (%)', and 'Attrition (Numbers)'. Below 'Existing Customers (Pd1)' is a collapsed node 'PROJECTED CUSTOMERS AT END OF PERIOD' which contains 'Customers at Start of Period', 'New Customers', and 'Attrition (Numbers)'. At the bottom of the tree view is 'CUSTOMERS EXPECTED TO PURCHASE SPECIAL OFF' and 'Average Purchase \$ per Customer'. On the right, there is a grid view with columns: Name, Security Owner, Type, Level, and Weight. The data in the grid is as follows:

Name	Security Owner	Type	Level	Weight
Customers at Start of Period		Simple	0	1
New Customers		Simple	0	1
Attrition (Numbers)		Simple	0	-1

The elements may appear more than once but TM1 only recognizes them one time. Attrition (Numbers) will point to the same value if it is viewed in a report with and without the parent.

11. Click **OK**, click **Yes** when asked to save the changes to the dimension, and then close the Dimension Editor.
12. Close Microsoft Excel and do not save changes to the spreadsheet if prompted.

## **Task 2. Create Customer\_Churn cube.**

1. In Server Explorer, create a new cube.
2. Select the following dimensions:
  - **Months**
  - **Churn\_Measures**
3. Name the cube **Customer\_Churn**.
4. Double click **Customer\_Churn** to open.
5. Swap **Churn\_Measures** and **Months**
6. Click **Churn\_Measures**, click **All** and then click **OK**.
7. Click **Recalculate**.

8. Click **Months**, and then click **All**.
9. Select all month leaf elements and then click **OK**.
10. Click **Recalculate** and then expand **PROJECTED CUSTOMERS AT THE END OF THE PERIOD**.
11. Save the view as **Default** and **Public**.

The result appears as follows:

Churn_Measures	Months							
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Existing Customers	0	0	0	0	0	0	0	0
Customers at Start	0	0	0	0	0	0	0	0
New Customers	0	0	0	0	0	0	0	0
Attrition Rate (%)	0	0	0	0	0	0	0	0
Attrition (Numbers)	0	0	0	0	0	0	0	0
-- PROJECTED CUST	0	0	0	0	0	0	0	0
Customers at End	0	0	0	0	0	0	0	0
New Customers	0	0	0	0	0	0	0	0

Leave this view open for the next task.

### Task 3. Load data from ChurnData.csv.

1. Create a new **Turbo Integrator** process.
2. Click **Text** and then browse to:  
**C:\Edcognos\P6502\GreatOutdoors\SourceFiles\ChurnData.csv**.
3. Click **Preview**, and then on the **Variables** tab, map the following:

Variable Name	Variable Type	Sample Value	Contents
vMeasures	String	Existing Customers (Pd1)	Element
vMonths	String	Jan	Element
vData	Numeric	12000	Data

4. Click the **Maps** tab.
5. Click **Update Cube**, and then select **Customer\_Churn** from the CubeName list.
6. Click the **Dimensions** tab, and then map the dimensions.

The result appears as follows:

Cube	Dimensions	Data	Consolidations	Attributes
Element Variable	Sample Value	Dimension		
vMeasures	Existing Customers	Churn_Measures		
vMonths	Jan	Months		

7. Click the **Advanced** tab and all tabs within.
8. Save the process as **LoadChurnDataCSV**, and then click **Run**.
9. Click **OK**, and then close Turbo Integrator.
10. Recalculate the default view of the **Customer\_Churn** cube.

The result appears as follows:

Churn_Measures	Months						
	Jan	Feb	Mar	Apr	May	Jun	Jul
Existing Customers	12000	0	0	0	0	0	0
Customers at Start	0	0	0	0	0	0	0
New Customers	15000	7000	8000	8000	9000	9000	9000
Attrition Rate (%)	0.04	0.04	0.05	0.02	0.05	0.05	0.05
Attrition (Numbers)	0	0	0	0	0	0	0
-- PROJECTED CUST	15000	7000	8000	8000	9000	9000	9000
Customers at Start	0	0	0	0	0	0	0
New Customers	15000	7000	8000	8000	9000	9000	9000
Attrition (Numbers)	0	0	0	0	0	0	0
CUSTOMERS EXPENSE	0	0	0	0	0	0	0
Average Purchase	50	50	100	300	300	100	200
PROJECTED REVENUE	0	0	0	0	0	0	0

Leave this view open for the next task.

## Task 4. Use rules to calculate Customer\_Churn data.

You will create a number of rules to properly calculate the values for this analysis. In addition to computing Attrition (Numbers) based on rates, you will need to move the number of customers at the end of one period to the beginning of the next period.

1. Create a new rule for Customer\_Churn.
2. Enter the following rule to move Existing Customers to Customers at the Start of the Period:

Jan is our starting period. The following rule will set the value as such.

**[Customer at Start of Period','Jan']=N:[Existing Customers (Pd1)','Jan'];**

3. Enter the following rule to multiply Customers at the Start of the Period by Attrition Rate (%).
- [Attrition (Numbers)']=N:[Customer at Start of Period]\*[Attrition Rate (%)];**
4. Enter the following rule to calculate the number of customers expected to take advantage of the offer (90%).
- [CUSTOMERS EXPECTED TO PURCHASE SPECIAL OFFER']=N:([Customer at Start of Period]\*.9);**
5. Enter the following rule to calculate Projected Revenue:
- [PROJECTED REVENUE']=N:[CUSTOMERS EXPECTED TO PURCHASE SPECIAL OFFER]\*[Average Purchase \$ per Customer];**

---

It may be helpful to add a rule then recalculate the Customer\_Churn cube to see the impact on the cube values.

- Save and then recalculate the cube view.

The result appears as follows:

Churn_Measures	Months			
	Jan	Feb	Mar	Apr
Existing Customers	12000	0	0	0
Customers at Start	12000	0	0	0
New Customers	15000	7000	8000	8000
Attrition Rate (%)	0.04	0.04	0.05	0.02
Attrition (Numbers)	480	0	0	0
-- PROJECTED CUST	26520	7000	8000	8000
Customers at S	12000	0	0	0
New Customers	15000	7000	8000	8000
Attrition (Numb	480	0	0	0
CUSTOMERS EXPEN	10800	0	0	0
Average Purchase	50	50	100	300
PROJECTED REVENUE	540000	0	0	0

You now need to pull the Projected Customers at end of Period in Jan over to the Customers at Start of Period for Feb.

## Task 5. Create a rule using Next and Previous attributes.

- In the Rules Editor, add a blank line at the end of the rules.
- Type the following:  
['Customers at Start of Period']=N:
- Click **Insert Cube Reference**, click **Customer\_Churn**.

In previous examples, you used the Insert Cube Reference to point to an element in a different cube. This time you are using it to point to an element in the same cube. By using the DB () function, you are able to adjust the dimensions to meet your specific business need.

In this example, you will alter the !Months reference to use an attribute of the Months dimension that will point to the previous month data. This is how the value for Feb will pull the value from the Jan cell.

4. Click the Subset editor icon for **Churn\_Measures**.
5. Click **PROJECTED CUSTOMERS AT END OF PERIOD** and then click **OK** twice.

The result appears as follows:

**[Customer at Start of Period]=N:DB('Customer\_Churn', !Months,  
'PROJECTED CUSTOMERS AT END OF PERIOD')**

The !Month will retrieve the current month name for any given data point. Instead you wish to retrieve the previous Month to pull that data into the starting balance for this month. You will use the ATTRS function in place of the !Month to retrieve the Previous attribute for any given month.

6. Type a ; at the end of the line.
7. Select **!Months** (in the DB function), and replace it with the following:

**ATTRS('Months', !Months, 'Previous')**

This will retrieve the Previous attribute for the current element (!Months) in the current cube, in the Months dimension.

The result appears as follows:

```
[Customer at Start of Period] = N: DB('Customer_Churn',
ATTRS('Months', !Months, 'Previous'), 'PROJECTED CUSTOMERS AT END OF PERIOD');
```

8. Save the rule and recalculate the view.

The result appears as follows:

Churn_Measures	Months			
	Jan	Feb	Mar	Apr
Existing Customers (Pd1)	12000	0	0	
Customers at Start of P	12000	26520	32459.2	38836
New Customers	15000	7000	8000	8
Attrition Rate (%)	0.04	0.04	0.05	0
Attrition (Numbers)	480	1060.8	1622.96	776.7
-- PROJECTED CUSTOMERS	26520	32459.2	38836.24	46059.5
Customers at Start of P	12000	26520	32459.2	38836
New Customers	15000	7000	8000	8
Attrition (Numbers)	480	1060.8	1622.96	776.7

## Task 6. Add skipcheck and feeders.

1. Open the rules for the Customer\_Churn cube if not already open.
2. Add a blank line at the top of the rules and type, **SKIPCHECK**;
3. Enter a blank line at the bottom of the rules and type, **FEEDERS**;
4. Add another blank line and type the following:  
 ['Existing customers (Pd1)', 'Jan']=>['Customers at Start of Period', 'Jan'];  
 ['Attrition Rate (%)']=>['Attrition (Numbers)'];  
 ['Customers at Start of Period']=>['CUSTOMERS EXPECTED TO PURCHASE SPECIAL OFFER'];  
 ['Average Purchase \$ per Customer']=>['PROJECTED REVENUE'];

5. Press **Enter** and type the following text:

```
'PROJECTED CUSTOMERS AT END OF PERIOD']=>
DB('Customer_Churn', ATTRS('Months', !Months, 'Next'),
'Customers at Start of Period');
```

In order to feed the Customers at Start of Period, you need to place a marker in the Projected Customer at the End of the Period to push into the Next month.

Rules pull values into cells but feeders are pushed out to the cell. In Feb the rule is pulling data from Jan but the marker must be pushed from Jan to the Feb cell.

The result appears as follows:

```

1  SKIPCHECK;
2  ['Customers at Start of Period', 'Jan'] = N: ['Existing Customers (Pd1)', 'Jan'];
3  ['Attrition (Numbers)'] = N: ['Customers at Start of Period'] * ['Attrition Rate (%)'];
4  ['CUSTOMERS EXPECTED TO PURCHASE SPECIAL OFFER'] = N: ['Customers at Start of Period'] * .9;
5  ['PROJECTED REVENUE'] = N: ['CUSTOMERS EXPECTED TO PURCHASE SPECIAL OFFER'] *
6          ['Average Purchase $ per Customer'];

7
8  ['Customers at Start of Period'] = N: DB('Customer_Churn',
9          ATTRS('Months', !Months, 'Previous'), 'PROJECTED CUSTOMERS AT END OF PERIOD');

10
11 FEEDERS;
12 ['Existing customers (Pd1)', 'Jan']=>['Customers at Start of Period', 'Jan'];
13 ['Attrition Rate (%)']=>['Attrition (Numbers)'];
14 ['Customers at Start of Period']=>['CUSTOMERS EXPECTED TO PURCHASE SPECIAL OFFER'];
15 ['Average Purchase $ per Customer']=>['PROJECTED REVENUE'];
16 ['PROJECTED CUSTOMERS AT END OF PERIOD']=> DB('Customer_Churn', ATTRS('Months', !Months, 'Next'),
17          'Customers at Start of Period');
```

- Save the rule and recalculate the view.

The result appears as follows:

Churn_Measures	Months			
	Jan	Feb	Mar	Apr
Existing Customers (Pd)	12000	0	0	0
Customers at Start of P	12000	26520	32459.2	38836.24
New Customers	15000	7000	8000	8000
Attrition Rate (%)	0.04	0.04	0.05	0.02
Attrition (Numbers)	480	1060.8	1622.96	776.7248
-- PROJECTED CUSTOMER	26520	32459.2	38836.24	46059.5152
Customers at Start o	12000	26520	32459.2	38836.24
New Customers	15000	7000	8000	8000
Attrition (Numbers)	480	1060.8	1622.96	776.7248

## Task 7. Adjust rules so opening and closing balances do not aggregate across time.

In this example, Customers at the Start of Period should not aggregate at the consolidated levels. Instead, the value at the end of the quarter is equal to the value at the end of the last month in the quarter. Therefore, we will write rules at the consolidated levels to override the automatic aggregation.

- In the view, click **Months** to open the Subset Editor.
- Click **All**, click **Total Year** and then click **OK**.

3. Click **Recalculate** and then expand **Total Year** and **Q1**.

Churn_Measures	Months	-- Total Year	-- Q1	Jan	Feb	Mar	-- Q2
Existing Customers		12000	12000	12000	0	0	0
Customers at Start		648182.82786164	70979.2	12000	26520	32459.2	137652.29464
New Customers		110000	30000	15000	7000	8000	26000
Attrition Rate (%)		0.55	0.13	0.04	0.04	0.05	0.12
Attrition (Numbers)		30858.854193082	3163.76	480	1060.8	1622.96	5717.527532
-- PROJECTED CUST		727323.97366856	97815.44	26520	32459.2	38836.24	157934.767108
Customers at S		648182.82786164	70979.2	12000	26520	32459.2	137652.29464
New Customers		110000	30000	15000	7000	8000	26000
Attrition (Numb		30858.854193082	3163.76	480	1060.8	1622.96	5717.527532
CUSTOMERS EXP		583364.54507548	63881.28	10800	23868	29213.28	123887.065176
Average Purchase		2150	200	50	50	100	700
PROJECTED REVEN		118663984.56572	4654728	540000	1193400	2921328	27669942.4536

4. Open the rules for the Customer\_Churn cube.
5. Replace the rule for ['Customers at the Start of Period', 'Jan'] with the following:  
**[Customer at Start of Period', {'Jan','Q1','Total Year'}]=N:[Existing Customers (Pd1)', 'Jan'];**
6. Remove the **N:** from line 8 for ['Customers at Start of Period'].

This will override the aggregation by allowing the Customers at Start of Period to be computed at the consolidated level as well as at the base level.

7. Add the following rules before the FEEDERS;

**[PROJECTED CUSTOMERS AT END OF PERIOD,'Q1'] =  
C:['Mar'];**

**[PROJECTED CUSTOMERS AT END OF PERIOD,'Q2'] =  
C:['Jun'];**

**[PROJECTED CUSTOMERS AT END OF PERIOD,'Q3'] =  
C:['Sep'];**

**[PROJECTED CUSTOMERS AT END OF PERIOD,{Q4','Total  
Year'}] = C:['Dec'];**

These statements will set the year and quarters to the last Month closing balance.

8. Remove the last feeder statement.

You remove this feeder because we removed the N: from the ['Customers at Start of Period'] on line 8. Now this rule is being calculated for the consolidated levels as well as the N level which overrides the consolidation engine. Because you no longer need the consolidation engine to calculate the values, you may remove the feeder.

The results appear as follows:

```

1 SKIPCHECK;
2 ['Customers at Start of Period', {'Jan','Q1','Total Year'}] = N: ['Existing Customers (Pd1)', 'Jan'];
3 ['Attrition (Numbers)'] = N: ['Customers at Start of Period'] * ['Attrition Rate (%)'];
4 ['CUSTOMERS EXPECTED TO PURCHASE SPECIAL OFFER'] = N: ['Customers at Start of Period'] * .9;
5 ['PROJECTED REVENUE'] = N: ['CUSTOMERS EXPECTED TO PURCHASE SPECIAL OFFER'] *
6                         ['Average Purchase $ per Customer'];
7
8 ['Customers at Start of Period'] = DB('Customer_Churn',
9           ATTRS('Months', !Months, 'Previous'), 'PROJECTED CUSTOMERS AT END OF PERIOD');
10 ['PROJECTED CUSTOMERS AT END OF PERIOD', 'Q1'] = C:['Mar'];
11 ['PROJECTED CUSTOMERS AT END OF PERIOD', 'Q2'] = C:['Jun'];
12 ['PROJECTED CUSTOMERS AT END OF PERIOD', 'Q3'] = C:['Sep'];
13 ['PROJECTED CUSTOMERS AT END OF PERIOD', {'Q4', 'Total Year'}] = C:['Dec'];
14
15 FEEDERS;
16 ['Existing customers (Pd1)', 'Jan'] => ['Customers at Start of Period', 'Jan'];
17 ['Attrition Rate (%)'] => ['Attrition (Numbers)'];
18 ['Customers at Start of Period'] => ['CUSTOMERS EXPECTED TO PURCHASE SPECIAL OFFER'];
19 ['Average Purchase $ per Customer'] => ['PROJECTED REVENUE'];

```

If you are using the advanced rules editor, you may use Regions to better organize your rules and feeders. You simply create a line above the lines you would like to indent and type, #Region NameOfRegion.

9. On line 14 (or the line before FEEDERS;) type the following:

### #Region Feeder Statements

You should see a minus sign with a line going down to the end of the file.

```

14 #Region Feeder Statements
15 FEEDERS;
16 ['Existing customers (Pd1)', 'Jan']=>['Customers at Start of Period', 'Jan'];
17 ['Attrition Rate (%)']=>['Attrition (Numbers)'];
18 ['Customers at Start of Period']=>['CUSTOMERS EXPECTED TO PURCHASE SPECIAL OFFER'];
19 ['Average Purchase $ per Customer']=>['PROJECTED REVENUE'];
20

```

10. After the last feeder statement type, #endregion

```

14 #region feeder statements
15 FEEDERS;
16 ['Existing customers (Pd1)', 'Jan']=>['Customers at Start of Period', 'Jan'];
17 ['Attrition Rate (%)']=>['Attrition (Numbers)'];
18 ['Customers at Start of Period']=>['CUSTOMERS EXPECTED TO PURCHASE SPECIAL OFFER'];
19 ['Average Purchase $ per Customer']=>['PROJECTED REVENUE'];
20 #endregion

```

11. Click the minus sign to collapse the statements.

```

14 feeder statements

```

12. Close the rules and views of the Customer\_Churn cube.

13. In Server Explorer, right-click **Customer\_Churn** and then click **Unload Cube**.

14. Open the default view of Customer\_Churn, click **Months**, click **All**, click **OK** and then click **Recalculate**.

The results appear as follows:

Churn_Measures	Months					
	-- Total Year	-- Q1	Jan	Feb	Mar	-- Q2
Existing Customers	12000	12000	12000	0	0	0
Customers at Start	648182.82786164	70979.2	12000	26520	32459.2	38836.24
New Customers	110000	30000	15000	7000	8000	26000
Attrition Rate (%)	0.55	0.13	0.04	0.04	0.05	0.12
Attrition (Numbers)	30858.854193082	3163.76	480	1060.8	1622.96	5717.527532
-- PROJECTED CUST	91141.145806918	38836.24	26520	32459.2	38836.24	59118.712468
Customers at Start	648182.82786164	70979.2	12000	26520	32459.2	38836.24
New Customers	110000	30000	15000	7000	8000	26000
Attrition (Numbers)	30858.854193082	3163.76	480	1060.8	1622.96	5717.527532
CUSTOMERS EXPENSE	583364.54507548	63881.28	10800	23868	29213.28	123887.065176
Average Purchase	2150	200	50	50	100	700
PROJECTED REVENUE	118663984.56572	4654728	540000	1193400	2921328	27669942.4536

15. Close all open windows, saving if prompted.

## Result:

You have created the customer churn cube and populated it with data from a text file and rules. You created rules that derive data from a lookup cube to determine moving balances from one time period to another.

The projected customer number from Jan is pulled into the Feb Customers number at the start of the period from the rule using the ATTRN function to retrieve the previous period.

The feeder works in the opposite manner. It is pushed from the Jan Customers at the end of the period to the Feb Customers at the start of the period (the next period).

**Rules and feeders are often said to have a push/pull relationship.**

You must be very careful when inserting and deleting lines in the advanced rules editor. It is very easy to delete a line using regions because you may not realize the whole region is selected. Use caution when pressing Return or Delete. You can also instruct participants to comment out the feeder by placing a # at the start of the line.

Steps 9-14 will only work when using the Advanced Rules Editor, otherwise skip them.

## Summary

- At the end of this module, you should be able to:
  - discuss virtual cubes
  - list uses for lookup cubes
  - create and use a spread profile cube
  - implement moving balances in a cube

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## Convert Currencies

IBM Cognos TM1 9.5



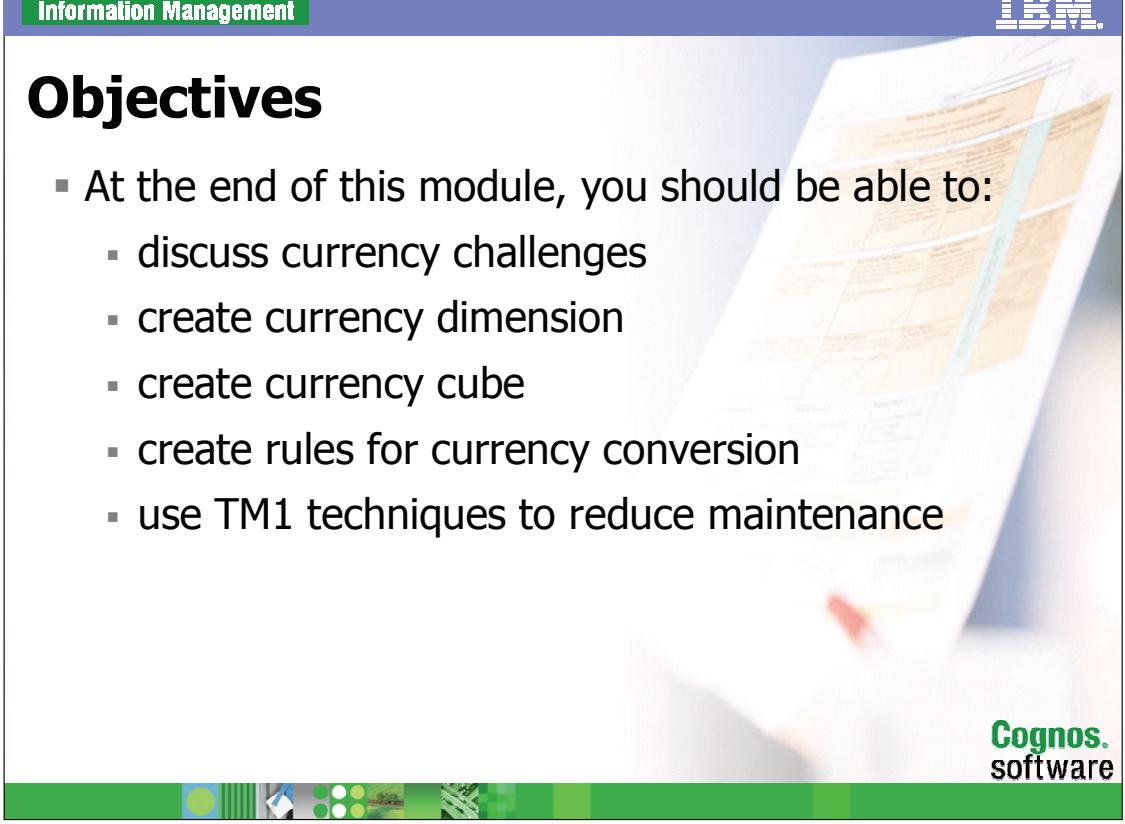
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# Objectives

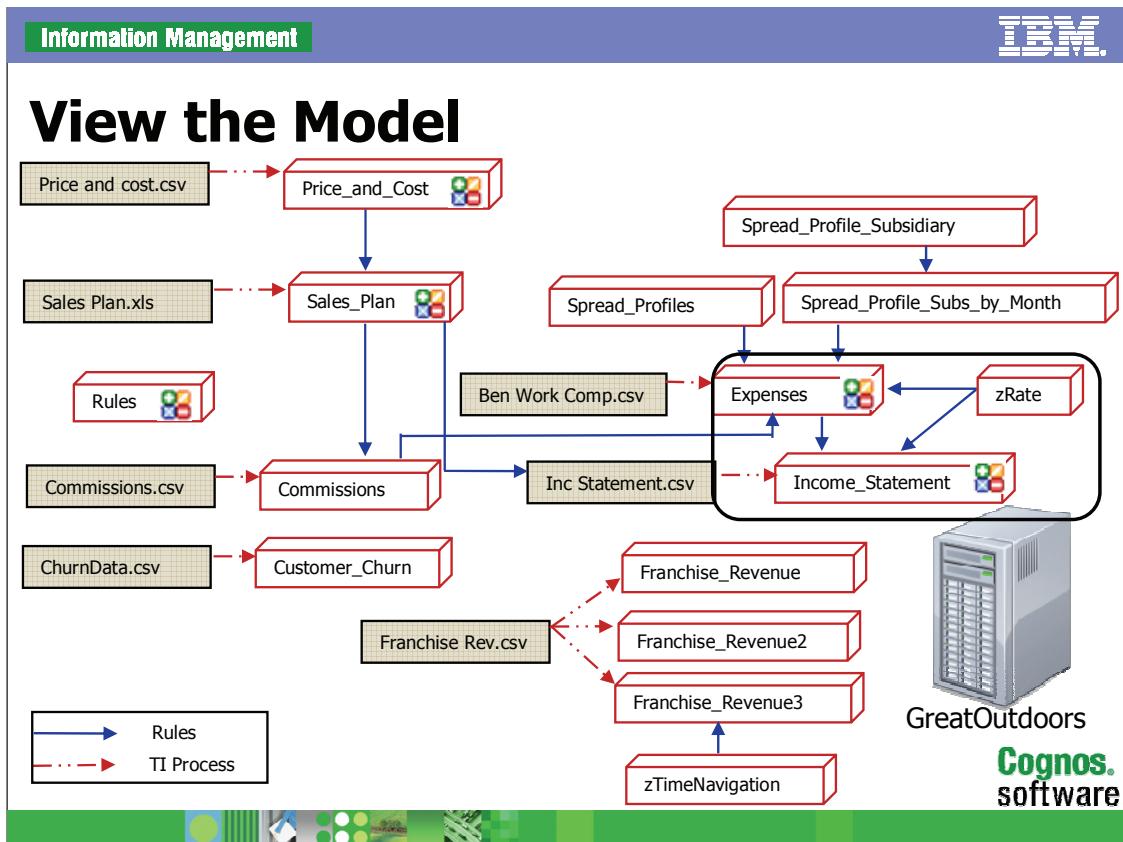
- At the end of this module, you should be able to:
  - discuss currency challenges
  - create currency dimension
  - create currency cube
  - create rules for currency conversion
  - use TM1 techniques to reduce maintenance



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**INTERACTION - Star Sticker:** Place a star next to each objective.



In this module, you will create the following cubes:

- zRate
- Income\_Statement

# Converting Currency

- Local currency vs. reporting currency
- Use combination of techniques in TM1
  - lookup cube
  - attributes
  - rules
  - rules tracer
  - control cubes
  - dimension worksheets

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Dimension worksheets are modified Microsoft Excel spreadsheets used to create and maintain elements and hierarchical relationships in dimensions.

In today's global markets, financial data is often coming to us in different currencies.

- Data may be input in a region's local currency.
- Reporting or analysis needs require translation

You will want to make currency conversions easy to maintain and simple to expand.

In this module we will reuse many of the techniques from previous modules (rules, attributes, logic, and lookup cubes) but we will combine them with control cubes to make our currency translation easier to expand.

This example will focus simply on currency without considering time. Currency conversion is also time dependant and your logic must reflect this as well.

Dimension worksheets are most often used in legacy applications but it may also make it easier to share information between models. For more information see the *TM1 Developers Guide, Creating Dimensions Using Dimension Worksheets*.

## Review Control Cubes

- Control cubes
  - turn on display in Server Explorer
  - preceded by '}'
- Use control cubes to make it easier to maintain
  - apply rules to the control cubes
  - add logic to attributes

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Types of data stored in control cubes include:

- Element attributes
- Client, cube and server performance information
- Security information

---

You can create views, rules and reports on control cubes.

We will add rules containing logic to our attributes cube in order to reduce the amount of manual maintenance performed of them.

## Demo 1: Include Reporting Currencies in a Cube

### Purpose:

**Great Outdoors** is a global corporation with a need to report financial results in three different currencies, U.S. Dollars, Japanese Yen, and Euros. It is assumed that each Subsidiary reports sales and expenses in their local currency and then you must convert those amounts to the reporting currencies.

### Task 1. Add a reporting currency attribute to Subsidiaries and Expense\_Measures.

TM1 Server: **greatoutdoors**

TM1 - Architect: **Server Explorer**

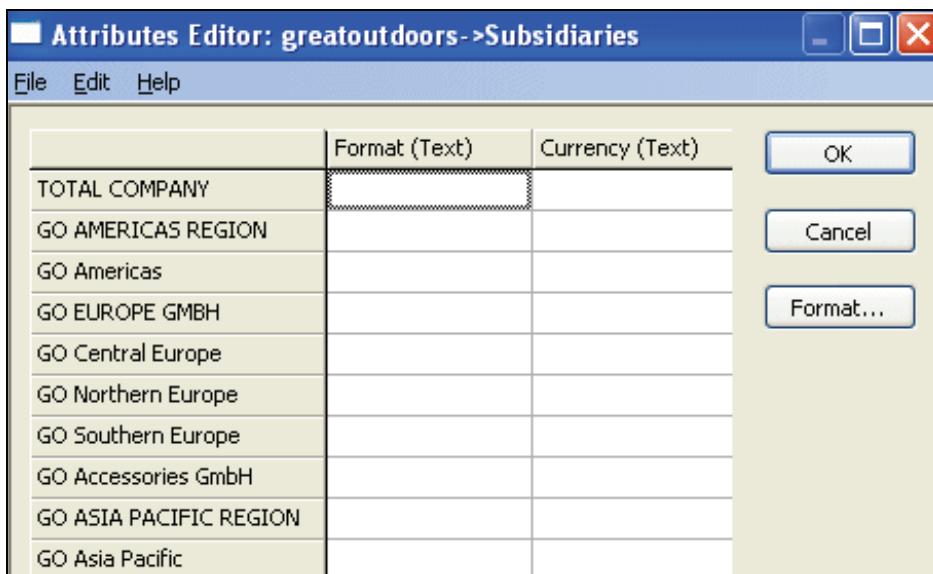
UserName: **admin**

Password: **<blank>**

1. Ensure that the **greatoutdoors** TM1 server is started in the task bar, and then launch **TM1 - Architect: Server Explorer**.
2. Expand **TM1**, double-click **greatoutdoors**, in the **UserName** box, type **admin**, and then click **OK**.
3. In Server Explorer, expand **Dimensions**, right-click **Subsidiaries** and then click **Edit Element Attributes**.
4. From the **Edit** menu, click **Add New Attribute**.

5. In the **Name** box type **Currency** and then click **OK**.

The results appear as follows:



The screenshot shows the 'Attributes Editor' dialog box for the 'greatoutdoors->Subsidiaries' dimension. The table lists various dimensions and their current formats:

	Format (Text)	Currency (Text)
TOTAL COMPANY		
GO AMERICAS REGION		
GO Americas		
GO EUROPE GMBH		
GO Central Europe		
GO Northern Europe		
GO Southern Europe		
GO Accessories GmbH		
GO ASIA PACIFIC REGION		
GO Asia Pacific		

Buttons on the right side of the dialog box include 'OK', 'Cancel', and 'Format...'. The 'OK' button is highlighted.

You will populate the attribute later using a rule.

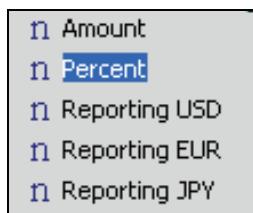
6. Click **OK**.
7. Repeat steps 3-5 for the **Expense\_Measures** dimension.

## **Task 2. Add new measures and attributes to Expense\_Measures.**

1. In Server Explorer, right-click **Expense\_Measures** and then click **Edit Dimension Structure**.
2. Click the **Percent** element.
3. From the **Edit** menu, and then click **Insert Element**.
4. Add the following elements:
  - **Reporting USD**
  - **Reporting EUR**
  - **Reporting JPY**

5. Click **OK**.

The results appear as follows:



6. Save and close the dimension.

### **Task 3. Create zRate dimensions and cube.**

1. In Server Explorer, right-click **Dimensions** and then click **Create New Dimension**.

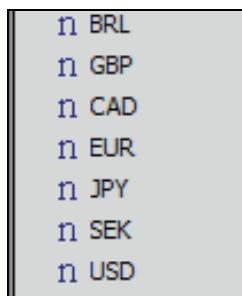
We will create three new dimensions, Currency, Currency Type, and CurrencyConvertTo.

2. From the **Edit** menu, click **Insert Element**.
3. Enter the following currency symbols:

- **BRL**
- **GBP**
- **CAD**
- **EUR**
- **JPY**
- **SEK**
- **USD**

4. Save the dimension and name it **Currency**.

The results appear as follows:

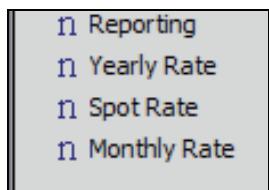


5. Close the Dimension Editor, and then create a new dimension.
6. Enter the following elements:

- **Reporting**
- **Yearly Rate**
- **Spot Rate**
- **Monthly Rate**

7. Save the dimension as **CurrencyType** and close the editor.

The results appear as follows:



This dimension is helpful if you need to look at data or reports using different rates. In this example you will use the Reporting rate.

8. Create a new dimension.

9. Enter the following elements:

- **BRL**
- **GBP**
- **CAD**
- **EUR**
- **JPY**
- **SEK**
- **USD**

10. Save the dimension as **CurrencyConvertTo** and close the editor.

The results appear as follows:

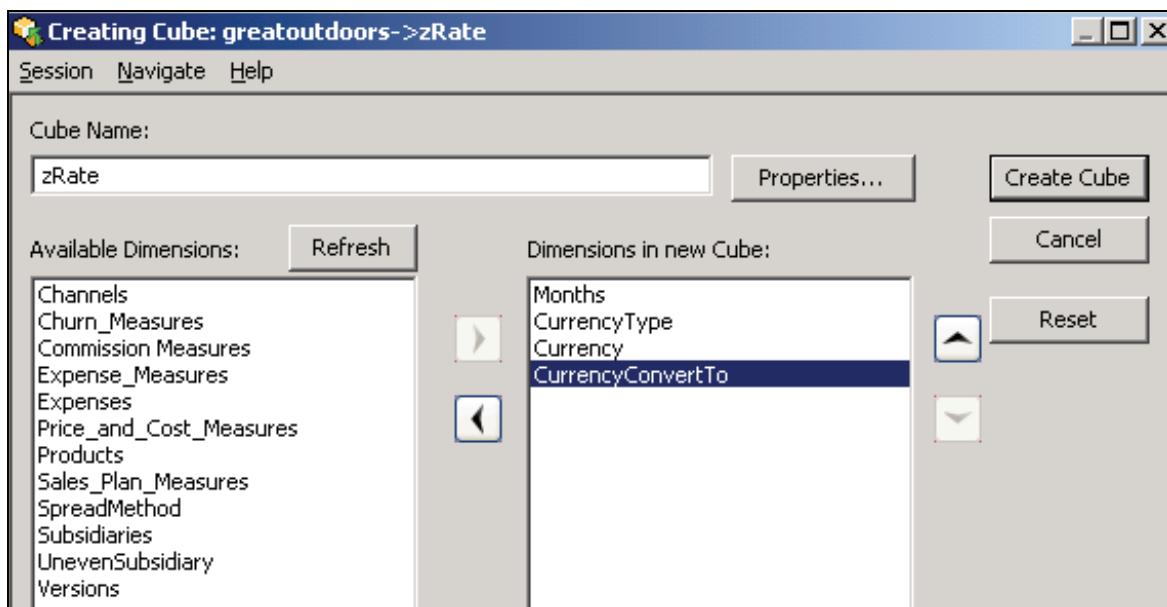


Models are often created for multiple regions. Data may be input into it in a variety of formats and then the data is converted. You created one dimension to store the values in the local currency (Currency), one dimension to store the type of rate you need to convert to (CurrencyType) and finally the currency the data is converted to (CurrencyConvertTo).

## Task 4. Create and populate the zRate cube.

1. In Server Explorer, create a new cube called **zRate**.
2. Add the following dimensions:
  - Months
  - CurrencyType
  - Currency
  - CurrencyConvertTo

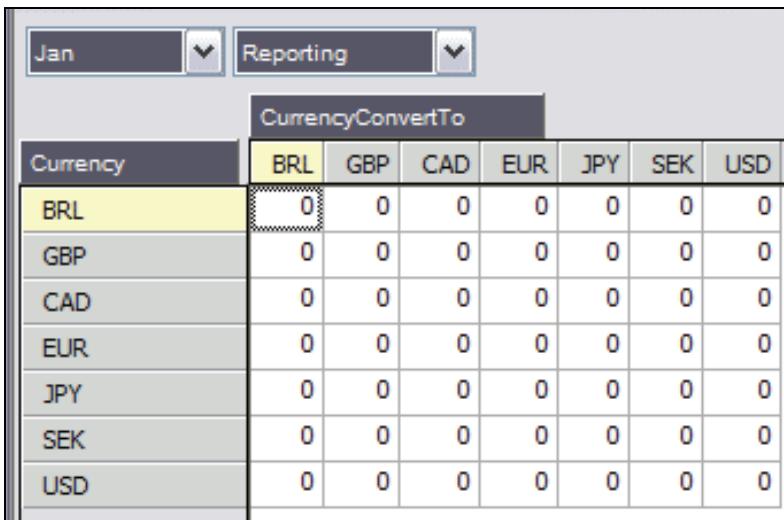
The results appear as follows:



3. Click **Create Cube**.
4. Double-click the **zRate** cube.
5. Double-click the **Months** dimension, click **All**.

6. Click **Jan**, click **OK**, and then click **Recalculate**.

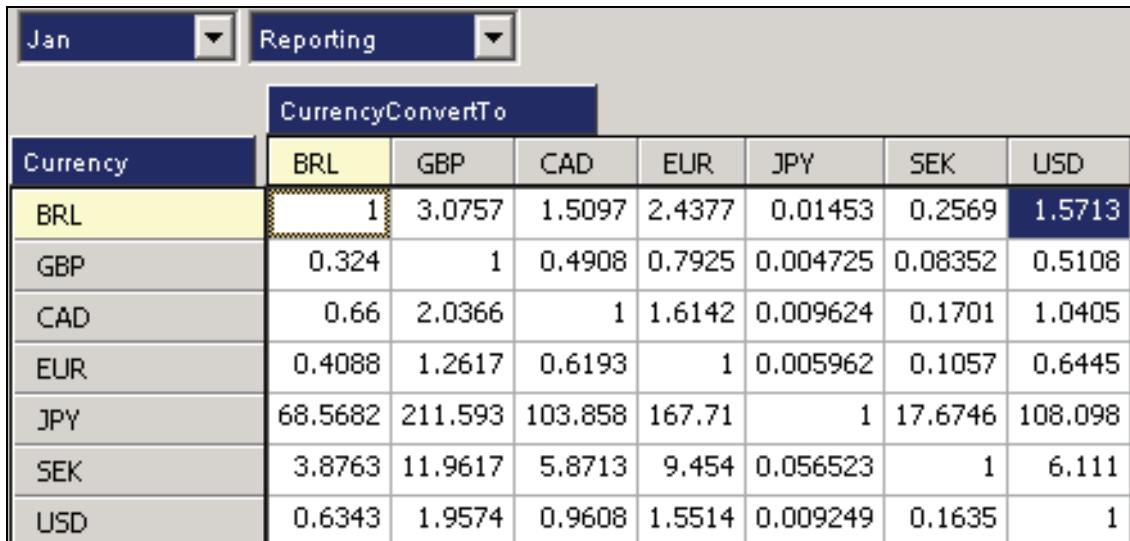
The results appear as follows:



Currency	CurrencyConvertTo						
	BRL	GBP	CAD	EUR	JPY	SEK	USD
BRL	0	0	0	0	0	0	0
GBP	0	0	0	0	0	0	0
CAD	0	0	0	0	0	0	0
EUR	0	0	0	0	0	0	0
JPY	0	0	0	0	0	0	0
SEK	0	0	0	0	0	0	0
USD	0	0	0	0	0	0	0

7. Save as the **Default** view.
8. In Microsoft Excel, open **C:\Edcognos\P6502\GreatOutdoors\SourceFiles\CurrencyRates.xls** in Microsoft Excel.
9. Select cells **B2:H8**, press **Ctrl+C** to copy.
10. Select all of the cells in the view, and then press **Ctrl+V** to paste.

11. Click **Automatic Recalculate**, and then repeat step **10** for each month.  
 Each month will have the same exchange rates.  
 The results appear as follows:



Currency	CurrencyConvertTo						
	BRL	GBP	CAD	EUR	JPY	SEK	USD
BRL	1	3.0757	1.5097	2.4377	0.01453	0.2569	1.5713
GBP	0.324	1	0.4908	0.7925	0.004725	0.08352	0.5108
CAD	0.66	2.0366	1	1.6142	0.009624	0.1701	1.0405
EUR	0.4088	1.2617	0.6193	1	0.005962	0.1057	0.6445
JPY	68.5682	211.593	103.858	167.71	1	17.6746	108.098
SEK	3.8763	11.9617	5.8713	9.454	0.056523	1	6.111
USD	0.6343	1.9574	0.9608	1.5514	0.009249	0.1635	1

12. Close **Cube Viewer** without saving changes to the Default view.  
 13. Close **Microsoft Excel** without saving changes if prompted.

## Task 5. Populate attributes for Subsidiary and Expense\_Measures using control cubes.

1. In Server Explorer, from the **View** menu, click **Display Control Objects**.  
 Internally TM1 uses cubes to store information about your application including attributes.  
 In order to make maintenance of our Currency attribute (on Subsidiaries dimension) automatic, we will add a rule to apply the parent currency rate to its children.

2. In the list of cubes, right-click **{ElementAttributes\_Subordinates}** and then click **Create Rule**.

This rule uses the following functions:

The ELPAR function to return the parent of an element in a specified dimension.

#### **SYNTAX: ELPAR(dimension, element, index)**

Note: the index refers to the index of the dimension hierarchy. It will usually be 1 unless there are multiple hierarchies in the dimension.

IF returns one value if a logical expression you specify is TRUE and another value if it is FALSE.

#### **SYNTAX: IF(expression, true\_value, false\_value)**

3. Enter the following rule:

```
'[Currency']=S:IF(ELPAR('Subsidiaries',!Subsidiaries, 1)@=  
'GO AMERICAS REGION','USD', continue);
```

This rule states for the currency, look to the Element's parent, if the parent is GO AMERICAS REGION, the currency will be USD, otherwise continue.

The continue statement allows many rules over the same area and you will use a STET at the end to allow cells not covered by this function to be entered manually.

4. Save the rule.

5. Double-click the **{ElementAttributes\_Subsidiaries** cube, configure as seen below and then recalculate.

The results appear as follows:

}ElementAttributes_Subsidiaries	
Subsidiaries	Currency
-- TOTAL COMPANY	
-- GO AMERICAS REGION	
GO Americas	USD
-- GO ASIA PACIFIC REGION	
GO Asia Pacific	
-- GO EUROPE GMBH	
GO Accessories Gmb	

6. Add the following rules to the cube:

```
[Currency]=S:IF(ELPAR('Subsidiaries',!Subsidiaries, 1)@= 'GO ASIA PACIFIC REGION','JPY', continue);
[Currency]=S:IF(ELPAR('Subsidiaries',!Subsidiaries, 1)@= 'GO EUROPE GMBH','EUR', STET);
```

7. Save the rules and recalculate the view.

The results appear as follows:

}ElementAttributes_Subsidiaries	
Subsidiaries	Currency
-- TOTAL COMPANY	
-- GO AMERICAS	
GO Americas	USD
-- GO ASIA PACI	
GO Asia Pac	JPY
-- GO EUROPE G	
GO Accessor	EUR
GO Central E	EUR
GO Northern	EUR
GO Southern	EUR

8. Close the rules editor and the view, without saving (the view).
9. Double-click the **{ElementAttributes\_Expense\_Measures}** control cube and recalculate the view.  
The Currency attribute does not have values yet.
10. Right-click the **{ElementAttributes\_Expense\_Measures}** and then click **Create Rule**.
11. Enter the following rule:

**[Currency]=S:IF(SUBST(!Expense\_Measures, 1, 9)@='Reporting',  
SUBST(!Expense\_Measures,11, 3), STET);**

SUBST returns a substring of a given string.

**SYNTAX: SUBST(string, beginning\_position, length)**

12. Save the rule and recalculate the view.

The results appear as follows:

<b>{ElementAttributes_Expense_Measures}</b>	
<b>Expense_Measures</b>	<b>Currency</b>
Amount	
Percent	
Reporting USD	USD
Reporting EUR	EUR
Reporting JPY	JPY

The rule looks to the element name to determine the value for the reporting Currency. If you add a new reporting currency, you would follow the naming convention applied to the previous elements and the rule will update the currency attribute automatically.

13. Close all control cube rules and views.
14. In Server Explorer, from the **View** menu, click **Display Control Objects** to turn off display of the control cubes.

Because you created rules to automatically assign the currency attributes on elements in these dimensions, you will not need to manually update them. When a new reporting currency is added, simply create the new element in the **Expense\_Measures** dimension (using the Reporting *xxx* format) and it will automatically be added as an attribute.

As new subsidiaries are added, the currency attribute will also be added automatically.

## **Task 6. Create rules to calculate the exchange rate.**

1. In Server Explorer, double-click the **Expenses** cube and create a new view called **ReportingCurrencies**.
2. Click **Expense\_Measures**, click **All** and then click **OK**.

3. Ensure that the view appears as shown below, and then click **Recalculate**.

The results appear as follows:

Expense_Measures					
Expenses:Default	Amount	Percent	Reporting USD	Reporting EUR	Reporting JPY
-- TOTAL COMPENS	\$183,487,924.53	105.24	0	0	0
-- SALARIES	\$73,479,409.48	0	0	0	0
Salaries: dire	\$0.00	0	0	0	0
Salaries: ind	\$0.00	0	0	0	0
Commission	\$73,479,409.48	0	0	0	0
-- BENEFITS	\$110,008,515.05	105.24	0	0	0
PENSION PL	\$58,896,434.74	57.36	0	0	0
SOCIAL SEC	\$33,482,903.80	32.64	0	0	0
HEALTH INS	\$15,802,871.56	15.24	0	0	0
Workers Cor	\$1,826,304.96	0	0	0	0
-- TOTAL EXPENSES	\$3,000,000.00	0	0	0	0
-- OVERHEAD	\$3,000,000.00	0	0	0	0
Travel	\$1,000,000.00	0	0	0	0
Premises	\$2,000,000.00	0	0	0	0
Communicat	\$0.00	0	0	0	0

4. Open the rules for the **Expenses** cube.

5. Insert two blank lines before the **FEEDERS;** statement.

You will be multiplying the Dollars by the exchange rate. The exchange rate will be pulled from the zRate cube using the FROM currency specified in the attribute in the Subsidiaries dimension and the TO currency specified in the attribute in the Expense\_Measures dimension. You will use the ATTRS function to get the attributes of these dimensions.

6. Enter the following:

**[Reporting USD]=N:[Amount]\***

7. Click **Insert Cube Reference**, click the **zRate** cube.

8. Click the Subset icon next to **CurrencyType**, click **Reporting** and then click **OK**.

The results appear as follows:

Cube:			
zRate			
<input type="checkbox"/> Include Control Cubes			
Dimensions: 4			<b>Reset All</b>
0	Name	Reference	
► 1	Months	!Months	!
2	CurrencyType	Reporting	!UUU
3	Currency		!
	CurrencyConvertTo		UUU

9. Click **OK**.

The results appear as follows:

```

6
7 ['Reporting USD']=N:[ 'Amount']*DB('zRate', !Months, 'Reporting', , )

```

You need to use ATTRS functions to point to the Currency and CurrencyConvertTo dimensions.

In between the two commas, will be ATTRS('Subsidiaries', !Subsidiaries, 'Currency').

10. Click in between the last two commas and type **ATTRS('Subsidiaries',!Subsidiaries,'Currency')**.
11. Click after the last comma and type:  
**ATTRS('Expense\_Measures', !Expense\_Measures, 'Currency')**.
12. Add a ; to the end of the line and save the rule.

13. Add the feeder:

**['Amount'] => ['Reporting USD'];**

The results appear as follows:

```

1  SKIPCHECK;
2  ['Commission', 'Amount'] = N: DB('Commissions', !Subsidiaries, !Months, !Versions, !
3  ['PENSION PLAN', 'Amount'] = N: ['SALARIES', 'Amount'] *['PENSION PLAN', 'Percent']
4  ['SOCIAL SECURITY', 'Amount'] = N: ['SALARIES', 'Amount'] *['SOCIAL SECURITY', 'Perce
5  ['HEALTH INSURANCE', 'Amount'] = N: ['SALARIES', 'Amount'] *['HEALTH INSURANCE', 'Per
6
7  ['Reporting USD'] = N: ['Amount'] * DB('zRate', !Months, 'Reporting',
8          ATTRS('Subsidiaries', !Subsidiaries, 'Currency') ,
9          ATTRS('Expense_Measures', !Expense_Measures, 'Currency') );
10 FEEDERS;
11 ['Amount'] => ['Reporting USD'];
12 ['SALARIES', 'Amount'] => ['PENSION PLAN', 'Amount'], ['SOCIAL SECURITY', 'Amount'],
13                               ['HEALTH INSURANCE', 'Amount'];

```

14. Save the rule and recalculate the view.

The results appear as follows:

Budget Version 1	Total Year	TOTAL COMPANY		
Expense_Measures				
Expenses:Default	Amount	Percent	Reporting USD	Reporting EUR
-- TOTAL COMPENS	\$183,487,924.53	105.24	3431207166.8155	0
-- BENEFITS	\$110,008,515.05	105.24	2111247739.1298	0
HEALTH INS	\$15,802,871.56	15.24	277822231.08933	0
PENSION PL	\$58,896,434.74	57.36	1259489106.2937	0
SOCIAL SEC	\$33,482,903.80	32.64	544016595.2613	0
Workers Com	\$1,826,304.96	0	29919806.48544	0
-- SALARIES	\$73,479,409.48	0	1319959427.6857	0
Commission	\$73,479,409.48	0	1319959427.6857	0
Salaries: dire	\$0.00	0	0	0
Salaries: ind	\$0.00	0	0	0
-- TOTAL EXPENSES	\$3,000,000.00	0	3000000	0
-- OVERHEAD	\$3,000,000.00	0	3000000	0
Communicat	\$0.00	0	0	0

15. Modify the feeder:

**[Amount] => [Reporting USD], [**Reporting EUR**],  
[**Reporting JPY**];**

16. Copy the rule created on line 7, and paste on the next blank line.

17. Change [**Reporting USD**] to [**Reporting EUR**].

## 18. Repeat steps 16 and 17 for **Reporting JPY**.

The results appear as follows:

**Markup > My Arrow Tool: Use a markup tool to add arrows to the zeros in consolidations (or ask a participant to do it).**

```

1 SKIPCHECK;
2 ['Commission', 'Amount'] = N: DB('Commissions', !Subsidiaries, !Months, !Versions, !
3 ['PENSION PLAN', 'Amount'] = N: ['SALARIES', 'Amount'] *['PENSION PLAN', 'Percent']
4 ['SOCIAL SECURITY', 'Amount'] = N: ['SALARIES', 'Amount'] *['SOCIAL SECURITY', 'Perce
5 ['HEALTH INSURANCE', 'Amount'] = N: ['SALARIES', 'Amount'] *['HEALTH INSURANCE', 'Per
6
7 ['Reporting USD'] = N: ['Amount'] * DB('zRate', !Months, 'Reporting',
8                         ATTRS('Subsidiaries', !Subsidiaries, 'Currency') ,
9                         ATTRS('Expense_Measures', !Expense_Measures, 'Currency') ) ;
10 ['Reporting EUR'] = N: ['Amount'] * DB('zRate', !Months, 'Reporting',
11                         ATTRS('Subsidiaries', !Subsidiaries, 'Currency') ,
12                         ATTRS('Expense_Measures', !Expense_Measures, 'Currency') ) ;
13 ['Reporting JPY'] = N: ['Amount'] * DB('zRate', !Months, 'Reporting',
14                         ATTRS('Subsidiaries', !Subsidiaries, 'Currency') ,
15                         ATTRS('Expense_Measures', !Expense_Measures, 'Currency') ) ;
16
17 FEEDERS;
18 ['Amount'] => ['Reporting USD'], ['Reporting EUR'], ['Reporting JPY'];
19 ['SALARIES', 'Amount'] => ['PENSION PLAN', 'Amount'], ['SOCIAL SECURITY', 'Amount'],
20 ['HEALTH INSURANCE', 'Amount'];

```

### Instructor Notes

Instead of having three separate rules for the Reporting USD, Reporting EUR and Reporting JPY, you can change the area of the first rule from ['Reporting USD']= to:

[{'Reporting USD', 'Reporting EUR', 'Reporting JPY'}]=

The curly braces {} indicate a list of elements within the same dimension.

19. Save the rule and recalculate the view:

The results appear as follows:

	Budget Version 1	Total Year	TOTAL COMPANY		
	Expense_Measures				
Expenses:Default	Amount	Percent	Reporting USD	Reporting EUR	Reporting JPY
-- TOTAL COMPENSATION	\$183,487,924.53	105.24	3431207166.8155	5323395758.1102	31741533.236436
-- BENEFITS	\$110,008,515.05	105.24	2111247739.1298	3275525317.8253	19530804.506615
HEALTH INSURANCE	\$15,802,871.56	15.24	277822231.08933	431031250.74848	2570086.1103241
PENSION PLAN	\$58,896,434.74	57.36	1259489106.2937	1954051997.4342	11651330.37749
SOCIAL SECURITY	\$33,482,903.80	32.64	544016595.2613	844022533.95171	5032604.8228537
Workers Compensation	\$1,826,304.96	0	29919806.48544	46419535.690896	276783.1959468
-- SALARIES	\$73,479,409.48	0	1319959427.6857	2047870440.2849	12210728.729821
Commission	\$73,479,409.48	0	1319959427.6857	2047870440.2849	12210728.729821
Salaries: direct	\$0.00	0	0	0	0
Salaries: indirect	\$0.00	0	0	0	0
-- TOTAL EXPENSES	\$3,000,000.00	0	3000000	4654200	27747
-- OVERHEAD	\$3,000,000.00	0	3000000	4654200	27747
Communication	\$0.00	0	0	0	0
Insurance	\$0.00	0	0	0	0
Marketing	\$0.00	0	0	0	0
Minor Equipment	\$0.00	0	0	0	0
Premises	\$2,000,000.00	0	2000000	3102800	18498

20. Close all open views, close the Rules Editor, close TM1 Architect and then close Microsoft Excel.

### Results:

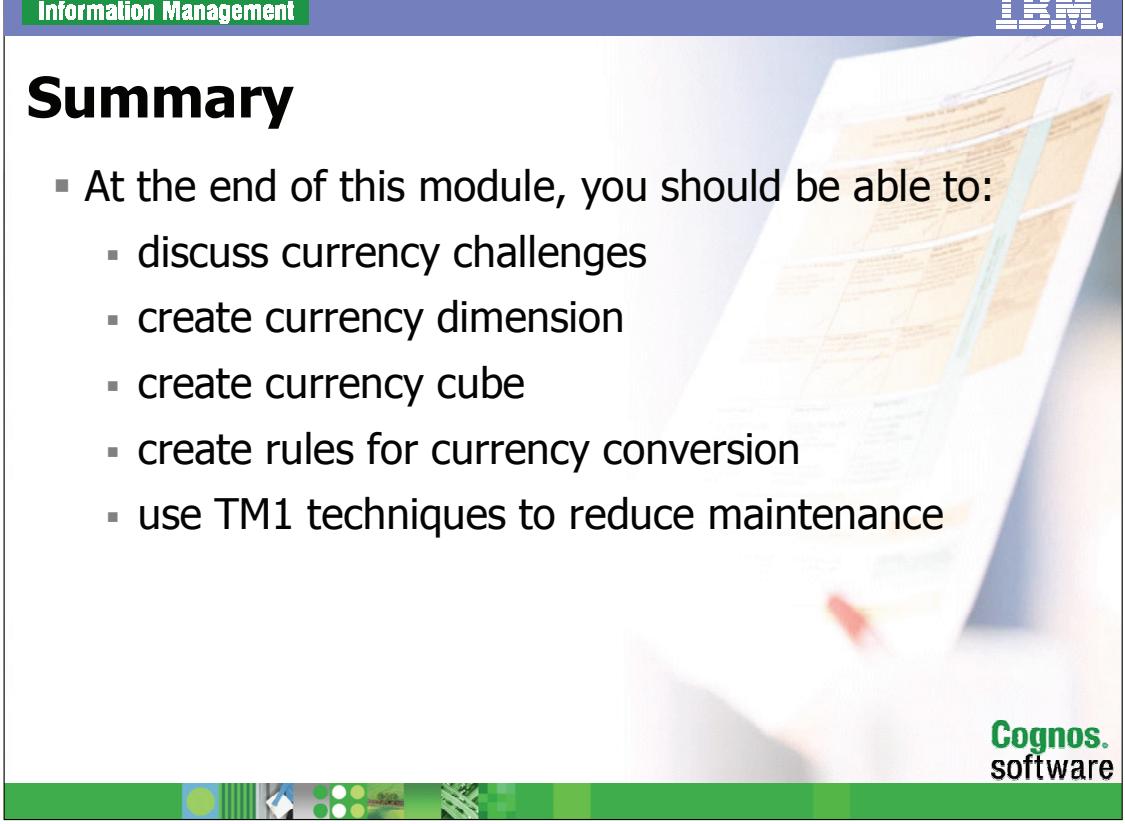
**Each Subsidiary reports sales and expenses in their local currency and then you converted those amounts to the reporting currencies.**

---

If you want to see Trace Calculations, navigate to the leaf level, select a cell and click Trace Calculation, this will show the values and the exchange rates applied.

## Summary

- At the end of this module, you should be able to:
  - discuss currency challenges
  - create currency dimension
  - create currency cube
  - create rules for currency conversion
  - use TM1 techniques to reduce maintenance



Cognos  
software



## Workshop 1: Build the Income\_Statement Cube with Reporting Currencies

You will need to create a cube reflecting the corporations Income Statement. You will also need to be sure this cube will consider the finance department's need to submit reports in three currencies.

To accomplish this:

- Create an Income\_Statement\_Accounts dimension using a dimension worksheet.
- Create an Income\_Statement\_Measures dimension.
- Create an Income\_Statement cube containing:
  - Versions
  - Months
  - Subsidiaries
  - Income\_Statement\_Accounts
  - Income\_Statement\_Measures
- Load data from Inc Statement.csv.
- Create rules to pull the following data from the Sales\_Plan cube:
  - Gross Sales Revenue
  - Total Discounts and Allowances
  - Freight
  - Cost of Sales

- Create rules to pull Expenses from the Expenses cube:
  - Overheads
  - Salaries
  - Benefits
- Create rules to display results in USD, EUR, and JPY.

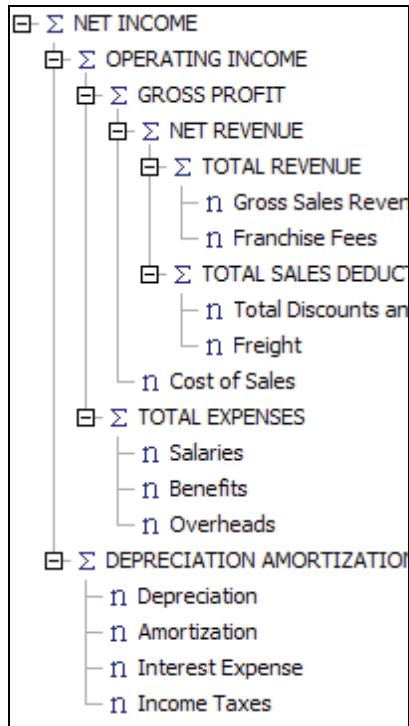
## Workshop 1: Task Table

Task	Where to Work	Hints
1. Create Income_Statement _Accounts dimension.	Dimension worksheet	<ul style="list-style-type: none"> <li>Copy data from Income Statement Accounts.cma.</li> <li>Paste into Income Statement Account.xdi.</li> <li>TM1, Dimension Worksheet, Save</li> </ul>
2. Create Income_Statement _Measures dimension.	Dimension Editor	<ul style="list-style-type: none"> <li>Dollars, Reporting USD, Reporting EUR, Reporting JPY.</li> <li>Save as Income_Statement_Measures.</li> </ul>
3. Add attributes.	Attribute Editor/Control cube	<ul style="list-style-type: none"> <li>Create Currency attributes for measures.</li> <li>Add rule to control cube to determine reporting currencies</li> </ul>
4. Create the Income_Statement cube.	Create Cube	<ul style="list-style-type: none"> <li>Create Income_Statement cube.</li> <li>Versions, Months, Subsidiaries, Income_Statement_Accounts, Income_Statement_Measures</li> </ul>
5. Load data to Income Statement.	Turbo Integrator	<ul style="list-style-type: none"> <li>Load data from Inc Statement.csv.</li> <li>Use SUBST() for month.</li> <li>Load IncomeStatementCSV</li> </ul>

Task	Where to Work	Hints
6. Create rules to pull data from Sales_Plan.	Rules Editor	<ul style="list-style-type: none"> <li>• Create rules in Income Statement.</li> <li>• Feeders should be in Sales_Plan.</li> </ul>
7. Create rules to pull data from Expenses.	Rules Editor	<ul style="list-style-type: none"> <li>• Create rules in Income Statement.</li> <li>• Feeders should be in Expenses.</li> </ul>
8. Create rules to calculate reporting currencies.	Rules Editor	<ul style="list-style-type: none"> <li>• Divide dollars/exchange rate.</li> <li>• Use the zRate cube.</li> </ul>

## Workshop 1: Workshop Results

At the end of Task 1, your results will appear as shown below:



At the end of Task 2, the results will appear as shown below:



At the end of Task 3, the results will appear as shown below:

The screenshot shows two windows side-by-side. The top window is titled "Rules Editor: greatoutdoors->ElementAttributes\_Income\_Statement..." and contains a single line of code in a text editor:

```
[Currency']=S:IF(SUBST(!Income_Statement_Measures, 1, 9)
@= 'Reporting', SUBST(!Income_Statement_Measures, 11, 3), STET);
```

The bottom window is titled "Cube Viewer: greatoutdoors->ElementAttributes\_Income\_Statement..." and displays a table titled "ElementAttributes\_Income\_Statement\_Measures". The table has two columns: "Income\_Statement" and "Currency". It contains four rows of data:

Income_Statement	Currency
Amount	
Reporting USD	USD
Reporting EUR	EUR
Reporting JPY	JPY

At the end of Task 4, the results will appear as shown below:

The screenshot shows a dialog box titled "Create New Cube". On the left, under "Available Dimensions:", there is a list of dimension names. In the center, under "Dimensions in new Cube:", there is a list of dimension names. The dimension "Income\_Statement\_Measures" is selected and highlighted in blue.

Available Dimensions:	Dimensions in new Cube:
Channels Churn_Measures Commission_Measures CurrencyConvertTo CurrencyType Currency Expense_Measures Expenses Price_and_Cost_Measures Products Sales_Plan_Measures SpreadMethod	Versions Months Subsidiaries Income_Statement_Accounts <b>Income_Statement_Measures</b>

After Task 5 Step 11, the results will appear as shown below:

	Variable Name	Variable Type	Sample Value	Contents
1	Subsidiaries	String	GO Americas	Element
2	Expense	String	Amortization	Element
3	vDate	String	7-Jan	Other
4	Version	String	Budget version 1	Element
5	vData	Numeric	497745.81	Data
6	vMonth	String	Jan	Element
7	vMeasures	String	Amount	Element

After Task 5 Step 14, the results will appear as shown below:

Element Variable	Sample Value	Dimension
Subsidiaries	GO Americas	Subsidiaries
Expense	Amortization	Income_Statement_Accounts
Version	Budget version 1	Versions
vMonth	Jan	Months
vMeasures	Amount	Income_Statement_Measures

## Task 6

Rules for Income\_Statement:

```

SKIPCHECK:
['Gross Sales Revenue', 'Amount']=N:DB('Sales_Plan', !Subsidiaries, 'ALL CHANNELS', 'TOTAL PRODUCTS',
                                         !Months, !Versions, 'GROSS SALES REVENUE');
['Total Discounts and Allowances', 'Amount']=N:DB('Sales_Plan', !Subsidiaries, 'ALL CHANNELS',
                                                 'TOTAL PRODUCTS', !Months, !Versions, 'TOTAL DISCOUNTS AND ALLOWANCES');
['Freight', 'Amount']=N:DB('Sales_Plan', !Subsidiaries, 'ALL CHANNELS', 'TOTAL PRODUCTS', !Months,
                           !Versions, 'Freight');
['Cost of Sales', 'Amount']=N:DB('Sales_Plan', !Subsidiaries, 'ALL CHANNELS', 'TOTAL PRODUCTS',
                                 !Months, !Versions, 'COST OF SALES');

```

## Feeders in Sales\_Plan:

## FEEDERS:

```

['Quantity'] => ['GROSS SALES REVENUE'], ['COST OF SALES'];
['Quantity'] => DB('Income_Statement', !Versions, !Months, !Subsidiaries, 'Gross Sales Revenue', 'Amount'),
    DB('Income_Statement', !Versions, !Months, !Subsidiaries, 'Cost of Sales', 'Amount');
['Freight'] => DB('Income_Statement', !Versions, !Months, !Subsidiaries, 'Freight', 'Amount');
['TOTAL DISCOUNTS AND ALLOWANCES'] => DB('Income_Statement', !Versions, !Months, !Subsidiaries,
'Total Discounts and Allowances', 'Amount');

```

## Income\_Statement default view at the end of Task 6:

Income_Statement_Measures				
Income_Statement_Accounts	Amount	Reporting USD	Reporting EUR	Reporting JPY
-- NET INCOME	(\$1,343,576.60)	\$0.00	0	0
-- OPERATING INCOME	\$2,479,660.19	\$0.00	0	0
-- GROSS PROFIT	\$2,479,660.19	\$0.00	0	0
-- NET REVENUE	\$86,240,945.12	\$0.00	0	0
-- TOTAL REVENUE	\$108,379,815.32	\$0.00	0	0
Gross Sales Revenue	\$108,379,815.32	\$0.00	0	0
Franchise Fees	\$0.00	\$0.00	0	0
-- TOTAL SALES DEDUCT	\$22,138,870.20	\$0.00	0	0
Total Discounts and	\$10,878,526.74	\$0.00	0	0
Freight	\$11,260,343.46	\$0.00	0	0
Cost of Sales	\$83,761,284.94	\$0.00	0	0
-- TOTAL EXPENSES	\$0.00	\$0.00	0	0
Salaries	\$0.00	\$0.00	0	0
Benefits	\$0.00	\$0.00	0	0
Overheads	\$0.00	\$0.00	0	0
-- DEPRECIATION AMORTIZATION	\$3,823,236.79	\$0.00	0	0
Depreciation	\$0.00	\$0.00	0	0
Amortization	\$497,745.81	\$0.00	0	0
Interest Expense	\$689,602.15	\$0.00	0	0

## Task 7

### Feeders in Expenses:

#### FEEDERS:

```
[!Amount] => ['Reporting USD'], ['Reporting EUR'], ['Reporting JPY'];
['SALARIES', 'Amount'] => ['PENSION PLAN', 'Amount'], ['SOCIAL SECURITY', 'Amount'],
                           ['HEALTH INSURANCE', 'Amount'];
[!Amount] => DB('Income_Statement', !Versions, !Months, !Subsidiaries, 'Salaries', 'Amount'),
              DB('Income_Statement', !Versions, !Months, !Subsidiaries, 'Benefits', 'Amount'),
              DB('Income_Statement', !Versions, !Months, !Subsidiaries, 'Overheads', 'Amount');
```

### Calculated view of Income\_Statement:

Budget Version 1	Jan	GO Americas
Income_Statement_Measures		
Income_Statement_Accounts	Amount	Reporting USD
-- NET INCOME	(\$5,481,391.38)	(\$5,481,391.38)
-- OPERATING INCOME	(\$1,658,154.59)	(\$1,658,154.59)
-- GROSS PROFIT	\$2,479,660.19	\$2,479,660.19
-- NET REVENUE	\$86,240,945.12	\$86,240,945.12
+ TOTAL REVENUE	\$108,379,815.32	\$108,379,815.32
+ TOTAL SALES DEDUCT	\$22,138,870.20	\$22,138,870.20
Cost of Sales	\$83,761,284.94	\$83,761,284.94
+ TOTAL EXPENSES	\$4,137,814.78	\$4,137,814.78
+ DEPRECIATION AMORTIZATION	\$3,823,236.79	\$3,823,236.79

The results appear as follows:

**SKIPCHECK:**

```

['Gross Sales Revenue', 'Amount']=N:DB('Sales_Plan', !Subsidiaries,
    'ALL CHANNELS', 'TOTAL PRODUCTS', !Months, !Versions,
    'GROSS SALES REVENUE');

['Total Discounts and Allowances', 'Amount']=N:DB('Sales_Plan', !Subsidiaries,
    'ALL CHANNELS', 'TOTAL PRODUCTS', !Months, !Versions,
    'TOTAL DISCOUNTS AND ALLOWANCES');

['Freight', 'Amount']=N:DB('Sales_Plan', !Subsidiaries, 'ALL CHANNELS',
    'TOTAL PRODUCTS', !Months, !Versions, 'Freight');

['Cost of Sales', 'Amount']=N:DB('Sales_Plan', !Subsidiaries, 'ALL CHANNELS',
    'TOTAL PRODUCTS', !Months, !Versions, 'COST OF SALES');

['Overheads', 'Amount'] = N: DB('Expenses', !Versions, !Months, !Subsidiaries,
    'TOTAL EXPENSES', 'Amount');

['Salaries', 'Amount'] = N: DB('Expenses', !Versions, !Months, !Subsidiaries,
    'SALARIES', 'Amount');

['Benefits', 'Amount'] = N: DB('Expenses', !Versions, !Months, !Subsidiaries,
    'BENEFITS', 'Amount');

[{'Reporting USD', 'Reporting EUR', 'Reporting JPY'}]=N:[ 'Amount']* DB('zRate', !Months, 'Reporting',
    ATTRS('Subsidiaries', !Subsidiaries, 'Currency'),
    ATTRS('Income_Statement_Measures', !Income_Statement_Measures, 'Currency') );

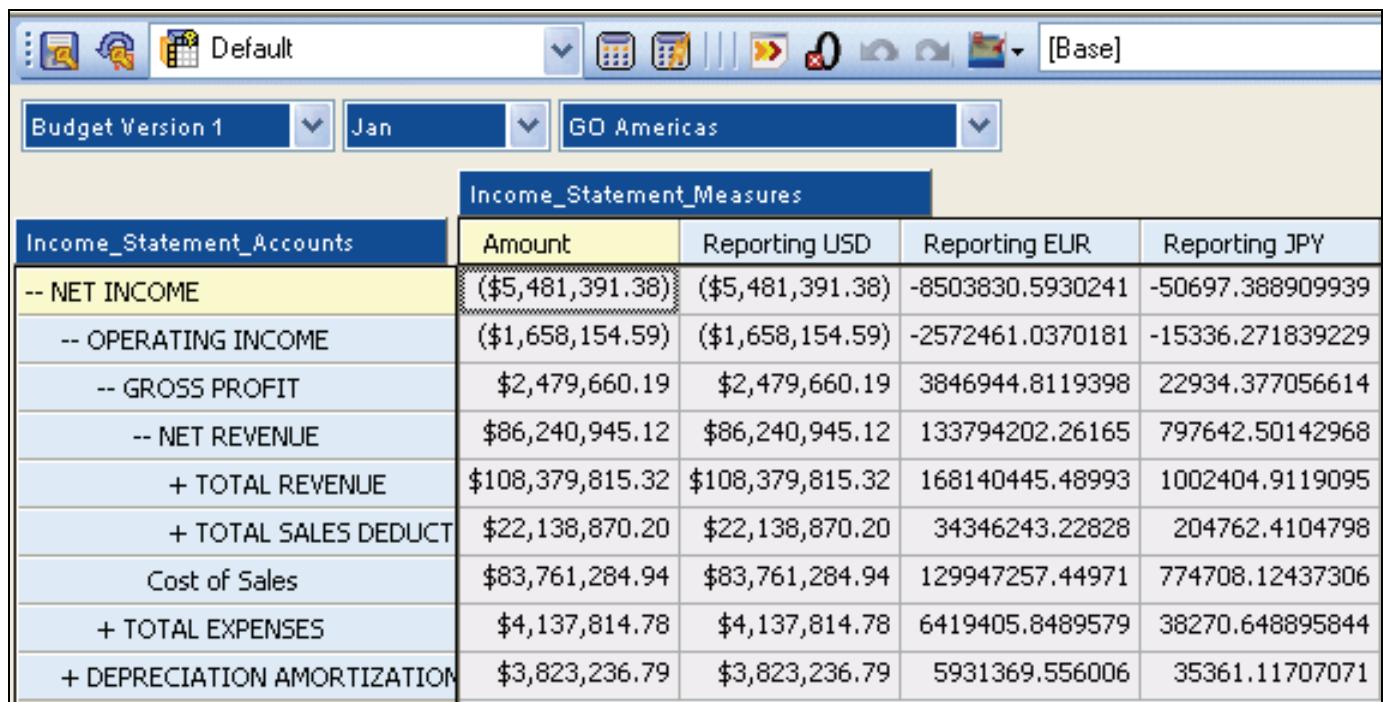
```

**FEEDERS:**

```
['Amount']=>['Reporting USD'], ['Reporting EUR'], ['Reporting JPY'];
```

## Task 8.

The results appear as follows:



The screenshot shows the IBM Cognos TM1 interface with the following details:

- Toolbar:** Includes icons for search, refresh, and various operations, followed by "Default" and "[Base]" dropdowns.
- Filter Bar:** Shows "Budget Version 1" (dropdown), "Jan" (dropdown), and "GO Americas" (dropdown).
- Report Title:** "Income\_Statement\_Measures" (highlighted in blue).
- Table Structure:**

Income_Statement_Accounts	Amount	Reporting USD	Reporting EUR	Reporting JPY
-- NET INCOME	(\$5,481,391.38)	(\$5,481,391.38)	-8503830.5930241	-50697.388909939
-- OPERATING INCOME	(\$1,658,154.59)	(\$1,658,154.59)	-2572461.0370181	-15336.271839229
-- GROSS PROFIT	\$2,479,660.19	\$2,479,660.19	3846944.8119398	22934.377056614
-- NET REVENUE	\$86,240,945.12	\$86,240,945.12	133794202.26165	797642.50142968
+ TOTAL REVENUE	\$108,379,815.32	\$108,379,815.32	168140445.48993	1002404.9119095
+ TOTAL SALES DEDUCT	\$22,138,870.20	\$22,138,870.20	34346243.22828	204762.4104798
Cost of Sales	\$83,761,284.94	\$83,761,284.94	129947257.44971	774708.12437306
+ TOTAL EXPENSES	\$4,137,814.78	\$4,137,814.78	6419405.8489579	38270.648895844
+ DEPRECIATION AMORTIZATION	\$3,823,236.79	\$3,823,236.79	5931369.556006	35361.11707071

# Workshop 1: Step-by-Step Instructions

## Task 1. Create Income\_Statement Accounts dimension.

1. Open TM1 Perspectives for Microsoft Excel.
2. Ensure that TM1 Server is running, and from the TM1 menu, point to  Network and then click Connect .
- Server Id: **greatoutdoors**
- Client Id: **admin**
- Password: blank
3. Click **OK**.
4. From the **TM1** menu, point to **Dimension WorkSheets**, and then click **New**.
5. In the Create a Dimension window, type **Income\_Statement\_Accounts**, and then click **OK**.
6. From the **File** menu, click **Open** and then browse to **C:\Edcognos\P6502\GreatOutdoors\SourceFiles\Income Statement Accounts.cma**.
7. Click **Next**.

8. Click **Next**, and then click **Finish**.

The results appear as follows:

	A	B	C
1	C	NET INCOME	1
2		OPERATING INCOME	-1
3		DEPRECIATION AMORTIZATION INTEREST AND TAXES	1
4	C	OPERATING INCOME	-1
5		GROSS PROFIT	1
6		TOTAL EXPENSES	-1
7	C	GROSS PROFIT	1
8		NET REVENUE	-1
9		Cost of Sales	1
10	C	NET REVENUE	-1
11		TOTAL REVENUE	1
12		TOTAL SALES DEDUCTIONS	-1
13	C	TOTAL REVENUE	1
14		Gross Sales Revenue	-1

This dimension worksheet has already set up the elements and the hierarchy for this dimension. All you need to do is copy it into the new dimension worksheet and upload it to the server. This will save you from having to manually create the hierarchy and weights (Column A contains the hierarchy, B contains element names and C contains the element weights) in the Dimension Editor. This dimension was exported from TM1 by right-clicking the dimension and then clicking Export.

9. Select cells **A1:C39**, and click **Ctrl+C** to copy.
10. From the **Window** menu, click **Income Statement Accounts.xdi**.
11. With your cursor in cell **A1**, click **Ctrl+V** to paste.  
The exported cma file and the xdi file use the same column formats.
12. From the **TM1** menu, point to **Dimension WorkSheets**, and then click **Save**.
13. Click **GreatOutdoors** from the server list and then click **OK**.
14. Close **Microsoft Excel** without saving changes.
15. Open **TM1 Architect**.
16. Log on to **GreatOutdoors** as **admin**.
17. Expand **Dimensions** and press **F5** to refresh.
18. Double-click **Income\_Statement\_Accounts** to open in the Subset Editor.  
Dimension worksheets allow you to create and update dimensions from within Microsoft Excel. Care must be taken to use the TM1 menu to create, open and save dimension worksheets or data may be lost.
19. Close the Subset Editor, Microsoft Excel and any open spreadsheets without saving if prompted.

## **Task 2. Create Income\_Statement\_Measures dimension.**

1. Create a new dimension
2. Insert the following elements
  - **Amount**
  - **Reporting USD**
  - **Reporting EUR**
  - **Reporting JPY**
3. Save the dimension as **Income\_Statement\_Measures**.
4. Close the Dimension Editor.

## Task 3. Add attributes.

The attributes will be used to format data and currency.

1. Right-click **Income\_Statement\_Measures** and then click **Edit Element Attributes**.
2. Shift+click **Amount** and **Reporting USD**, click **Format**, click **Currency** and then click **OK**.
3. Add a new text attribute named **Currency**, and then click **OK** twice.
4. From the **View** menu, click **Display Control Objects**.
5. Right-click **{ElementAttributes\_Income\_Statement\_Measures}** cube and then click **Create Rule**.
6. Enter the following rule:  
`['Currency']=S:IF(SUBST(!Income_Statement_Measures, 1, 9)@='Reporting', SUBST(!Income_Statement_Measures, 11, 3), STET);`
7. Save the rule, close the Rules Editor and then view the cube.
8. Close the Cube Viewer.
9. From the **View** menu, deselect **Display Control Objects**.

## Task 4. Create the **Income\_Statement** cube.

1. Create a new cube.
2. Double-click the following dimensions:
  - **Versions**
  - **Months**
  - **Subsidiaries**
  - **Income\_Statement\_Accounts**
  - **Income\_Statement\_Measures**
3. In the **Cube Name** box, type **Income\_Statement**.
4. Click **Create Cube**.

---

Dimension worksheets create dimensionname.xdi files. If you use File/Save on this file it only saves the content to the xdi file. Saving the file using TM1, Dimension Worksheet, both saves the file and compiles the dimensionname.dim file.

## Task 5. Load data to Income\_Statement.

1. Create a new Turbo Integrator process using **C:\Edcognos\P6502\GreatOutdoors\SourceFiles\Inc Statement.csv** as the source.
2. In the **Number of title records** box, type **1**, and then click **Preview**.
3. Click the **Variables** tab.
4. Rename **V3** to **vDate** and **V5** to **vData**.
5. In the **Contents** column for **Subsidiaries**, **Expense**, and **Version** select **Element**.
6. In **Contents** for **vDate**, click **Other**.
7. In **Contents** for **vData** click **Data**.
8. Create a new variable called **vMonth**.  
 $vMonth=\text{SUBST}(vDate, 3, 3);$
9. For **vMonth** change the **Variable Type** to **String** and the **Contents** to **Element**.
10. Create a new variable called **vMeasures**.  
 $vMeasures='Amount';$
11. Change the **Variable Type** to **String** and the **Contents** to **Element**.
12. Click the **Maps** tab.
13. On the **Cube** tab click **Update Cube**, and then beside **CubeName** click **Income\_Statement**.
14. Click the **Dimensions** tab and map to the dimensions.
15. Click all the **Advanced** tabs.
16. Save the process as **LoadIncomeStatementCSV**.
17. Run the process, click **OK** and then close **Turbo Integrator**.

## Task 6. Create rules to pull data from Sales\_Plan.

1. Right-click the **Income\_Statement** cube and then click **Create Rule**.
2. On the first line, type **SKIPCHECK**;
3. Add the following rule for Gross Sales Revenue:

**[ 'Gross Sales Revenue', 'Amount' ]=N:DB('Sales\_Plan', !Subsidiaries, 'ALL CHANNELS', 'TOTAL PRODUCTS', !Months, !Versions, 'GROSS SALES REVENUE');**

4. Add the following rule for Total Discounts and Allowances:

**[ 'Total Discounts and Allowances', 'Amount' ]=N:DB('Sales\_Plan', !Subsidiaries, 'ALL CHANNELS', 'TOTAL PRODUCTS', !Months, !Versions, 'TOTAL DISCOUNTS AND ALLOWANCES');**

5. Add the following rule for Freight:

**[ 'Freight', 'Amount' ]=N:DB('Sales\_Plan', !Subsidiaries, 'ALL CHANNELS', 'TOTAL PRODUCTS', !Months, !Versions, 'Freight');**

6. Add the following rule for Cost of Sales:

**[ 'Cost of Sales', 'Amount' ]=N:DB('Sales\_Plan', !Subsidiaries, 'ALL CHANNELS', 'TOTAL PRODUCTS', !Months, !Versions, 'COST OF SALES');**

7. Click **Save**, and then close the Rules Editor.

8. Open the **Sales\_Plan** rules and add the following FEEDERS statement:
 

```
'[Quantity]'=>DB('Income_Statement', !Versions, !Months,
!Subsidiaries, 'Gross Sales Revenue', 'Amount'),
DB('Income_Statement', !Versions, !Months, !Subsidiaries, 'Cost of
Sales', 'Amount');

['Freight']=>DB('Income_Statement', !Versions, !Months, !Subsidiaries,
'Freight', 'Amount');

['TOTAL DISCOUNTS AND ALLOWANCES']=>
DB('Income_Statement', !Versions, !Months, !Subsidiaries,
'Total Discounts and Allowances', 'Amount');
```
9. Click **Save**, and then close the Rules Editor.
10. In the Income Statement cube, set **Versions** to **Budget Version 1**.
11. Double-click **Months**, click **All**, select **Jan**, and then click **OK**.
12. Double-click **Subsidiaries**, expand **GO AMERICAS REGION**, click **GO Americas**, and then click **OK**.
13. Click **Income\_Statement\_Accounts**, click **All** and then click **OK**.
14. Recalculate the **Income\_Statement** cube.
15. Click **Save**, click **Default** and then click **OK**.

## Task 7. Create rules and feeders to pull data from Expenses.

1. Right-click the **Income\_Statement** cube and then click **Edit Rule**.
2. Insert a return to create a blank line after the last rule.
3. Insert the following rules:

**['Overheads', 'Amount'] = N: DB('Expenses', !Versions, !Months, !Subsidiaries, 'TOTAL EXPENSES', 'Amount');**

**['Salaries', 'Amount'] = N: DB('Expenses', !Versions, !Months, !Subsidiaries, 'SALARIES', 'Amount');**

**['Benefits', 'Amount'] = N: DB('Expenses', !Versions, !Months, !Subsidiaries, 'BENEFITS', 'Amount');**

4. Click **Check Syntax**.
5. Click **Save**.
6. Open the Rules Editor for the **Expenses** cube.
7. Insert a blank line after the last feeder statement.
8. Insert the following feeder statements:

**['Amount'] => DB('Income\_Statement', !Versions, !Months, !Subsidiaries, 'Salaries', 'Amount'),**

**DB('Income\_Statement', !Versions, !Months, !Subsidiaries, 'Benefits', 'Amount'),**

**DB('Income\_Statement', !Versions, !Months, !Subsidiaries, 'Overheads', 'Amount');**

9. Click **Check Syntax**.
10. Click **Save**.

## Task 8. Create rules to calculate reporting currencies.

1. Open the Rules for the **Income\_Statement** cube.
2. After the last rule, type:  

$$['Reporting USD']=N:['Amount']*$$
3. Insert references to the zRate cube.  

$$DB('zRate',!Months,'Reporting',$$
4. Use the ATTRS function to retrieve the currencies from the Subsidiaries and Income\_Statement\_Measures dimensions.  

$$ATTRS('Subsidiaries', !Subsidiaries, 'Currency'),$$
  

$$ATTRS('Income_Statement_Measures',$$
  

$$!Income_Statement_Measures, 'Currency') );$$
5. Add **FEEDERS**; after the last rule.
6. Add the following feeder statement:  

$$['Amount']=>['Reporting USD'];$$
7. In the 8<sup>th</sup> rule, change **['Reporting USD']** to:  

$$[{'Reporting USD','Reporting EUR', 'Reporting JPY'}]$$
8. Change the feeder to the following:  

$$['Amount']=>['Reporting USD'],['Reporting EUR'],$$
  

$$['Reporting JPY'];$$
9. Save the rule and recalculate the view.
10. Close all open windows and then close the TM1 Server, saving changes when prompted.



**Information Management**



## **Model for Different Fiscal Requirements**

IBM Cognos TM1 9.5



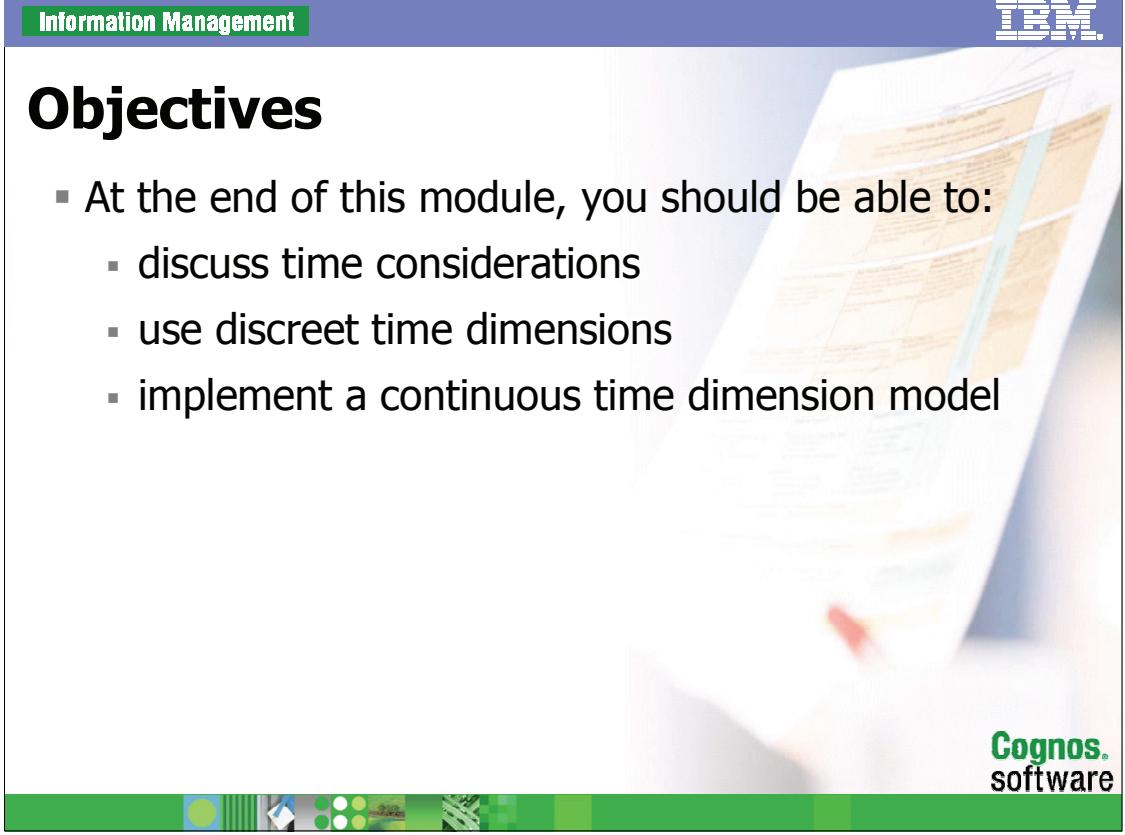
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# Objectives

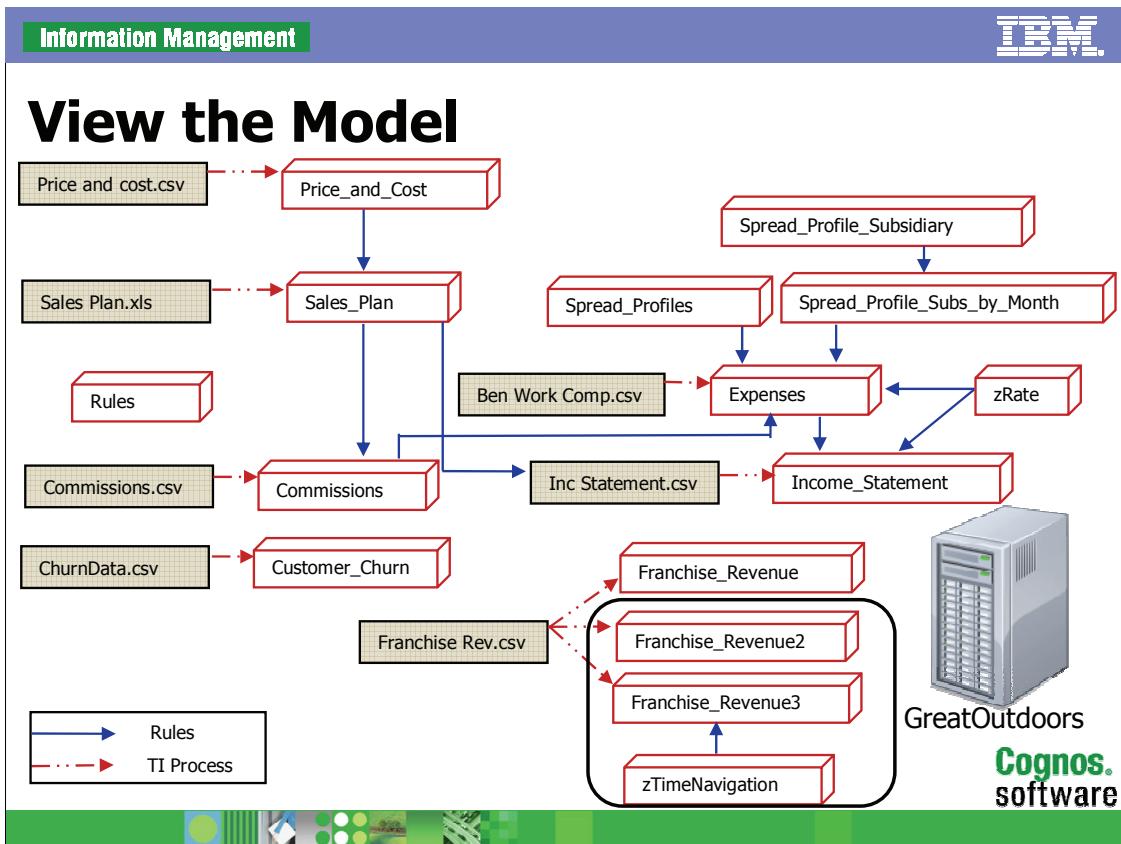
- At the end of this module, you should be able to:
  - discuss time considerations
  - use discreet time dimensions
  - implement a continuous time dimension model



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**INTERACTION - Star Sticker:** Use a start sticker to review objective bullets



In this module you will create the following cubes:

- Franchise\_Revenue2
- Franchise\_Revenue3
- zTimeNavigation

## Understanding Time

- Almost every cube has a notion of time
- Consider the level of granularity:
  - in your source data
  - by your users
- TM1 treats time as any other dimension



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In the Cube Properties, you can specify the measures and time dimensions in a cube. This has no impact to TM1 but if you are using with other systems they may require this setting.

---

For cube properties, right click a cube and choose Properties.

Cube properties have no significance to TM1 but are needed for integration with other applications such as C8.

## Discrete Time Dimensions

- Advantages:

- easy to maintain
  - intuitive for users

- Disadvantages:

- no consideration for holidays, weekends, etc
  - difficult for rolling forecasts



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Typically better for backward looking cubes financial reporting cubes.

**INTERACTION - Microphone:** Ask for examples of when they have used discrete time dimensions.

## Demo 1: Add a Year Dimension

### Purpose:

You must decide how to present time-sensitive information to your users.

Create a new version of the Franchise\_Revenue cube that contains a Year dimension as well as the Months. The Year should contain three years starting with 2008. Next load data into the Year 2008.

### Task 1. Create the year dimension.

TM1 Server: **greatoutdoors**

TM1 - Architect: **Server Explorer**

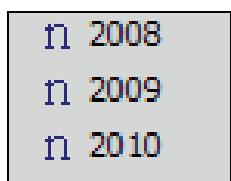
UserName: **admin**

Password: **<blank>**

1. Ensure that the greatoutdoors TM1 server is started in the task bar, and then launch **TM1 Architect: Server Explorer**.
2. Expand **TM1**, double-click **greatoutdoors**, in the **UserName** box, type **admin**, and then click **OK**.
3. In Server Explorer, create a new dimension.
4. Insert the following base or n level elements.
  - **2008**
  - **2009**
  - **2010**

5. Save the dimension as **Years**.

The results appear as follows:



6. Close the Dimension Editor.

## **Task 2. Create the cube Franchise\_Revenue2.**

1. Create a new cube named **Franchise\_Revenue2**.
2. Include the following dimensions:
  - **Subsidiaries**
  - **Years**
  - **Months**
  - **Versions**
3. Click **Create Cube**.

The results appear as follows:



### Task 3. Load data into Franchise\_Revenue2.

1. Open the **LoadFranchiseRevenueCSV** process.
2. From the **File** menu, click **Save As**.
3. Name the process, **LoadFranchiseRevenue2CSV**.
4. On the **Variables** tab, create a new variable called **vYear** and give it the following formula:  
**vYear='2008';**
5. Click **String** under Variable Type and then click **Element** under Contents.
6. On the **Maps** tab click **Update Cube** and then click **Franchise\_Revenue2**.
7. On the Dimensions tab map the dimensions as follows:

**Subsidiaries = Subsidiaries**

**vDate = Months**

**vYear = Years**

**(Data Variables) = Versions**

The results appear as follows:

Element Variable	Sample Value	Dimension
Subsidiaries	GO Americas	Subsidiaries
vDate	Jan	Months
vYear	String	Years
(Data Variables)		Versions

8. Click the **Data** tab and map to the Version elements.

The results appear as follows:

Data Variable	Element	Element Type	Sample Value
vBudget1	Budget Version 1 ➔	Numeric	42265205.04
vBudget2	Budget Version 2 ➔	Numeric	44378465.29

9. Click the **Advanced** tabs and all tabs within.
10. Save and run the process.
11. Close Turbo Integrator.
12. Create a default view of the Franchise\_Revenue2 cube.
13. Swap **Months** and **Subsidiaries**, and then swap **Months** and **Versions**.
14. Double click **Months**, click **All**, Ctrl+click **Q1** and **Q2** and then click **OK**.
15. Drag **Years** to the column area (to the left of Months) to stack the dimensions.
16. In the **Versions** list, select **Budget Version 1**.

17. Click **Recalculate**.

The result appears as follows:

Budget Version 1					
Subsidiaries		Years		Months	
		2008		2009	
		+ Q1	+ Q2	+ Q1	+ Q2
-- TOTAL COMPANY		556040640.8	556052304.31	0	0
+ GO AMERICAS		126795615.12	126795615.12	0	0
+ GO ASIA PACI		105651458.01	105651458.01	0	0
+ GO EUROPE G		323593567.67	323605231.18	0	0

18. Close the Cube Viewer and save the view as default.

**Result:**

**The resulting cube can easily be manipulated to compare the same month or quarter over time.**

**This type of view works well for reporting scenarios where the time period does not need to be more flexible.**

**If users need greater granularity or more time specific information (compare weekend to weekdays, etc.) a continuous time dimension may be a better option.**

## Continuous Time Dimensions

- Continuous time dimensions:
  - provide more flexibility
  - require more maintenance
- Better for:
  - forecasting applications
  - spanning year boundaries

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When working with a continuous time dimension, you should construct a time cube to provide more flexibility in determining periods like:

- Next and Previous Periods
- Next and Previous Periods Last Year

This will allow for more flexibility in reporting (as the multiple time dimensions do).

Elements in this dimension should have generic names like W1 for Week 1, W2 for Week 2, M1 for January, Q1, etc. As the periods of one year roll into the next one, the numbering continues. Use aliases to make navigation easier for users.

### INTERACTION - Text Chat:

Ask for examples of using a single, continuous time dimension in a cube and why this was used.

## Develop Continuous Time Model

- Four step process:
  - Create a straight line time dimension
  - Create aliases for the elements
  - Create a time navigation dimension
  - Create a time navigation cube



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Determine the granularity of your data (days, weeks, months, etc.). Next, decide on the first year of data and the initial number of periods.

It is typically easier to extend this model forward so you may wish to start as far back as possible.

## Demo 2: Create a Continuous Time Model

### Purpose:

You are constructing your model going back to January 1 of last year. You want to build a model that reflects three years.

Your users want to see the Franchise\_Revenue cube with a continuous time period that spans three years beginning with January 1, 2008. They also want to be able to analyze data by comparing current period values to the previous periods both this year and last year.

You will create another version of the Franchise\_Revenue cube using a straight line time dimension that will calculate the next and previous time periods using a lookup cube.

You will also correct the problem of having no measures dimension in this cube. The Franchise Revenue cubes, as they now exist would not be able to do the continuous time analysis or convert currency in the manner described.

### Task 1. Create a straight line time dimension.

1. Create a new Turbo Integrator process.
2. Under **Datasource Type**, click **Text**, and then browse to **C:\Edcognos\P6502\GreatOutdoors\SourceFiles\SLTime.csv**.
3. Click **OK**.
4. Next to **Number of title records**, type **1** and then click **Preview**.
5. Click the **Variables** tab.

6. Under **Contents**, select the following:

- Mo: **Element**
- Quarter: **Consolidation**
- Yr: **Consolidation**
- MoYear: **Attribute**
- Mo01: **Attribute**
- MonthLongName: **Attribute**

The results appear as follows:

	Variable Name	Variable Type	Sample Value	Contents
1	Mo	String	M1	Element
2	Quarter	String	Q1	Consolidation
3	Yr	String	Y1	Consolidation
4	MoYear	String	Jan-08	Attribute
5	Mo01	String	M01	Attribute
6	MonthLongName	String	January	Attribute

MoYear will be an alias but Mo01 and Month Long Name will be text attributes.

7. Click the **Maps** tab, and then click the **Dimensions** tab.
8. In the **Dimension** column for **Mo**, type **SL\_Time** and then click **By Input**.
9. Click **Automatic**, click **Hierarchy**, and then click **OK**.
10. Click **Consolidations**.
11. Click the **Child Variable** cell for **Quarter**, select **Mo**, and then click **OK**.

12. Click the **Child Variable** cell for **Yr**, select **Quarter**, and then click **OK**.

The results appear as follows:

Cons. Variable	Dimension	Child Variable	Weight	Sample Value
Quarter	SL_Time ►	Mo	1.000000	Q1
Yr	SL_Time ►	Quarter	1.000000	Y1

13. Click the **Attributes** tab.

14. Set the Element Variable to **Mo** for all three attributes.

15. Under **Attribute**, type the following:

- MoYear: **MonthYear**
- Mo01: **M00**
- MonthLongName: **Full Name**

16. Under **Attribute Type** select the following:

- MoYear: **Alias**
- Mo01: **Text**
- MonthLongName: **Text**

The results appear as follows:

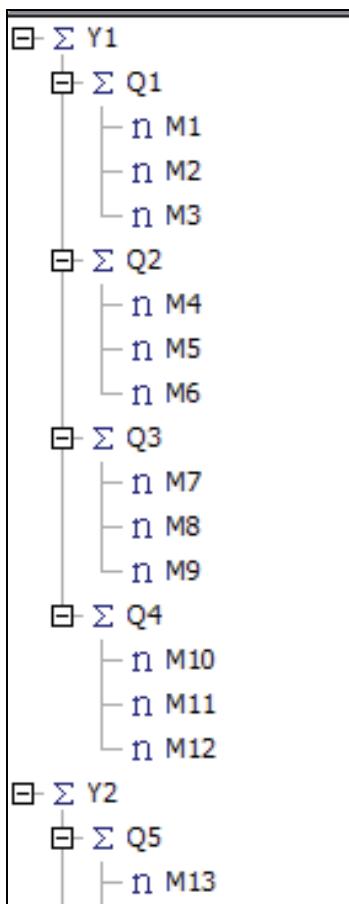
Cube	Dimensions	Data	Consolidations	Attributes				
Attribute Variable	Sample Value	Dimension	Element Variable	Attribute	Action	Attribute Type		
MoYear	Jan-08	SL_Time ►	Mo	► MonthYe.	Create	Alias		
Mo01	M01	SL_Time ►	Mo	► M00	Create	Text		
MonthLongName	January	SL_Time ►	Mo	► Full Name	Create	Text		

17. Click the **Advanced** tab, and then click all tabs below it.

18. Save the process as **CreateSLTimeCSV**, and then run the process.

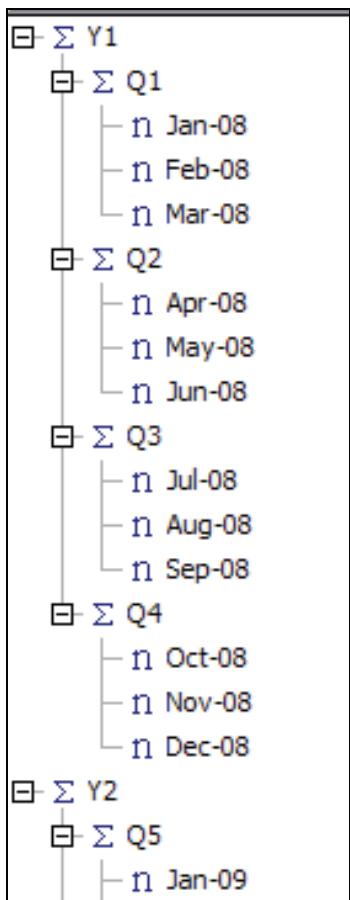
19. Close Turbo Integrator, and then double-click the **SL\_Time** dimension.

The results appear as follows:



20. Click **Use Aliases** (currently off) .

The results appear as follows:



21. Close the Subset Editor.

## Task 2. Create time navigation dimension.

1. Create a new dimension.

You will create a cube similar to the zRate cube. It will be used to automatically determine the past and previous periods for a given time period. This allows your model to create a multitude of time based reports and comparisons.

2. Insert the following **String** elements:

- **Prior\_Period**
- **Next\_Period**
- **Same\_Period\_LY**
- **Prior\_Period\_LY**
- **Same\_Period\_NY**
- **Next\_Period\_NY**

The results appear as follows:

```
S Prior_Period
S Next_Period
S Same_Period_LY
S Prior_Period_LY
S Same_Period_NY
S Next_Period_NY
```

3. Save the dimension as **Time\_Navigation**, and then close the Dimension Editor.

## Task 3. Create and populate a time navigation cube.

1. Create a new cube named **zTime\_Navigation**.
2. Double-click the following dimensions.
  - **SL\_Time**
  - **Time\_Navigation**

**3. Click **Create Cube**.**

The results appear as follows:



4. Double click **zTime\_Navigation** to open the default view.
5. Click the **SL\_Time** dimension, click **All** and then click **OK**.
6. Click **Recalculate**, click **Save**, click **Default** and then click **OK**.
7. In Excel, open  
**C:\Edcognos\P6502\GreatOutdoors\SourceFiles\TimeData.csv**.
8. Select cells **B2:G52**.
9. Click **Edit** and then click **Copy**.
10. Click the first cell in the cube view, click **Edit** and then click **Paste**.
11. Recalculate the view.

The results appear as follows:

Time_Navigation						
SL_Time	Prior_Period	Next_Period	Same_Period_LY	Prior_Period_LY	Same_Period_NY	Next_P
--Y1	N/A	Y2	N/A	N/A	Y2	Y3
--Q1	N/A	Q2	N/A	N/A	Q5	Q6
M1	N/A	M2	N/A	N/A	M13	M14
M2	M1	M3	N/A	N/A	M14	M15
M3	M2	M4	N/A	N/A	M15	M16
--Q2	Q1	Q3	N/A	N/A	Q6	Q7

12. Close the Cube Viewer and TimeData.csv without saving changes.

## Task 4. Create a Franchise\_Revenue\_Measures Dimension.

The Franchise\_Revenue cubes have no designated measures dimension. This makes modifying either one of them to accommodate different currencies or time dimensions very difficult. This is just one example of how limited a model is without designating a time dimension.

1. Create a new dimension.
2. Insert the following elements:
  - Current Period
  - Prior Period Ending
  - Next Period Ending
  - Same Period Ending LY
  - Prior Period Ending LY
3. Save the dimension as **Franchise\_Revenue\_Measures**, and then close the dimension editor.

Here you can see why it is important to have clearly defined the measures dimension in a cube. The original version you created did not have a measures dimension and it was unable to accommodate the new measures.

## Task 5. Create and populate reporting cube.

1. Create a new cube called **Franchise\_Revenue3**.
2. Double-click the following dimensions:
  - Subsidiaries
  - SL\_Time
  - Versions
  - Franchise\_Revenue\_Measures
3. Click **Create Cube**.
4. Open the **Franchise\_Revenue3** cube.
5. Swap the **Versions** and **Subsidiaries** dimensions.
6. Select **Budget Version 1** from the **Versions** dimension.

7. Move the **SL\_Time** dimension to the left of **Franchise\_Revenue\_Measures** on Columns.
8. Click **SL\_Time**, select **Q1, M1, M2, M3**, from the View menu, click **Expand Above**, and then click **OK**.
9. Recalculate the view and expand **GO AMERICAS REGION** and **GO ASIA PACIFIC REGION**.

The results appear as follows:

	SL_Time	Franchise_Revenue_Measures		
Subsidiaries	M2	Current Period	Prior Period Ending	Next Period Ending
-- TOTAL COMPANY		0	0	0
-- GO AMERICAS REGION		0	0	0
GO Americas		0	0	0
-- GO ASIA PACIFIC REGION		0	0	0
GO Asia Pacific		0	0	0
+ GO EUROPE GMBH		0	0	0

10. Save the view as default.
11. Open the **LoadFranchiseRevenueCSV** process.
12. Click the **Variables** tab, and then click **New Variable**.
13. Change **V6** to **vMeasures**, and then click **Formula**.  
**vMeasures='Current Period';**
14. Under **Variable Type** for **vMeasures**, click **String**, and then under **Contents**, click **Element**.
15. Click **Formula** next to **vDate**.

The original function extracted just the month name from the data. Now you want to specify the Mon-Year with the year being 2008. You will concatenate the -08 to the existing function using a pipe symbol (|).

16. After the ), add the following, | '-08' and then click **Evaluate**.

17. Click **OK**.

You don't need to change the Variable Type or the Contents because they are still correct.

18. Click the **Maps** tab.

19. Click the **Cube Name** list, and then select **Franchise\_Revenue3**.

20. Click the **Dimensions** tab, and then map the dimensions as follows:

Cube	Dimensions	Data	Consolidations	Attributes
Element Variable	Sample Value	Dimension		
Subsidiaries	GO Americas	Subsidiarie	▼	
vDate	Jan-08	SL_Time	▼	
vMeasures	Current Period	Franchise_	▼	
(Data Variables)		Versions	▼	

21. Click the **Data** tab and map to **Budget Version 1** and **Budget Version 2**.

22. Click all the **Advanced** tabs.

23. Click **File** and then click **Save As**.

24. Name the process **LoadFranchiseRevenue3CSV**, and then click **OK**.

25. Run the process, and then Close Turbo Integrator.

26. Recalculate the default view of Franchise\_Revenue3 to verify Current Period has data for the Current Period.

Step 16: Ensure the dash is typed before 08.

## Task 6. Create the rules to calculate time measures.

1. Create a new rules file for the **Franchise\_Revenue3** cube.
2. On the first line, type **SKIPCHECK**; and then press **Enter** twice.
3. Ensure there is a blank line after the first rule and enter the following:  
**['Prior Period Ending'] = N:**
4. Click **Insert Cube Reference** and then click **Franchise\_Revenue3**.
5. Next to **Franchise\_Revenue\_Measures** click the **Subset** icon, click **Current Period**, and then click **OK**.
6. Click **OK**.

The results appear as follows:

```

1 SKIPCHECK;
2 ['Prior Period Ending'] = N: DB('Franchise_Revenue3',
3                               !Subsidiaries, !SL_Time, !Versions, 'Current Period')

```

7. Click **OK** again, and then type a semicolon ; at the end of the line.

The results appear as follows:

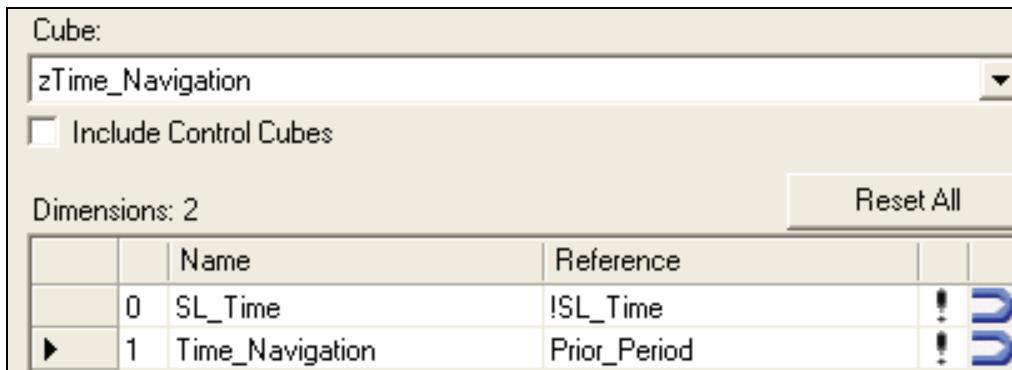
**['Prior Period Ending']=N:DB('Franchise\_Revenue3', !Subsidiaries,  
!SL\_Time, !Versions, 'Current Period');**

You will now replace the !SL\_Time with a reference to the corresponding value for Prior Period in the zTime\_Navigation cube. This way, no matter what the time period is, it can look to the zTime\_Navigation cube and get the prior period for it. This makes for a much more flexible rule (with much less maintenance).

8. Select **!SL\_Time**, click **Delete**, and then click **Insert Cube Reference**
9. Click **zTime\_Navigation**, and then click the **Subset** icon next to **Time\_Navigation**.

- Click **Prior\_Period**, and then click **OK**.

The results appear as follows:



- Click **OK** again.

The results appear as follows:

```
SKIPCHECK;
['Prior Period Ending'] = N: DB('Franchise_Revenue3',
    !Subsidiaries, DB('zTime_Navigation', !SL_Time, 'Prior_Period')
    , !Versions, 'Current Period');
```

- Press **Enter** twice, and then type **FEEDERS**:

```
['Current Period']=>DB('Franchise_Revenue3', !Subsidiaries,
DB('zTime_Navigation', !SL_Time, 'Next_Period'), !Versions, 'Prior
Period Ending');
```

- Save the rule, close the Rule Editor and then recalculate the view.

15. Scroll over to M2.

The results appear as follows:

	SL_Time	Franchise Revenue Measu	
		M2	
Subsidiaries		Current Period	Prior Period Ending
- TOTAL COMPANY		185347223.5	185346457.78
-- GO AMERICAS		42265205.04	42265205.04
GO Americas		42265205.04	42265205.04
-- GO ASIA PACI		35217152.67	35217152.67
GO Asia Pac		35217152.67	35217152.67
+ GO EUROPE G		107864865.79	107864100.07

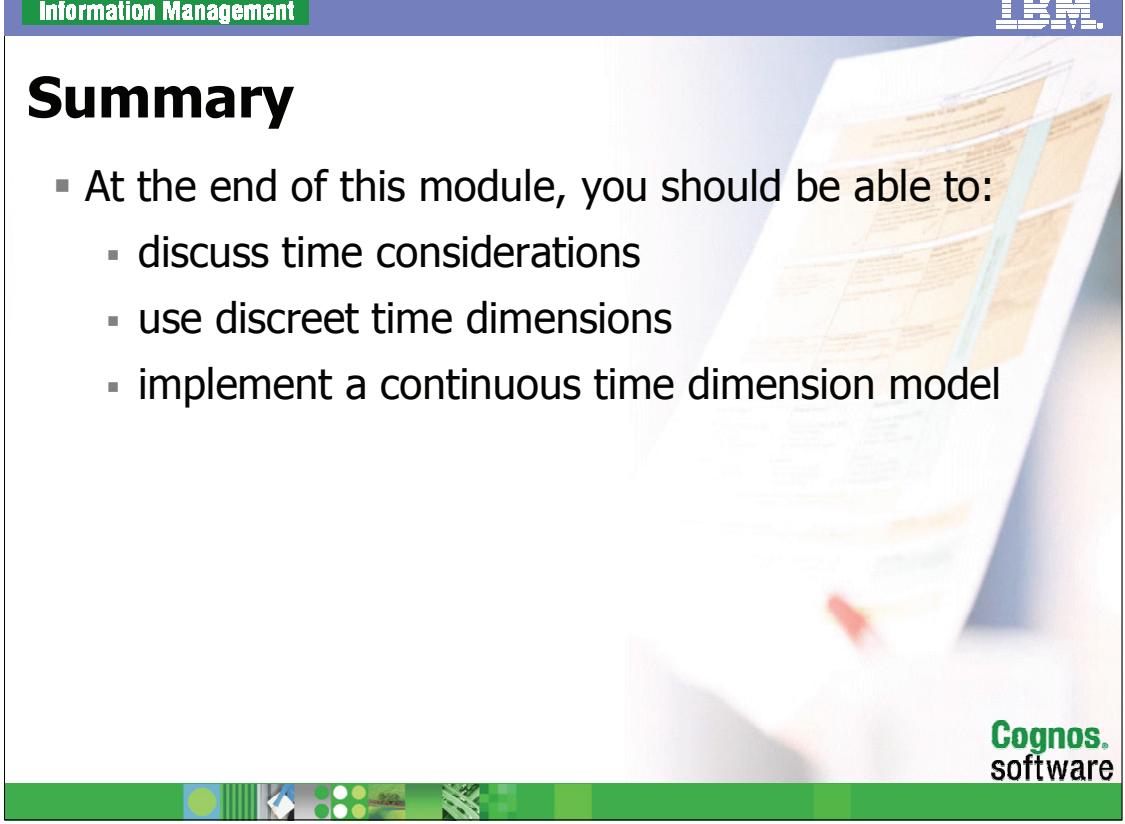
16. Close the Cube Viewer.

**Result:**

**The view will now retrieve the Prior Period as specified in the zTime\_Navigation cube.**

## Summary

- At the end of this module, you should be able to:
  - discuss time considerations
  - use discreet time dimensions
  - implement a continuous time dimension model



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## Workshop 1: Add Last Year Calculations to Franchise\_Revenue3

Your users would like to make comparisons between this year and last year data. You will need to add calculations for same (or current) period last year balances. You have already created the time navigation cube for these calculations.

To accomplish this, do the following:

- Add calculations for:
- Same Period LY
- Prior Period Ending LY
- Add feeders

## Workshop 1: Task Table

Task	Where to Work	Hints
1. Add rules for LY calculations.	Rules Editor	<ul style="list-style-type: none"> <li>• Add rules to Franchise_Revenue3 cube for LY calculations.</li> </ul>
2. Add feeders.	Rules Editor	<ul style="list-style-type: none"> <li>• Feed LY using Same Period Ending NY</li> </ul>

## Workshop 1: Workshop Results

At the end of Task 1, your results will appear as shown below:

```
n Current Period
n Prior Period Ending
n Next Period Ending
n Same Period Ending LY
n Prior Period Ending LY
n Same Period Ending NY
n Prior Period Ending NY
```

At the end of Task 2, your results will appear as shown below:

```
SKIPCHECK;
['Prior Period Ending'] = N: DB('Franchise_Revenue3',
    !Subsidiaries, DB('zTime_Navigation', !SL_Time, 'Prior_Period')
    , !Versions, 'Current Period');

['Same Period Ending LY'] = N:DB('Franchise_Revenue3', !Subsidiaries,
    DB('zTime_Navigation', !SL_Time, 'Same_Period_LY'),
    !Versions, 'Current Period');

['Prior Period Ending LY'] = N:DB('Franchise_Revenue3', !Subsidiaries,
    DB('zTime_Navigation', !SL_Time, 'Prior_Period_LY'),
    !Versions, 'Current Period');

FEEDERS;
['Current Period']=>DB('Franchise_Revenue3', !Subsidiaries,
    DB('zTime_Navigation', !SL_Time, 'Next_Period'),
    !Versions, 'Prior Period Ending'),
    DB('Franchise_Revenue3', !Subsidiaries,
    DB('zTime_Navigation', !SL_Time, 'Same_Period_NY'),
    !Versions, 'Same Period Ending LY'),
    DB('Franchise Revenue3', !Subsidiaries,
    DB('zTime_Navigation', !SL_Time, 'Next_Period_NY'),
    !Versions, 'Prior Period Ending LY');
```

At the end of Task 2, your results will appear as shown below:

Subsidiaries	SL_Time	Franchise Revenue Measures		
	Jan-09	Current Period	Prior Period Ending	Same Period Ending LY
-- TOTAL COMPANY		0	185353953.05	185346457.78
-- GO AMERICAS		0	42265205.07	42265205.04
GO Americas		0	42265205.07	42265205.04
-- GO ASIA PACI		0	35217152.68	35217152.67
GO Asia Pac		0	35217152.68	35217152.67
-- GO EUROPE G		0	107864100.07	
GO Accessor		0	28172395.4	28164900.17
GO Central E		0	28173722.1	28173722.14
GO Northern		0	21590898.03	21590897.99
GO Southern		0	29934579.77	29934579.77

## Workshop 1: Step-by-Step Instructions

### Task 1. Add rules for LY calculations.

1. Open the rules for the **Franchise\_Revenue3** cube.
2. Add a blank line above the FEEDERS; statement and then type the following:  
**[Same Period Ending LY] = N:**
3. Insert a cube reference to the Current Period measure.

**DB('Franchise\_Revenue3', !Subsidiaries, !SL\_Time, !Versions, 'Current Period');**

4. Replace the **!SL\_Time** with the following:  
**DB('zTime\_Navigation', !SL\_Time, 'Same\_Period\_LY')**
5. Repeat steps 2-4 for **Prior Period Ending LY**.

### Task 2. Add feeders.

1. Place a comma after the first feeder (before the ;), and then press **Enter**.
2. Enter the following:  
**DB('Franchise\_Revenue3', !Subsidiaries, DB('zTime\_Navigation', !SL\_Time, 'Same\_Period\_NY'), !Versions, 'Same Period Ending LY'), DB('Franchise Revenue3', !Subsidiaries, DB('zTime\_Navigation', !SL\_Time, 'Next\_Period\_NY'), !Versions, 'Prior Period Ending LY');**  
Note: This feeder statement feeds both the Same Period Ending LY and Prior Period Ending LY rules.
3. Click **Save**, and then close the Rules Editor.
4. Calculate the **Franchise\_Revenue3** cube while looking at **Current Period**, **Prior Period Ending** and **Same Period Ending LY** measures for **Jan-09** (or **M13**).
5. Close all open windows, leaving the TM1 Server running.

## Workshop 2: Add Franchise Fees to the Income\_Statement cube

Now that you have completed the cube containing franchise revenue, you need to add that to the Income\_Statement

- Create a rule to pull the Franchise Revenue Amount
- Create a feeder in the Franchise\_Revenue3 cube.

For more detailed information outlined as tasks, see the Task Table section.

For the final results, see the Workshop Results section that follows the Task Table section.

## Workshop 2: Task Table

Task	Where to Work	Hints
1. Add rules for Franchise Fees calculations.	Rules Editor	<ul style="list-style-type: none"> <li>• Add rules to Franchise_Revenue3 cube for LY calculations.</li> </ul>
2. Add feeders.	Rules Editor	<ul style="list-style-type: none"> <li>• Feed LY using Same Period Ending NY</li> </ul>

If you need more information to complete a task, see the Step-by-Step instructions at the end of the Workshop.

## Workshop 2: Results

The result of the workshop is a report that appears as follows:

Results of Task 1.

```

SKIPCHECK;
['Gross Sales Revenue', 'Amount']=N:DB('Sales_Plan', !Subsidiaries,
    'ALL CHANNELS', 'TOTAL PRODUCTS', !Months, !Versions,
    'GROSS SALES REVENUE');

['Total Discounts and Allowances', 'Amount']=N:DB('Sales_Plan', !Subsidiaries,
    'ALL CHANNELS', 'TOTAL PRODUCTS', !Months, !Versions,
    'TOTAL DISCOUNTS AND ALLOWANCES');

['Freight', 'Amount']=N:DB('Sales_Plan', !Subsidiaries, 'ALL CHANNELS',
    'TOTAL PRODUCTS', !Months, !Versions, 'Freight');

['Cost of Sales', 'Amount']=N:DB('Sales_Plan', !Subsidiaries, 'ALL CHANNELS',
    'TOTAL PRODUCTS', !Months, !Versions, 'COST OF SALES');

['Overheads', 'Amount'] = N: DB('Expenses', !Versions, !Months, !Subsidiaries,
    'TOTAL EXPENSES', 'Amount');

['Salaries', 'Amount'] = N: DB('Expenses', !Versions, !Months, !Subsidiaries,
    'SALARIES', 'Amount');

['Benefits', 'Amount'] = N: DB('Expenses', !Versions, !Months, !Subsidiaries,
    'BENEFITS', 'Amount');

[{'Reporting USD', 'Reporting EUR', 'Reporting JPY'}]=N:[ 'Amount']* DB('zRate', !Months, 'Reporting',
    ATTRS('Subsidiaries', !Subsidiaries, 'Currency'),
    ATTRS('Income_Statement_Measures', !Income_Statement_Measures, 'Currency') );
['Franchise Fees', 'Amount'] = N:DB('Franchise_Revenue', !Subsidiaries, !Months, !Versions);

FEEDERS;
['Amount']=>['Reporting USD'], ['Reporting EUR'], ['Reporting JPY'];

```

## Results of Task 2.

**FEEDERS:**

```
'Budget Version 1' ] => DB['Income_Statement',
| /Versions, /Months, /Subsidiaries, 'Franchise Fees', 'Amount'];
```

Budget Version 1 ▾ Jan ▾ GO Americas ▾

		Income_Statement_Measures			
Income_Statement_Accounts		Amount	Reporting USD	Reporting EUR	Reporting JPY
-- NET INCOME		\$36,783,813.66	\$36,783,813.66	57066408.506032	340213.49250502
-- OPERATING INCOME		\$40,607,050.45	\$40,607,050.45	62997778.062038	375574.60957573
-- GROSS PROFIT		\$44,744,865.23	\$44,744,865.23	69417183.910996	413845.25847157
-- NET REVENUE		\$128,506,150.16	\$128,506,150.16	199364441.36071	1188553.3828446
-- TOTAL REVENUE		\$150,645,020.36	\$150,645,020.36	233710684.58899	1393315.7933244
Gross Sales Revenue		\$108,379,815.32	\$108,379,815.32	168140445.48993	1002404.9119095
Franchise Fees		\$42,265,205.04	\$42,265,205.04	65570239.099056	390910.88141496
+ TOTAL SALES DEDUCT		\$22,138,870.20	\$22,138,870.20	34346243.22828	204762.4104798
Cost of Sales		\$83,761,284.94	\$83,761,284.94	129947257.44971	774708.12437306
+ TOTAL EXPENSES		\$4,137,814.78	\$4,137,814.78	6419405.8489579	38270.648895844
+ DEPRECIATION AMORTIZATION		\$3,823,236.79	\$3,823,236.79	5931369.556006	35361.11707071

## Workshop 2: Step-by-Step Instructions

Server: GreatOutdoors  
 User/Password: admin/<blank>

### Task 1. Add rules for Franchise Fees calculations.

1. Launch TM1 Architect: Server Explorer.
2. Expand **TM1**, double-click **greatoutdoors**, in the **UserName** box, type **admin**, and then click **OK**.
3. Open **Franchise\_Revenue** in the Cube Viewer.
4. Open the default view for the **Income\_Statement** cube and then click **TOTAL REVENUE** to expand it.
5. Swap **Income\_Statement\_Measures** and **Months**.
6. Double-click **Months**, in the **Select Subset** list, click **Months** and then click **OK**.
7. Save the view as **Final**.
8. Open the rules for the **Income\_Statement** cube.
9. On the line above the FEEDERS; statement type the following:  
`['Franchise Fees', 'Amount' ] = N:DB('Franchise_Revenue', !Subsidiaries, !Months, !Versions);`
10. Click **Save** and then close the Rules Editor.

## Task 2. Add feeders

1. Right click **Franchise\_Revenue** and then click **Create Rule**.

2. Type the following:

**FEEDERS;**

**['Budget Version 1' ] => DB('Income\_Statement', !Versions, !Months, !Subsidiaries, 'Franchise Fees', 'Amount');**

3. Click **Save** and then close the rules editor.

4. Click the **Final** view of the **Income\_Statement** and recalculate.

You may choose to pull values from Franchise\_Revenue3. This will be more challenging because you would need a more complex rule. You could also update the zTime\_Navigation cube to contain additional values to match the attributes or elements in the Months dimension.

5. Close all open windows, without saving and shut down the server saving changes.

**Information Management**



# **Introduction to Managed Planning Applications**

IBM Cognos TM1 9.5



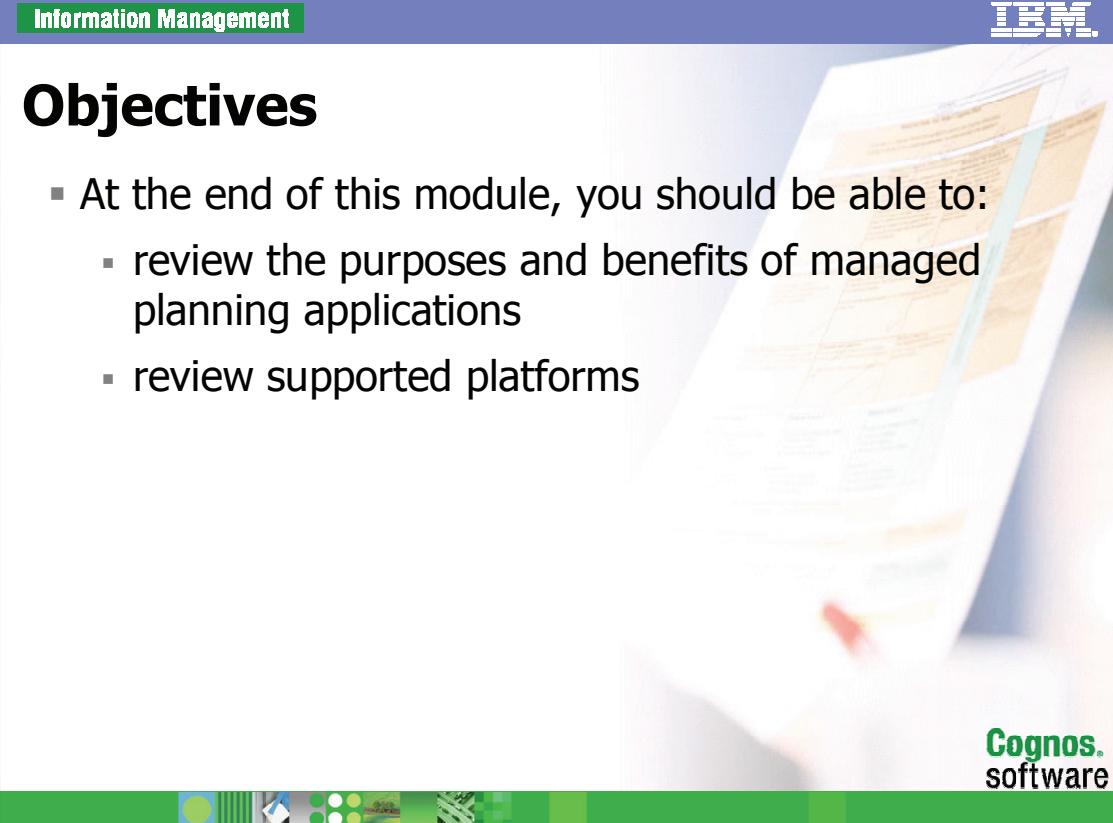
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# Objectives

- At the end of this module, you should be able to:
  - review the purposes and benefits of managed planning applications
  - review supported platforms



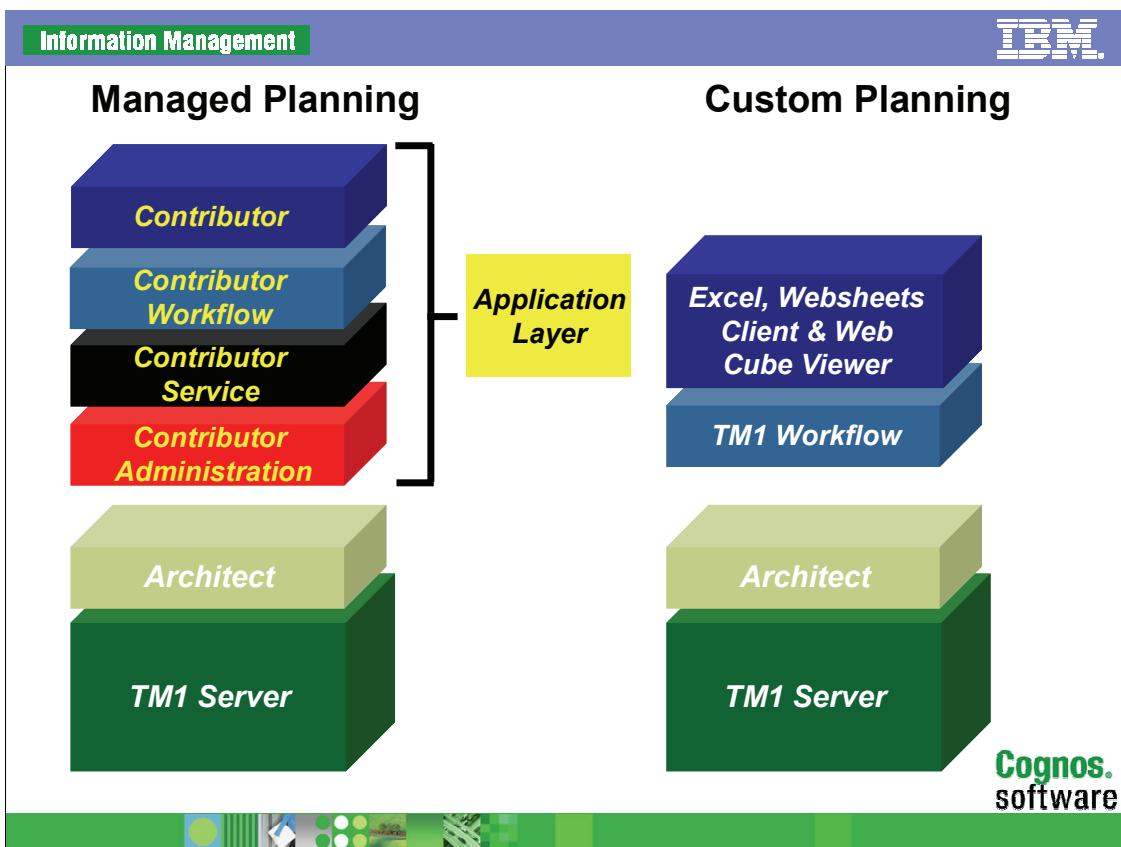
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Initially, this module was going to demonstrate importing an existing managed planning application into TM1 Contributor. At the time this course was developed, the import functionality was not working. The purpose of this instructor note is to inform the instructors that you can import and export managed planning applications. The import functionality was not working at the time the course was being developed but should be working. A demo showing the importing of an existing managed planning application was removed from this module.

As a limitation to this version of TM1, there is a one application per approval hierarchy dimension limit. At the time this course was developed, it was unknown if this limitation was going to be lifted in future releases of TM1.

**INTERACTION - Star Sticker:** Place a star beside each objective as you discuss them.



The TM1 server contains the objects created using Architect. Architect is the interface for building your model, starting with dimensions, then cubes and rules for cubes. There is a new application layer which is made up of the new Managed Planning components.

Contributor service is a process that manages the state of the Contributor Workflow and all of the activities of the participants within the Managed Planning process.

The TM1 Contributor workflow process is managed via a new workflow page. All of the participants in a TM1 Contributor application use the Contributor Workflow page in order to see what actions and data are available to them, what their areas of responsibility are and which nodes within this workflow structure they are authorized to access.

The TM1 Contributor Administration tool is used to assemble the application using IBM Cognos TM1 objects built using Architect and TM1 Server public cube views and public dimension subsets.

Within this new application layer you have all that is needed to assemble manage and deploy a Managed Planning Application, which leverages the power of TM1 server.

## TM1 Contributor (Managed Planning Applications)

- TM1 Contributor combines the power of IBM Cognos TM1 with the superior enterprise planning capabilities of IBM Cognos Planning in a Web-based client.
- TM1 Contributor includes:
  - TM1 Contributor Web Client
  - TM1 Contributor Administration



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Managed Planning Applications is the use of Contributor within the existing functionality of TM1. Think of Managed Planning as an additional layer that operates on top of IBM Cognos TM1. The new 9.5 Contributor interface streamlines the way users create, deploy and contribute to planning applications

## TM1 Contributor Web Client

- Streamlined, web-based client used to browse and contribute data within the TM1 Contributor workflow application.



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## TM1 Contributor Administration

- Configuration, design, and management tool used by administrators to build planning applications and set security on applications. Includes the TM1 Contributor Portal and Workflow pages.



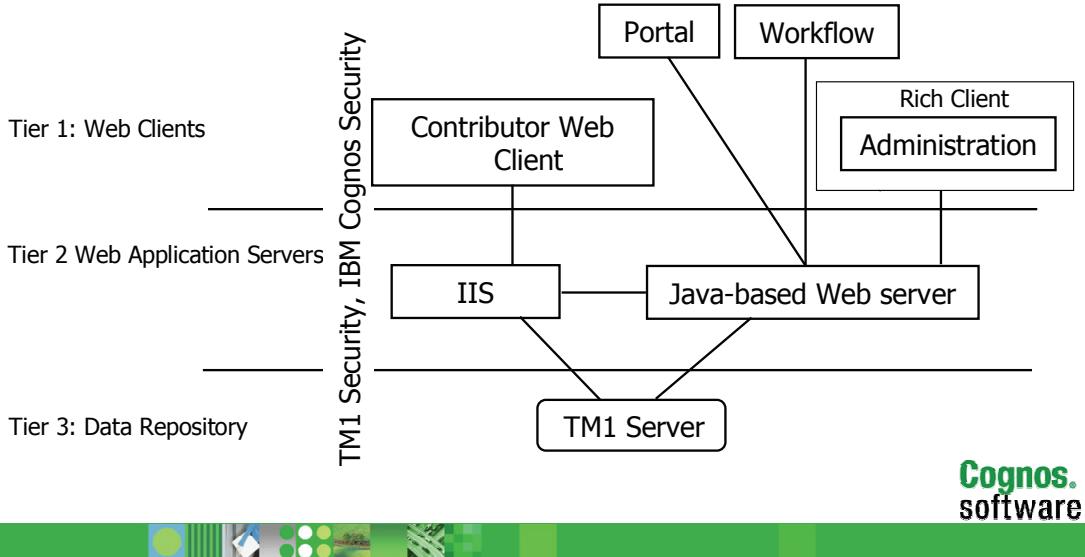
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Instructors can suggest that students refer to the IBM Cognos TM1 Contributor Administration Guide for complete details on how to design and configure applications.

## Examine TM1 Three Tier Architecture

- IBM Cognos TM1 9.5 architecture is separated into three tiers:



## Purpose and Benefits of Managed Planning Applications

- Contributor is a Web-based planning platform that can involve hundreds of people in the planning process.
- You can use a Contributor application to collect data from users in multiple locations.

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Collect and distribute data over the Web, involving hundreds of contributors, by deploying grids for data entry.

The data entered in the plan is stored in a single data repository, providing an accurate and single source of planning data.

---

### Instructor Notes

In Contributor, complex calculations are built into the model so that users only need to enter data known to them. For example, users can simply enter information about the new assets they plan to purchase, and Contributor will calculate depreciation on these items.

Contributor streamlines data collection and workflow management. It eliminates the problems of errors, version control, and timeliness that are characteristic of a planning system solely based on spreadsheets. Users have the option to submit information simultaneously through simple Web or Microsoft Excel interface. Using an intranet or secure Internet connection, users review only what they need to review and enter data where they are authorized.

Complex calculations are performed on the Web client, showing totals as soon as data is entered. This instantaneous response prevents unnecessary traffic on the Web server during busy times

Once you have created the Contributor application, users can access a Web grid to enter data using an intranet or a secure Internet connection.

When users log on to the Contributor Web application, they see a graphical overview of all the areas that they are responsible for, and the status of the data.

The user who is logged on can only enter data where they are authorized.

## Initialize the Managed Planning Environment

- IBM Cognos TM1 Contributor needs to be initialized after installation of the software.
- A TM1 server must be specified to configure IBM CognosTM1 Contributor.
- TM1 Contributor Administrator needs to be installed.

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As this is the first time you are accessing the TM1 Contributor Administrator application, you must first install it.

Every time you launch IBM Cognos TM1 Contributor Administration application, the process will check for updates

Initially, a demo was included here to show the initialization process. The intent was to demo the initialization of a TM1 Managed Planning Application (MPA) and then follow up with another demo to import of an existing MPA. Due to the fact that the Import functionality did not work at the time this training was developed, a new application needed to be created and included as part of the setup instructions for this course (see setup instructions document for P6508). In order to create a new Income\_Statement application in the setup instructions, the Initialization needs to occur before the application gets created therefore the initialization demo has come out of Module 1 and included in the setup instructions. In the future release of this course, once the import functionality works, it would be a good idea for this module to have an Initialization demo and then follow up with another demo that imports an existing MPA.

## IBM Cognos TM1 Supported Platforms

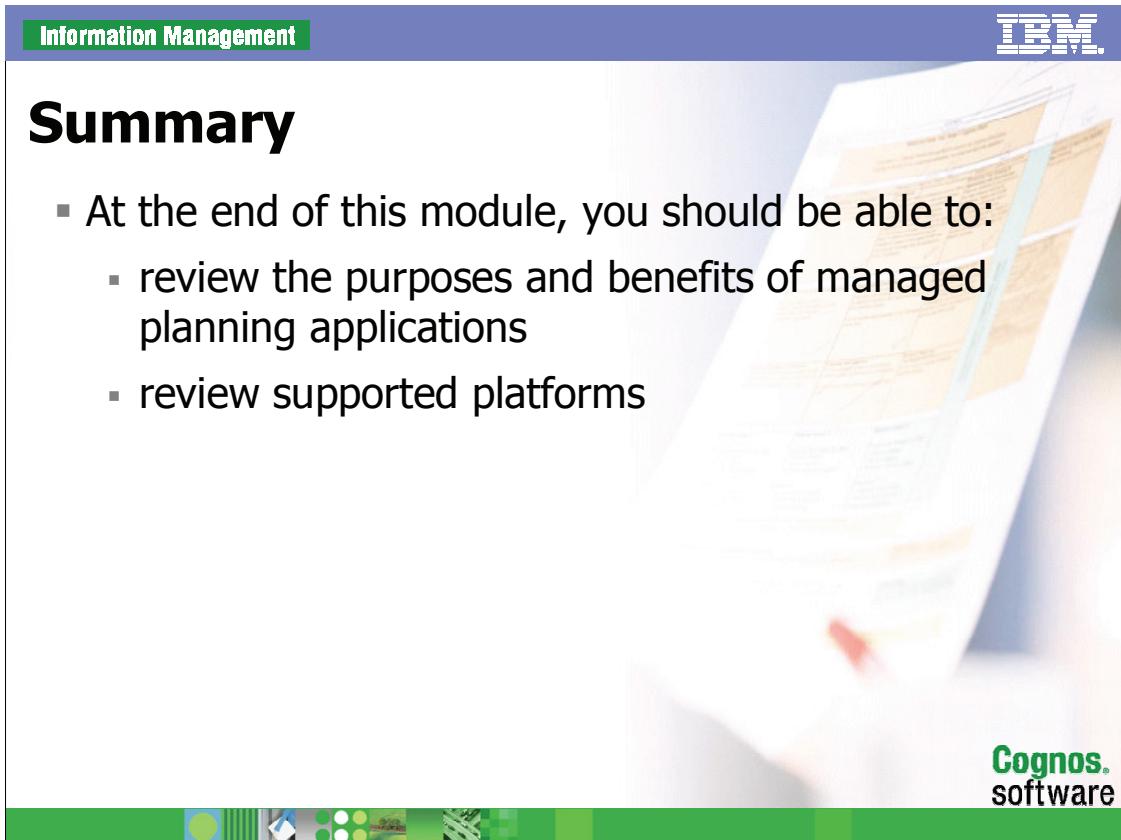
- Windows x86, x64
- IBM AIX
- Sun Solaris
- Supported browsers are:
  - Microsoft Internet Explorer
  - Mozilla Firefox



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To check the current version support for the various platforms, please verify <http://www-304.ibm.com/jct01003c/software/data/cognos/products/tm1>



The slide template features a blue header bar with the text "Information Management" on the left and the "IBM" logo on the right. The main content area has a light blue background with a faint image of a document or chart. A green footer bar at the bottom contains the "Cognos software" logo and several small, semi-transparent icons representing different business functions like finance, sales, and marketing.

## Summary

- At the end of this module, you should be able to:
  - review the purposes and benefits of managed planning applications
  - review supported platforms

**INTERACTION - Check Sticker:** Place a checkmark beside each objective as you review them.

**Information Management**



## **Contribute Data to Managed Planning Applications**

IBM Cognos TM1 9.5



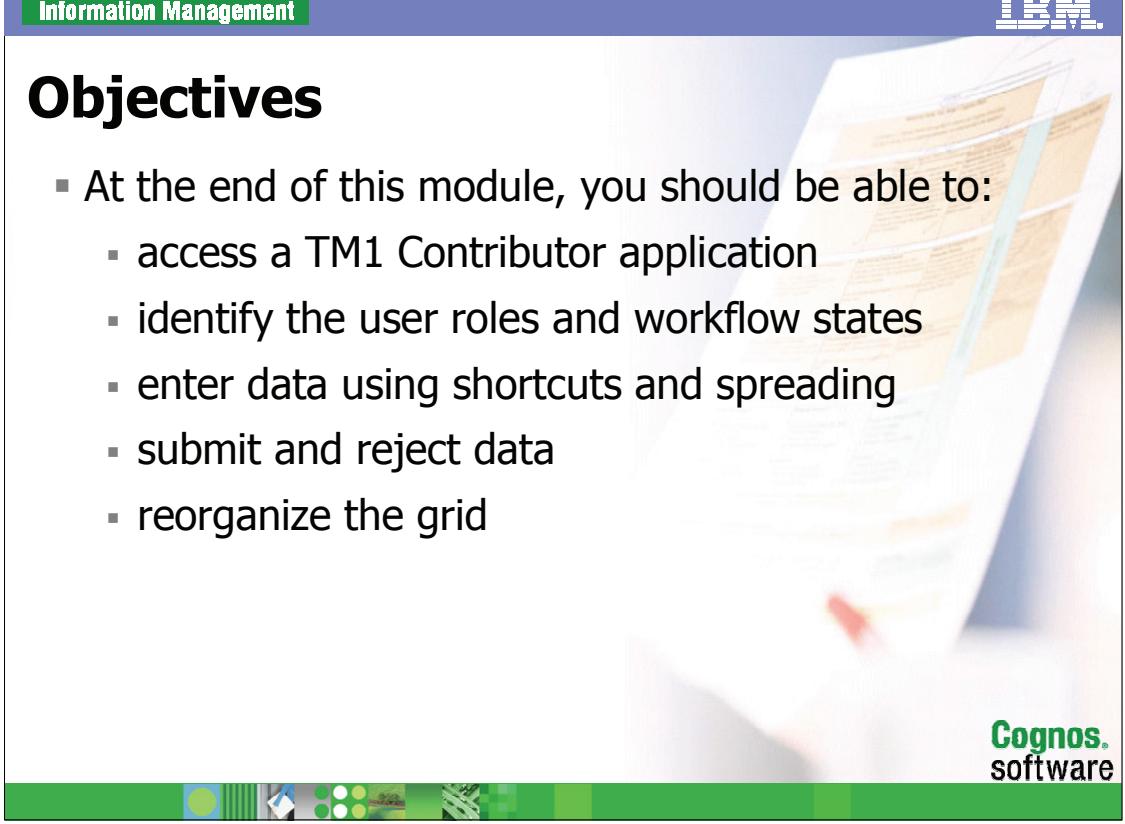
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# Objectives

- At the end of this module, you should be able to:
  - access a TM1 Contributor application
  - identify the user roles and workflow states
  - enter data using shortcuts and spreading
  - submit and reject data
  - reorganize the grid



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"Managed Planning" applications are referred to as "TM1 Contributor" applications in this course. The terms are interchangeable.

**INTERACTION - Star Sticker:** Place a star beside each objective as you discuss them.

## Access a TM1 Contributor Application

- IBM Cognos TM1 Contributor is a Web portal that lets users access all TM1 Contributor applications.
- End users use this portal to contribute plan and budget data to these applications.

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In this module, you will use TM1 Contributor to contribute to a plan in an existing Managed Planning Application.

TM1 Contributor Administrators use this portal to:

- create and maintain applications
- manage rights to secure applications
- import and export applications
- activate and deactivate applications

---

The people who build the applications are referred to as "TM1 Contributor Administrators" at first, and then just called "administrators". This is inline with the Planning Contributor courses. The intended audience is a 'modeler' but we still referred to the person who creates the apps as administrator. Also the tool you use to create the apps is called "TM1 Contributor Administration". You could use "modeler" and in this case it would be a modeler who would be the "administrator".

## Open an Application

- When you open an application, a Workflow screen appears containing a tree and a table.
- Tree hierarchy: displays the areas that you are responsible for contributing to (Contributions) and reviewing (Reviews).
- Table: gives information about each area, such as the workflow state, the current owner and reviewer, and when data was last committed.

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An item in the tree or table is referred to as a node. Each application uses a dimension subset for the different approval hierarchy. Examples include hierarchies producing nodes for each geographic region, sales division, or cost center.

Depending on your rights, you may see Contributions, Reviews, or both.

When you click a node in the tree, the bottom of the table displays details for the selected item.

When you click a node in the table, a Web grid appears containing data specifically for that node.

---

TM1 contributor currently uses a single dimension for the approval hierarchy. This is due to the fact that TM1 Contributor takes over the element security for the specified dimension.

## Examine Workflow

- Throughout the planning process, the application moves through a cycle of:
  - contributors (who enter data)
  - reviewers (who review and reject the data entered by contributors)
- During the planner/reviewer cycle, the workflow states of nodes change to indicate their status and to allow editing.

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The cycle begins when a contributor opens the IBM Cognos TM1 Contributor Web application to access his or her own assigned nodes and enters data.

Upon initial entry, the state of the node is "Not started". This indicates that no data has yet been saved.

After entering data, the contributor can choose to either save it for additional work later, or submit the node for review.

Once the contributor submits their contribution, the reviewer examines it and can then either submit it to the next level, reject it, or edit it (if the reviewer has edit rights).

---

The term "planner" is used throughout this module. If you prefer, you could also refer to these people as "contributor". For purposes of this module, the two terms can be interchanged.

## Examine the Administrator Role

- The TM1 Contributor administrator is responsible for creating and maintaining TM1 Contributor applications.
- When creating an application, the administrator must:
  - define the views
  - define an approval hierarchy
  - deploy the application
  - define security

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Define views: select the public views to be included in the application and set their properties.

Define an approval hierarchy: choose the dimension subset that reflects the structure of your business. This defines the workflow for the application.

Deploy the application: makes the application available on the IBM Cognos TM1 Contributor portal (for administrators only at this point).

Define security: after the application is deployed, define security to determine the rights users have to the application and to make the application available to users on the portal.

## Examine the Contributor Role

- Contributors are users who are responsible for entering data (contributions) into the application through the Web.
- Contributors can enter and edit data only in the node(s) to which they have been assigned by the administrator.
- Once the contributors enters data, they can either save or submit it.

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When a contributor saves data, it is saved to the server, and can be viewed and edited by planners who have access to that node.

When a contributor submits data, the data is forwarded to a reviewer and cannot be edited further by planners unless the reviewer rejects it.

A contributor may be responsible for entering data for more than one node.

If a contributor is responsible for multiple nodes under the same parent, they can view each contribution node individually, or see all contribution nodes in a single view.

If they have different parents, you may only view them separately.

---

In TM1 Contributor, they can open multiple nodes (under the same parent) for viewing but not for editing. This differs from Cognos Planning.

**INTERACTION - Survey:** What type of security rights might a contributor/planner have? Answers: View, Edit or Submit.

## Examine the Reviewer Role

- Reviewers approve contributions that are submitted by contributors. Once data has been submitted, the reviewer can:
  - reject the data if they are not satisfied with it
  - edit the data (if this has been allowed by the administrator)
  - submit the data

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At any time during the planner/reviewer cycle, reviewers can view contributions that they are responsible for managing.

A user can be both a planner and a reviewer for the same node.

If a complete set of submitted data has been viewed by the reviewer and is satisfactory, the data can then be submitted to the next reviewer in the hierarchy.

---

In TM1 Contributor, if the reviewer rejects the contribution, the system does not prompt them to email the planner/contributor about changes required before approval. When a user has this dual role, they will be able to view their review items and contribution items within the same Web page.

This is also different than in Cognos Planning.

## Identify Workflow States

	<b>Not Started.</b> The node has not been opened and the data has not been changed or saved.
	<b>Work in Progress.</b> The user has taken ownership of the node but has not submitted the node.
	<b>Locked.</b> The data was submitted and the node is locked. Data in this state is read only. If this node is rejected, its state returns to Work in Progress.
	<b>Incomplete.</b> At least one child node of this parent node is Not Started and at least one other child node is Work in Progress, Locked, or Ready. The incomplete state applies only to Review items.
	<b>Ready.</b> All child nodes of this parent node are locked. This parent node is ready to be submitted to the next level in the hierarchy.

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Icons below the dotted line refer to states that apply only to parent nodes (such as North America). Icons above the dotted line refer to states that apply to child (leaf level) nodes (such as Canada). Parent nodes can also be Not Started or Locked.

Only child nodes are available in the Contributions tree.

## Demo 1: Examine the Workflow Screen

### Purpose:

You will examine the Workflow Screen and familiarize yourself with the IBM TM1 Contributor approval hierarchy for this particular application.

Component: **TM1 Contributor (<http://localhost:8085/pmpsvc>)**

Application: **Income\_Statement**

Login: **admin (no password)**

### Task 1. Start up the IBM Cognos TM1 Workflow screen.

1. Double-click the **Income\_Statement** shortcut on the desktop to start the server.
2. Open **Internet Explorer**, and then go to [\*\*http://localhost:8085/pmpsvc\*\*](http://localhost:8085/pmpsvc).
3. Log on as **admin** with no password.

The IBM Cognos TM1 Contributor Web portal appears. You can see that one application is available to you.

4. Click **Income\_Statement**.
5. On the left hand side of the screen, expand the **Contributions** tree.
6. Expand the **Reviews** tree, expand **TOTAL COMPANY, GO AMERICAS REGION, GO ASIA PACIFIC REGION** and then expand **GO EUROPE GMBH**.

Based on the security and roles that you have defined for your application, the Contributions hierarchy will show you what groups or users are able to contribute to the planning process. In this case, you will notice that there is a group of particular users that can contribute data to the plan by a geographic area so that users that belong to the GO Americas Contributions group can contribute plan data for the GO Americas division.

Notice also that because this is the first time we are opening this application, the Workflow States are all displayed as Not Started.

7. In the **Contributions** tree, click **GO Central Europe**

The results appear as follows:

The screenshot shows a Microsoft Internet Explorer window titled "Contributor - Income\_Statement - Microsoft Internet Explorer". The address bar shows the URL: <http://localhost:8085/pmpsvc/pmpjs/workflow/workflow.jsp?portal=1&aid=%7Bf52ad04-866e-4c52-871f-f9baa88fd6a4%7D>. The main content area displays the "IBM Cognos TM1 Contributor" interface.

**Contributions Tree:**

- Contributions
  - GO Americas
  - GO Asia Pacific
  - GO Accessories GmbH
  - GO Central Europe** (selected)
  - GO Northern Europe
  - GO Southern Europe
- Reviews
- TOTAL COMPANY
  - GO AMERICAS REGION
    - GO Americas
  - GO ASIA PACIFIC REGION
    - GO Asia Pacific
  - GO EUROPE GMBH**
    - GO Accessories GmbH
    - GO Central Europe
    - GO Northern Europe
    - GO Southern Europe

**You are a reviewer or contributor for:**

Name	State	Ownership	Reviewer	Last Data Commit
GO Americas	Not Started	None	Review_Americas	Never committed
GO Asia Pacific	Not Started	None	Review_Asia_Pacific	Never committed
GO Accessories GmbH	Not Started	None	Review_Europe	Never committed
<b>GO Central Europe</b>	Not Started	None	Review_Europe	Never committed
GO Northern Europe	Not Started	None	Review_Europe	Never committed
GO Southern Europe	Not Started	None	Review_Europe	Never committed

**Reviewer Information for GO Central Europe**

Reviewer: Review\_Europe

Groups that could review this node:  
Review\_Europe

The bottom of the table now displays details for Central Europe.

For the Go Central Europe, you will notice that a particular user that belongs to the GO Central Europe role has not taken Ownership of the plan to commence the planning process. Whoever starts the planning process will take Ownership of the plan and that user's information will show up in the Ownership column.

The Reviewer for GO Central Europe is a user from the Review\_Europe group.

This plan has also never been committed.

8. Keep the workflow screen open for the next demo.

### Results:

**You have examined the Workflow Screen and familiarized yourself with the IBM TM1 Contributor approval hierarchy for this particular application.**

The screenshot shows the IBM Cognos Contributor workspace interface. At the top, there's a blue header bar with the text "Information Management" on the left and the "IBM" logo on the right. Below the header is a large title "Navigate the Contributor Workspace". The main area contains a data grid with the following data:

	Jan	Feb	Mar	Apr	May	Jun	Jul
<b>TOTAL PRODUCTS</b>	826,168	481,091	1,064,262	1,142,096	588,513	782,287	809
CAMPING EQUIPMENT	489,261	286,271	606,949	453,278	262,580	380,874	420
GOLF EQUIPMENT	25,274	9,478	35,104	36,857	17,287	30,715	29
MOUNTAINEERING EQUIPMENT	92,850	70,469	134,536	265,471	131,989	137,607	87
OUTDOOR PROTECTION	105,661	31,066	139,626	187,367	85,830	122,427	145
PERSONAL ACCESSORIES	113,122	83,807	148,047	199,123	90,827	110,664	127

Annotations with red arrows point to various parts of the interface:

- Tabs:** Points to the tab bar at the top with icons for Sales\_Plan, Commissions, Expenses, Franchise\_Revenue, and Income\_Statement.
- Dimension Bar:** Points to the section below the tabs that shows dimensions for Rows (Products) and Columns (Months).
- Dimensions:** Points to the hierarchical list of product categories on the left side of the grid.
- Grab Handles:** Points to the small red arrows located at the top edge of the grid area.
- Hidden Objects Indicator:** Points to the chevron icon and the number "2" in the top right corner of the dimension bar.
- Row and Column Bars:** Points to the vertical and horizontal bars on the left and top edges of the grid, respectively.
- Grid:** Points to the main data area where the data is displayed.

**Cognos software** is visible in the bottom right corner.

Tabs - each tab represents a view in the application

Dimension Bar - is separated into three sections and shows which dimensions are displayed in the columns, rows, and as the data context.

Dimensions - groups of related data, such as products or dates

Row and Column Bars - lets you sort dimension items or display the dimension items in hierachal or list format

Grid - the area where you add or edit data

Grab Handles - points where you can grab a dimension or tab to move it within the grid

Hidden Objects Indicator - if you have more tabs or dimensions than can be displayed in the window, a chevron along with the number of hidden tabs or indicators appears.

## Reorganize the Grid

- Within the TM1 Contributor Grid, you can:
  - combine multiple views (tabs) within a common window
  - move and nest dimensions
  - sort data, (must use filter menu)
  - suppress zeros
  - filter
  - create and edit subsets

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You have the flexibility to arrange the grid and data organization to suit your needs. You can work with many tabs at one time, or freeze columns or rows for easier scrolling in a particular tab. You can also modify tab placement, data sorting, and zero suppression. The next time you open any node in the same application, your settings are retained.

You can stack and reorganize views to change how they are displayed. You can reset the grid by clicking the down arrow next to the Reset button and clicking Reset View. To reset data back to the previous save, click Reset Data. You can drag and drop views from the dimension bar into other areas of the dimension bar or onto the grid, and organize them on the rows or columns to create the desired grid layout.

You can move and reorder tabs. If you have more tabs than can fit in the window, the hidden tabs appear in the hidden tab control area. This area is indicated by a chevron, and also displays the number of hidden tabs. When you click on the chevron you can select a tab to view.

---

If you have multiple tabs torn off that have the same context dimensions, you can only view shared members of that dimension. Unique members of the context dimensions cannot be shown until the tabs are returned.

## Add Charts

- Within TM1 Contributor, you have the option of:
  - view the grid
  - view a chart
  - view chart and grid together
- Change chart properties
  - Type
  - Color
  - Legend

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You can edit and format the following chart properties to give your chart a professional look.

Chart - Appearance, chart type, title, and title placement

Legend - Style, display or hide legend, display legend inside plot area, and placement

3D - Display or hide 3-D view, right angle axes, series depth, rotation, and perspective

Labels - Type, angle, font, color, position, format, and precision

X and Y-axis - Display or hide axis, grids, strips, reversed, side margin, title, format, and precision

Appearance - Chart background color and pattern, border, and line style

## Export Data

- You can export data from an application by using:
  - Slice to Excel
  - Snapshot to Excel
  - Export to PDF

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This is helpful if you want to want to create reports or charts in Excel, or manipulate the data.

You can also export data to a text file if you want to import it into another application.

Slice to Excel - Excel documents that retain a link to the TM1 server through functions. When you connect to the server with which the slice is associated, the slice displays the current cube values.

Snapshot to Excel - Excel documents that contain numeric values reflecting the cube values at the moment the export occurred. Because snapshots do not retain a link to the TM1 server, the values are static, representing a snapshot of cube values at the moment of export.

Export to PDF - PDF documents that display cube values at the moment the export occurred.

**INTERACTION - Check Sticker:** Use a check mark next to each bullet when describing the export differences.

You can select the number of rows to export:

- Export rows in current page - Exports all rows in the current page.
- Export rows from beginning to current page - Exports the first row in the first page through the last row in the current page.
- Export all rows in the view - Exports all rows from all pages.

---

By default, exporting a slice or snapshot report to Excel displays the report in a web browser window. For details on configuring your computer to open reports into the full, stand-alone version of Excel, see the Microsoft support web site.

Note: If you are experiencing problems exporting Excel or PDF files from TM1 Contributor and you are using a WAN (Wide Area Network) server, you may need to reconfigure the security settings in Internet Explorer. For details, see the IBM® Cognos® TM1 Operations Guide

## Demo 2: Open a Node and Modify the View

### Purpose:

You will open a node and apply various functionality to modify the view. You will then add a chart to your view and export the view to Microsoft Excel. You will then combine multiple views within a single window to follow the changes of flow in data.

Component: TM1 Contributor (<http://localhost:8085/pmpsvc>)  
 Application: Income\_Statement  
 Login: admin (no password)

### Task 1. Open the GO Americas Node and modify the view.

1. Under the **Contributions** tree, click the **GO Americas** node.
2. On the right hand side of the screen, click the **GO Americas** application.  
The GO Americas grid opens in a separate window.

3. Click on the **Income\_Statement** view  **Income\_Statement**.

The Income\_Statement view is the Income Statement Plan that will allow contributors to plan for their revenues and expenditures.

### Task 2. Modify the **Income\_Statement** view.

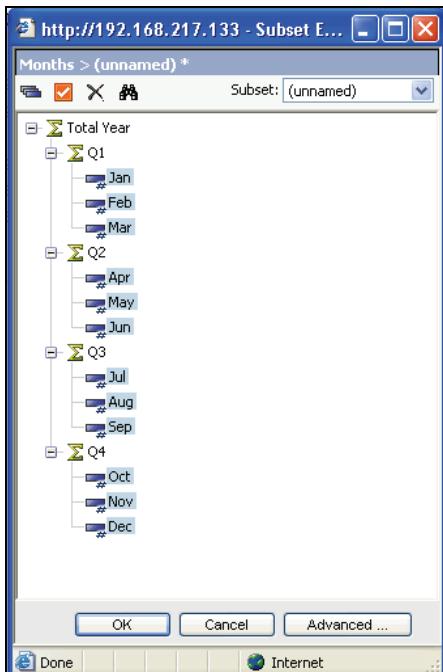
1. In the rows dimension, expand **Net Income**, expand **Operating Income** and expand **Total Expenses**.
2. In the Dimension Bar, under **Context**, click and drag the grab handle for the **Total Year** dimension, and place this dimension under **Columns** on top of the existing **Income\_Statement\_Measures** dimension to re-orient your view.

3. Click **Recalculate** .

You want your view to show months as opposed to quarters.

4. Click the **Open Subset Editor** arrow  next to the **Months** dimension.
5. In the **Subset Editor**, expand **Q1**, **Q2**, **Q3** and **Q4**.
6. CTRL+click each month without selecting the Quarters.

Your result should look as follows:



7. Click **OK**, and then click **Recalculate**.

You want to view your Budget Versions as part of this view. You can nest the Versions dimension within the Total Year dimension.

8. Click and drag the grab handle for the **Version** dimension and place it next to the **Months** dimension on the Dimension Bar.
9. Click **Recalculate**.

For better readability, you will swap your rows and columns and suppress zeros.

10. Click **Swap rows and columns** , and then click **Recalculate**.
11. Click **Suppress Zero Values** , and then click **Recalculate**.

You want to filter your data to rank your top 10 total expenditure amounts.
12. Click and drag the grab handle for the **Version** dimension and place it the **Context** section of the Dimension Bar.
13. Click **Recalculate**.
14. In the **Total Expenses** column, click **Total Expenses** and then click **Top 10**.
15. Click **Recalculate**.

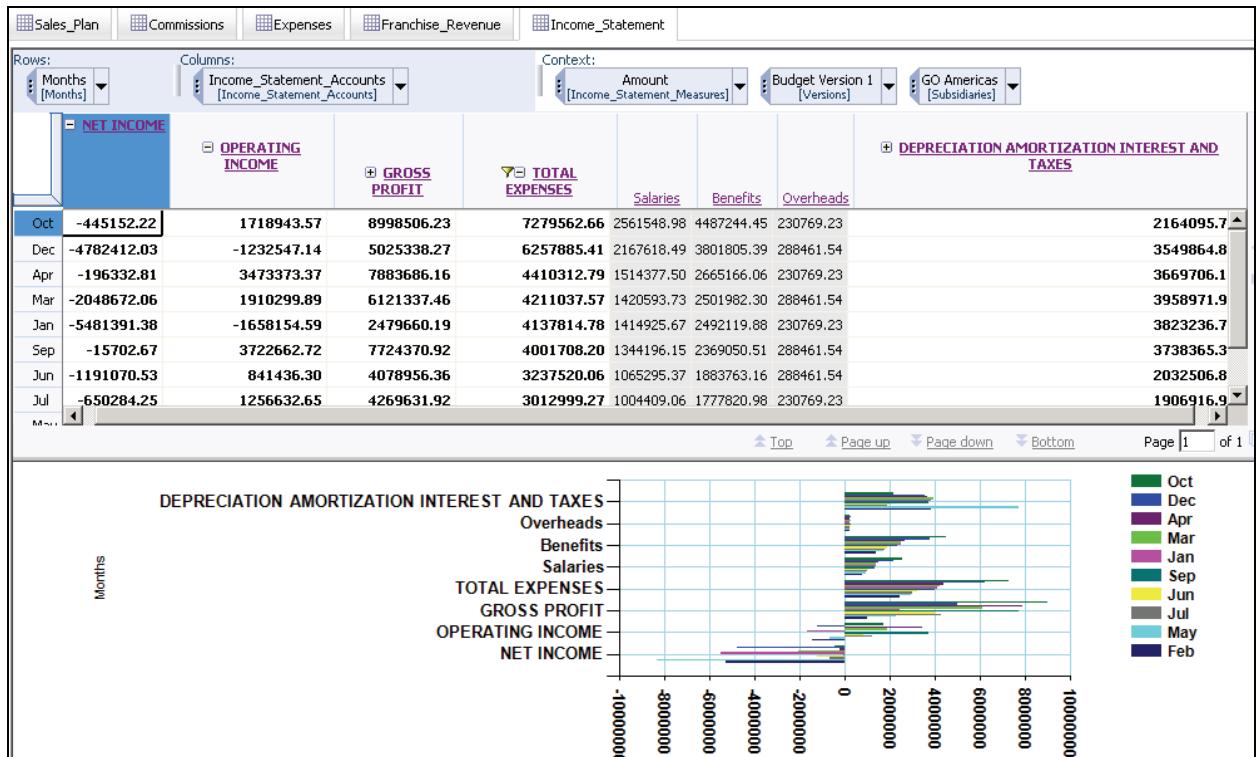
You will notice that the Total Expenses were greatest for the month of October.

### **Task 3. Add a Chart and Export the data.**

1. On the toolbar, click **View chart** .
2. Click **Chart Properties**,  click **Type** and then click **Bar**.

3. Click **View chart and grid** .

Your results should look as follows:



You will now export this report to Microsoft Excel.

4. Click **View Grid** .

5. On the toolbar, click **Export** .

You have the option to Export Slice to Excel which maintains a dynamic link to TM1, Snapshot to Excel which does not maintain a link to the TM1 database and Export to PDF.

6. Click **Snapshot to Excel**.

7. In the **Export** window, click **OK** to select the default selections.
8. In the **File Download** window, click **Open**.  
If prompted, select **Disable Macros** in the Security window.
9. Once in Microsoft Excel, widen the columns to view the data.  
If you click on any cell, you will notice that the value stored is an actual value and not a formula that links to a data cell within the TM1 database.
10. Close Microsoft Excel and do not save changes to your report.  
You will notice in the view that the columns for Salaries, Benefits and Overhead are grayed. Values cannot be changed in this view. Contributions to these values must be accomplished in a separate view with the same context dimensions. You will now combine the Income\_Statement view with the Expenses view. You will reset the Income\_Statement view to analyze it with the Expenses view in the same window.

## **Task 4. Combine the Income\_Statement and Expenses views in the same window.**

1. On the toolbar, click **Reset**, , click **Reset View** and then click **Reset Current View**.
2. In the rows dimension, expand **Net Income**.
3. Expand **Operating Income** and expand **Total Expenses**.
4. In the Dimension Bar, under **Context**, click and drag the grab handle for the **Total Year** dimension, and place this dimension under **Columns** on top of the existing **Income\_Statement\_Measures** dimension to re-orient your view.
5. Click **Recalculate** .

You want your view to show months as opposed to quarters.

6. Click the **Open Subset Editor** arrow  next to the **Months** dimension.

7. In the **Subset Editor**, expand **Q1**, **Q2**, **Q3** and **Q4**.

8. CTRL+click each month.

9. Click **OK** and then click **Recalculate**.

10. Click the **Expenses** tab and drag it to the bottom of the grid.

The cursor will change to multiple folders.

Keep dragging the tab until you see the drop area highlighted and an arrow indicating the placement of the tab.

Now the tabs are displayed vertically.

11. Click on the **Expenses** tab to make it active.

You will notice the totals for Salaries, Benefits and Overhead are the same in both views.

12. At the intersection of **Travel** and **Jan**, enter the value **200,000** and press **Enter** to commit data in the Expense tab.

You will see the data updated in the both the **Expenses** tab and **Income\_Statement** tab.

13. Click **Reset**, click **Reset View** and then click **Reset both Views and Tabs**.

Alternatively, to replace the **Expenses** tab, drag the tab to the center of the other tab area. The source tab returns to the tab area.

14. Close the Grid and Workflow windows without saving changes and close the **Income\_Statement** server window without saving changes.

## Results:

**You have opened a node and applied various functionality to modify the view. You have added a chart to your view and exported the view to Microsoft Excel. You have also combined multiple views within a single window to follow the changes of flow in data.**

## Take Ownership of a Grid

- When you open a grid, the grid may appear in read-only view (gray cells).
- For example, cells in a grid may appear gray if:
  - you have not taken ownership of the grid
  - the element is calculated
- You must take ownership of a cube before you can edit it.



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You cannot take ownership of a grid that is locked.

Only white cells can be edited.

---

TM1 Contributor assumes a proportional spread when entering into a consolidated cell so it is not gray but displayed as bold

## Enter and Distribute Data

- You can enter data into the grid using the same methods as other TM1 components:
  - type directly in cells
  - shortcuts
  - data spreading
- When data is entered in TM1 the data is automatically saved in your own personal view of the data (Sandbox).

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You can edit consolidated cells by using data spreading.

You can spread data using TM1 data spreading methods just like in other TM1 components.

When data is entered in TM1 the data is automatically saved in your own personal view of the data which is referred to as a Sandbox.

To save the data to the database, the contributor will commit the data.

To complete the planning process, the contributor will submit the plan which locks the particular node.

The administrator can enable multiple Sandboxes per user.

## Use Shortcuts to Manually Enter Data

- You can apply most data spreading methods through a special syntax that you enter directly in cells:

**Method Code      Direction Indicators**

S + <> 100

**Data Action      Method Parameter**

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The method code is the code for a data spreading method. For example, S is the method code for Equal Spread.

The data action indicates whether spread values should replace, be added to, or be subtracted from the existing cell values.

The direction indicators indicate the direction to spread data relative to the point of insertion.

The method parameter is the value required to execute a given spreading method.

Depending on the type of spread, the Method Code (S,P and R) may not be required. As an example, you could enter "75K" in a total and Contributor will spread the values accordingly.

**INTERACTION - Line > Arrow:** Draw arrows from Method Code to "S", and from Direction Indicators to the "less than" and "greater than" signs. Draw an arrow from Data Action to "+", and from Method Parameter to 100. See completed slide in Instructor Guide.

## Use Shortcuts to Manually Enter Data (cont'd)

- Data actions include:

- Replace - If you do not specify an action, the existing cell values are replaced with the spread values.
- Add - Plus sign (+) adds spread values to the existing cell values.
- Subtract - Tilde (~) subtracts spread values from the existing cell values.



Direction indicators include:

- Pipe ( | ): Spreads values below the point of insertion
- Caret ( ^ ): Spreads values above the point of insertion
- Right and Left Arrows( < or > ): Spreads values to the left or right of the point of insertion

All shortcuts are case insensitive, so R>10 is the same as r>10.

---

These shortcuts work in all of the TM1 clients. Note that there are extra shortcuts available in TM1 Contributor and TM1 Web Cube Viewer, and some commands use a different syntax. For example, to add 10 to a value in TM1 Cube Viewer, Websheets, or Excel, the shortcut is P+10. In TM1 Contributor and TM1 Web Cube Viewer, the shortcut is Add10.

For a complete list of shortcuts, and more information on using shortcuts in Contributor and TM1 Web Cube Viewer, see the TM1 User Guide under Data Spreading Syntax.

**INTERACTION - AppShare:** Open the Expenses cube, and show a simple shortcut, such as R>100

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## Copy Data Quickly

- Copy commands copy a value or operation to the left, right, above, or below to other rows and columns of a grid.

	Budget Version 1
Jan	5000
Feb	
Mar	
Apr	
May	
June	
July	
Aug	
Sept	
Oct	
Nov	
Dec	
<b>Full Year</b>	

→

	Budget Version 1
Jan	5,000
Feb	5,000
Mar	5,000
Apr	5,000
May	5,000
June	5,000
July	5,000
Aug	5,000
Sept	5,000
Oct	5,000
Nov	5,000
Dec	5,000
<b>Full Year</b>	<b>60,000</b>

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Command	Description	Examples	
>	Copies right	5>	Copies the number 5 to the right.
		>	Copies cell value to the right.
		Inc6>	Increase row values 6% to the right.
<	Copies left	Add15<	Adds 15 to the cells to the left.
	Copies down	3	Copies 3 down the column.
^	Copies up	hold^	Holds the cell values up the column.
		2>^	Copies to the right and up the column.

## Enter and Change Data Quickly

- Typing a data entry command in a cell performs an action on the cell value.
- Data entry commands are processed when you press Enter.

	Budget Version 1
Jan	5,000
Feb	5,000
Mar	5,000
Apr	5,000
May	5,000
June	5,000
July	5,000
Aug	5,000
Sept	5,000
Oct	5,000
Nov	5,000
Dec	5,000
<b>Full Year</b>	<b>60,000</b>

	Budget Version 1
Jan	Add2k
Feb	5,000
Mar	5,000
Apr	5,000
May	5,000
June	5,000
July	5,000
Aug	5,000
Sept	5,000
Oct	5,000
Nov	5,000
Dec	5,000
<b>Full Year</b>	<b>60,000</b>

	Budget Version 1
Jan	7,000
Feb	7,000
Mar	7,000
Apr	7,000
May	7,000
June	7,000
July	7,000
Aug	7,000
Sept	7,000
Oct	7,000
Nov	7,000
Dec	7,000
<b>Full Year</b>	<b>84,000</b>

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These commands are not case-sensitive.

You can use commands across two dimensions, but not across pages.

Note: A minus sign (-) is not permitted for subtract because this indicates a negative number.

The table on the following page lists the quick data entry commands in TM1 Contributor.

Please refer participants to the IBM Cognos TM1 User Guide (Chapter 5 - section on Data Spreading Syntax) for more important information about using shortcut keys. This information is also available in the TM1 Contributor User Guide in Chapter 2 under Quick Data Entry Commands.

**INTERACTION - AppShare:** Open the Expenses cube, and show a simple shortcut, such as 5K, 10M, Add5000

<b>Command</b>	<b>Description</b>	<b>Action</b>
K	Enters the value in thousands.	Example: 5K Enters 5,000
M	Enters the value in millions.	Example: 10M Enters 10,000,000
Add, +	Adds a number to the cell value.	Example: Add50 Adds 50 from the cell value
Subtract, Sub, ~	Subtracts a number from the cell value.	Example: sub8 Subtracts 8 from the cell value
Percent, per	Multiplies the cell value by a number added as a percentage.	Example: per5 Gives 5% of the original cell value
Increase, Inc	Increases the cell value by a number added as a percentage.	
Decrease, Dec	Decreases the cell value by a number added as a percentage.	Example: decrease6 Decreases the cell value by 6%
Power, Pow	Takes the cell value to the number added as an exponent.	Example: Pow10 Raises the value to the power of 10
GR	Grows cells by a percentage.	Example: GR>150:10 Increases the value by 10 percent starting with a value of 150
Hold, Hol, H, HC	Holds the cell value from Breakback calculations. HC holds the consolidated level.	
Release, Rel, RH, RC	Releases held cells.	
RA	Release all held cells.	

## Compare Data Entry Commands

- TM1 Contributor has additional data entry commands that are not available in other TM1 components.
- Some data entry commands are available in multiple components, but use a different syntax in TM1 Contributor.



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The table on the following page shows the shortcut keys available in the TM1 Contributor client and the comparable shortcut keys available in TM1.

<b>Contributor</b>	<b>TM1</b>
Add10	P+10
Sub10	P~10
Increase10	P%+10
Decrease10	P%~10
Percent10	P%10
Add10> or >Add10	R+>10
Sub10> or >Sub10	R~>10
Increase10> or >Increase10	P%+>10
Decrease10> or >Decrease10	P%~>10
Percent10> or >Percent10	P%>10
>10	R>10
10>	R>10
>10K	R>10000
>10M	R>10000000
10Grow100Compound>	GR>10:100
10Grow100Linear>	GR>10:100
10Gro100Com>	GR>10:100
10Gro100Lin>	GR>10:100
10G100C>	GR>10:100
10G100L>	GR>10:100
10Grow100>	GR>10:100
1K	1000 (The number ending in K is multiplied by 1000 at the client end and returned to the server)
1M	1000000 (The number ending in M is multiplied by 1000000 at the client end and returned to the server)

## Examine Data Colors

- Text color changes according to processing state.

Default Color	Processing State
Black	Text is saved
Blue	User has pressed the Enter key since typing the text.
Green	User typed text and used tab key, arrow keys, or mouse to move within the grid.

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The color codes help differentiate between data that is entered (blue or green) and that is contributed (black).

---

Your administrator may choose another color scheme or eliminate the color-code option in TM1 Contributor

## Commit Data

- When you open the grid, the data that appears is from the database and is called Base data.
- When you enter data it is only visible by you.
- When you are happy with your data, you can commit your sandbox data to the database.
- After you commit, your node is still in a Work in Progress state and you can continue to work in your node.

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A Sandbox is a repository of personal data only visible by you. It does not contain all data in the database; only the changes you made to the data.

---

The administrator may configure your application to permit you to create and delete additional sandboxes. By default, there is always one.

Committing to the base is not the same as submitting. Submit locks the node so you can't edit it anymore. Committing your sandbox to the base just saves your data to the database but still lets you keep working.

## Commit and Submit Data

- Data options Commit and Submit apply to the entire grid and not just the tab you are currently viewing.
- The options vary based on the grid status and user rights.
- When contributing to the plan, you can update the data displayed in your view with the most recent changes to the data saved on the server at any time.



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When you click Commit, the Contributor private (sandbox) data is made public and leaves the node in an editable state (work in progress). Submit is inclusive of commit and it changes the state from In Progress to Lock.

When you click Submit, you are submitting the entire plan and not just the tab that you are currently viewing.

Once you click Submit, your entire plan is committed to the database and considered complete and final.

You can no longer edit any part of your grid after submitting the plan; however, you can continue to view it.

## Take Ownership from a User

- A user with appropriate rights can take ownership of a node while it is being edited by the current owner.

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If someone takes ownership away from you, you will find out when you refresh your grid that you no longer have ownership. If necessary, you can take ownership back from them. You do not lose your changes if someone takes ownership from you because everything goes to your sandbox.

---

Taking ownership away from another user is not done often, but may be useful if the currently owner is not available (e.g. went on vacation) or if multiple people are responsible for the same node (e.g. each person is responsible for a different view within the application).

If you try to take ownership from another user, you will not receive a warning stating the name of the current owner and asking you to confirm that you want to take ownership.

## Demo 3: Enter, Save and Submit Data

### Purpose:

**Samantha Floyd, a contributor in North America wants to create a plan for Overhead expenses in North America. To achieve this, she will login to the Contributor Workflow screen, access the GO Americas grid and take ownership of the grid. She will use a combination of data shortcuts and spreading techniques to enter the data into her plan. Once the plan is complete, Samantha will save the data. Finally, she will submit her plan for review.**

Component: TM1 Contributor (<http://localhost:8085/pmpsvc>)

Application: Income\_Statement

Login: Floyd (no password)

### Task 1. Start up the IBM Cognos TM1 Workflow screen.

1. Double-click the **Income\_Statement** shortcut on the desktop to start the server.
2. Open **Internet Explorer**, and then go to <http://localhost:8085/pmpsvc>.
3. Log on as **Floyd** with no password.

The IBM Cognos TM1 Contributor Web portal appears. You can see that Samantha has one application (Income\_Statement) available to her.

4. Click **Income\_Statement**.

5. On the left hand side of the screen, expand the **Contributions** tree.

You will notice that Samantha can only see the GO Americas node. Also, Samantha does not have the ability to review a plan therefore she does not have a Reviewers tree within her grid.

6. In the **Contribution** tree click **GO Americas**.

You can see in the right hand side of the Workflow that there currently is no owner for this grid.

## Task 2. Open the grid, take ownership and re-orient the dimensions.

1. On the right hand side of the screen, click the **GO Americas** application.  
The GO Americas grid opens in a separate window.
2. Click on the **Income\_Statement** view.  
Notice that all the cells are gray. You need to take ownership of the grid before you can enter data.
3. In the rows dimension, expand **Net Income**, expand **Operating Income** and then expand **Total Expenses**.  
Notice the total amount for Overhead in the Amount column is **\$3,000,000**.
4. Click the **Expenses** view.  
Notice that all the cells are gray. You need to take ownership of the grid before you can enter data.
5. On the toolbar, click **Take Ownership** .  
You now have ownership of the grid. The cells that can be edited are white, and the owner, Samantha Floyd, appears at the bottom of the grid.  
All the tabs are cubes that you can contribute to.  
If you navigate back to Workflow Screen, you will notice that the status indicator is set to Work in Progress.
6. If necessary, ensure the **Expenses** dimension is in the **Rows** dimension and that the **Months** dimension is in the **Columns** dimension.
7. Collapse the **Salaries** and **Benefits** hierarchies.

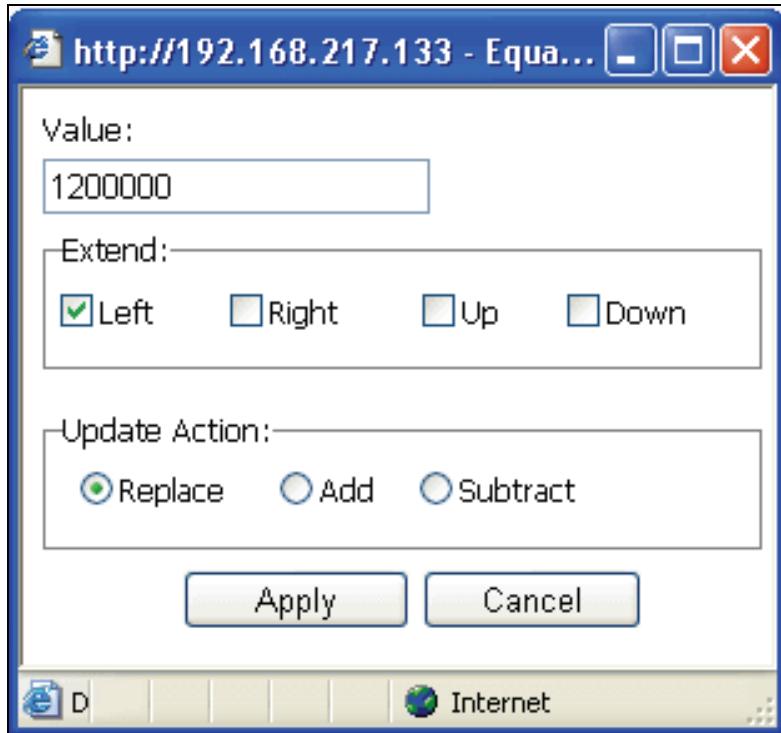
### Task 3. Enter data for the Expenses grid.

1. In the **Total Year** cell for **Communications**, right-click the cell, select **Data Spread** and then select **Equal Spread**.

You may need to scroll right to see Total Year.

2. In the **Value** box, enter **1,200,000**.
3. Under **Extend**, select **Left**.

Your result should look as follows:



4. Click **Apply**.

The breakback (spreading) feature causes the values of 100,000 to fill the cell for each month for Budget Version 1.

Notice the new values appear in blue. This indicates the values are not yet saved.

Even though you have yet to save any data, the values have been saved to the base (sandbox) but not written back to the server. They will be written to the server when you close the server and save the changes.

5. In the **Minor Equipment** cell for **Jan**, type **SL>100000:20000**, and then press **Enter**.

This replaces January and all leaf values to the right of the January with a start value of 100,000 and an end value of 20,000.

6. In the **Travel** cell for **Jan**, type **P%+>10** and then press **Enter**.

This applies a percent change of 10% to all of the leaf values to the right of Jan, and adds the product to the existing cell values and increments all leaves in the view by 10%.

The values have also changed color from black to blue.

The result:

Sales_Plan	Commissions	Expenses	Franchise_Revenue	Income_Statement									
Rows:	Columns:		Context:										
	Months		Budget Version 1		Amount		GO Americas						
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
<b>TOTAL COMPENSATION</b>	3,907,046	2,219,795	3,922,576	4,179,544	2,712,943	2,949,059	2,782,230	1,870,902	3,713,247	7,048,793	1,870,902	3,713,247	7,048,793
<b>SALARIES</b>	1,414,926	799,141	1,420,594	1,514,377	979,122	1,065,295	1,004,409	671,808	1,344,196	2,561,549	1,004,409	671,808	1,344,196
<b>BENEFITS</b>	2,492,120	1,420,654	2,501,982	2,665,166	1,733,821	1,883,763	1,777,821	1,199,095	2,369,051	4,487,244	1,883,763	1,777,821	1,199,095
<b>TOTAL EXPENSES</b>	438,462	431,189	483,531	416,643	409,371	461,713	394,825	387,552	439,895	373,007	461,713	394,825	387,552
<b>OVERHEAD</b>	438,462	431,189	483,531	416,643	409,371	461,713	394,825	387,552	439,895	373,007	461,713	394,825	387,552
Travel	84,615	84,615	105,769	84,615	84,615	105,769	84,615	84,615	84,615	84,615	105,769	84,615	84,615
Premises	153,846	153,846	192,308	153,846	153,846	192,308	153,846	153,846	153,846	153,846	192,308	153,846	153,846
Communications	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Minor Equipment	100,000	92,727	85,455	78,182	70,909	63,636	56,364	49,091	41,818	34,545	63,636	56,364	49,091
Supplies	0	0	0	0	0	0	0	0	0	0	0	0	0
Insurance	0	0	0	0	0	0	0	0	0	0	0	0	0
Services	0	0	0	0	0	0	0	0	0	0	0	0	0
Marketing	0	0	0	0	0	0	0	0	0	0	0	0	0

You realize that Travel expenses will actually increase by 15% and not 10%.

7. Press **Undo** .

Notice that all affected cells appear as they did before you entered new data.

**8. Press Redo.**

You can undo and redo all of your changes including data spreads.

**9. Press Undo to return to saved values.**

**10. In the Travel cell for Jan, type **P%+>15**, and then press **Enter**.**

**11. In the Supplies cell for Jan, type **r>25000** and then press **Enter**.**

**12. In the Insurance cell for Dec, type **Add150000<** and then press **Enter**.**

**13. In the Services cell for Jan, type **r>175000** and then press **Enter**.**

**14. In the Marketing cell for Dec type **<200000** and then press **Enter**.**

The result:

Sales_Plan													Commissions	Expenses	Franchise_Revenue	Income_Statement
Rows:	Columns:												Context:			
	Months [Months]												Budget Version 1 [Versions]	Amount [Expense_Measures]	GO Americas [Subsidiaries]	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Year			
<b>TOTAL COMPENSATION</b>	3,907,046	2,219,795	3,922,576	4,179,544	2,712,943	2,949,059	2,782,230	1,870,902	3,713,247	7,048,793	2,123,692	5,969,424	43,399,210			
+ SALARIES	1,414,926	799,141	1,420,594	1,514,377	979,122	1,065,295	1,004,409	671,808	1,344,196	2,561,549	764,067	2,167,618	15,707,180			
+ BENEFITS	2,492,120	1,420,654	2,501,982	2,665,166	1,733,821	1,883,763	1,777,821	1,199,095	2,369,051	4,487,244	1,359,625	3,801,805	27,692,130			
<b>TOTAL EXPENSES</b>	992,308	985,035	1,038,339	970,490	963,217	1,016,521	948,671	941,399	994,703	926,853	919,580	972,885	11,670,410			
OVERHEAD	992,308	985,035	1,038,339	970,490	963,217	1,016,521	948,671	941,399	994,703	926,853	919,580	972,885	11,670,410			
Travel	88,462	88,462	110,577	88,462	88,462	110,577	88,462	88,462	110,577	88,462	88,462	110,577	1,150,460			
Premises	153,846	153,846	192,308	153,846	153,846	192,308	153,846	153,846	192,308	153,846	153,846	192,308	2,000,460			
Communications	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	1,200,000			
Minor Equipment	100,000	92,727	85,455	78,182	70,909	63,636	56,364	49,091	41,818	34,545	27,273	20,000	720,000			
Supplies	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	300,000			
Insurance	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	1,800,000			
Services	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	2,100,000			
Marketing	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	2,400,000			

**15. On the toolbar, click **Commit** .**

Notice the values are now black. This indicates they are saved values.

If you go back to the Contributor Workflow screen, you will notice the Last Data Commit field is now populated.

You have now completed the Overhead Plan and wish to submit the plan to your manager for review and approval. You will now submit your plan.

16. On the toolbar, click **Submit**  and then click **Yes** when prompted to submit.

You will notice that the grid becomes read-only. The grid has been locked until the reviewer either accepts or rejects the plan.

If you go back to the Contributor Workflow screen, you will notice the state has now changed to Locked. The plan has been submitted and it can no longer be edited.

#### **Task 4. View updated data in the Income\_Statement view.**

1. Within the grid, click the **Income\_Statement** tab.
2. In the rows dimension, expand **Net Income**, **Operating Income** and then expand **Total Expenses**.

Notice the total amount for Overhead in the Amount column is the updated total 1,167,000.00. The exact amounts may differ slightly depending on the values you have typed or because of rounding.

3. Close the grid and from the Contributor Workflow screen click **Logout**.

Leave the Income\_Statement server open for the next demo.

#### **Results:**

**Samantha Floyd, a contributor in North America has created a plan for Overhead expenses in North America. She logged in to the Contributor Workflow screen, accessed the GO Americas grid and took ownership of the grid. She used a combination of data shortcuts and spreading techniques to enter the data into her plan. Once the plan was completed, Samantha saved the data. Finally, she submitted her plan for review.**

## Demo 4: Review Plan Data

**Purpose:**

**Laura Bauer, a contributor and reviewer in North America needs to review the Overhead Expenses plan that was submitted by Samantha Floyd. Based on the results, she may want to edit the plan and then either accept or reject the plan.**

Component: TM1 Contributor (<http://localhost:8085/pmpsvc>)

Application: Income\_Statement

Login: Bauer (no password)

### **Task 1. Access the Contributor Workflow screen.**

1. Open Internet Explorer, and then go to <http://localhost:8085/pmpsvc>.
2. Log on as **Bauer** with no password.
3. Click **Income\_Statement**.
4. On the left hand side of the screen, expand the **Contributions** tree.  
You will notice that the application is locked.
5. Expand the **Reviews** tree.

Laura Bauer is a reviewer and she belongs to a review group called GO Americas Region.

The state of this application to be reviewed is Ready.

6. Click the **Contributions** folder and click **GO Americas**.  
You have reviewed the plan and are not satisfied with some of the values. You will reject the plan.

## Task 2. Reject the Plan for the Overhead Expenses grid and view the results.

1. On the toolbar, click **Reject** 
2. Click **Yes** to confirm you want to reject the GO Americas plan.
3. Close the grid.
4. Go to the Contributor Workflow page.

Because Laura Bauer has rejected the data that Samantha Floyd entered previously, the status of the plan has now been changed to Work In Progress.

Samantha now has the opportunity to adjust her plan and re-submit. If sufficient rights permit, Laura can edit the plan and submit the plan to her reviewer for approval. This process would occur through the organizational approval hierarchy until all levels of the plan are approved at the highest levels in the organization.

5. From the Contributor Workflow screen click **Logout**.

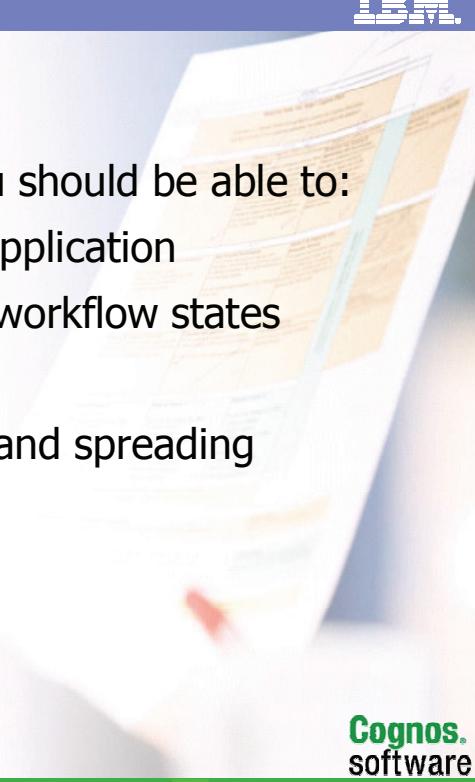
Leave the Income\_Statement server open for the workshop.

### Results:

**Laura Bauer, a contributor and reviewer in North America reviewed the Overhead Expenses plan that was submitted by Samantha Floyd. Based on the results, Laura rejected the plan which was made available to Samantha for updates.**

## Summary

- At the end of this module, you should be able to:
  - access a TM1 Contributor application
  - identify the user roles and workflow states
  - reorganize the grid
  - enter data using shortcuts and spreading
  - submit and reject data



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**INTERACTION - Check Sticker:** Place a checkmark beside each objective as you review them.

## Workshop 1: Enter, Submit, and Review Data

You are a business analyst in Germany for Golf Equipment at the Great Outdoors Company. As a business analyst, you can enter, submit and review data in the GO Central Europe application. In this workshop, you will take on the roles of Fritz Hirsch (business analyst for golf equipment) in central Europe and his direct report, Maximilian Saltzman. Maximilian has the ability to review and submit or reject the sales plan for Golf Equipment.

To accomplish this:

- Start up the TM1 Contributor Workflow screen.
- Log on to GO Central Europe application as Fritz Hirsch.
- Enter data in the Sales\_Plan grid for golf equipment and submit the plan. You have forecasted a 5% increase in golf accessories in the next year. Also you will be introducing a new line of Putters and you expect sales to increase by 10%. You notice that sales of Irons are quite low towards the end of the year around the Christmas season and you want to increase marketing and sales promotion activities during the last quarter to boost sales. You will keep the marketing activities in the spring and summer amounts consistent and perhaps reduce marketing activities in the January through March timeframe. You will use a Straight Line allocation method to achieve this.
- Reject and re-submit the data. You will log in to the application as Maximilian Saltzman and reject the plan. You will inform Fritz that golf accessories needs to increase by 8% and that throughout the year, you want to see an increase in Woods by a minimum of 150 units per month. You will log off and log in as Fritz, update the product lines and re-submit your plan.

For more detailed information outlined as tasks, see the Task Table section.

For the final query results, see the Workshop Results section that follows the Task Table section.

## Workshop 1: Task Table

Task	Where to Work	Hints
1. Start up TM1 Workflow screen.	TM1 Contributor Web application	<ul style="list-style-type: none"> <li>Log on as Fritz Hirsch. User name Hirsch no password.</li> </ul>
2. Open the GO Central Europe application.	TM1 Contributor Web application	<ul style="list-style-type: none"> <li>GO Central Europe node</li> <li>Sales_Plan</li> <li>Golf Equipment</li> <li>Take ownership</li> </ul>
3. Enter data for the Sales_Plan grid.	TM1 Contributor Web application	<ul style="list-style-type: none"> <li>Adjust Golf Equipment product lines</li> <li>Commit</li> <li>Submit</li> </ul>
4. Reject Sales_Plan for golf equipment and re-submit data	TM1 Contributor Web application	<ul style="list-style-type: none"> <li>Log on as Saltzman</li> <li>Reject</li> <li>Log on as Hirsch</li> <li>Submit</li> </ul>

If you need more information to complete a task, see the Step-by-Step instructions at the end of the Workshop.

## Workshop 1: Workshop Results

End of Task 3:

The result appears as follows:

	Sales_Plan	Commissions	Expenses	Franchise_Revenue	Income_Statement															
Rows:	Products [Products]	Columns:	Months [Months]	Context:	GO Central Europe [Subsidiaries]	All CHANNELS [Channels]	Quantity [Sales_Plan_Measures]	Budget Version 1 [Versions]												
						Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Year		
<b>TOTAL PRODUCTS</b>						442,403	320,804	951,399	854,134	665,110	893,170	884,180	742,900	524,473	1,830,618	617,025	385,005	9,111,220		
<b>CAMPING EQUIPMENT</b>						225,031	167,052	425,925	362,875	313,526	368,925	362,662	317,692	240,253	886,614	317,693	203,191	4,191,439		
<b>GOLF EQUIPMENT</b>						12,649	6,094	29,053	65,255	38,694	21,573	27,469	12,476	25,476	67,177	37,727	20,608	364,250		
Golf Accessories						7,957	146	13,506	43,800	16,133	6,569	12,263	4,891	14,381	32,480	18,104	10,074	180,303		
Irons						1,000	1,636	2,273	2,909	3,545	4,182	4,818	5,455	6,091	6,727	7,364	8,000	54,000		
Putters						2,371	3,824	9,098	12,080	11,014	6,580	6,422	1,224	2,221	16,289	8,642	1,836	81,600		
Woods						1,322	488	4,176	6,466	8,001	4,242	3,966	906	2,783	11,681	3,618	698	48,347		
<b>MOUNTAINEERING EQUIPMENT</b>						72,990	29,543	236,570	183,734	79,389	178,305	199,999	137,510	61,105	412,938	102,266	71,047	1,765,396		
<b>OUTDOOR PROTECTION</b>						61,034	36,499	92,734	94,267	142,019	136,673	155,995	142,441	75,779	44,492	43,242	2,849	1,028,024		
<b>PERSONAL ACCESSORIES</b>						70,699	81,616	167,117	148,003	91,482	187,694	138,055	132,781	121,860	419,397	116,097	87,310	1,762,111		

End of Task 4:

The result appears as follows:

	Sales_Plan	Commissions	Expenses	Franchise_Revenue	Income_Statement															
Rows:	Products [Products]	Columns:	Months [Months]	Context:	GO Central Europe [Subsidiaries]	All CHANNELS [Channels]	Quantity [Sales_Plan_Measures]	Budget Version 1 [Versions]												
						Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Year		
<b>TOTAL PRODUCTS</b>						442,792	320,958	951,954	855,598	665,744	893,517	884,698	743,196	525,054	1,831,742	617,718	385,457	9,118,429		
<b>CAMPING EQUIPMENT</b>						225,031	167,052	425,925	362,875	313,526	368,925	362,662	317,692	240,253	886,614	317,693	203,191	4,191,439		
<b>GOLF EQUIPMENT</b>						13,038	6,248	29,608	66,719	39,328	21,920	27,987	12,772	26,057	68,301	38,420	21,060	371,459		
Golf Accessories						8,196	150	13,911	45,114	16,617	6,766	12,631	5,038	14,812	33,454	18,647	10,376	185,712		
Irons						1,000	1,636	2,273	2,909	3,545	4,182	4,818	5,455	6,091	6,727	7,364	8,000	54,000		
Putters						2,371	3,824	9,098	12,080	11,014	6,580	6,422	1,224	2,221	16,289	8,642	1,836	81,600		
Woods						1,472	638	4,326	6,616	8,151	4,392	4,116	1,056	2,933	11,831	3,768	848	50,147		
<b>MOUNTAINEERING EQUIPMENT</b>						72,990	29,543	236,570	183,734	79,389	178,305	199,999	137,510	61,105	412,938	102,266	71,047	1,765,396		
<b>OUTDOOR PROTECTION</b>						61,034	36,499	92,734	94,267	142,019	136,673	155,995	142,441	75,779	44,492	43,242	2,849	1,028,024		
<b>PERSONAL ACCESSORIES</b>						70,699	81,616	167,117	148,003	91,482	187,694	138,055	132,781	121,860	419,397	116,097	87,310	1,762,111		

## Workshop 1: Step-by-Step Instructions

### Task 1. Start up the IBM Cognos TM1 Workflow screen.

1. Open Internet Explorer, and then go to <http://localhost:8085/pmpsvc>.
2. Log on as **Hirsch** with no password.
3. Click **Income\_Statement**.
4. On the left hand side of the screen, expand the **Contributions** tree.
5. In the Contribution tree click **GO Central Europe**.

### Task 2. Open the grid, take ownership and re-orient the dimensions.

1. On the right hand side of the screen, click the **GO Central Europe** application.
2. Click the **Sales\_Plan** view.
3. Expand **Golf Equipment**.
4. On the toolbar, click **Take ownership**.

### Task 3. Enter data for the **Sales\_Plan** grid.

1. In the **Total Year** cell for **Golf Accessories**, right-click the cell and select **Data Spread** and select **Percent Change**.
2. In the **% Change** box, enter 5.
3. Under the **Extend** box, select **Left**, and then under the **Update Action** select **Add**.
4. Click **Apply**.
5. In the **Irons** cell for **Jan**, type **SL>1000:8000**, and then press **Enter**.
6. In the **Putters** cell for **Jan**, type **P%+>10** and then press **Enter**.
7. On the toolbar, click **Commit**.
8. On the toolbar, click **Submit**.
9. Click **Yes** when prompted to submit.
10. Close the grid and from the Contributor Workflow screen click **Logout**.

## Task 4. Reject the Sales\_Plan for golf equipment and re-submit data.

1. Log on as **Saltzman** with no password.
2. Click **Income\_Statement**.
3. On the left hand side of the screen, expand the **Contributions** tree.  
You will notice that the application is locked.
4. Expand the **Reviews** tree.  
The state of this application to be reviewed is Incomplete.
5. Under **Reviews**, click **GO Europe GMBH**.
6. Click the **Contributions** folder and on the right side of the screen, click **GO Central Europe** to open the grid.
7. On the toolbar, click **Reject**.
8. Click **Yes** to confirm you want to reject the GO Central Europe plan.
9. Close the grid.
10. From the Contributor Workflow screen click **Logout**.
11. Log in as **Hirsch**.
12. Click the **Income\_Statement** application.
13. Click **Contributions**.
14. Click **GO Central Europe** to open the grid.
15. In the **Total Year** cell for **Golf Accessories**, right-click the cell and select **Data Spread** and select **Percent Change**.
16. In the **% Change** box, enter **3**.  
The current value has already been increased by 5 % over last year and you have been asked to increase sales of golf accessories by 8%.

17. Under the **Extend** box, select **Left**, and then under the **Update Action** select **Add**.
18. Click **Apply**.
19. In the **Woods** cell for **Jan**, type **Add150>** and then press **Enter**.
20. On the toolbar, click **Commit**, and then click **Submit**.
21. Click **Yes** when prompted to submit.
22. Close the grid and from the Contributor Workflow screen click **Logout**.
23. Close the Income Statement Server, saving changes.



**Information Management**



## **Create and Deploy Managed Planning Applications to the Web**

IBM Cognos TM1 9.5



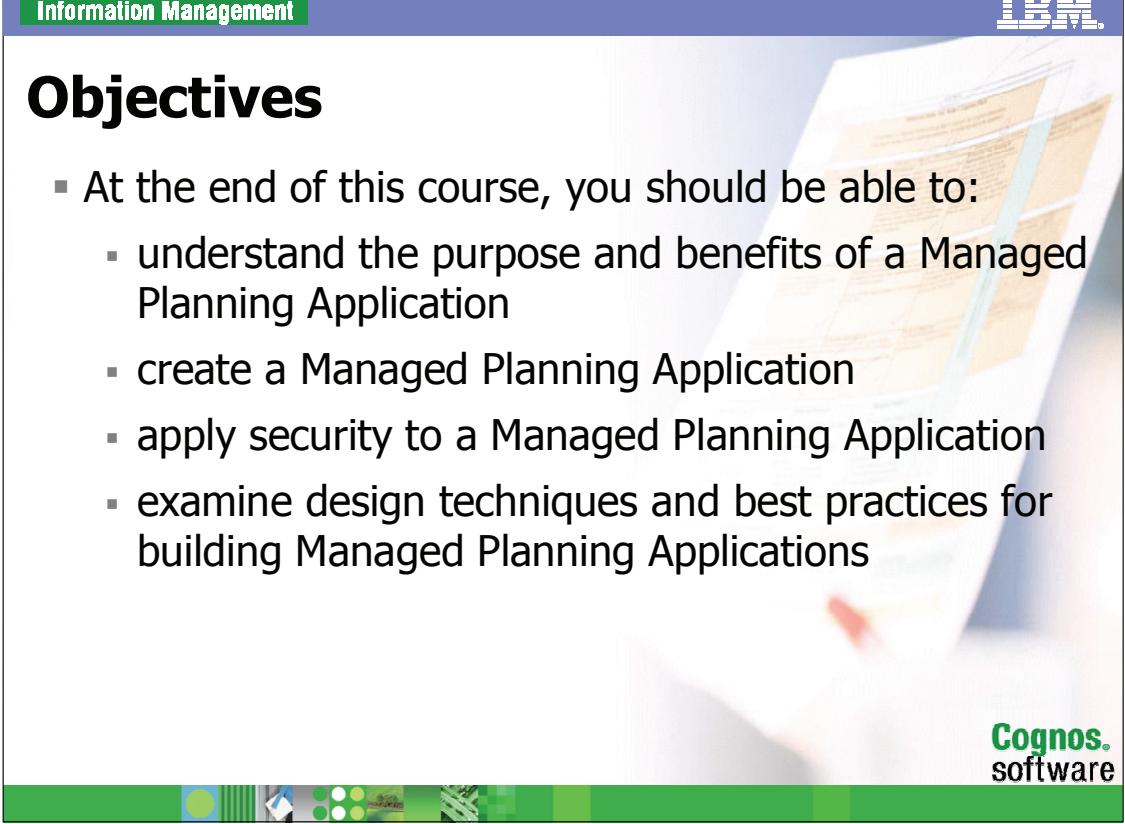
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# Objectives

- At the end of this course, you should be able to:
  - understand the purpose and benefits of a Managed Planning Application
  - create a Managed Planning Application
  - apply security to a Managed Planning Application
  - examine design techniques and best practices for building Managed Planning Applications



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**INTERACTION - Star Sticker:** use a star sticker to highlight each objective.

# IBM Cognos TM1 Contributor Administration

- Build a managed planning application
- Maintain a managed planning application
- Activate and deactivate the application
- Manage rights to secure the application
- Validate workflow and contribution
- Import and export applications

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You build and maintain applications in IBM Cognos TM1 Contributor Administration. Select application content from the IBM Cognos TM1 objects, public views and public dimension subsets that you are authorized to access.

You contribute to the application through the TM1 Contributor interface which is a zero foot print, browser based version of the TM1 Web Cube Viewer. It supports both Internet Explorer and Firefox.

---

**INTERACTION - Check Sticker:** use a check sticker to denote the bullet being discussed.

## Managed Planning Administration

- Maintained in the IBM Cognos TM1 Contributor Configuration
- You access an admin server and select active servers
- You can assign web clients



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TM1 servers must be explicitly identified as managed planning servers. The Managed Planning application does not search for the available servers and you cannot scan for servers that represent Managed Planning applications.

## Managed Planning Application

- Created in the IBM Cognos TM1 Contributor Administration
- Consists of TM1 objects
  - must be public views and subsets

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TM1 objects are presented as potential content for the Managed Planning application. You will only be able to view the public views and public dimension subsets for that TM1 application. The selected TM1 Object content is represented in the design pane.

You select the content for your application, provide structure for the application by selecting an approval hierarchy, deploy the application and then secure the application all within the context of the IBM Cognos TM1 Contributor Administration.

You can preview content by selecting a cube. The data is presented in a read only format on which you can slice and dice. The background is always grayed out to reflect the read only nature of the display.

Views are created in TM1 prior to selecting them in TM1 Contributor. Views must be public in order to be available. Other characteristics that carry over to the TM1 Contributor grid include, automatic recalculation, suppress zero and attribute-based formatting.

## Create a Managed Planning Application

- Four steps are required to create an application
  1. select TM1 public views which provide the data
  2. select a dimension subset, an approval dimension which provides the structure
  3. deploy the application
  4. assign security to the application

All Managed Planning applications have a single approval hierarchy which cannot be shared between applications. The hierarchy usually represents an organization chart, a chart of accounts, list of products or a geographic representation of some important aspect of the company such as sales regions. Hierarchy can be updated but the approval cannot be shared.

This hierarchy is represented by a public dimension subset and each of the dimension elements represents a node in the planning application. The node is assigned to a user and that user could have enter data or review content privilege. The hierarchy represents the structure of the application providing contribution entry points where users are assigned access to view, edit, review or submit data.

Users take ownership of a node and enter data.

Currently each leaf may only have one parent. There can only be one top-most node.

---

Use the `tp_admin_delete_all` TI process to reset the security on the approval hierarchy dimension in TM1. If you need to change the approval hierarchy in class, (if someone missteps in a demo), crashes, etc. You will need to turn on the viewing of control objects to see this process in Server Explorer.

TM1 Contributor deletes any existing element-level security on the approval hierarchy dimension and then applies its own element-level security in its place. Modelers may wish to export the `ElementSecurity_dimension` control cube prior to setting up the Contributor security.

## Demo 1: Create a Managed Planning Application

### Purpose:

In order to understand the process of creating a managed planning application from an existing TM1 server, you will use the Planning Sample TM1 server as a basis for a new TM1 managed planning application.

TM1 Server: **Planning Sample**

User/Password: **admin/<none>**

### Task 1. Review the Planning Sample server.

1. Open TM1 Architect.
2. Double-click the **Planning Sample** server.
3. Log on as **admin/<blank>**
4. Click **Cubes** to expand.
5. Double-click **plan\_BudgetPlan** to open in the Cube Viewer.

- In the **Select View** list, click **Budget Input Detailed**.

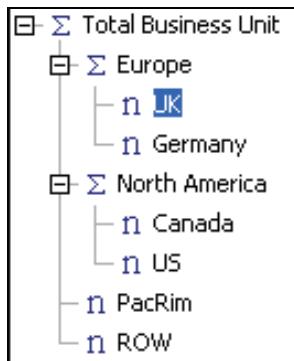
The results appear as follows:

	FY 2004 Budget		UK	Direct	local	input		
plan_chart_of_acco	-- Q1-2004	Jan-2004	Feb-2004	Mar-2004	-- Q2-2004	Apr-2004	May-2004	Jun-2004
Sales	938,285	315,513	311,041	311,731	943,378	311,760	316,161	315,457
Other Revenue	181,021	59,428	61,985	59,608	181,039	62,704	59,695	58,640
+ Revenue	1,119,306	374,941	373,027	371,339	1,124,417	374,465	375,855	374,097
Direct Cost	154,925	37,737	52,376	64,813	142,410	62,070	37,157	43,183
Other Costs	106,605	43,106	34,801	28,698	139,359	46,196	49,440	43,724
+ COS	261,530	80,842	87,177	93,511	281,769	108,266	86,597	86,906
Bank Charges	4,449	1,040	1,710	1,699	4,227	1,327	1,355	1,545
Board of Directors	3,039	926	1,097	1,016	2,920	1,195	894	831
Employee Relation	3,113	1,224	1,057	832	3,464	803	1,411	1,249
Printing	3,117	762	1,400	955	2,987	902	932	1,153

This is one of the views that contributors will use for their budgeting and planning process.

- Double-click **UK** and then click **OK**.

The results appear as follows:



The `plan_business_unit` dimension reflects the approval process in this application.

- Click **OK** to close the Subset Editor.
- Close the **Cube Viewer** without saving changes and close **TM1 Architect**. You will now open the TM1 Contributor Administration tool.

## Task 2. Create a new managed planning application.

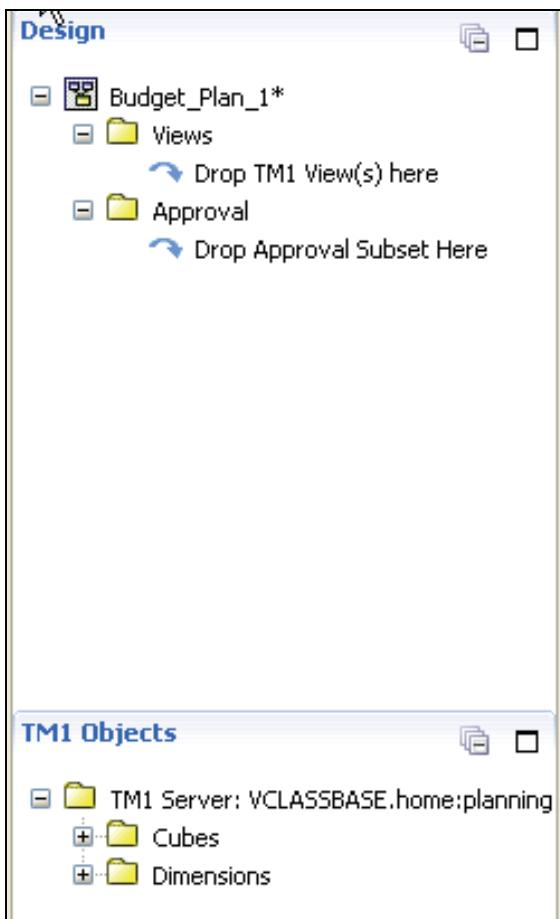
1. Open Internet Explorer.
2. On the **Address bar** type: **http://localhost:8085/pmpsvc** and then press **Enter**.
3. In the **User** name box type **admin** with no password and then click **Login**.
4. Click **OK** to the message regarding TM1 Servers could not be reached.

The results appear as follows:

You can bookmark this page by clicking Favorites and then click Add to Favorites and then click OK.

5. From the Planning Applications toolbar, select **Design an Application**
6. Click **File** and then click **New**.
7. In **Application name**, type **Budget\_Plan\_1**.

8. In **TM1 Server** name, click **IPaddress:planning sample** and then click **OK**.



## **Task 3. Select public TM1 cube views to include in the application.**

1. From the TM1 Objects pane, expand **TM1 Server: Planning Sample, Cubes, plan\_BudgetPlan** cube and then expand **Views**.
2. Ctrl+click the following views to select:

**Budget Input Detailed**

**Budget Input Total**

**Goal FY 2004 Budget**

**Budget Line Input**

**Detailed Cost Of Sales Analysis**

**Detailed Expense Analysis**

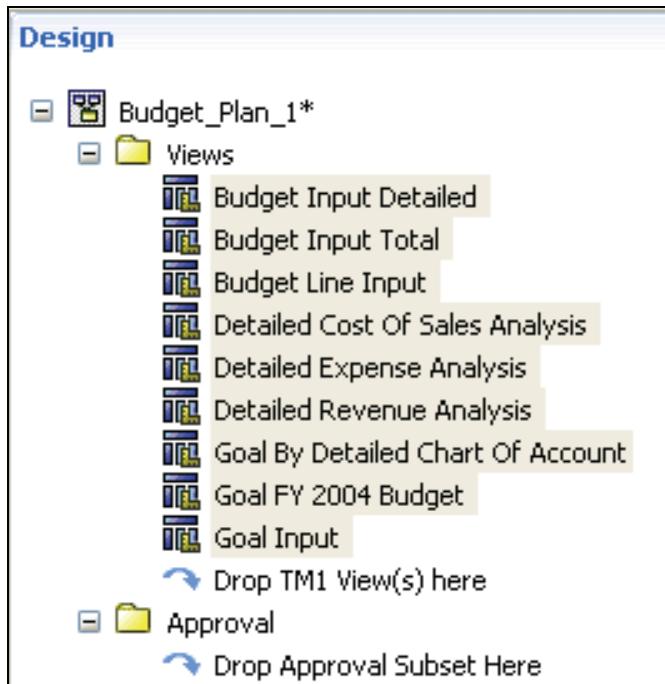
**Detailed Revenue Analysis**

**Goal By Detailed Chart Of Account**

**Goal Input**

3. Drag these selected public views to **Views** folder of the Budget\_Plan\_1 Design pane where it says **Drop TM1 View(s) here**.

The results appear as follows:

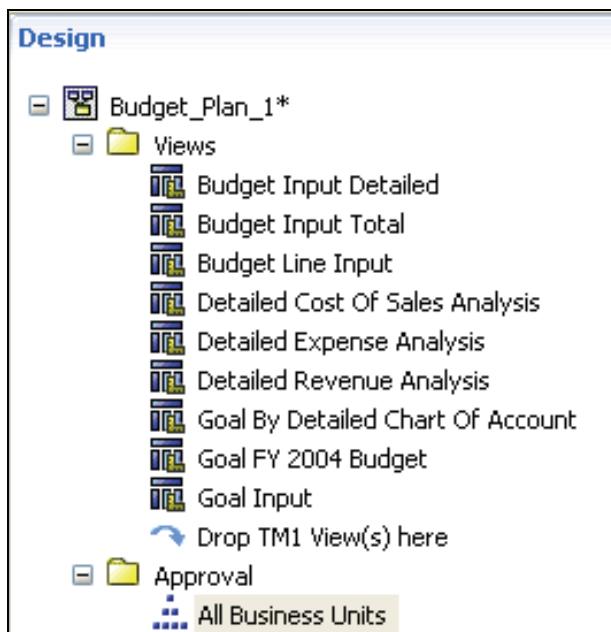


#### **Task 4. Select a public subset containing the approval structure.**

1. In the TM1 Objects pane expand **Dimensions**.
2. Expand **plan\_business\_unit** and then expand **Subsets**.
3. Select **All Business Units** and drag it to the **Approval** folder of the Design pane.

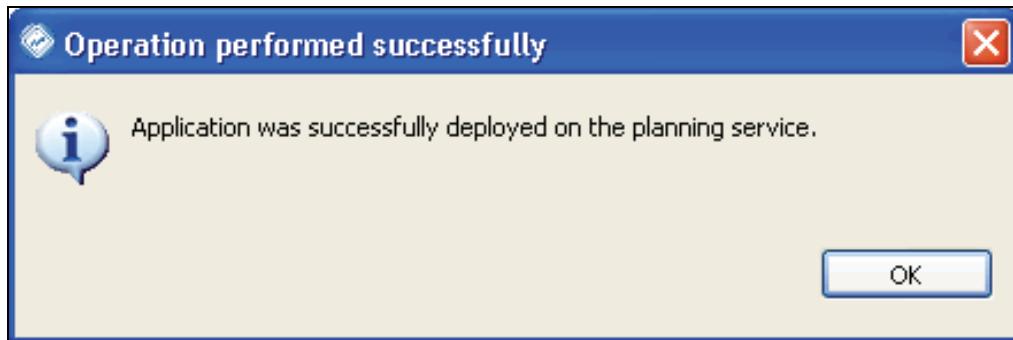
- Click **Yes** under the Use as Approval Dimension.

This informs you that when deployed, the current existing element level security on the approval dimension will be removed.



## **Task 5. Save and deploy the new managed planning application.**

- Click **File** and then click **Save As**.
- Navigate to **c:\Edcognos\P6502\GreatOutdoors** and save the application as **Budget\_Plan\_1**.
- Click the **Application** menu and then click **Deploy**.



4. Click **OK**.
5. From the **File** menu, click **Exit** to close IBM Cognos TM1 Contributor Administration.
6. In the IBM Cognos TM1 Contributor window click **Refresh** .

The results appear as follows:



Name	Modified	Actions
Budget_Plan_1	October 29, 2009 12:07:31 PM EST	    

Minimize the window but leave IBM Cognos TM1 Contributor open for the next demo.

## Results:

**You have created a managed planning application to use in TM1 Contributor from a model on a TM1 server. You named it, selected views and an approval subset to be used in the planning process. Finally, you saved and deployed the application to the planning server.**

## Assign Security

- Use either IBM Cognos native security or IBM Cognos 8, not both.
- The rights a user has are applied to the specific nodes in the approval hierarchy of the application.
- If rights are explicitly applied to a parent node they are implicitly applied to the children of the node.
  - the children can have different rights from the parent nodes but cannot exceed the rights of the parent.

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The rights a user has are applied to the specific nodes in the approval hierarchy of the application. Different users can access a node but at any given point in time only one user has exclusive write access or ownership of a specific node.

If rights are explicitly applied to a parent node they are implicitly applied to the children of the node. The children can have different rights from the parent nodes but cannot exceed the rights of the parent.

## Authorized user Access Rights

View	View the data in the node. Cannot take ownership of a node.
Edit	Take ownership of the node. Can edit values in the node.
Submit	Take ownership, edit values and submit the node for review. Can reject submissions from child nodes.
Review	Can edit or submit their own nodes. Can review and reject child nodes which have been submitted. If Allow Reviewer Edit is enabled users can take ownership of any child node which has not been submitted, edit the values and then submit the node.

The Review Depth option is enabled only when the Review or Submit right is selected. The Review Depth determines how many levels beneath the current node will inherit the selected access right. If you want only the immediate children of the current node to inherit rights, select 1. If you want the two levels beneath the current node to inherit rights, select 2, and so on.

The Review Depth setting can never be greater than the View Depth setting.

The View Depth determines how many levels below the current node are visible to the user group. If you want members of the user group to be able to view only the current node and its immediate children, select 1. If you want members of the user group to be able to view only the current node and the next two levels of children, select 2, and so on.

---

**INTERACTION - Whiteboard:** Put up a whiteboard and put columns for each Access right listed. (View, Edit, Submit, Review). Have everyone pick a color and ask who might have what type of access rights (manager has..., budget analyst has...) Discuss answers. There are no right or wrong answers.

## TM1 Object Access

- Before TM1 Contributor assigns security to the nodes, users must have access to the model.
- Users are individuals assigned access to the TM1 Server
  - they are assigned to one or more Groups
- Groups are then assigned access to TM1 Objects
  - Cubes
  - Elements
  - Dimensions

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Users and groups can be defined in C8 or IBM Cognos native security. However, you will use TM1 security to define the users and groups for the GreatOutdoors model.

Once users are assigned to groups, groups are then assigned one of the following privileges to TM1 objects:

- READ (see it, not modify it)
- WRITE (write to the data)
- LOCK (permanently lock it until the user unlocks it)
- ADMIN (may do anything, edit, create, delete, etc.)
- NONE (may not do anything)
- RESERVE (temporarily lock it until the server is reset or the admin or user unlocks it)

---

Users and groups must still be brought into TM1. Instead of adding them manually, you may create TI scripts to define the clients and groups to the control objects from a text file (exported from the original source).

## Demo 2: Assign Security to a Managed Planning Application

### Purpose:

You have deployed the Budget\_Version\_1 managed planning application but it still needs to be activated and assigned security before people may contribute or review it.

TM1 Server: Planning Sample

User/Password: admin/<blank>

### Task 1. Review TM1 Security for the Planning Sample application.

1. Open TM1 Architect.
2. In Server Explorer, click **TM1** and then double-click **Planning Sample**.
3. Log in as **admin**/**<blank>** and then click **OK**.
4. Right-click **Planning Sample**, click **Security** and then click **Clients/Groups**.

	Security Settings					Administrative Group Assignment			User Gr
	Password	Expiration Days	Max Connections	Status		ADMIN	DataAdmin	SecurityAdmin	
Admin	Undefined	No Expiration.	0	Active	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Bliss	Undefined	No Expiration.	0	Not Active	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Budgetadmin	Undefined	No Expiration.	0	Not Active	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Campbell	Undefined	No Expiration.	0	Not Active	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Davis	Undefined	No Expiration.	100	Not Active	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deeds	Undefined	No Expiration.	0	Not Active	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Douglas	Undefined	No Expiration.	100	Not Active	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Goalsetter	Undefined	No Expiration.	100	Not Active	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Healy	Undefined	No Expiration.	100	Not Active	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Howell	Undefined	No Expiration.	100	Not Active	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Users are shown on the rows. Security Settings are displayed in the first four columns and the Groups are listed. Admin, DataAdmin and SecurityAdmin are predefined by TM1 so their privileges may not be altered. The groups that follow are defined to the model by the administrator or modeler.

Users are assigned to groups by clicking the check boxes at the intersection of Users/Groups.

Use the Clients menu to add new Users. Use the Groups menu to create a new Group.

5. Scroll down to see **Howell** and across to see **BUDGET\_PLANNER**.

	BUDGET GOAL SETTER	BUDGET PLANNER	BUDGET PROCESS ADMIN	BUDGET R
Davis	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deeds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Douglas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Goalsetter	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Healy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Howell	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In one of the following tasks you will use TM1 Contributor to give **BUDGET\_PLANNER** rights to nodes and assign the review depth for them.

Next you will verify the **BUDGET\_PLANNER** group has access to the cubes in your Managed Planning Application. TM1 Contributor will then take responsibility for assigning element level privileges.

6. Click **Cancel**.
7. Right-click **Cubes** and then click **Security Assignments**.

8. Scroll to the right until you see **BUDGET\_PLANNER**.

Assignments of access rights to data in cubes:

Name	BUDGET GOAL SETTER	BUDGET PLANNER	BUDGET PROCESS ADMIN
plan_BudgetPlan	Write	Write	Write
plan_BudgetPlanLineItem	Write	Write	Write
plan_Control	Write	Write	Write
plan_ExchangeRate	Write	Write	Write
plan_Report	Write	Write	Write

Access Privileges

None       Read       Write  
 Reserve       Lock       Admin

In this window, groups are again listed in the columns but now cubes are on the rows. You assign Access Privileges to a Group for a cube by clicking in the intersecting cell and then click the privilege.

You are using a view for the plan\_BudgetPlan cube and BUDGET\_REVIEWER has right access to that cube. You do not need to change the privilege for this group.

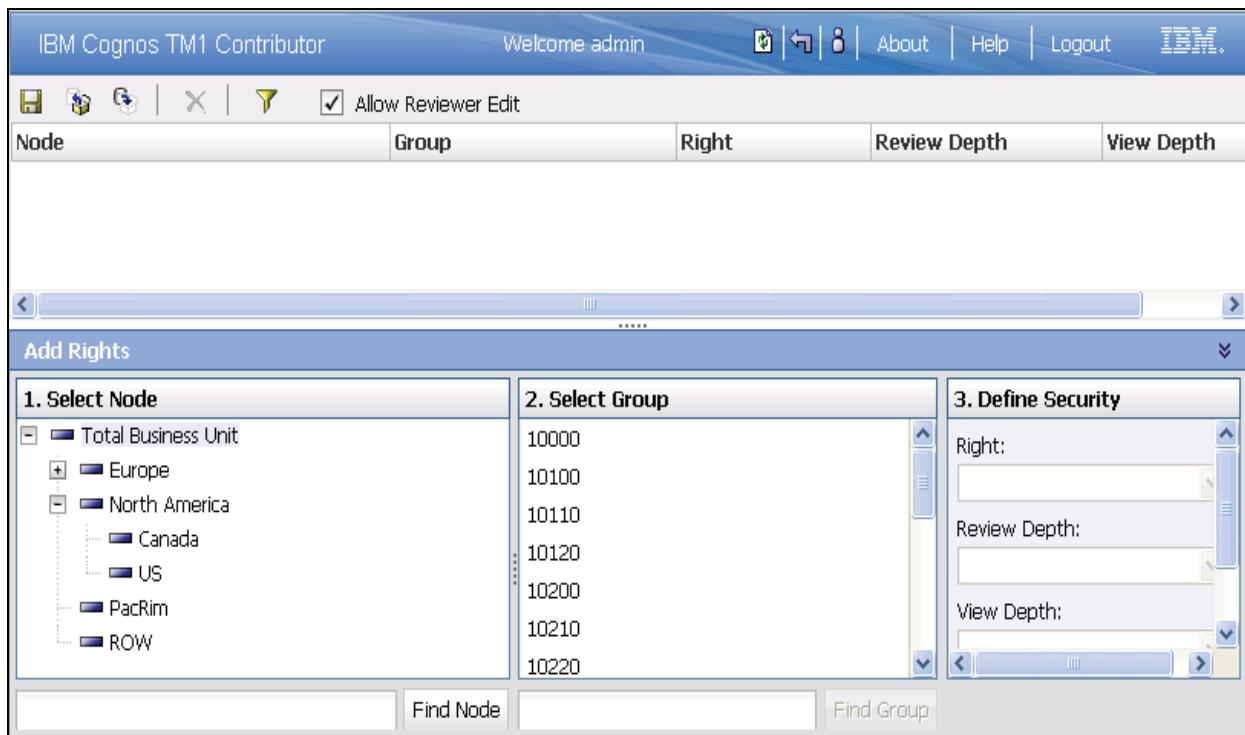
9. Click **Cancel** to close.
10. Minimize TM1 Architect.

## Task 2. Activate a managed planning application.

1. Click on **TM1 Contributor Administrator**.
2. Select **Budget\_Version\_1**.
3. Click **Activate Application - Budget\_Verion\_1** .

4. Click **Manage Rights for Application** 

The results appear as follows:



Node	Group	Right	Review Depth	View Depth

### **Task 3. Add user rights to a node and specify review depth.**

1. From the **Select Node** pane of the Add Rights section, click **North America**.  
The Select Node pane displays the elements in the subset that reflects the approval hierarchy. North America is a consolidation containing the Canada and US elements. Next you will select groups that have access to these nodes. These groups are defined in TM1 and given access to these elements in the dimension.
2. In the box next to **Find Group**, type **budget r** and then click **Find Group**.
3. Click **BUDGET REVIEWER**.
4. In the **Define Security** pane, in the **Right** list, select **Review**.

5. Leave the defaults for **Review Depth** and **View Depth** and then click **Add**.

The results appear as follows:

Node	Group	Right	Review Depth	View Depth
North America	BUDGET REVIEWER	Review	All	All

.....

**Add Rights**

**1. Select Node**

- Total Business Unit
- Europe
- North America
  - Canada
  - US
  - PacRim
  - ROW

**2. Select Group**

- 10000
- 10100
- 10110
- 10120
- 10200
- 10210
- 10220
- 10300
- 10400

**3. Define Security**

Right: Review

Review Depth: All

View Depth: All

Add

Now any user belonging to the BUDGET REVIEWER group has Review rights for North America, Canada, and US nodes (elements).

## Task 4. Change user rights for a node.

1. In the **Select Node** pane type **Canada** and then click **Find Node**.

**1. Select Node**

- Total Business Unit
- Europe
- North America
  - Canada
  - US
  - PacRim
  - ROW

2. In the **Select Group** pane type **budget p** and then click **Find Group**.
3. Click **BUDGET PLANNER**.

**2. Select Group**

- BUDGET GOAL SETTER
- BUDGET PLANNER**

4. In the **Define Security** pane, in the **Right** list, click **Submit**.
5. Leave the defaults for **Review Depth** and **View Depth** and then click **Add**.

The results appear as follows:

Node	Group	Right	Review Depth	View Depth
North America	BUDGET REVIEWER	Review	All	All
Canada	BUDGET PLANNER	Submit	All	All

**Add Rights**

**1. Select Node**

- Total Business Unit
- Europe
- North America
  - Canada
    - US
    - PacRim
    - ROW

**2. Select Group**

- BUDGET GOAL SETTER
- BUDGET PLANNER**
- BUDGET PROCESS ADMIN
- BUDGET REVIEWER
- BUDGET VIEWER
- DataAdmin
- MARKETING
- SALES
- SecurityAdmin

**3. Define Security**

Right: **Submit**

Review Depth: **All**

View Depth: **All**

**Add**

You have implicitly set the same rights for the children of North America, Canada and the US for the Budget Reviewer group. Then you added additional explicit Review rights for Canada.

6. On the toolbar, click **Save** and then click **Close**.
7. On the toolbar, click **Return** .
8. Click **OK** to the message regarding TM1 Servers could not be reached.
9. Click **Logout**.

## Task 5: Explore TM1 Contributor

1. Logon as User Name **Howell** with no password.

Observe the limited functionality the portal now provides.

The screenshot shows the IBM Cognos TM1 Contributor interface. At the top, it says "IBM Cognos TM1 Contributor" and "Welcome Howell". There are links for "About", "Help", and "Logout". Below that, a "Planning Applications" section displays one entry: "Budget Plan 1". The entry has columns for "Name" (Budget Plan 1), "Modified" (October 29, 2009 12:07:31 PM EST), and "Actions".

2. Click **Budget\_Plan\_1**.
3. Click **Contributions** and then click **Canada**.

The screenshot shows the TM1 Contributor interface with a sidebar titled "Contributions" containing "Canada". The main area displays a table for "You are a reviewer or contributor for:" with one row for "Canada". The table columns are "Name", "State", "Ownership", "Reviewer", and "Last Data Commit". The "Reviewer" dropdown is set to "BUDGET REVIEWER". Below the table, a "Workflow Detail for Canada" section shows the current state as "Not Started" and notes that the contribution still requires an owner to edit or submit. It also shows "Viewed: no" and "Reviewed: no".

Notice that the workflow state is set to Not Started.

4. In the You are a reviewer or contributor for pane click Canada.

The results appear as follows:

The screenshot shows the TM1 Contributor interface with the following details:

- Top Tabs:** Budget Input Detailed, Budget Input Total, Budget Line Input, Detailed Cost Of Sales Analysis, Detailed Expense Analysis, Detailed Revenue Analysis.
- Sub-Tabs:** Goal By Detailed Chart Of Account, Goal FY 2004 Budget, Goal Input.
- Context Headers:** Rows: plan\_chart\_of\_accounts [plan\_chart\_of\_accounts], Columns: plan\_time\_2004\_qtrs\_and\_month [plan\_time], Context: FY 2004 Budget [plan\_version], Canada [plan\_business\_unit], Direct [plan\_department], local [plan\_exchange\_rates].
- Grid Data:** The grid displays financial data for the Canada business unit across four quarters of 2004. The columns represent months from Jan-2004 to Jun-2004, followed by Jul-2004 through Sep-2004, and finally Q4-2004.

	Q1-2004	Jan-2004	Feb-2004	Mar-2004	Q2-2004	Apr-2004	May-2004	Jun-2004	Q3-2004	Jul-2004	Aug-2004	Sep-2004	Q4-2004
Sales	313,659	105,472	103,977	104,209	315,361	104,218	105,689	105,454	318,825	105,927	107,103	105,794	312,774
Other Revenue	60,514	19,867	20,721	19,926	60,520	20,962	19,956	19,603	59,571	20,545	20,695	18,330	57,434
Revenue	374,173	125,339	124,699	124,135	375,882	125,179	125,645	125,057	378,395	126,472	127,798	124,125	370,207
Direct Cost	51,775	12,612	17,498	21,665	47,609	20,756	12,423	14,430	41,019	12,991	12,461	15,567	43,064
Other Costs	35,603	14,393	11,628	9,582	46,586	15,453	16,514	14,620	52,722	17,650	17,612	17,460	32,876

Here you can see the views selected are represented by tabs at the top. The plan\_business\_unit reflects the Canada nodes. The grid is ready to contribute to and submit results for approval.

5. Close all IBM Cognos TM1 Contributor windows and TM1 Architect.

### Results:

You have activated the managed planning application. Next you applied security with user access rights to the nodes. Finally, you verified the user has access to the views and nodes required.

## Summary

- At the end of this course, you should be able to:
  - understand the purpose and benefits of a Managed Planning Application
  - create a Managed Planning Application
  - apply security to a Managed Planning Application
  - examine design techniques and best practices for building Managed Planning Applications

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**INTERACTION - Check Sticker:** Place a check next to each summary objective as it is discussed.

## Workshop 1: Create a Managed Planning Application for the GreatOutdoors budget process

You will now create a managed planning application for the GreatOutdoors TM1 server. Users need to be able to create and contribute to the expense budget. Some will need to contribute to it and others will review it. You will do the following:

- Create public views to use in the Managed Planning Application.
- Create a public subset to reflect the budget approval process.
- Create users and groups to allow access to the server and cubes (views).
- Use TM1 Contributor Administrator to create the managed planning application.
- Deploy, save and activate the application.
- Apply security to the nodes in the application.

For more detailed information outlined as tasks, see the Task Table section.

For the final results, see the Workshop Results section that follows the Task Table section.

## Workshop 1: Task Table

Task	Where to Work	Hints
1. Create public views to use in the Managed Planning Application.	Cube Viewer	<ul style="list-style-type: none"> <li>• Create the Expenses view of the Expenses cube.</li> <li>• Create the Income_Statement view of the Income_Statement cube.</li> </ul>
2. Create a public subset to reflect the budget approval process.	Subset Editor	<ul style="list-style-type: none"> <li>• Create the public subset of the Subsidiaries dimension.</li> <li>• Name it All_Subsidiaries.</li> </ul>
3. Create users and groups to allow access to the server and cubes (views).	TM1 Security - Create Users/Groups	<ul style="list-style-type: none"> <li>• Create new users.</li> <li>• Create new Groups.</li> <li>• Assign users to Groups.</li> <li>• Grant groups privileges to access cubes.</li> </ul>
4. Use TM1 Contributor Administrator to create the managed planning application.	TM1 Contributor Administration	<ul style="list-style-type: none"> <li>• Create <b>Expense_Budget_V1</b>.</li> <li>• Select <b>Income_Statement</b> view.</li> <li>• Select <b>All_Subsidiaries</b> for the dimension hierarchy.</li> </ul>
5. Deploy and save the application.	TM1 Contributor Administration	<ul style="list-style-type: none"> <li>• Save the application.</li> <li>• Click <b>Deploy</b>.</li> </ul>

Task	Where to Work	Hints
6. Apply security to the nodes in the application.	TM1 Contributor Administration	<ul style="list-style-type: none"> <li>• Activate the application.</li> <li>• Manage the application rights.</li> <li>• <b>GO AMERICAS REGION</b> get <b>Review_Americas</b>.</li> <li>• <b>GO Americas</b> get <b>Contribute_Americas</b>.</li> <li>• Enable write access to the cubes in TM1.</li> <li>• Log on as <b>Floyd/&lt;blank&gt;</b>.</li> </ul>

If you need more information to complete a task, see the Step-by-Step instructions at the end of the Workshop.

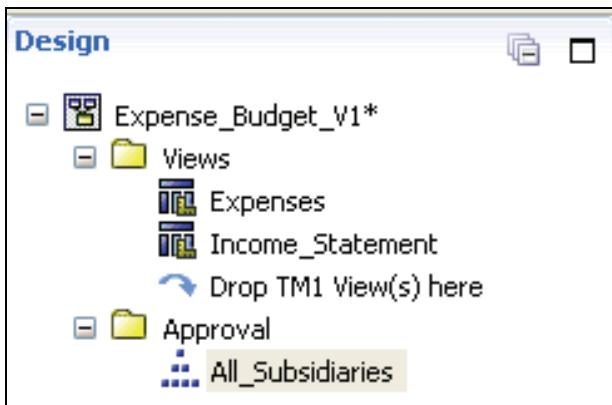
# Workshop 1:Results

The result of Task 3 appears as follows:

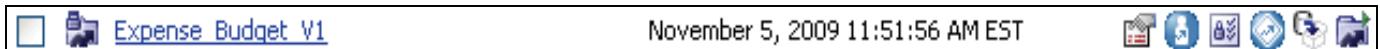
	User Group Assignment				
	Contribute_Accessories_GmbH	Contribute_Americas	Contribute_Asia_Pacific	Contribute_Central_Europe	Contribute_Northern
Admin	<input type="checkbox"/>				
Allesori	<input type="checkbox"/>				
Bakker	<input type="checkbox"/>				
Bauer	<input type="checkbox"/>				
Berger	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bertrand	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bruno	<input type="checkbox"/>				
Floyd	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gradin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Hirsh	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Li	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Roche	<input type="checkbox"/>				
Saltzman	<input type="checkbox"/>				
Sasaki	<input type="checkbox"/>				
Tamrine	<input type="checkbox"/>				
Thomas	<input type="checkbox"/>				
Wainio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wiesinger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Contribute_Southern_Europe	Review_Americas	Review_Asia_Pacific	Review_Europe	View_Company	Http_Everywhere
Admin	<input type="checkbox"/>	<input type="checkbox"/>				
Allesori	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bakker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bauer	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Berger	<input type="checkbox"/>	<input type="checkbox"/>				
Bertrand	<input type="checkbox"/>	<input type="checkbox"/>				
Bruno	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Floyd	<input type="checkbox"/>	<input type="checkbox"/>				
Gradin	<input type="checkbox"/>	<input type="checkbox"/>				
Hirsh	<input type="checkbox"/>	<input type="checkbox"/>				
Li	<input type="checkbox"/>	<input type="checkbox"/>				
Roche	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saltzman	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sasaki	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tamrine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Thomas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wainio	<input type="checkbox"/>	<input type="checkbox"/>				
Wiesinger	<input type="checkbox"/>	<input type="checkbox"/>				

The result of Task 4 appears as follows:



The result of Task 5 appears as follows:



The result of Task 6 appears as follows:

The screenshot shows the 'Add Rights' dialog box in the TM1 Contributor interface. The main table lists security roles for different regions:

Node	Group	Right	Review Depth
GO AMERICAS REGION	Review_Americas	Review	All
GO Americas	Contribute_Americas	Submit	All

Below the table, the 'Add Rights' dialog is open, divided into three sections:

- 1. Select Node:** Shows a tree structure of nodes: TOTAL COMPANY, GO AMERICAS REGION (selected), GO ASIA PACIFIC REGION, and GO EUROPE GMBH.
- 2. Select Group:** Lists groups: Contribute\_Central\_Europe, Contribute\_Northern\_Europe, Contribute\_Southern\_Europe, DataAdmin, Review\_Americas, Review\_Asia\_Pacific, Review\_Europe, SecurityAdmin, and View\_Company.
- 3. Define Security:** Allows defining a Right (Submit), Review Depth (All), and View Depth (All). An 'Add' button is at the bottom right.

IBM Cognos TM1 Contributor      Welcome floyd      About Help Logout IBM.

You are a reviewer or contributor for:

Name	State	Ownership	Reviewer	Last Data
<a href="#">GO Americas</a>	<input checked="" type="radio"/> Not Started	None	<a href="#">Review_Americas</a>	Never comm

**Workflow Detail for GO Americas**

Current state:  Not Started  
This contribution still requires an owner to edit or submit.

Viewed: no  
Reviewed: no



## Workshop 1: Step-by-Step Instructions

TM1 Server: **GreatOutdoors**  
 User/Password: **admin/<blank>**

### Task 1. Create public views to use in the Managed Planning Application.

1. In Windows Explorer, navigate to **C:\Edcognos\P6502\GreatOutdoors\DataFiles**.
2. Open **tm1s.cfg** in Notepad.
3. Add a new line and type the following:

**GroupsCreationLimit=100**

In this model, you will work with a number of users and groups. TM1 Contributor will be creating new groups as you assign security and it will need to add many new ones. This setting determines how many new groups may be created. You may or may not need to change this setting for your model.

4. Save and close the file.
5. Start the **GreatOutdoors** server.
6. In TM1 Architect, log on to the **greatoutdoors** server as **admin/<blank>**.
7. Expand **Cubes**, and then double-click **Expenses**.
8. Arrange the view in the following manner:
  - **Title: Versions: Budget Version 1, Expense\_Measures: Amount, Subsidiary: TOTAL COMPANY**
  - **Rows: Expenses: (drill down to see all elements)**
  - **Columns: Months: Months (subset)**
9. Recalculate the view.
10. Save as a **public** view named **Expenses**.
11. Click **OK** to close.

12. In Server Explorer, double-click **Income\_Statement**.
13. Arrange the view in the following manner:
  - **Title: Versions: Budget Version 1, Income\_Statement\_Measures: Amount, Subsidiary: TOTAL COMPANY**
  - **Rows: Income\_Statement Accounts: (drill down to see all elements)**
  - **Columns: Months: Months (subset)**
14. Recalculate the view.
15. Save as a **public** view named **Income\_Statement**.
16. Click **OK** to close.

## **Task 2. Create a public subset to reflect the budget approval process.**

1. Expand **Dimensions**, and then double-click **Subsidiaries**.
2. Click **All**.
3. Click **Subset** and then click **Save As**.
4. In the **Select or Enter Subset Name** box, type **All\_Subsidaries**.
5. Clear the **Private** check box, and then click **OK**.
6. Click **OK** to close the Subset Editor.

## Task 3. Create users and groups to allow access to the server and cubes (views).

1. Right-click **greatoutdoors**, click **Security** and then click **Clients/Groups**.
2. Click **Clients**, click **Add New Client**, type **Allesori**, and then click **OK**.
3. Repeat step 2 for each of the following:
  - **Allesori**
  - **Bakker**
  - **Bauer**
  - **Berger**
  - **Bertrand**
  - **Bruno**
  - **Floyd**
  - **Gradin**
  - **Hirsch**
  - **Li**
  - **Roche**
  - **Saltzman**
  - **Sasaki**
  - **Tamrine**
  - **Thomas**
  - **Wainio**
  - **Wiesinger**

4. Click **Groups**, click **Add New Group**, type **Contribute\_Accessories\_GmbH** and then click **OK**.
5. Repeat step 4 for each of the following:
  - **Contribute\_Accessories\_GmbH**
  - **Contribute\_Americas**
  - **Contribute\_Asia\_Pacific**
  - **Contribute\_Central\_Europe**
  - **Contribute\_Northern\_Europe**
  - **Contribute\_Southern\_Europe**
  - **Review\_Americas**
  - **Review\_Asia\_Pacific**
  - **Review\_Europe**
  - **View\_Company**

6. Select the intersections of the following:
  - **Allesori/Contribute\_Southern\_Europe**
  - **Bakker/ Review\_Europe**
  - **Bauer/ Review\_Americas**
  - **Berger/ Contribute\_Asia\_Pacific**
  - **Bertrand/ Contribute\_Accessories\_GmbH**
  - **Bruno/ Contribute\_Southern\_Europe**
  - **Floyd/ Contribute\_Americas**
  - **Gradin/ Contribute\_Northern\_Europe**
  - **Hirsch/ Contribute\_Central\_Europe**
  - **Li/ Contribute\_Asia\_Pacific**
  - **Roche/ Review\_Europe**
  - **Saltzman/ Review\_Europe**
  - **Sasaki/ Review\_Asia\_Pacific**
  - **Tamrine/ View\_Company**
  - **Thomas/ Review\_Americas**
  - **Wainio/ Contribute\_Northern\_Europe**
  - **Wiesinger/ Contribute\_Central\_Europe**
7. Click **OK** to close.
8. Close Architect, shut down the greatoutdoors server, saving changes.
9. Start the greatoutdoors server.

## Task 4. Using TM1 Contributor Administrator to create the managed planning application.

1. Open Internet Explorer.
2. On the Address bar, type **http://localhost:8085/pmpsvc** and then press **Enter**.
3. In the User name box, type **admin** with no password and then click **Login**. If you see a message stating a server cannot be found, click **OK** to dismiss it.
4. From the Planning Applications toolbar, select **Administer IBM Cognos TM1 Contributor**.
5. Under **Server Names** click **Add**.
6. In the Admin Host type **VCLASSBASE** (computer/image name).
7. In Server Name click **greatoutdoors** and then click **OK** twice.
8. From the Planning Applications toolbar, select **Design an Application** .
9. Click **File** and then click **New**.
10. In Application name type, **Expense\_Budget\_V1**.
11. In TM1 Server name click **greatoutdoors** and then click **OK**.
12. Under **TM1 Objects**, expand **Cubes, Expenses, Views**, and then drag the **Expenses** view under the **Views** folder in the **Design** pane.
13. Repeat step 12 for the **Income\_Statement** view.
14. Under **TM1 Objects**, expand **Dimensions**, expand **Subsidiaries** and then expand **Subsets**.
15. Click and drag the **All\_Subsidaries** subset under the **Approval** folder in the **Design** pane.
16. If prompted to accept, click **OK**.

## Task 5. Deploy, save and activate the application.

1. Click **File** and then click **Save As**.
2. Navigate to **C:\Edcognos\P6502\GreatOutdoors** and save the application as **Expense\_Budget\_V1**.
3. Click the **Application** menu and then click **Deploy**.
4. Click **OK**.
5. From the **File** menu select **Exit** to close IBM Cognos TM1 Contributor Administration.
6. In the IBM Cognos TM1 Contributor window click **Refresh** 

## Task 6. Apply security to the nodes in the application.

1. Select **Expense\_Budget\_V1**, and then click **Activate Application** -  **Expense\_Budget\_V1**.
2. Click **Manage Rights for Application** .
3. From the **Select Node** pane of the **Add Rights** section, click **GO AMERICAS REGION**.
4. In the box under **Select Group**, click **Review\_Americas**.
5. Under **Define Security**, select **Review** from the **Right** drop down list.
6. Leave the defaults for **Review Depth** and **View Depth** and then click **Add**.
7. Under **Select Node**, click **GO Americas**.
8. In **Select Group**, click **Contribute\_Americas** and then from the **Right** box click **Submit** and then click **Add**.
9. On the toolbar, click **Save**  and then click **Close**.
10. On the toolbar, click **Return** .

11. Click **Logout**.
12. Open **TM1 Architect** and log on to the **GreatOutdoors** server as **admin/<blank>**.
13. Right-click **Cubes** and then click **Security Assignments....**
14. Click the **Commissions/Contribute\_Accessories\_GmbH** and then Shift+click **zTime\_Navigation/View\_Company**.
15. In Access Privileges, click **Write** and then click **OK**.
16. Right-click **greatoutdoors** and then click **Save Data**.
17. Close **TM1 Architect**.
18. If TM1 Contributor is closed, open **Internet Explorer**, on the Address bar type: **http://localhost:8085/pmpsvc** and then press **Enter**.
19. Log on as **Floyd/<blank>**.
20. Click **Expense\_Budget\_V1**.
21. Expand **Contributions**.  
Review GO Americas. Verify you can log on as Floyd and see the application.
22. Click **Logout**.
23. Close Internet Explorer, all cube views, TM1 Architect and the TM1 Server GreatOutdoors (click **Yes** to save changes).



**Information Management**



## Define Workflow

IBM Cognos TM1 9.5



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# Objectives

- At the end of this module, you should be able to:
  - configure TM1 for Workflow
  - install Workflow
  - create Workflow processes
  - use Workflow toolbars to review versions



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Prior to version 9.4, TM1 Workflow was known as Planning Manager. You will still see many references to Planning Manager within the documentation.

## Configure TM1 for Workflow

- Workflow requirements of TM1 model:
  - TM1 Users are defined
  - Cubes contain a version dimension
- It is recommended TM1 cubes contain:
  - a dimension that reflects a task and review structure

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As tasks are defined to a version of your Workflow, it must be assigned a user that will be assigned responsibility for this task.

- This requires that TM1 security allow this user access to any associated elements

Workflow will create elements in the Version dimension that reflect a task and review structure. The dimension must be named 'Version'.

Dimensions that often reflect a task and review structure may include regions, accounts, markets, or a combination of dimensions.

- Element security applied to this dimension can be reflected in Workflow

The Subsidiary dimension in our model will reflect our task and review structure. A manager of each subsidiary will be responsible for entering forecasted expenses and submitting them to regional managers. The CFO will have final approval over all budgets.

Workflow 9.5 requires TM1 9.5. Earlier versions may also require earlier versions of TM1 and the following licenses: TM1 Server, TurboIntegrator and TM1 Workflow.

## Review TM1 Security

- Create users and groups
- Assign access to TM1 Objects:
  - cube security
  - dimension security
  - element security



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Create users to access the server. Users are given passwords, allowed a set number of connections to the server and are assigned to groups.

Groups are then assigned access to individual objects and given privileges such as:

- Admin
- Read
- Write
- Lock
- Reserve
- None

---

See the "Controlling Access to TM1 Objects" in the TM1 Developers Guide for additional information. If you are using Managed Planning Applications, TM1 Contributor security will override any other element level security settings. You should avoid choosing the same dimension to represent the approval process.

## Demo 1: Add Users and Groups to TM1 Security

### Purpose:

You will be applying workflow tasks to your Expense reporting. A manager and executive from each Subsidiary region will be responsible for forecasting and approving expenditures in their region. You will create users and user groups for each of these roles. You will then set up element security so that they may write to data they are responsible for but not edit data that is outside of their territory.

### Task 1. Create new users and groups.

TM1 Server: **GO\_Workflow**

TM1 Perspectives: Server Explorer

UserName: **admin**

Password: <blank>

1. In Windows Explorer, navigate to **C:\Edcognos\P6502\GO\_Workflow\DataFiles** and then double-click on the **GO\_Workflow** shortcut.
2. Ensure that the TM1 server is started in the task bar, and then launch **TM1 Perspectives for MS Excel**.
3. Click **Enable Macros** if prompted, click **TM1** on the MS Excel menu and then click **Server Explorer**.
4. Expand **TM1**, double-click **go\_workflow**, in the **UserName** box, type **admin**, and then click **OK**.

5. In Server Explorer, right-click the **go\_workflow** server, point to **Security** and then click **Clients\Groups**.

The result appears as follows:

	Security Settings					Administrative Group Assignment		
	Password	Expiration Days	Max Connections	Status	ADMIN	DataAdmin	SecurityAdmin	
Admin	Undefined	No Expiration.	34463	Active	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

By default, TM1 creates the Admin user that is a member of the ADMIN group. You will add users and groups.

6. From the **Clients** menu, click **Add New Client**.
7. In the **Enter New Client name** box type **Andrews** and then click **OK**.
8. Repeat steps 6 and 7 for the following names:
  - **Douglas**
  - **Healy**
  - **Howell**
  - **Jones**
  - **Murphy**
  - **Reed**
  - **Smith**
  - **Troy**
  - **Young**
9. From the **Groups** menu, click **Add New Group**.
10. Add the following groups:
  - **CFO**
  - **Executive**
  - **Manager**

Now you will need to assign users to groups.

11. Next to **Andrews** select the box under **CFO**.

The result appears as follows:



12. Check the boxes under **Executive** for the following users:

- **Smith**
- **Troy**
- **Young**

13. Check the boxes under **Manager** for the following users:

- **Douglas**
- **Healy**
- **Howell**
- **Jones**
- **Murphy**
- **Reed**

The result appears as follows:

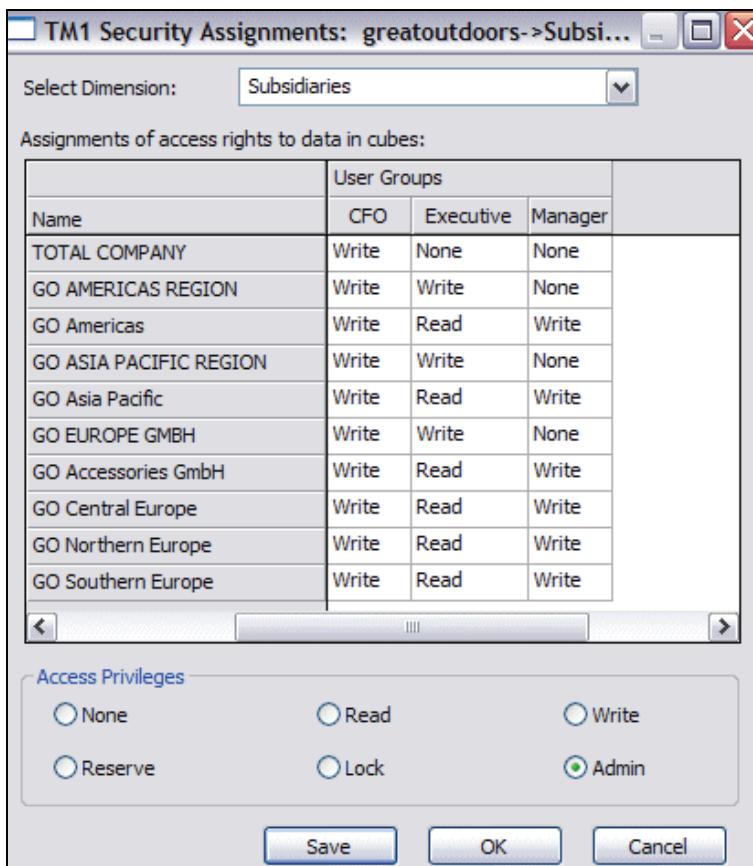
User Name	User Group Assignment		
	CFO	Executive	Manager
Admin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Andrews	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Douglas	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Healy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Howell	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Jones	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Murphy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Smith	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Troy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Young	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

14. Click **OK** to close.

## Task 2. Assign groups to element level security to elements in the Subsidiaries dimension.

1. In Server Explorer, under **Dimensions**, right-click **Subsidiaries**, point to **Security**, and then click **Elements Security Assignments**.

2. Assign access privileges to elements for each security group as shown below:



Managers can write to leaf elements, executives can write to regional elements and on the CFO group has any access to the Total Company figures.

3. Click **OK**, close Server Explorer, any TM1 windows and the TM1 server, saving changes if prompted.

### **Result:**

**You have created users and groups on your TM1 server. Next you set up element access to specific groups (and by default the users within these groups).**

**These users will be assigned tasks related to their roles in your budgeting and forecasting process.**

# Install Workflow

- Install Workflow toolbar
  - TM1 Web
  - Microsoft Excel
- Attach workflow to a TM1 server
  - cubes containing a Version dimension



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Installing Workflow consists of:

- TM1 Web toolbar on the Web server
- Microsoft Excel toolbar (and add-in)
- TM1 control cubes in the TM1 Server data directory

---

TM1 Workflow contains an add-in for Microsoft Excel 2003 or later versions.

## Demo 2: Add TM1 Workflow to a TM1 Server

### Purpose:

You will install TM1 Workflow to the GO\_Workflow server. It will be used to track the progress of expense forecasting within the Great Outdoor subsidiaries.

### Task 1. Copy the TM1 Workflow database files to TM1.

1. Open Windows Explorer and navigate to:

C:\Program Files\Cognos\TM1\Custom\TM1Data\TM1 Planning Manager V2\

2. Click **Edit** and then click **Select All**.

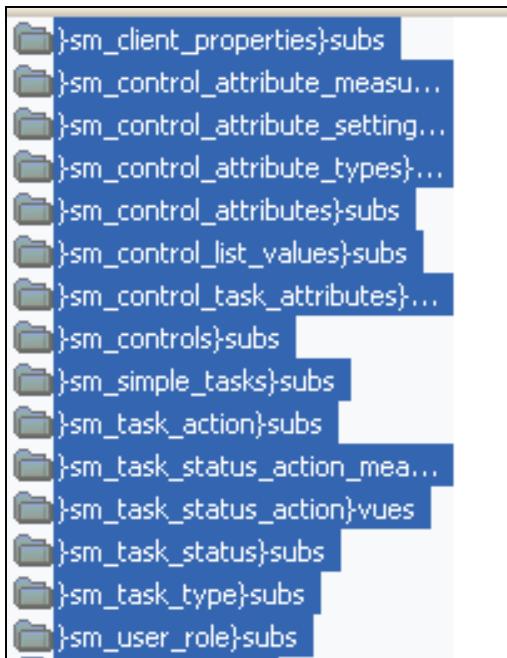
3. Click **Ctrl+C** to copy.

4. In Windows Explorer and navigate to:

C:\Edcognos\P6502\GO\_Workflow\DataFiles

5. Click **Ctrl+V** to paste.

You will see a number of folder names beginning with }sm\_. These are workflow control objects.



6. Double-click the **GO\_Workflow** shortcut to start the server.
7. Click **No** if asked to recover changes.
8. On the desktop, double-click **Perspectives for Microsoft Excel**.
9. Click the **TM1** menu, point to **TM1 Workflow**, and then click **Load**.
10. In the Connect to TM1 Server window, click **go\_workflow** and log on as **admin/<blank>**.
11. Click **OK**.

You are now connected to the TM1 server in Perspectives. TM1 Workflow is available to the GO\_Workflow server. Leave the server running for the next demo.

### Results:

**You installed TM1 Workflow to the GO\_Workflow server. It will be used to track the progress of expense forecasting within the Great Outdoor subsidiaries.**

## Create a Workflow Process

- A process reflects a series of tasks representing a business process
- A process consists of:
  - a name
  - a task and review structure
  - an owner and reviewer
  - worksheet/websheet navigation (optional)
  - task attributes



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**INTERACTION - Check Sticker: Place a check next to each bullet**

## Demo 3: Add a New Process and Tasks

### Purpose:

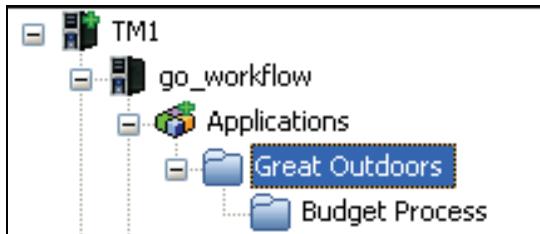
You will create a slice of the Expense cube and save it to an Application folder. This will then be the basis of your budget process.

Now that Workflow has been installed you will use the Admin tool to define your budget process and associate users and worksheets.

### Task 1. Create Application Folders.

1. From Perspectives for Microsoft Excel, click **TM1** and then click **Server Explorer**.
2. In Server Explorer, right-click **Applications**, click **Create a new Application**, type **Great Outdoors** and then press **Enter**.
3. Right-click **Great Outdoors**, click **New** and then click **Application**.
4. Type **Budget Process**.
5. Right-click **Great Outdoors**, click **Security**, and then click **Make Public**.

The result appears as follows:



## Task 2. Create budgeting worksheet.

In this task you will export data to Excel while retaining its links to the cubes. This is done by creating a slice of a cube. You will then upload the spreadsheet to an Application folder, making it readily available to users.

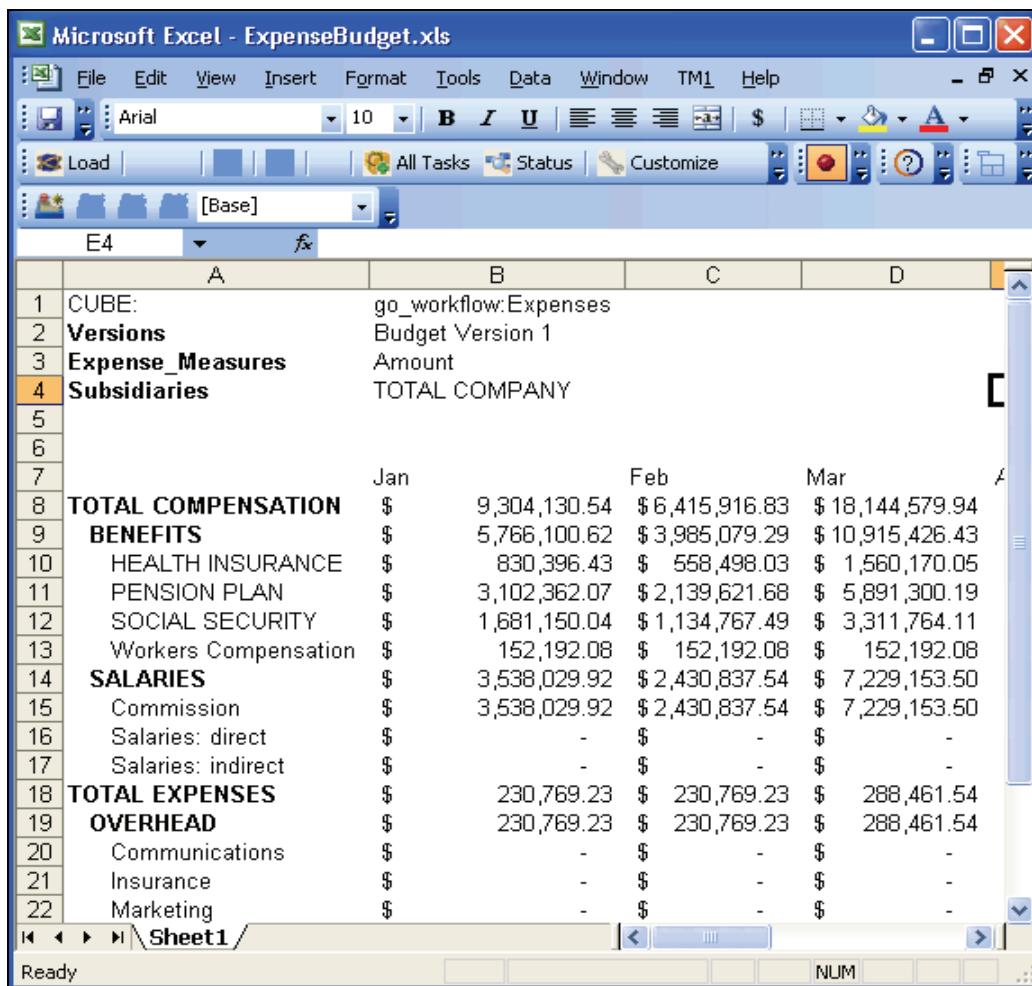
1. Expand **Cubes**.
2. Double-click the **Expenses** cube.
3. Swap **Months** and **Expense\_Measures**.
4. Click the **Months** dimension, select the **Months** subset and then click **OK**.
5. Click **Recalculate**.

The result appears as follows:

Budget Version 1				
	Amount			
	TOTAL COMPANY			
	Months			
Expenses:Default	Jan	Feb	Mar	Apr
-- TOTAL COMPENS	\$9,304,130.54	\$6,415,916.83	\$18,144,579.94	\$22,337,
-- BENEFITS	\$5,766,100.62	\$3,985,079.29	\$10,915,426.43	\$13,296,
HEALTH INS	\$830,396.43	\$558,498.03	\$1,560,170.05	\$1,904,
PENSION PL	\$3,102,362.07	\$2,139,621.68	\$5,891,300.19	\$7,199,
SOCIAL SEC	\$1,681,150.04	\$1,134,767.49	\$3,311,764.11	\$4,039,
Workers Com	\$152,192.08	\$152,192.08	\$152,192.08	\$152,
-- SALARIES	\$3,538,029.92	\$2,430,837.54	\$7,229,153.50	\$9,040,
Commission	\$3,538,029.92	\$2,430,837.54	\$7,229,153.50	\$9,040,
Salaries: dire	\$0.00	\$0.00	\$0.00	
Salaries: ind	\$0.00	\$0.00	\$0.00	
-- TOTAL EXPENSES	\$230,769.23	\$230,769.23	\$288,461.54	\$230,
-- OVERHEAD	\$230,769.23	\$230,769.23	\$288,461.54	\$230,
Communication	\$0.00	\$0.00	\$0.00	
Insurance	\$0.00	\$0.00	\$0.00	
Marketing	\$0.00	\$0.00	\$0.00	
Minor Equipm	\$0.00	\$0.00	\$0.00	
Premises	\$153,846.15	\$153,846.15	\$192,307.69	\$153,

6. Save a public view named **ExpenseBudget**.
7. Click **Slice**  to slice the view to Microsoft Excel.
8. Select the data cells (**B8:M27**) and click **Currency Style \$**.
9. From the **Tools** menu, click **Options**.
10. Clear the **Gridlines** checkbox, and then click **OK**.
11. Save the worksheet as  
**C:\Edcognos\P6502\GO\_Workflow\ExpenseBudget.xls**.

The result appears as follows:

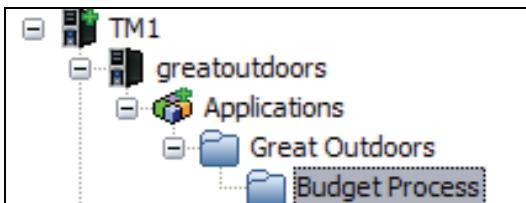


	A	B	C	D
1	CUBE: Versions	go_workflow:Expenses		
2		Budget Version 1		
3	Expense_Measures	Amount		
4	Subsidiaries	TOTAL COMPANY		
5				
6				
7				
8	<b>TOTAL COMPENSATION</b>	Jan	Feb	Mar
9	<b>BENEFITS</b>	\$ 9,304,130.54	\$ 6,415,916.83	\$ 18,144,579.94
10	HEALTH INSURANCE	\$ 5,766,100.62	\$ 3,985,079.29	\$ 10,915,426.43
11	PENSION PLAN	\$ 830,396.43	\$ 558,498.03	\$ 1,560,170.05
12	SOCIAL SECURITY	\$ 3,102,362.07	\$ 2,139,621.68	\$ 5,891,300.19
13	Workers Compensation	\$ 1,681,150.04	\$ 1,134,767.49	\$ 3,311,764.11
14	<b>SALARIES</b>	\$ 152,192.08	\$ 152,192.08	\$ 152,192.08
15	Commission	\$ 3,538,029.92	\$ 2,430,837.54	\$ 7,229,153.50
16	Salaries: direct	\$ -	\$ -	\$ -
17	Salaries: indirect	\$ -	\$ -	\$ -
18	<b>TOTAL EXPENSES</b>	\$ 230,769.23	\$ 230,769.23	\$ 288,461.54
19	<b>OVERHEAD</b>	\$ 230,769.23	\$ 230,769.23	\$ 288,461.54
20	Communications	\$ -	\$ -	\$ -
21	Insurance	\$ -	\$ -	\$ -
22	Marketing	\$ -	\$ -	\$ -

Once you slice to Microsoft Excel, apply formatting as desired.

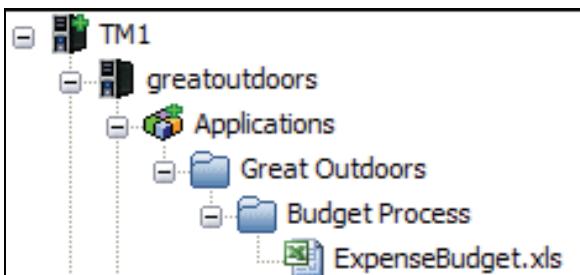
12. From the **TM1** menu, point to **Save Workbook on TM1 Server**, and then click **Upload New Application File to TM1 Server**.
13. Click the + signs to expand all folders, select the **Budget Process** folder.

The result appears as follows:



14. Click **OK** to close and then close the Microsoft Excel worksheet.
15. Open Server Explorer and expand all **Application** folders until you see **ExpenseBudget.xls**.
16. Right-click **ExpenseBudget.xls**, point to **Security**, and then click **Make Public**.

The result appears as follows:



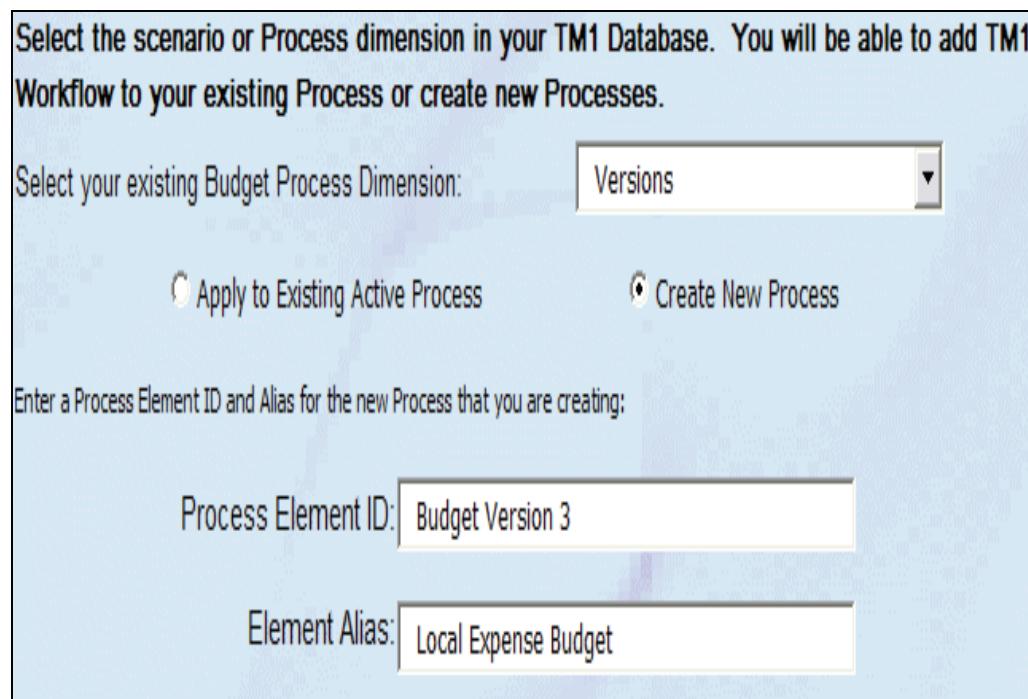
You can now define your budget process to TM1 Workflow using this worksheet.

## Task 3. Define budget process.

In this task you will create a new TM1 Workflow process, based on the levels in the subsidiaries dimension. You will assign users and groups access to the slice you just created.

1. In Microsoft Excel, from the **TM1** menu, point to **TM1 Workflow** and then click **Admin**.
2. In the **Process Wizard**, beside **Select your existing Budget Process Dimension**, ensure that **Versions** is selected.
3. If necessary, select **Create New Process**.
4. In the **Process Element ID** box, type **Budget Version 3**.
5. In the **Element Alias** box, type **Local Expense Budget**.

The result appears as follows:

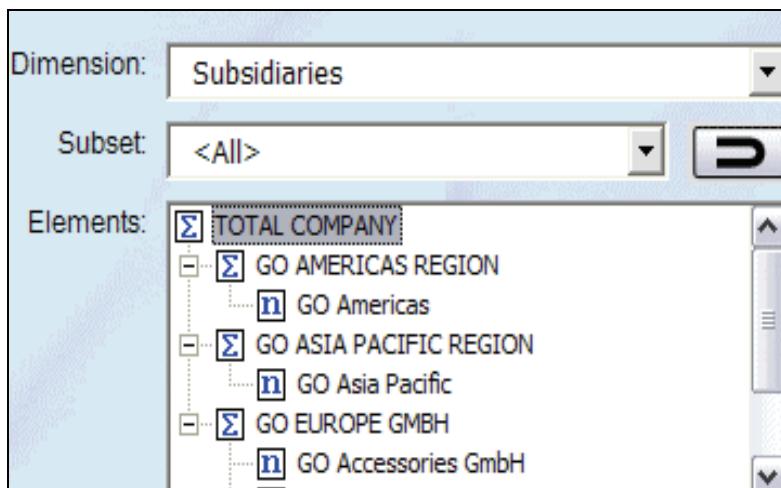


Workflow will add a new element named Budget Version 3 to the Versions dimension with the Alias Local Expense Budget.

6. Click **Next**.

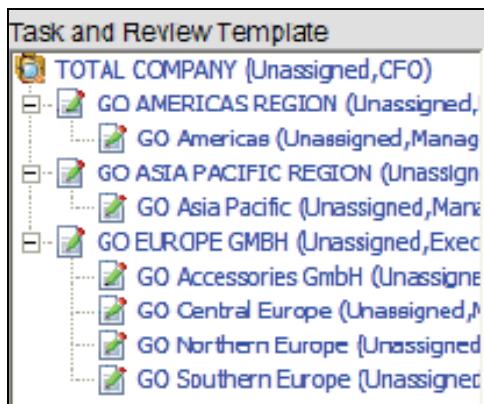
7. In the Create Task and Review Template window, next to **Dimension**, select **Subsidiaries**.

The result appears as follows:



8. Next to **Elements**, click **Total Company** and drag on top of **Place Your Top Task Here**, in the **Task and Review Template** pane.

The result appears as follows:



9. Click **Next**.

You can select an existing subset of a dimension from the drop down list or create a new one using the **Subset** icon.

After dragging one dimension to the Task and Review template, you can select elements from other dimensions and drag those to the template as well.

You can add, remove or rename items using the right click menu.

10. In the Assign Responsibility window, expand the **CFO** group, select **Andrews** and drag on top of **Total Company**.

The result appears as follows:



Now the TM1 user Andrews, has been assigned the task for the Total Company.

11. Repeat step 10 for the rest of the users and tasks in the table:

Subsidiary	Responsible for budget:
GO AMERICAS REGION	Smith
GO Americas	Douglas
GO ASIA PACIFIC REGION	Troy
GO Asia Pacific	Healy
GO EUROPE GMBH	Young
GO Accessories GmbH	Howell
GO Central Europe	Jones
GO Northern Europe	Murphy
GO Southern Europe	Reed

The result appears as follows:



12. Click **Next**.

---

If you expand the CFO, Executive, and Manager groups and drag names from there, the group will appear next to the User name in the Task and Review template.

- In the Set Task Attributes window, in the Task and Review Template pane, select the **GO Americas** task and scroll down to the **Name** attribute to review.

Each task has a number of attributes that may be set. Attributes include due dates, process owner names, and even Turbo Integrator processes that can be run when a task is complete (Post Action Turbo Integrator Process, Pre Action Turbo Integrator Process, etc).

- Scroll down and click **Submit Subject**, and then click the **ellipses** next to it.
- On the Subject line type **Task:** and then, under **Substitution Items**, click and drag **TaskName** next to it.

The result appears as follows:

<b>Subject:</b>	Task: %TaskName%
-----------------	------------------

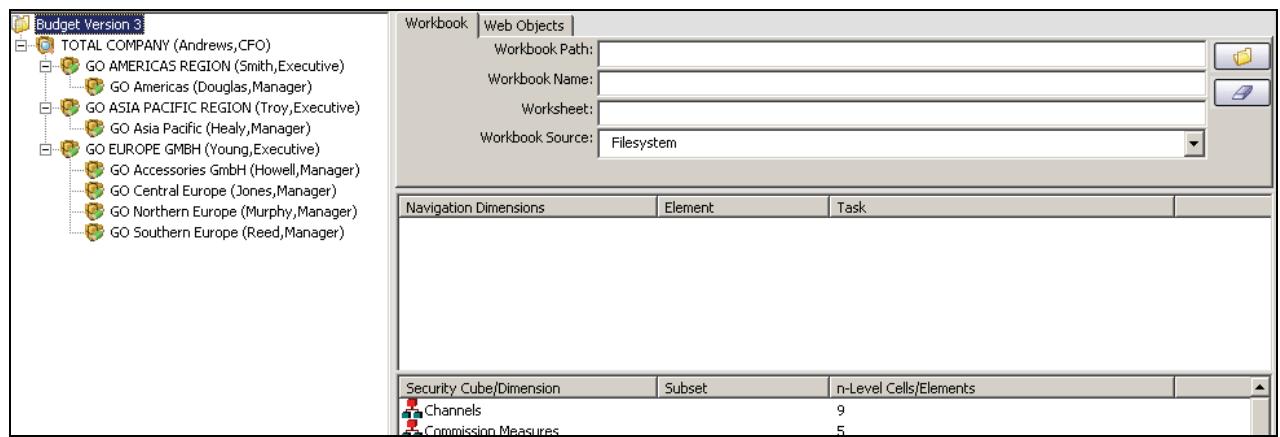
- Click **OK**.

Now when a task is Submit, this text will be included in an email message that is sent to the reviewer. The percent signs indicate variables that will update with the actual TaskName when the email is composed.

## Task 4. Associate worksheet with process.

- Click **Security and Navigation** .

The result appears as follows:



In this window you will assign a workbook to be used for all the tasks listed.

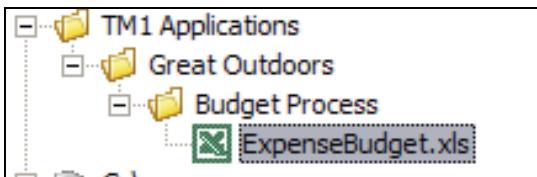
2. Select the **Allow Multiple Assignments** box.
3. Select the checkboxes of **Total Company** and all its children.

The result appears as follows:



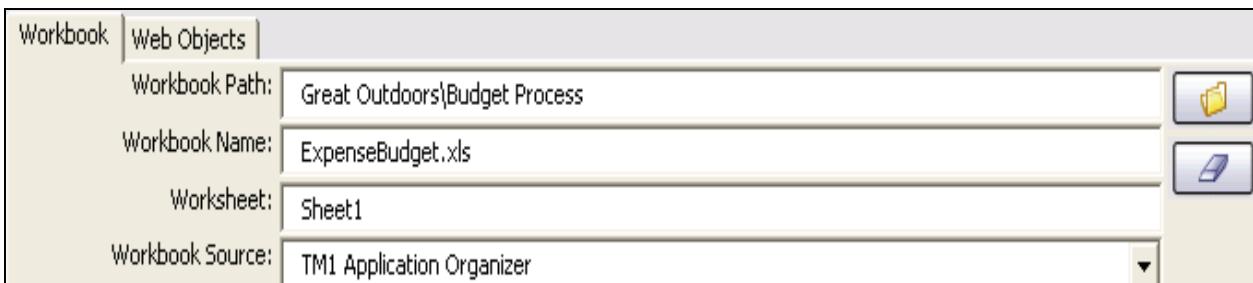
4. Click the **Workbook** tab.
5. Click beside **Workbook Path**.
6. Expand **TM1 Applications**, **Great Outdoors**, **Budget Process** and then click **ExpenseBudget.xls**.

The result appears as follows:



7. Click **OK**.

The result appears as follows:



8. Click **Close**, and then click **OK** to close the Set Task Attributes window.
9. In the Initialize Workflow window beside **Due Date for the Process**, increase the current month by one.
10. Select the **Process hierarchy Visible to TM1 Admin Group** box.
11. Click **Yes** beside **Allow Process Level Attachments**.

This setting will allow users to attach supporting documentation to a process.

The result appears as follows:

The dialog box displays the following settings:

- Process Status:** In Progress
- Process Notes:** (empty text area)
- Start Date for the Process:** 8/21/2008
- Due Date for the Process:** 9/22/2008
- Process Security Setting:** None
- Process hierarchy Visible to TM1 Admin Group:**
- Allow Process Level Attachments:**  Yes

At the bottom are two buttons: **Security and Navigation** and **Edit Task Tree**.

12. Click **Next**.
13. Review parameters and then click **Finish**.
14. Click **No** when asked to notify users, and then click **Close**.
15. If necessary, in Microsoft Excel, from the **TM1** menu, point to **TM1 Workflow**, and then click **Admin**.

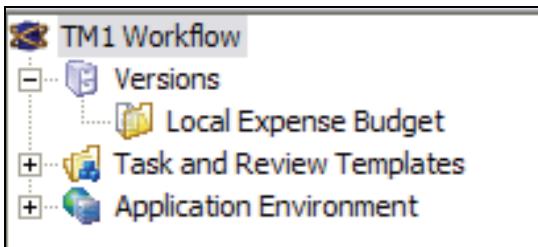
Under Navigation Dimensions you may choose Title dimensions to select default elements by right clicking in that box. Since our worksheet only has Version, Subsidiary, and Measures (dollars) in the titles, it doesn't lend itself to do this but it is worth noting.

Use Edit Task Tree to edit the task and review structure, task attributes, and users/groups.

Use Security and Navigation to edit the workbook or websheet settings.

16. Expand **Versions** to display the **Local Expense Budget** process you just created.

The result appears as follows:



The next time you click Admin from the TM1 Workflow button, this is what you will see. Because you did not have any process defined, a wizard opened to define a process.

When a new process is created, it also creates a template that can be used to create similar processes.

The workflow and terminology may be customized in the Application Environment.

17. Close the TM1 Workflow Administration Console, close Perspectives for Microsoft Excel, but leave the go\_workflow server running for the next demo.

### Results:

**You created a slice of the Expense cube and saved it to an Application folder. This will now be the basis of your budget process.**

## Use the Toolbar

- Task owners and reviewers use a toolbar
  - Review websheets or worksheets
  - Review tasks they own or use
  - Take actions on tasks including:
    - approve or reject
    - attach comments
    - send email messages



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Toolbars are available in both Microsoft Excel and in TM1 Web.

## Demo 4: Submit Budget for GO Americas Expenses

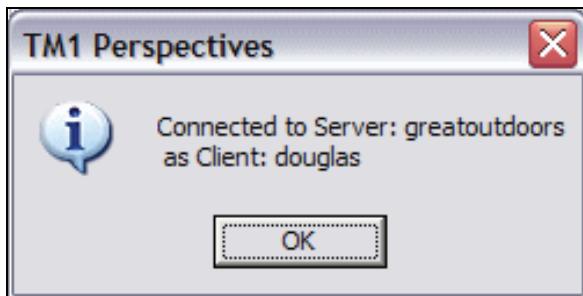
### Purpose:

You have been notified that the CFO (Mr. Andrews) needs budget numbers for upcoming expenses. You (Mr. Douglas) must input your budget forecast for GO Americas. Once you have input your forecast, you need to submit it to the VP of GO Americas for approval.

### Task 1. Connect to Great Outdoors server and load the new workflow process and tasks.

1. On the desktop, double-click the Perspectives for Microsoft Excel shortcut.
2. On the TM1 Workflow toolbar, click **Load** .
3. Connect to the TM1 server and click **OK**:
  - Server ID: **go\_workflow**
  - Client ID: **Douglas**
  - Password: **<blank>**
4. Click **OK**.

The result appears as follows:



5. Click **OK**.

Make sure you are logged out of any TM1 servers, the TM1 server toolbar should show all red circles.

## Task 2. Insert budget numbers into budgeting worksheet and submit.

1. Click **Choose a Process** and then click **Local Expense Budget**.
2. Click **Choose a task** and then click **GO Americas - In Progress**.

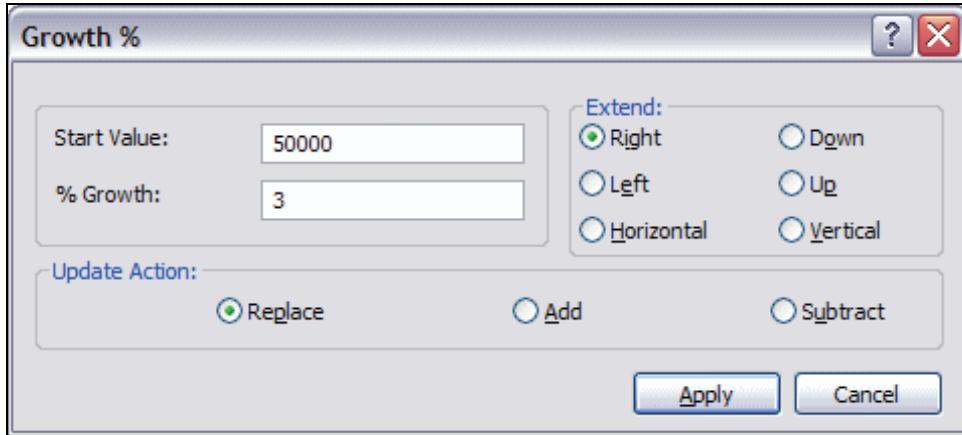
The result appears as follows:

	A	B	C	D	
1	CUBE:	go_workflow:Expenses			
2	Versions	Budget Version 3			
3	Expense_Measures	Amount			
4	Subsidiaries	GO Americas			
7		Jan	Feb	Mar	Apr
8	<b>TOTAL COMPENSATION</b>	\$	-	\$	-
9	<b>BENEFITS</b>	\$	-	\$	-
10	HEALTH INSURANCE	\$	-	\$	-
11	PENSION PLAN	\$	-	\$	-
12	SOCIAL SECURITY	\$	-	\$	-
13	Workers Compensation	\$	-	\$	-
14	<b>SALARIES</b>	\$	-	\$	-
15	Commission	\$	-	\$	-
16	Salaries: direct	\$	-	\$	-
17	Salaries: indirect	\$	-	\$	-
18	<b>TOTAL EXPENSES</b>	\$	-	\$	-
19	<b>OVERHEAD</b>	\$	-	\$	-
20	Communications	\$	-	\$	-
21	Insurance	\$	-	\$	-
22	Marketing	\$	-	\$	-
23	Minor Equipment	\$	-	\$	-

Choosing the task opens the slice in the associated workbook (or websheet if using TM1 Web), selects the appropriate Version (Budget Version 3) and the GO Americas Subsidiary.

3. Right-click the **Travel** cell for **Jan**, point to **Data Spread** and then click **Growth %**.
4. In the **Start Value** box type, **50000** and the **% Growth** type **3**.

The result appears as follows:



The data will extend to the cells on the right and replace any existing values.

5. Click **Apply**.

The result appears as follows:

	A	B	C	D
7		Jan	Feb	Mar
8	<b>TOTAL COMPENSATION</b>	\$	\$	\$
9	<b>BENEFITS</b>	\$	\$	\$
10	HEALTH INSURANCE	\$	\$	\$
11	PENSION PLAN	\$	\$	\$
12	SOCIAL SECURITY	\$	\$	\$
13	Workers Compensation	\$	\$	\$
14	<b>SALARIES</b>	\$	\$	\$
15	Commission	\$	\$	\$
16	Salaries: direct	\$	\$	\$
17	Salaries: indirect	\$	\$	\$
18	<b>TOTAL EXPENSES</b>	\$	50,000.00	\$ 51,500.00
19	<b>OVERHEAD</b>	\$	50,000.00	\$ 51,500.00
20	Communications	\$	\$	\$
21	Insurance	\$	\$	\$
22	Marketing	\$	\$	\$
23	Minor Equipment	\$	\$	\$
24	Premises	\$	\$	\$
25	Services	\$	\$	\$
26	Supplies	\$	\$	\$
27	Travel	\$	50,000.00	\$ 51,500.00
28				
29				

6. Right click **Premises** for Jan, click **Data Spread** and then click **Equal Spread**.

7. In the Value box type **1000000**, select the **Right** box and then click **Apply**.

Our budget is not yet complete but you would like verification on your assumptions thus far so you will submit the budget to the VP of your region.

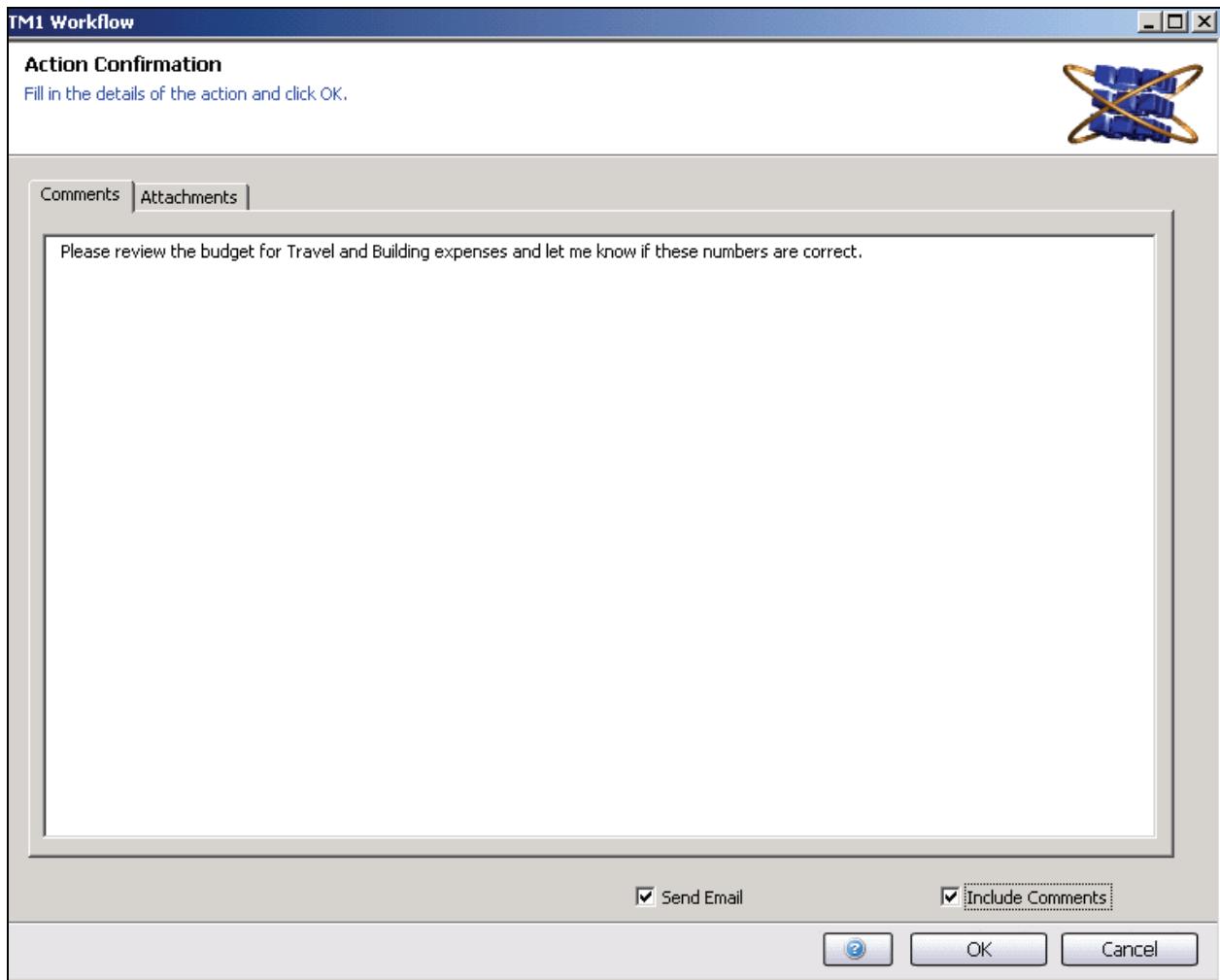
8. On the TM1 Workflow toolbar, click **Submit** .

9. Click the **Comments** tab and type the following comment:

**Please review the budget for Travel and Building expenses and let me know if these numbers are correct.**

10. Select the **Include Comments** box.

The result appears as follows:



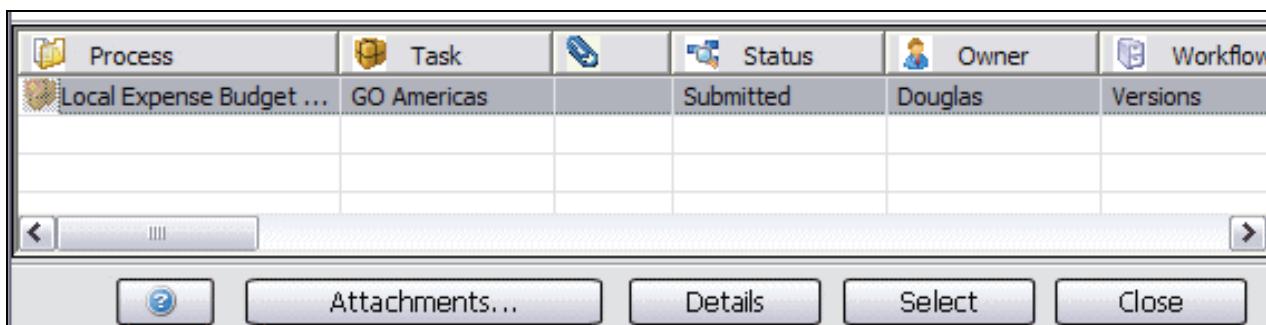
**11. Click **OK**.**

An email message should open with Smith's name in the To: box and the Subject should use the text you entered as a Submit attribute and the comment you typed in the body. You may close this message without sending.

The task has been submitted to the VP of GO Americas (Smith).

- 12. Close the email window and click **No** if asked if you would like to save the changes.**
- 13. Click **All Tasks** to see the task details.**

The result appears as follows:



The Details button shows the task attributes and the Select button to reopen the spreadsheet. If you had attached any documents to the task you could see them using the Attachments button.

- 14. Click **Close**.**
- 15. Close TM1 Perspectives (if open) and Microsoft Excel, without saving changes to the worksheet.**

### **Task 3. Review the submitted task in TM1 Web.**

- 1. Open Microsoft Internet Explorer.**
- 2. In the URL address type **localhost\tm1web**.**

Step 2: Ensure the TM1 Excel service has been started.

3. Use the following information to connect to the Great Outdoors TM1 server:
  - Admin Host: **localhost** (or blank)
  - TM1 Server: **go\_workflow**
  - User Name: **Smith**
  - Password: **<blank>**

The result appears as follows:

**Log In**  
Please enter your information

Admin Host:

TM1 Server:

User Name:

Password:

Please note that after some time of inactivity, the system will log you out automatically and ask you to sign in again.

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4. Click **Log In**.
5. Click **Choose a Process** and then select **Local Expense Budget**.

6. Click **Choose a Task**   and then select **GO Americas - Submitted**.
7. If you cannot see data in columns, select them and press **Auto Fit Column Width** .
8. Beside **Action**, click **Choose an Action**  © 2010, IBM Corporation

17. Click **All Tasks** and then click **Details** and you can see the comment Smith entered when rejecting the budget.

The results appear as follows:

**All available Tasks**

**All Tasks List**

To view the details of a particular task, select the task from the list below and then click on the 'Details' button. To load a task into the toolbar click 'Select'.

Process	Task	Status	Owner	Workflow Dime...	Approve Comm...
Local Expense Budget - In Progress	GO Americas	Rejected	Douglas	Versions	

**Task Properties**

**Task Details**

The List contains details of the selected Task

Minimize

Attribute	Value
Complete Comment	
Completed By	
Completed Datetime	
Delegate Comment	
Delegated By	
Delegated Datetime	
Due Date	
Reject Comment	Building Expenses of 1.5 million v
Rejected By	smith
Rejected Datetime	10/03/2008 10:23
Revoke By	
Revoke Comment	
Revoke Datetime	
Start Comment	
Started By	
Started Datetime	

Close

18. Close the Task Properties, All available Tasks, and Microsoft Excel windows, without saving.
19. Close IBM Cognos TM1 Web, and then close the TM1 Server, saving changes when prompted.

**Results:**

**You inputted your budget forecast for GO Americas.**

**You submitted it to the VP of GO Americas for approval.**

---

The Customize button on the toolbar lets users update their name and email address to Workflow or it can be updated by the Admin in the console.

## Summary

- At the end of this module, you should be able to:
  - configure TM1 for Workflow
  - install Workflow
  - create Workflow processes
  - use Workflow toolbars to review versions

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**Information Management**



## **Integrate with IBM Cognos 8 BI and IBM Cognos 8 Planning**

IBM Cognos TM1 9.5



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# Objectives

- At the end of this module, you should be able to:
  - integrate TM1 cubes within a IBM Cognos 8 business intelligence (BI) environment
  - integrate IBM Cognos TM1 in IBM Cognos 8 BI portals
  - describe how to use TM1 data in an IBM Cognos 8 Planning application
  - describe how to use IBM Cognos 8 Planning data in a TM1 application

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**INTERACTION - Star Sticker:** Use a sticker next to each objective.

## Examine Performance Management (PM)

- Good decisions are the building blocks of great business performance.
- Understand and improve your business based on:
  - How are we doing?
  - Why?
  - What should we be doing?
- IBM Cognos provides performance management through software, services, best-practices, and partners.

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Use IBM Cognos 8 as an open, "enterprise-class" platform to answer the following:

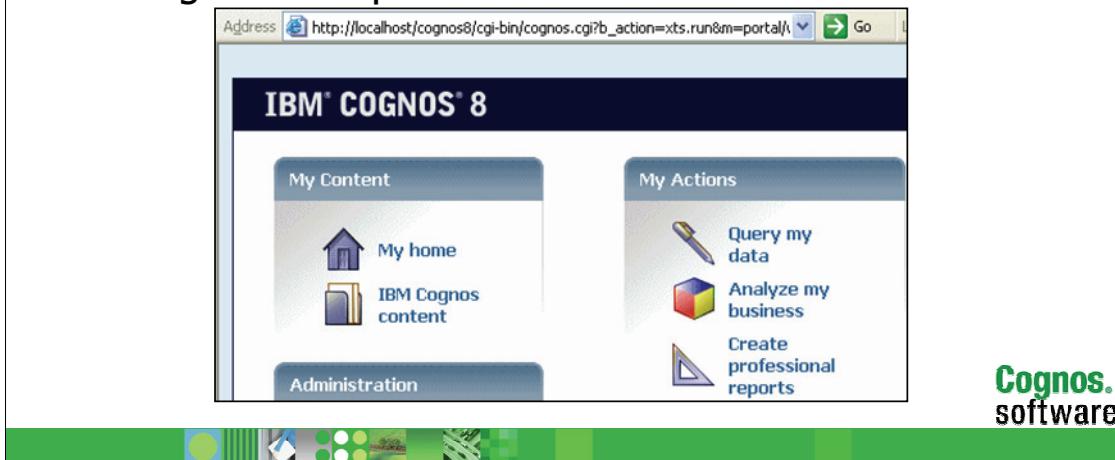
- How are we doing? Measuring and monitoring performance with scorecards and dashboards tracks your key metrics.
- Why? Reporting and analysis let you see data, gain context, understand trends, and spot anomalies.
- What should we be doing? Planning, budgets, and forecasts let you set and share a reliable view of the future.

IBM Cognos 8 consists of planning, business intelligence and consolidation and financial reporting. It uses one underlying architecture and the components are all part of one solution.

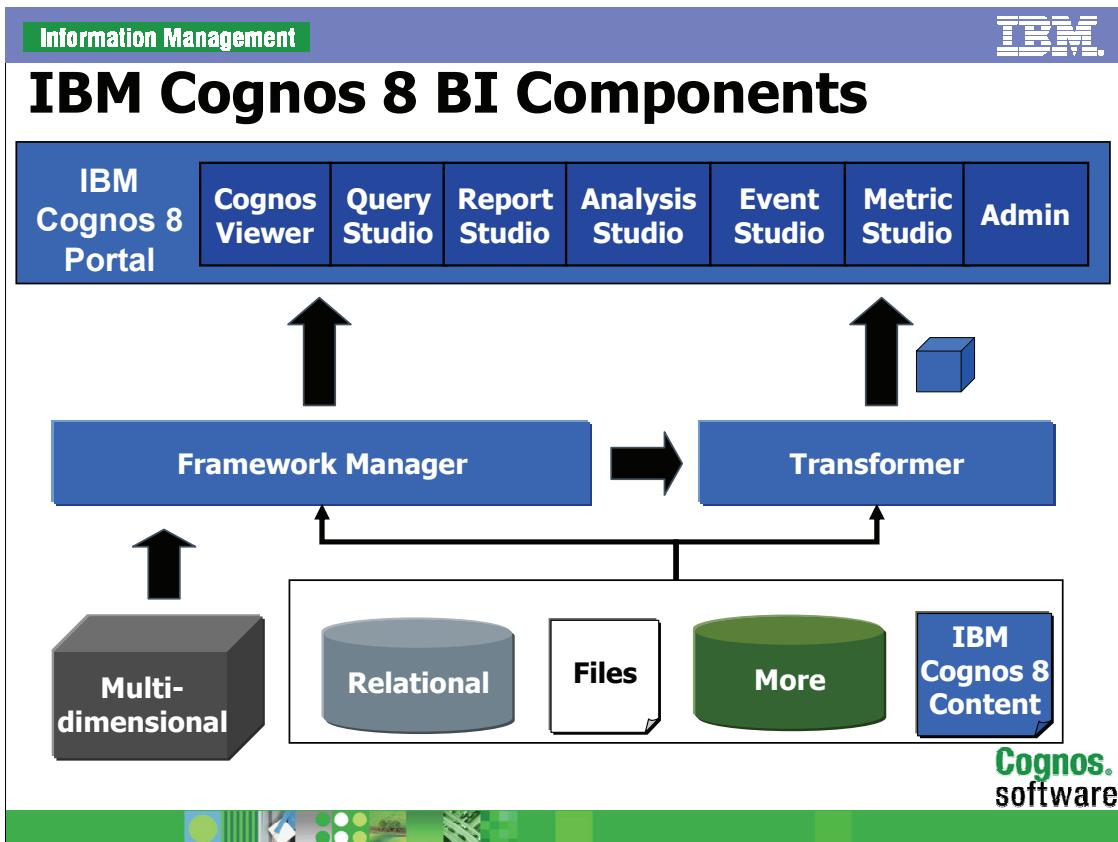
**INTERACTION - Microphone:** Ask participants for some examples of questions their users ask or answer currently.

## IBM Cognos 8 BI Overview

- IBM Cognos 8 BI is a complete enterprise business intelligence software solution with integrated reporting, analysis, scorecarding, and event management capabilities.



**INTERACTION - Text Chat:** ask if anyone use or has used any C8 studios? Which ones?



IBM Cognos 8 BI capabilities provide reporting, analysis, scorecarding, dashboarding, business event management, and data integration. IBM Cognos 8 BI includes a portal for BI content presentation, management, and administration, and various studios to author and analyze corporate data. You can access a wide array of data sources and leverage your existing security infrastructure.

Framework Manager is a metadata modeling tool used to create basic query packages or multidimensional analysis packages and Transformer is a modeling tool used to create PowerCubes for multidimensional analysis. These sources are used by authors and analysts in the IBM Cognos 8 environment.

- Analysis Studio performs analyses of data to discover trends, risks, and opportunities.
- Query Studio helps you quickly answer a focused question.
- Report Studio builds sophisticated reports, including multi-page, multiple-query reports against multiple data sources.
- Metric Studio helps to manage your organization's performance by monitoring and analyzing metrics at all levels.
- Event Studio notifies users of key operational or performance-related events that may affect their business. You can mention that reports can also be viewed using BI components like Google Search, BI Analysis for Microsoft Excel, Cognos Office, Cognos Mobile.

**Information Management**

**IBM**

## IBM Cognos 8 Groups and Roles

- IBM Cognos 8 provides default groups and roles for security such as:

The diagram shows a blue pyramid divided into three horizontal sections. The top section is labeled "System Administrators". The middle section is labeled "Authors, Query Users, Analysis Users". The bottom section is labeled "Consumers, Readers". At the very bottom of the slide, there is a green horizontal bar featuring several small, colorful icons representing different business or data concepts.

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Take advantage of IBM Cognos 8 groups and roles to secure your IBM Cognos 8 BI environment and content. The group or role a user belongs to will determine how much access they have to the IBM Cognos 8 BI environment. For example, if you are a member of only the Consumers role, you cannot access any of the IBM Cognos 8 studios.

Besides the default groups and roles, you can create new groups and roles that are specific to your IBM Cognos 8 BI needs. Simply add users from your authentication source to specific groups and roles as required.

---

You can use the groups and roles defined in the Cognos Namespace as well as in your authentication provider to control access to content.

There are many different groups and roles the administrator can use to restrict what you can see, what you can do etc.

See the Predefined Entries section of the Administration and Security Guide for detailed information on the predefined groups and roles as well as the anonymous user.

## What is Framework Manager?

- **Framework Manager**
  - provides the metadata model development environment for IBM Cognos 8.
  - used to add a data source connection to your TM1 server, and to publish a TM1 cube to IBM Cognos 8.
  - When you use a TM1 cube as your data source, you work with a dimensional model that allows you to drill up and drill down.

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Packaged with IBM Cognos 8 BI and IBM Cognos 8 Planning, Framework Manager is a modeling tool that lets you use any data source in IBM Cognos 8.

When you work in Framework Manager, you work in a project. A project contains metadata objects (the model) organized for report authors according to the business model and rules.

You create a package to make metadata available to IBM Cognos 8 authors. A package is a subset of a Framework Manager project. It must contain all the information that a specific user or group of users needs to create reports. When you create a package, you can also apply security to the package.

You publish a package to the IBM Cognos 8 business intelligence server so that authors in the IBM Cognos 8 studios can use the metadata.

After it is published from Framework Manager, a TM1 cube is another data source that can be used in any of the IBM Cognos 8 studios or components.

## Benefits of IBM Cognos 8 Integration

- Data in the TM1 cubes is live.
- Write-back refreshes Cognos 8 Studio Reports and TM1 Cognos Portlets without delay.
- Can use IBM Cognos 8 security and single sign-on.
- Integrates well with BI Studios, CAFÉ, Events, and IBM Cognos 8 Mobile.
- Create Cognos Connection portlets:
  - use TM1 and EV
  - supports write-back and action buttons
- TM1 can also be used as a package for IBM Cognos 8 Planning.



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**INTERACTION - Star Sticker:** use a star next to each bullet

## Integrate IBM Cognos TM1 with IBM Cognos 8: Steps

1. Ensure that the measure dimension in your TM1 cube is identified.
2. Create a Framework Manager project and data source.
3. Create and publish a package.
4. Create reports, analyses, and queries to answer your business questions.



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## Demo 1: Integrate IBM Cognos TM1 with IBM Cognos 8 BI

### Purpose:

Financial analysts at your company want to analyze the data in the TM1 cubes more thoroughly using the different IBM Cognos 8 studios. You will go through the steps to publish the Sales\_Plan cube.

You will first ensure that your measure dimension is identified. Next you will create a Framework Manager project, create a data source, and then publish a package. Finally, you will create a simple analysis.

### Task 1. Ensure that the measure dimension in your TM1 cube is identified.

TM1 Server: **greatoutdoors**

TM1 Architect: **Server Explorer**

UserName: **admin**

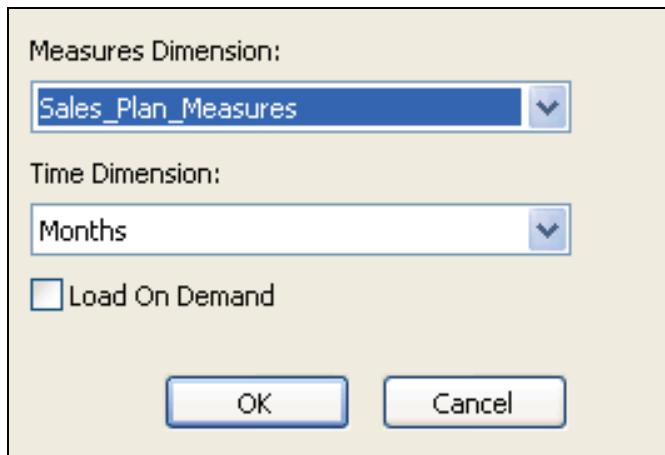
Password: **<blank>**

1. Ensure that the greatoutdoors TM1 server is started in the task bar, and then launch TM1 Architect: Server Explorer.
2. Expand **TM1**, double-click **greatoutdoors**, in the **UserName** box, type **admin**, and then click **OK**.
3. Expand **Cubes**, right-click the **Sales\_Plan** cube, and then click **Properties**.

4. In the **Measures Dimension** box, click **Sales\_Plan\_Measures**, and then in the **Time Dimension**, click **Months**.

The Measure Dimension in a TM1 cube must be defined before you can publish the cube as a data source in Framework Manager.

The result appears as shown below:



You do not need to check the Load on Demand option for this cube. This is used for cubes that you do not want loaded into memory when the server is started as is the default. Instead it would be loaded into memory when requested. This is typically done with older cubes or those that are not used frequently.

5. Click **OK**, and then minimize **Server Explorer**.

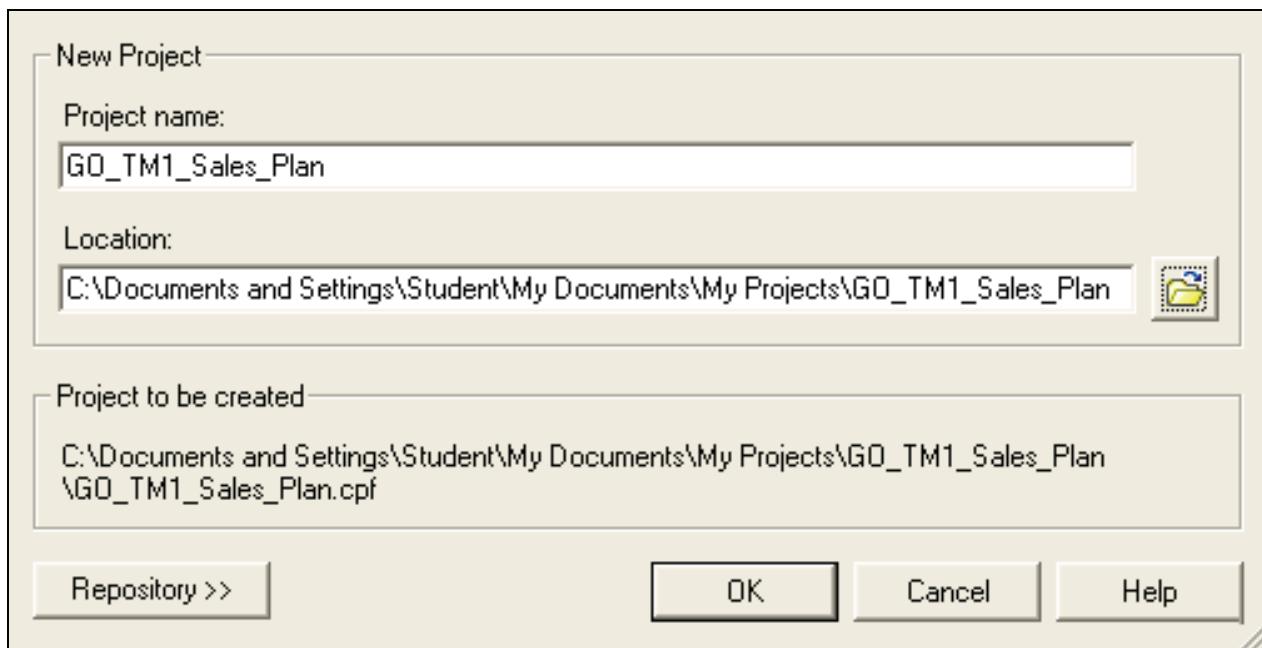
You must keep the greatoutdoors server running so that you can connect to it as a data source.

## Task 2. Create a Framework Manager project and add a TM1 cube as a data source.

Make sure the IBM Cognos 8 service is started.

1. From the **Start** menu, point to **All Programs**, **IBM Cognos 8**, and then click **Framework Manager**.
2. Below **Projects**, click **Create a new project**.
3. In the **Project name** box, type **GO\_TM1\_SalesPlan**.

The result appears as shown below:



Notice that the project name is automatically filled in the location.

4. Click **OK** twice.
5. If prompted to log on, type **admin** in the **User ID** box, **Education1!** in the **Password** box, and then click **OK**.
6. Ensure **English** is selected, and then click **OK**.

## Task 3. Add a TM1 cube as a data source.

1. In the **Metadata Wizard**, ensure **Data Sources** is selected, and then click **Next**.

2. Click **New**, click **Next**, and then in the **Name** box, type **GO\_TM1\_SalesPlan**.

This identifies your data source in TM1.

3. Click **Next**, in the **Type** box, click **TM1**, and then click **Next**.

4. Enter the following values as shown below:

Administration Host: <**machine\_name**> type in the VM image host name.

Server Name: **greatoutdoors**

For the Administration host, you must enter the machine name or IP address. Typing localhost does not pass security and will require the server to look up the host name.

The Server Name is case sensitive, and must be entered as it appears in Server Explorer or on the tab for your running TM1 server.

- Select the **Password**, and **Create a signon that the Everyone group can use** boxes, and then, in the **User ID** box, type **admin**.

The result appears as shown below:

VCLASSBASE

**Server Name:**  
greatoutdoors

**Signon**  
Select the type of authentication to use, whether a password is required and whether to create a signon.

No authentication  
 An external namespace:  
 Signons

Password  
 Create a signon that the Everyone group can use:

**User ID:**  
admin

**Password:**

**Confirm password:**

- Click **Test the connection**, and then click **Test**.

The connection succeeded.

- Click **Close**, click **Close** again, and then click **Finish**.

- Click **Close**.

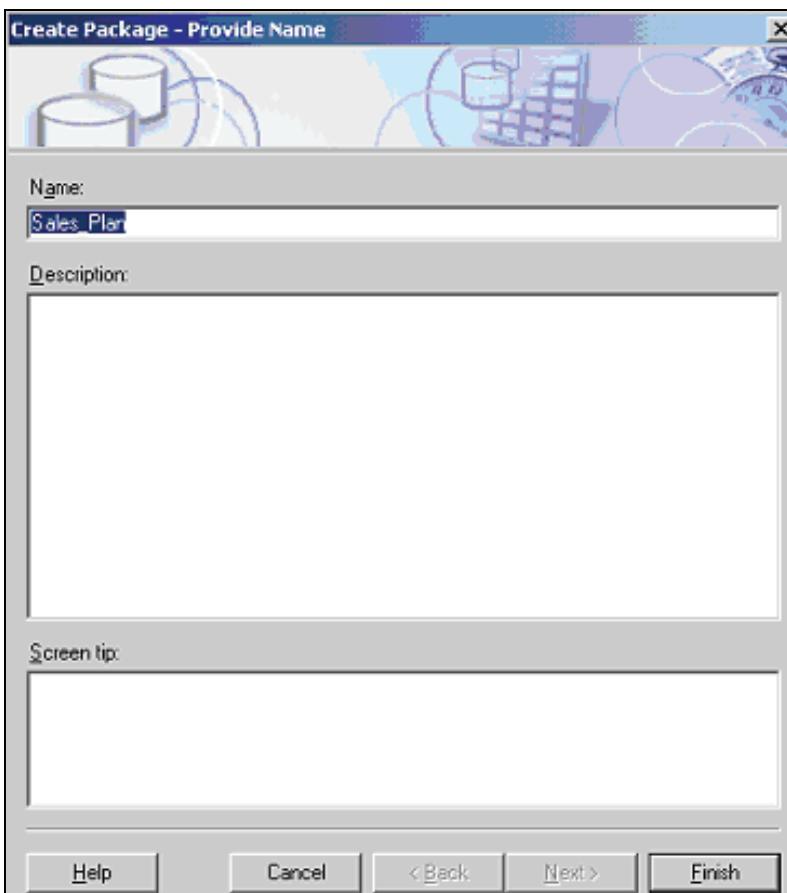
- In the Metadata Wizard, click the new data source connection **GO\_TM1\_SalesPlan**, and then click **Next**.

- On the Select Cube page, click **Sales\_Plan**, and then click **Next**.

If you had aliases for different locales you could choose them here.

11. Click **Next**, and then click **Finish**.
12. On the **Create Package** page, ensure that **Sales\_Plan** appears in the **Name** box.

The result appears as shown below:



13. Click **Finish**.

You have successfully created your package and now want to open the Publish Package wizard.

## Task 4. Publish a package.

1. Click **Yes**.
2. On the Select Location Type page, click **Next**.
3. On the Add Security page, click **Next**.  
You have no security defined in IBM Cognos 8.
4. On the Options page, click **Publish**.  
You have successfully published the Sales\_Plan package in Public Folder.
5. Click **Finish**.
6. In Framework Manager, expand **Model**.  
The Sales\_Plan cube that you added appears.
7. Close **Framework Manager**, saving changes to the project.  
Next you want to view the package in IBM Cognos Connection, and create an Analysis in Analysis Studio.

## Task 5. Create an analysis to answer your business questions.

1. Open Internet Explorer, and then browse to [http://<machine\\_name>/cognos8](http://<machine_name>/cognos8).  
IBM Cognos Connection opens.
2. If prompted, in the **User ID** box, type **admin**, and then, in the **Password** box, type **Education1!**.
3. On the IBM Cognos 8 page, click **IBM Cognos content**.  
IBM Cognos Connection opens.
4. Click **Sales\_Plan**, and then from the **Launch** menu, click **Analysis Studio**.
5. Click **Blank Analysis**, and then click **OK**.
6. Expand **Versions**, and then drag **Budget Version 1** to the **Context Filter** area.

7. Drag Months onto Columns.
8. Drag Subsidiaries onto Rows.
9. Expand Sales\_Plan\_Measures, GROSS MARGIN, NET SALES REVENUE and then drag GROSS SALES REVENUE to Measure.

The results appear as follows:

Rows:	Columns:	Context filter:			
TOTAL COMPANY	Total Year	Budget Version ...			
GROSS SALES REVENUE	Q1	Q2	Q3	Q4	Total Year
GO AMERICAS REGION	\$280,560,372.96	\$280,948,266.72	\$250,435,913.03	\$455,061,922.54	\$1,267,006,475
GO ASIA PACIFIC REGION	\$300,204,992.56	\$371,568,694.39	\$166,537,925.75	\$329,376,641.91	\$1,167,687,954
GO EUROPE GMBH	\$441,124,783.32	\$958,743,970.85	\$812,596,618.54	\$1,057,321,348.86	\$3,269,786,721
<b>TOTAL COMPANY</b>	<b>\$1,021,889,848.84</b>	<b>\$1,611,260,931.95</b>	<b>\$1,229,570,457.32</b>	<b>\$1,841,759,913.31</b>	<b>\$5,704,481,151</b>

10. Click Q1, to drill down and view the results for Jan, Feb, and Mar.

## Task 6. Create a nested analysis by Products, and add information about Channels.

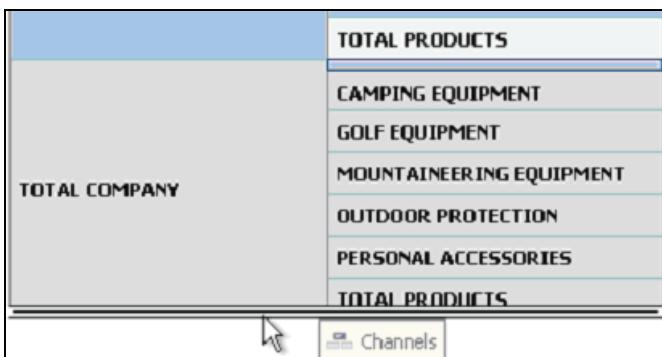
1. Drag Products to the edge of the GO AMERICAS REGION, as shown below:

GROSS SALES REVENUE
GO AMERICAS REGION
GO ASIA PACIFIC REGION
GO EUROPE GMBH
<b>TOTAL COMPANY</b>

You can now see the gross sales revenue by subsidiary and by product.

You also want to see the gross sales revenue by product in the same analysis.

2. Drag **Channels** below **Total Company**, as shown below:



The result appears as shown below:

<b>TOTAL COMPANY</b>	<b>CAMPING EQUIPMENT</b>	\$141,433,024.61	\$116,139,691.14	\$227,079,970.70
	<b>GOLF EQUIPMENT</b>	\$38,985,145.66	\$20,296,217.42	\$100,107,831.70
	<b>MOUNTAINEERING EQUIPMENT</b>	\$24,562,627.39	\$17,787,892.60	\$66,768,054.12
	<b>OUTDOOR PROTECTION</b>	\$2,474,304.05	\$1,056,145.57	\$5,536,589.33
	<b>PERSONAL ACCESSORIES</b>	\$69,708,018.63	\$53,586,698.37	\$136,367,637.55
	<b>TOTAL PRODUCTS</b>	\$277,163,120.35	\$208,866,645.09	\$535,860,083.40
Department Store		\$76,488,302.06	\$44,799,899.47	\$125,024,428.83
Direct Marketing		\$8,130,666.64	\$1,274,085.81	\$17,777,290.91
Equipment Rental Store		\$0.00	\$0.00	\$1,253,353.39
Eyewear Store		\$0.00	\$682,620.56	\$1,598,333.50
Golf Shop		\$24,617,787.03	\$9,711,743.96	\$71,459,256.21
Outdoors Shop		\$107,051,699.35	\$109,394,858.11	\$219,161,958.08
Sports Store		\$46,014,388.21	\$26,239,998.10	\$73,010,707.55
Warehouse Store		\$14,860,277.06	\$16,763,439.09	\$26,574,754.94
<b>ALL CHANNELS</b>		<b>\$277,163,120.35</b>	<b>\$208,866,645.09</b>	<b>\$535,860,083.40</b>

Notice that the total Gross Sales Revenue for All Channels is the same as the Gross Sales Revenue for Total Company, Total Products.

3. From the **File** menu, click **Save As** and in the **Name** box, type **Gross Sales Revenue**.
4. Click **Save**, and then close Analysis Studio.

## Results:

You went through the steps to publish the **Sales\_Plan** cube. You first ensured that your measure dimension was identified. Next you created a Framework Manager project, a data source, imported a TM1 cube, and then published a package. Finally, you created a simple analysis.

## Portlets Overview

- Portlets are a key component of Cognos Connection Portal Pages.
- They provide dashboard style pages capability.
- Multiple portlets provide different functionality on a single portal page.



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Portlets can be added to existing IBM Cognos Connection portal pages or used in conjunction with any other portlet option provided in IBM Cognos Connection.

## Portlet Options

- IBM Cognos TM1 Portlets include:
  - TM1 Cube Viewer for cube slicing
  - TM1 Navigation Viewer for running chores and processes
  - TM1 Websheet Viewer for TM1 Web views and active forms



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Cube viewer allows you to slice and dice the cube directly on the web. Cube viewer will allow a single cube in a portlet.

- You have a direct data entry interface in a cube viewer.
- You can share dimension filters if you have more than one portlet on a single page with the same dimensions

## Demo 2: Create a Portal with TM1 Web

### Purpose:

Rather than accessing TM1 Web from a separate location, your IBM Cognos 8 users want to access TM1 Web directly from IBM Cognos 8. In order to let them have this access, you will create a portlet page in IBM Cognos 8 that connects directly to TM1 Web.

### Task 1. Create portal page.

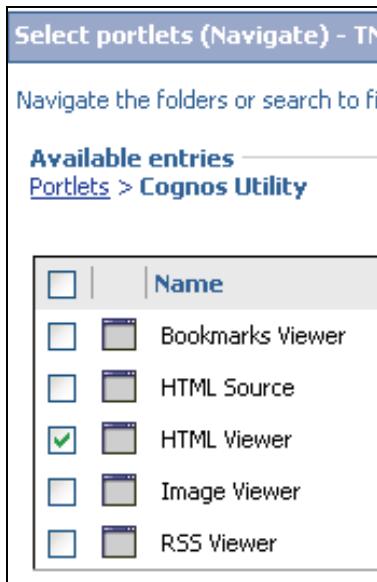
1. Double-click the **GreatOutdoors** server on the desktop, if it is not already started.
2. Start **TM1 Architect**.
3. In Server Explorer, right-click **Applications**, click **Create New Application**, type **Great Outdoors** and then press **Enter**.
4. Right-click **Great Outdoors**, point to **New** and then click **Application**.
5. Type **Salaries** and then press **Enter**.
6. Right-click the **Salaries** folder and then click **Add File**.
7. Navigate to **C:\Edcognos\P6502\GreatOutdoors\SourceFiles** select **Salaries and Overheads.xls**, at the bottom of the window, click the **Copy the File to the TM1 Server** radio button, and then click **Open**.
8. Right-click the **Great Outdoors** application folder, click **Security** and then click **Make Public**.
9. In IBM Cognos Connection, ensure that you are in **Public Folders > Sales Plan**, and then click **Refresh**.

You can see the Gross Sales Revenue analysis that you created earlier.

Note: A portal page has to be in a folder, or in a package, so you will save the portal to the **Sales\_Plan** package.

10. Click **New Page** , and then in the **Name** box type **TM1 Web**.
  11. Below **Location**, ensure that **Public Folders > Sales\_Plan** is selected, and then click **Finish**.
  12. Below **Actions**, click **Set Properties-TM1 Web** , and then click the **Layout and Content** tab.
- You only want a single column in the page.
13. Below **Number of Columns**, ensure **1 column**  is selected, and then click **Add**.
  14. Click **Cognos Utility**, and then select **HTML Viewer**.

The result appears as shown below:



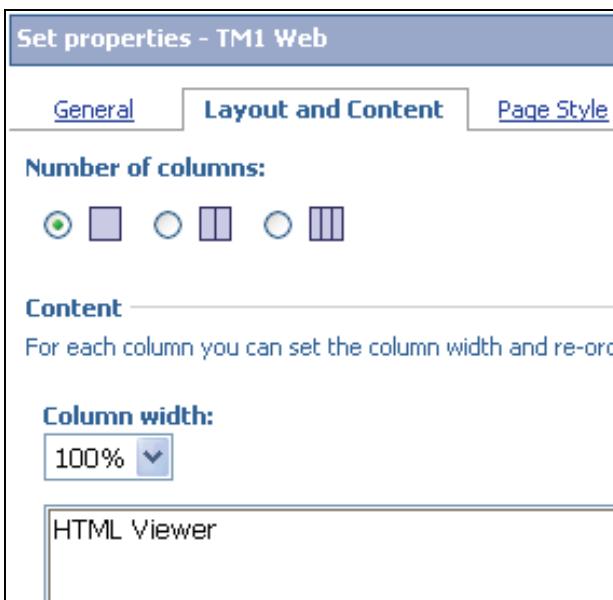
	Name
<input type="checkbox"/>	Bookmarks Viewer
<input type="checkbox"/>	HTML Source
<input checked="" type="checkbox"/>	HTML Viewer
<input type="checkbox"/>	Image Viewer
<input type="checkbox"/>	RSS Viewer

---

If you want to add a portal page that displays a cube in TM1, you need to install the fragment `tm1_win32_8.4.28.4.tar.gz`, included on your installation CD. You also need to add the file `Variables_TM1.XML` to your `<Cognos installation>\c8\templates\ps\portal` directory. More information about integration with Cognos 8 can be found in the TM1 Installation guide, available online.

15. Click Add , and then click **OK**.

The result appears as shown below:



16. Click **OK** again.

## Task 2. Add Content to a portal page.

1. In **IBM Cognos Connection**, click **TM1 Web**, and then click **Edit** .
2. Click **Use the URL**, and then in the **HTML content** box, type:  
**http://<machine\_name>/TM1Web**

You must type the actual machine name or IP address. Do not use localhost.

3. In the Height box, type **500**.

The result appears as shown below:

The screenshot shows the 'Set the properties - HTML Viewer' dialog box. It includes fields for Title (radio buttons for 'Use the URL' or 'Type the title'), Language (dropdown menu set to 'English (United States)'), Title (text input field), HTML content (text input field containing 'http://vclassbase/tm1web'), Channel name (text input field), View options (Height (pixels) set to 500), and OK/Cancel buttons.

Cognos Viewer - TM1 Web

Set the properties - HTML Viewer

Specify a URL address to display. You can also specify

**Title:**

Use the URL  
 Type the title:

**Language:**

English (United States)

**Title:**

**HTML content:**

Type a URL address, such as [http://www.my\\_page.c](http://www.my_page.c)

http://vclassbase/tm1web

**Channel name:**

Specify a channel name for this portlet if you want to

**View options**

**Height (pixels):**

500

OK Cancel

4. Click **OK**.

5. In the **Admin Host** box, type **localhost**, and then in the **User Name** box, type **admin**.

TM1 Web appears in a portlet page as shown below:

The screenshot shows a 'Log In' form with the following fields and instructions:

- Admin Host:** An input field.
- TM1 Server:** A dropdown menu set to "greatoutdoors" with a "Refresh" button next to it.
- User Name:** An input field containing "admin".
- Password:** An input field.
- A note at the bottom left: "Please note that after some time of inactivity, the system will log you out automatically and ask you to sign in again."
- A blue "Log In" button at the bottom left.
- Copyright information at the bottom right: "Licensed Materials - Property of IBM Corp. © Copyright IBM Corporation and its licensors 2007, 2009. IBM, the IBM logo, TM1 and Cognos are trademarks of IBM Corp., registered in many jurisdictions worldwide."

### Instructor Notes

If your screen refreshes repeatedly, close IBM Cognos 8, and open the TM1 Web portal page again.

6. Click **Log In**, expand **Views > Expenses**, and then click **Go Americas Expenses**.

The result appears as shown below:

The screenshot shows a TM1 Web interface within the IBM Cognos Connection environment. On the left, there is a navigation tree under the 'Views' category, listing various expense-related items like 'TOTAL COMPENSATION', 'BENEFITS', 'SALARIES', and 'TOTAL EXPENSES'. The main area displays a monthly financial report for 'TOTAL EXPENSES' across the months of Jan through May. The report includes columns for 'Total Year' and individual months. The data shows a total of \$3,000,000.00 for the year, with breakdowns for benefits like Health Insurance and Pension Plan, and salaries for Commission, Salaries: direct, and Salaries: indirect.

	Total Year	Jan	Feb	Mar	Apr	May
<b>TOTAL EXPENSES</b>	\$43,399,250.10	\$3,907,045.55	\$2,219,795.20	\$3,922,576.03	\$4,179,543.56	\$2,712,943.21
<b>BENEFITS</b>						
HEALTH INSURANCE	\$27,692,148.11	\$2,492,119.88	\$1,420,654.33	\$2,501,982.30	\$2,665,166.06	\$1,733,821.32
PENSION PLAN	\$14,607,604.85	\$1,315,880.87	\$743,201.01	\$1,321,152.17	\$1,408,371.07	\$910,583.36
SOCIAL SECURITY	\$8,324,764.06	\$749,910.60	\$423,544.66	\$752,914.67	\$802,620.07	\$518,934.60
Workers Compensation	\$361,790.64	\$30,149.22	\$30,149.22	\$30,149.22	\$30,149.22	\$30,149.22
<b>SALARIES</b>						
Commission	\$15,707,101.99	\$1,414,925.67	\$799,140.87	\$1,420,593.73	\$1,514,377.50	\$979,121.90
Salaries: direct		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Salaries: indirect		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>TOTAL EXPENSES</b>	\$3,000,000.00	\$230,769.23	\$230,769.23	\$288,461.54	\$230,769.23	\$230,769.23

This is TM1 Web, but you are still in IBM Cognos Connection, using the functionality of an IBM Cognos Connection Portal page.

You can now change the orientation of the view as you would a portal page.

7. Close Cognos Viewer, TM1 Web, TM1 Architect, and then shutdown the TM1 Server for greatoutdoors, saving changes if prompted.

## Results:

You created a portal page in IBM Cognos 8 that connects directly to TM1 Web.

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## Examine IBM Cognos 8 Planning

- IBM Cognos Planning provides the ability to plan, budget, and forecast in a collaborative, secure manner.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Full Year
TOTAL ASSETS	8,274	8,274	8,274	8,274	8,274	8,274	8,274	8,274	8,274	8,274	8,274	8,274	99,287
Fixed assets: automotive	803	803	803	803	803	803	803	803	803	803	803	803	9,632
Fixed assets: computer hardware	455	455	455	455	455	455	455	455	455	455	455	455	5,458
Fixed assets: computer software	401	401	401	401	401	401	401	401	401	401	401	401	4,816
Fixed assets: equipment	535	535	535	535	535	535	535	535	535	535	535	535	6,422
Fixed assets: fixtures	1,338	1,338	1,338	1,338	1,338	1,338	1,338	1,338	1,338	1,338	1,338	1,338	16,054

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Using IBM Cognos Planning, you can:

- define your goals
- model what-if scenarios
- connect Finance with other departments
- communicate plans enterprise-wide
- adjust targets, plans, and resource allocations

### Instructor Notes

Cognos Planning helps you answer a fundamental performance management question: "What should we be doing?"

# IBM Cognos 8 Planning Components

- When working with IBM Cognos Planning, you can make use of:
  - Analyst
  - Contributor
  - Manager



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Analyst: dynamic data modeling.

Contributor: collect and distribute data via the Web, involving thousands of contributors, by deploying grids for data entry.

Manager: create flowcharts, interactive front-ends, tables, and graphs from Analyst models.

## Instructor Notes

With the Planning Server install, Event Studio and Cognos Connection are included.

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# Build Models in Analyst

- In Analyst, you build models consisting of external data sources that feed into multidimensional cubes.

The diagram illustrates the data flow in IBM Cognos Analyst. It starts with an 'External Data Source' (Sales plan.csv) which feeds into a 'Price and cost.csv' step. This step then feeds into both a 'General Sales plan' and a 'Sales plan' step. The 'Sales plan' step also receives input from the 'General Sales plan'. A red arrow points from the 'Price and cost.csv' step to a 'Model Flowchart in Manager' window. This window shows the flow between 'Sales plan.csv', 'Price and cost.csv', 'General Sales plan', and 'Sales plan'. A second red arrow points from the 'Sales plan' step to a 'D-Cube' window titled '[D-Cube] great outdoors analyst.Price and cost'. The 'D-Cube' window displays a table of price and cost data for various products:

	Unit sale price	Unit cost
Cooking Gear	40.31	29.87
Lanterns	29.12	21.14
Packs	175.37	126.51
Sleeping Bags	103.83	78.01
Tents	453.41	385.04
Golf Accessories	60.68	28.37
Irons	598.90	345.95

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The Analyst model contains the structure of your budget, plan, or forecast. This consists of:

- What you collect (sales data, compensation information, capital expenditure requirements, and so on).
- How you collect it (by month, by division, by distribution channel, by employee, by product - alone or in combination, and so on).
- How you calculate it (simple summations, gross margin, net income, and so on).

## Deploy Applications using Contributor

- After the model has been built in Analyst, you can use it as the basis for Contributor applications.
- Contributor is a Web-based planning platform that can involve thousands of people in the planning process.



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You can use a Contributor application to collect data from managers and others in multiple locations.

Many users can work simultaneously because Contributor is optimized for end-user performance.

Using an Intranet or secure Internet connection, you review only what you must review and enter data only where you are authorized.

There is a Contributor database for development and production applications. You can also publish the data to a separate database.

You can use IBM Cognos 8 business intelligence tools (such as Report Studio) to analyze and create reports from data in the Contributor application.

## Use TM1 Data in an IBM Cognos Planning Application

- To bring data from TM1 into a IBM Cognos Planning application:
  1. Create a Framework Manager model and import TM1 metadata into the model.
  2. Create a IBM Cognos 8 package that uses the TM1 metadata.
  3. Use the package as an import source in Analyst and Contributor.



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For example, you can use a TM1 package as a source for a D-Link in Analyst, or an admin link in Contributor.

## Use IBM Cognos Planning Data in a TM1 Application

- To bring data from IBM Cognos Planning into a TM1 application:
  1. Publish IBM Cognos Planning data from Analyst or Contributor to a publish container.
  2. Use an extract-transform-load (ETL) tool, such as TurboIntegrator or IBM Cognos 8 Data Manager, to pull data from the publish container into the TM1 application.



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To access the IBM Cognos Planning data in Turbo Integrator, you must point to the appropriate ODBC DSN.

Data Manager is a very powerful ETL tool, but it requires a separate license.

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## Summary

- At the end of this module, you should be able to:
  - integrate TM1 cubes within a IBM Cognos 8 business intelligence (BI) environment
  - integrate IBM Cognos TM1 in IBM Cognos 8 BI portals
  - describe how to use TM1 data in an IBM Cognos 8 Planning application
  - describe how to use IBM Cognos 8 Planning data in a TM1 application

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**Information Management**



# Design for Reporting

IBM Cognos TM1 9.5



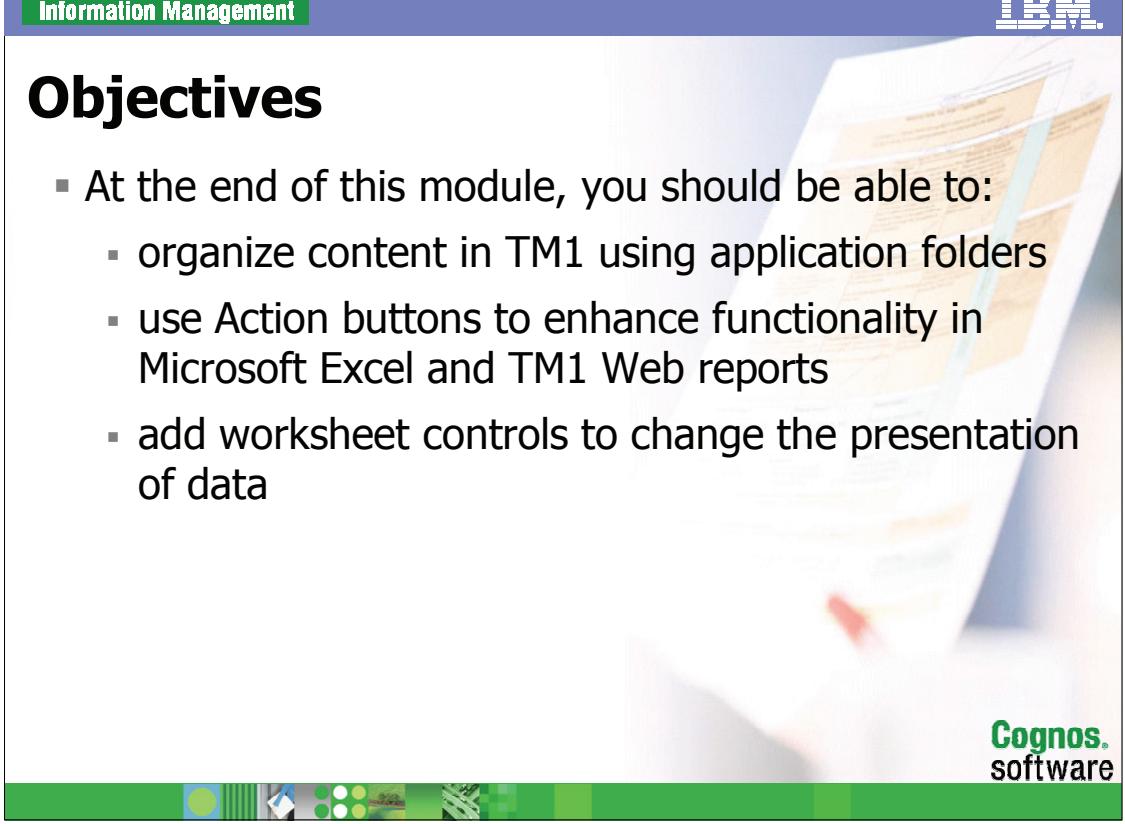
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# Objectives

- At the end of this module, you should be able to:
  - organize content in TM1 using application folders
  - use Action buttons to enhance functionality in Microsoft Excel and TM1 Web reports
  - add worksheet controls to change the presentation of data



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## Organize Content in a TM1 Application

- A TM1 application is a virtual folder with references to:
  - TM1 objects (such as chores, cubes, dimensions, or processes)
  - files
  - URLs in a logical, job-specific grouping



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You insert TM1 objects, files, and URLs into an application by creating a shortcut or reference. Applications and references provide a quick and organized way to open the target objects to which the references point.

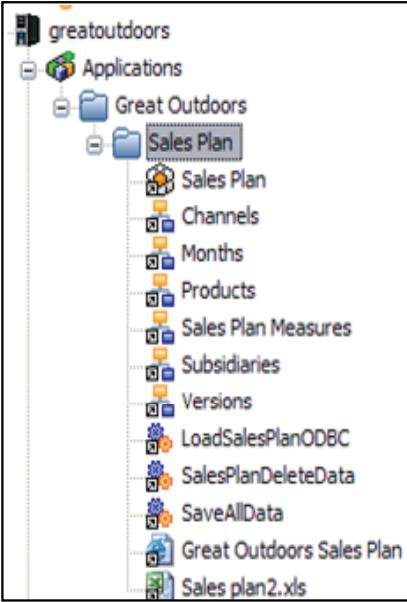
If you delete the reference from an application, the corresponding source object is not affected.

If you delete a source object, you break the reference. The reference remains, but it is not functional.

Note: If you delete a reference to an uploaded file, TM1 deletes the uploaded copy of the file from the TM1 server.

Information Management 

# Using Application Folders: Example



**TM1 application**

**TM1 objects**

**URL reference**

**File reference**

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In the above example, the Great Outdoors application, organizes all TM1 objects and related files for the sales organization.

The XLS file is a shortcut to the file location, if you delete it, the file remains in the original location and only she shortcut is removed.

## Demo 1: Add TM1 Objects and External Files to an Application

### Purpose:

You want to create a new application to organize the data that corresponds to the Sales\_Plan cube. You will include the dimensions, cube, processes and flat files that were used to load the data in the same application folder. Finally, you will make the application public.

### Task 1. Login to greatoutdoors TM1 server and create a new application.

TM1 Server: **greatoutdoors**

TM1 - Perspectives: Server Explorer

UserName: **admin**

Password: <blank>

1. Ensure that the greatoutdoors TM1 server is started in the task bar, and then launch **Perspectives for Microsoft Excel**.
2. On the menu bar, click **TM1** and then click **Server Explorer**.
3. Expand **TM1**, double-click **greatoutdoors**, in the **UserName** box, type **admin**, and then click **OK**.
4. Expand **Applications**, right-click **Great Outdoors**, point to **New**, and then click **Application**.
5. In the New Folder box, type **Sales\_Plan** and then press **Enter**.
6. Right-click **Sales Plan**, and then point to **New**.

You have the option of creating new applications, chores, cubes, dimensions and processes. You do not want to do that. Instead, you want to create a shortcut to TM1 objects that have already been created.

## **Task 2. Create shortcuts to TM1 objects.**

1. Drag the **Sales\_Plan** cube to the **Sales Plan** application.
2. Drag the following dimensions to the **Sales Plan** application:
  - **Subsidiaries**
  - **Channels**
  - **Products**
  - **Months**
  - **Versions**
  - **Sales\_Plan\_Measures**

Note: The dimensions will appear in alphabetical order and not the order in which you copy them.

3. Drag the following processes to the application:
  - **LoadSalesPlanODBC**
  - **SalesPlanDeleteData**
  - **SaveAllData**

All the TM1 objects appear as shortcuts with a little gold key.

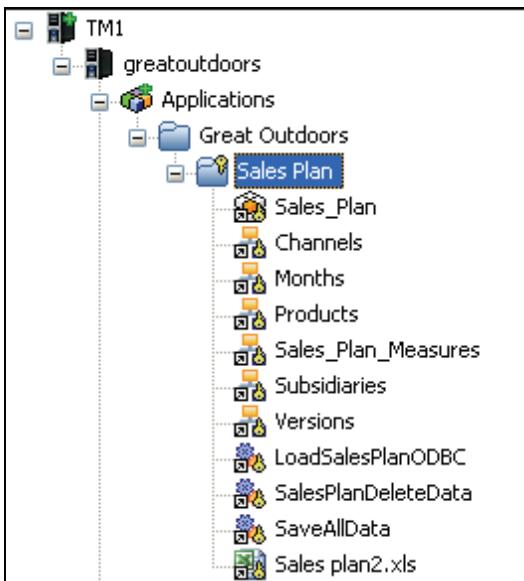
## **Task 3. Add an external file and make the application public.**

1. Right-click the **Sales Plan** application and then click **Add File**.
2. In the Look in box, browse to  
**C:\Edcognos\P6502\GreatOutdoors\SourceFiles**.
3. Click **Sales plan2.xls** and then click **Open**.

You get the message that others will not be able to view the file because the network path could not be established.

4. Click **OK**.

The result appears as follows:



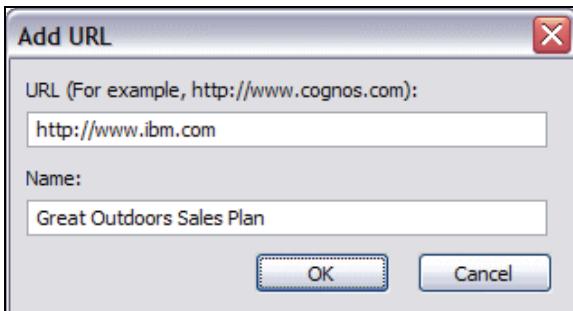
You want to make the application public so others can view the application and its contents.

5. Right-click the **Sales Plan** folder, click **Security**, and then click **Make Public**.

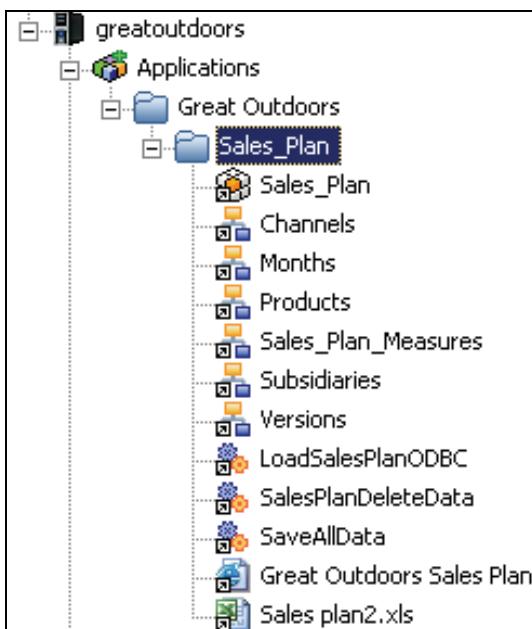
The little gold key beside every object in the application folder disappears.

## Task 4. Add a URL to an application.

1. Right-click the **Sales Plan** application and then click **Add URL**.
2. In the URL box, after **http://**, type **www.ibm.com**.
3. In the Name box type **Great Outdoors Sales Plan**.



4. Click **OK**.



Besides organizing information in the Server Explorer window, many objects in application folders are available to TM1Web.

5. Open Internet Explorer.
6. In the Address bar type **localhost/TM1Web** (in a Cognos classroom you can use <computername>/TM1Web).

The results appear as follows:

The screenshot shows the 'Log In' page for IBM TM1 Web. The page has a light blue background with a grid pattern. At the top, it says 'Log In' and 'Please enter your information'. Below that, there is a section for 'Admin Host' with an empty input field. Under 'TM1 Server', there is a dropdown menu set to 'greatoutdoors' with a 'Refresh' button next to it. The 'User Name' field contains 'admin'. The 'Password' field is empty. A note at the bottom left states: 'Please note that after some time of inactivity, the system will log you out automatically and ask you to sign in again.' A large 'Log In' button is centered at the bottom. At the very bottom, there is a copyright notice: 'Licensed Materials - Property of IBM Corp. © Copyright IBM Corporation and its licensors 2007, 2009. IBM, the IBM logo, TM1 and Cognos are trademarks of IBM Corp., registered in many jurisdictions worldwide.'

7. In the TM1 Server list, click **greatoutdoors**.

---

Step 5: Ensure the World Wide Web Publishing service has been started.

8. In the **User Name** box type **admin** (no password).
9. Click **Log In**.
10. Expand **Applications**, expand **Great Outdoors** and then expand **Sales\_Plan**.

The result appears as follows:



Dimensions do not appear on the web because you cannot edit them here. The Subset Editor is available from within the web Cube Viewer. Processes aren't listed in Application folders but may be run from the Administration area.

11. Click the **Sales\_Plan** cube.

The results appear as follows:

Rows:	Columns:	Context:			
Sales_Plan_Measures [Sales_Plan_Measures]	Months [Months]	TOTAL COMPANY [Subsidiaries]	ALL CHANNELS [Channels]	Lanterns [Products]	> 1
Quantity	Jan	Feb	Mar	Apr	May
\$429,208.00	\$252,272.00	\$752,814.00	\$1,015,598.00	\$539,266.00	
Unit Sale Price	\$29.49	\$28.90	\$29.22	\$29.00	\$29.18
GROSS SALES REVENUE	\$12,657,028.38	\$7,290,929.90	\$22,000,896.15	\$29,454,064.35	\$15,736,437.52
Returns and Allowances	\$554,201.70	\$325,925.68	\$959,297.64	\$1,270,925.76	\$673,272.82
Cash Discount	\$409,972.30	\$241,104.80	\$709,642.15	\$940,171.92	\$498,054.22
Volume Discount	\$267,268.39	\$157,180.75	\$462,628.60	\$612,913.78	\$324,690.57
<b>+ TOTAL DISCOUNTS AND ALLOWANCES</b>	<b>\$1,231,442.39</b>	<b>\$724,211.23</b>	<b>\$2,131,568.39</b>	<b>\$2,824,011.46</b>	<b>\$1,496,017.61</b>
Freight	\$1,274,663.86	\$749,629.12	\$2,206,384.57	\$2,923,129.32	\$1,548,527.49
<b>+ NET SALES REVENUE</b>	<b>\$10,150,922.13</b>	<b>\$5,817,089.55</b>	<b>\$17,662,943.19</b>	<b>\$23,706,923.57</b>	<b>\$12,691,892.42</b>
Unit Cost	\$21.41	\$20.98	\$21.22	\$21.05	\$21.18
COST OF SALES	\$9,188,515.80	\$5,292,934.69	\$15,971,804.42	\$21,382,517.87	\$11,424,048.39
<b>+ GROSS MARGIN</b>	<b>\$962,406.34</b>	<b>\$524,154.86</b>	<b>\$1,691,138.77</b>	<b>\$2,324,405.70</b>	<b>\$1,267,844.03</b>
GROSS MARGIN %	0.00	0.00	0.00	0.00	0.00
Seasons					

12. Log out of **TM1Web**, close Internet Explorer and close **Microsoft Excel**.

### Results:

You wanted to create a new application to organize the data that corresponds to the **Sales\_Plan** cube. You included the dimensions, cube, processes, a URL and flat file that was used to load the data in the same application folder. You then made the application public. You then saw what was available through **TM1Web**.

## Build Worksheets with Action Buttons

- You can insert a TM1 Action button into an worksheet to let users:
  - run a TurboIntegrator process and/or
  - navigate to another worksheet.
- Users access these buttons:
  - with worksheets in Microsoft Excel with TM1
  - with Websheets in TM1 Web.



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### INTERACTION - Star Sticker:

Next to the bullet point as it is discussed.

## Add an Action Button to a Worksheet

- You can insert an Action button from the:
  - TM1 menu
  - TM1 Standard toolbar in Microsoft Excel.



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**INTERACTION - Text Chat:** Does anyone currently use Action Buttons? Can anyone think of an example of where they might use one?

## Demo 2: Add an Action Button to a Worksheet

### Purpose:

You want to add an Action button to run the SaveAllData Turbo Integrator process from a worksheet, and then verify that the button worked.

### Task 1. Create a worksheet with Sales\_Plan data.

1. On the desktop, double-click **TM1 Perspectives for Microsoft Excel**.
2. Log on to the **GreatOutdoors** server as **admin**.
3. In Server Explorer, double-click the **Sales\_Plan** cube.
4. Place the dimensions in the following locations with selected elements:

Title: **Subsidiaries: Total Company, Channels: All Channels, Products: Total Products, Versions: Budget Version 2**

Row: **Sales\_Plan\_Measures: collapse consolidations**

Column: **Months: Months (subset)**

The result appears as follows:

TOTAL COMPANY	▼	ALL CHANNELS	▼
TOTAL PRODUCTS	▼	Budget Version 2	▼
<b>Months</b>			
Sales_Plan_Measu	Jan	Feb	Mar
Quantity	\$1,402,919.00	\$1,092,201.00	\$3,789,866.00
Unit Sale Price	\$100.89	\$96.62	\$101.55
GROSS SALES REV	\$141,535,812.50	\$105,526,057.31	\$384,878,877.90
Returns and Allow.	\$6,187,154.88	\$4,636,994.38	\$16,451,877.79
Cash Discount	\$4,576,971.82	\$3,430,232.78	\$12,170,337.50
Volume Discount	\$2,983,807.70	\$2,236,228.70	\$7,934,061.47
+ TOTAL DISCOUNT	\$13,747,934.40	\$10,303,455.86	\$36,556,276.76
Freight	\$14,230,456.25	\$10,665,086.91	\$37,839,318.80
+ NET SALES REVENUE	\$113,557,421.85	\$84,557,514.54	\$310,483,282.34
Unit Cost	\$67.68	\$65.17	\$65.86
COST OF SALES	\$94,949,802.76	\$71,174,386.40	\$249,616,214.73
+ GROSS MARGIN	\$18,607,619.08	\$13,383,128.14	\$60,867,067.61
GROSS MARGIN %	0.00	0.00	0.00
Seasons			

5. On the toolbar, click **Active Form** .

The cube opens in a worksheet with formulas that pull in values from the Sales\_Plan cube.

Beside each dimension, in the cell where the specific element is named, is a SUBNM function. This indicates a title dimension in the target worksheet. The dimension is named in the SUBNM function.

Every data cell contains a DBRW function, which indicates that data values are being read and written to the database.

## Task 2. Change the dimensions being viewed.

You want to make a change to the Gross Sales Revenue for the Go Americas.

1. In Microsoft Excel, double-click **TOTAL COMPANY**, in the Subset Editor, expand **GO AMERICAS REGION**, click **GO Americas**, and then click **OK**.
2. Double-click **ALL CHANNELS**, and in the Subset Editor, click **Department Store**, and then click **OK**.
3. Double-click **TOTAL PRODUCTS**, and in the Subset Editor, click **Cooking Gear**, and then click **OK**.
4. Click **Recalculate** , and then, in the cell for **Quantity for January**, type **500**, and then press **Enter**.

When you have completed entering all data into your worksheet, you want the values to be saved to the server (they are currently only in memory until the server is shut down or saved to it), so you will create an action button to do this.

## Task 3. Create Action Button.

1. In Microsoft Excel, click cell **G11**, and then from the **TM1** menu, click **Insert Action Button**.

The Action Button Properties window appears.

Below Action, you set what kind of action you want: whether you will run a Turbo Integrator process, whether to go to another Worksheet or both.

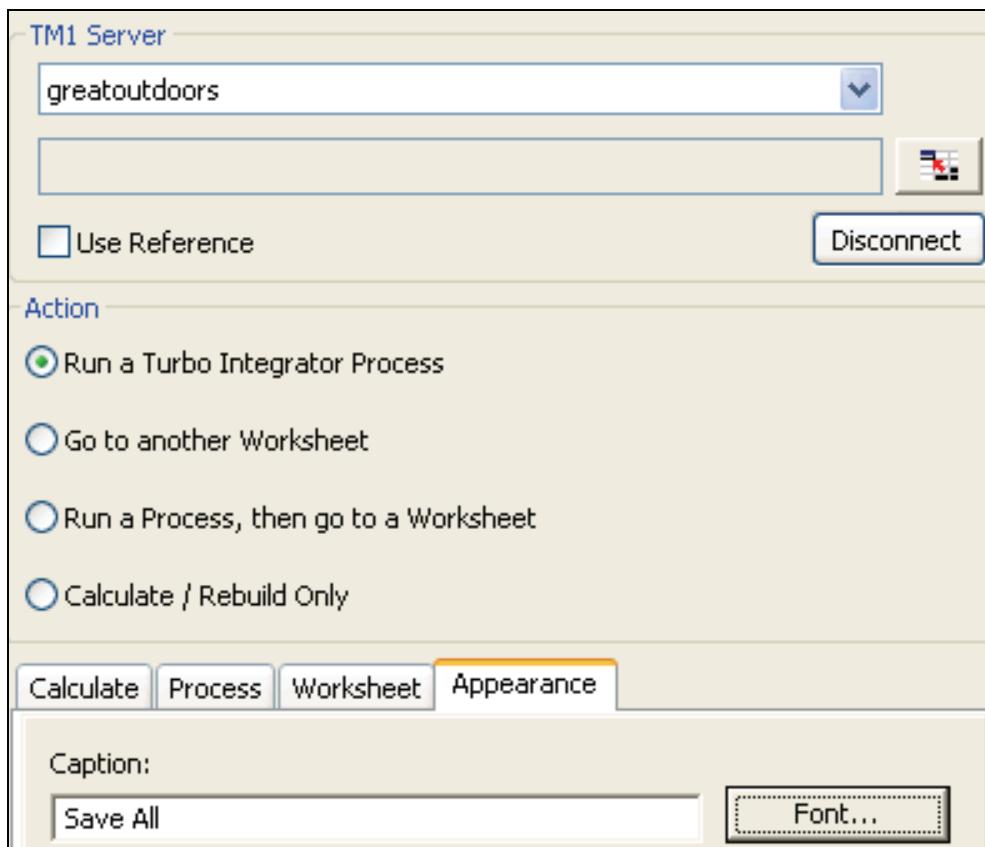
On the lower half of the window, on the Process tab, you select a TurboIntegrator process on your server.

2. Below Process, click **SaveAllData**.
3. Click the **Worksheet** tab.

On the Worksheet tab, you indicate which worksheet you want to go to, and where you want to go on the worksheet. This tab is grayed, because you have selected the default, Run a Turbo Integrator Process.

4. Click the **Appearance** tab, in the **Caption** box, type **Save All**.

The result appears as follows:



On the Appearance tab, you can change the caption text and font. You can also have an image appear on your button, or have it appear as a link.

5. Click **OK**.

The results appear as follows:

The screenshot shows a Microsoft Excel window titled "Microsoft Excel - Sheet1". The data is organized into several sections:

- Section 1:** Rows 10 to 14 contain category names: "Subsidiaries" (GO Americas), "Channels" (Department Store), "Products" (Cooking Gear), and "Versions" (Budget Version 2). The "Save All" button is highlighted.
- Section 2:** Rows 17 to 22 show financial data across five months (Jan to May). The data includes:
 

	Jan	Feb	Mar	Apr	May
Quantity	500	3130	11304	4468	12
Unit Sale Price	43.596	43.596	43.596	43.596	43.5
GROSS SALES REVENUE	21798	136455.48	492809.184	194786.928	54015.4
Returns and Allowances	23821.31	5955.33	21506.56	8501.58	2356
Cash Discount	17621.91	4405.41	15909.48	6289.16	174
- Section 3:** A summary row at the bottom shows the total values for each month.

## Task 4. Use Action button, and then verify.

1. Click the **Save All** action button.

You will get the message that the process completed successfully.

2. Click **OK**.
3. Open Windows Explorer and navigate to **C:\Edcognos\P6502\GreatOutdoors\DataFiles**.

4. Locate **Sales\_Plan.cub** and check the date and timestamp on this file.

The timestamp should reflect the current machine time. If you had not used the Action button to save the data to the server, this file would have a much earlier timestamp.

5. Save the worksheet as **Sales Plan Active Form.xls** in the **C:\Edcognos\P6502\GreatOutdoors\DataFiles** folder.
6. Click **Yes**, if prompted to overwrite an existing file, and then close Windows Explorer.

Leave the Sales\_Plan cube open for the next demo.

**Results:**

**You added an Action button to run the SaveAllData TurboIntegrator process from a worksheet, and then verified that the button worked.**

## Use Worksheet Controls to Present Data

- You can add controls to your Microsoft Excel spreadsheet to let users quickly see what they want to see.
- You can use Microsoft Excel worksheet controls to:
  - select data
  - use functions
  - create charts
  - format data

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**INTERACTION - Toolbar Emoticons > Yes/No:** Ask if anyone has used worksheet controls. You can also use the microphone and ask for examples.

## Use Controls for Data Validation

- You can create a drop-down list that gets its choices from cells:
  - on the same worksheet
  - on another worksheet
- Use the control to:
  - make data entry easier, or
  - limit entries to the items that you have defined

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**INTERACTION - X Sticker:** To identify the bullet point as it is discussed.

## Use Toolbars to Add Controls

- Two Microsoft Excel toolbars that you can use to add controls:
  - Control Toolbox
  - Forms



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Using the Control Toolbox or the Forms toolbar, you can add other controls such as:

- buttons
- lists
- checkboxes

Controls work slightly differently depending on the toolbar selected. For example, if you use the Combo Box from the Forms toolbar, you must use a VLOOKUP function to retrieve the actual function in the list.

## Demo 3: Add a Data Validation Control to a Microsoft Excel Spreadsheet

### Purpose:

You want to make it easier for users to switch between different budget versions while working with TM1 data in a cube. You will add a list that makes it easier to switch between available versions.

### Task 1. Create a slice, and then create a list of dimension elements.

1. With the **Sales\_Plan** cube open, click **Slice** .
2. In Microsoft Excel, resize columns **A** and **B**, so you can see the contents of the cells.  
You want to create a drop-down list that makes it easy to switch between Budget Version 1 and Budget Version 2.
3. From the **Insert** menu, click **Worksheet**, and then drag **Sheet2** to the right of **Sheet1**.
4. Open **TM1 - Perspectives: Server Explorer**, within **Dimensions**, double-click **Versions**.
5. Select **Budget Version 1** and **Budget Version 2**, and then from the **Edit** menu click **Copy**.
6. In Excel, on **Sheet2** in cell **A1**, click **Paste**.
7. Select the **cells**, in the **Name Box**, type **Versions**, and then press **Enter**.

## Task 2. Create a Data Validation list.

1. Click **Sheet1**, and then click **Budget Version 2** (cell B5).
2. From the **Data** menu, click **Validation**, and then in the **Allow** box, click **List**.
3. In the **Source** box, type **=Versions**.
4. Click **OK**.

A drop-down list appears beside Budget Version 2.

The screenshot shows a Microsoft Excel window titled "Microsoft Excel - Sheet2". The menu bar includes File, Edit, View, Insert, Format, Tools, Data, Window, TM1, and Help. The toolbar includes standard icons for file operations, font, and alignment. The status bar at the bottom shows "Ready" and "Calculate".

In the spreadsheet area, cell B5 contains the formula `=SUBNM("greatoutdoors:Versions","","Budget Version 2")`. The cell B5 is highlighted with a yellow background. A dropdown arrow is visible to the right of the cell, indicating it is active. The dropdown menu lists several items:

	A	B	C	D
1	CUBE:	greatoutdoors:Sales_Plan		
2	<b>Subsidiaries</b>	TOTAL COMPANY		
3	<b>Channels</b>	ALL CHANNELS		
4	<b>Products</b>	TOTAL PRODUCTS		
5	<b>Versions</b>	Budget Version 2		
6				
7				
8		Jan	Feb	Mar
9	Quantity	1390900	1092201	3789866
10	Unit Sale Price	101.3817184	96.61779957	101.5547457
11	GROSS SALES REVENUE	141011832.2	105526057.3	384878877.9
12	Returns and Allowances	6187154.88	4636994.38	16451877.79
13	Cash Discount	4576971.82	3430232.78	12170337.5
14	Volume Discount	2983807.7	2236228.7	7934061.47

The dropdown menu is currently open, showing "Budget Version 2" as the selected item. The rest of the sheet contains financial data for January, February, and March.

### Task 3. Test the list box.

- Click the arrow beside **Budget Version 2**, select **Budget Version 1**, and then press **F9** to recalculate.

The data refreshes immediately. You can also use Shift-F9 to recalculate just the active worksheet as F9 recalculates all worksheets in a workbook.

The result appears as shown below:

A screenshot of Microsoft Excel version 2003 titled "Microsoft Excel - Sheet2". The window includes standard toolbars and menus like File, Edit, View, Insert, Format, Tools, Data, Window, TM1, and Help. The ribbon bar shows "Load <- Press Load" and "All Tasks Status Customize Help". The formula bar displays "B5" and "Budget Version 1". The main spreadsheet area has columns A, B, C, and D. Row 1 contains "CUBE:" and "greatoutdoors:Sales\_Plan". Rows 2 through 5 list categories: "Subsidiaries", "Channels", "Products", and "Versions". The "Versions" row is selected, and its value "Budget Version 1" is displayed in the formula bar and highlighted in a dropdown list box. Row 6 is blank. Rows 7 and 8 are also blank. Rows 9 through 14 list financial metrics: "Quantity", "Unit Sale Price", "GROSS SALES REVENUE", "Returns and Allowances", "Cash Discount", and "Volume Discount". The "Sheet1" tab is selected at the bottom of the window.

- Click any other cell.

The arrow disappears.

3. Select cell **B5**.

The arrow reappears.

4. Save the form as

**C:\Edcognos\P6502\GreatOutdoors\Sales\_Plan\_Data\_Validation.xls**.

Leave the report open for the next demo.

### **Results:**

**You made it easier for users to switch between different budget versions while working with TM1 data in a cube. You added a drop-down list that makes it easier to switch between available versions.**

## Format Reports

- You want to draw attention to the most important information in your report first.
- How you present this information will vary greatly from one organization to the next.
- Some common techniques include:
  - changing the font color
  - changing the background color
  - adding underlining
  - creating a custom menu to quickly present reports

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**INTERACTION - Whiteboard:** put up a whiteboard and ask participants to share the most frequently used formatting options they see in their models.

## Demo 4: Change the Formatting on a Report and Create a Custom Menu

### Purpose:

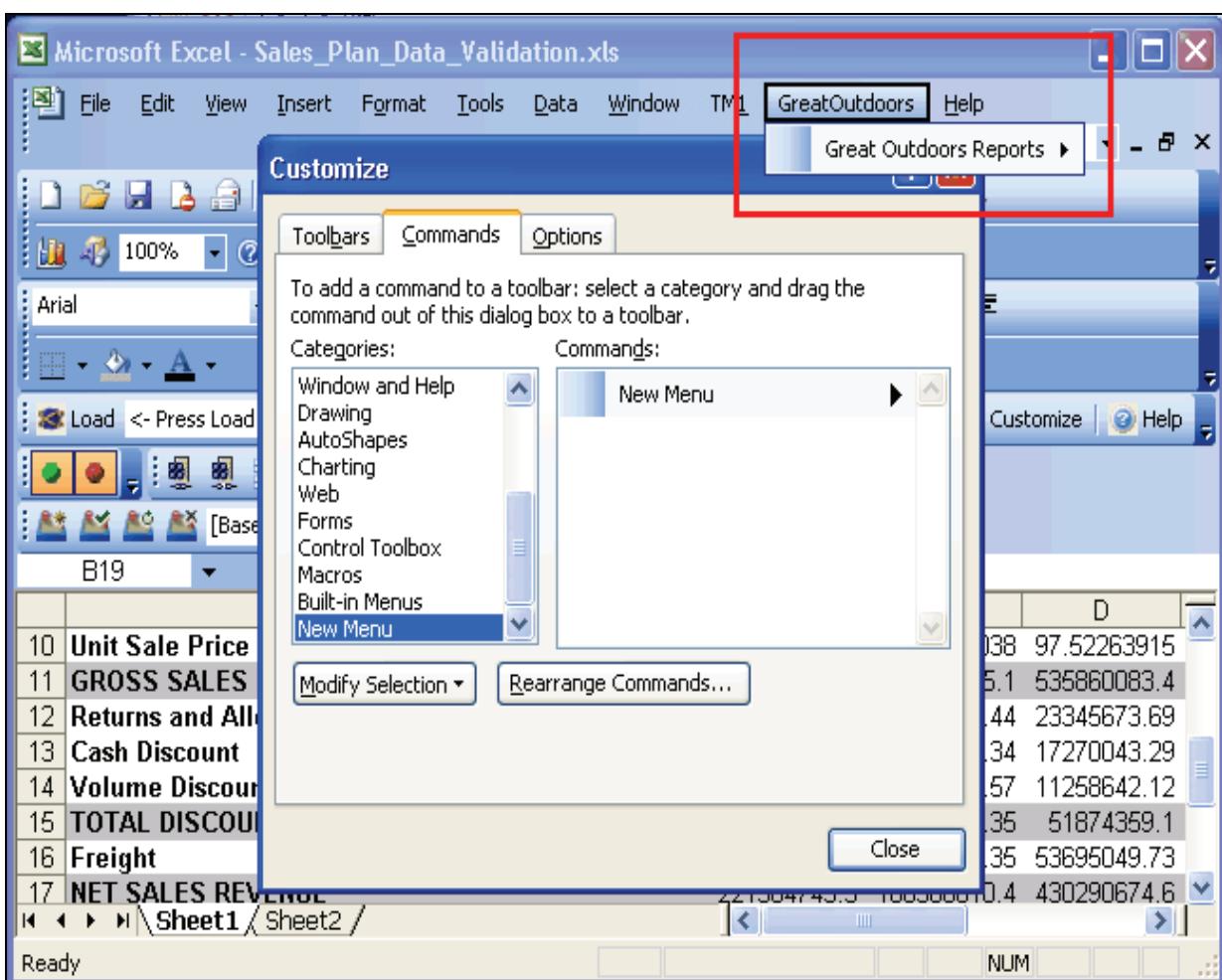
You want to change the formatting on a report to make the report more readable and to emphasize totals.

### Task 1. Add formatting to a report.

1. In Excel, with the **Sales\_Plan\_Data\_Validation.xls** report open, select **A1** to **A22**, and then on the toolbar click Bold 
2. Select cells **B8** to **M8** and bold them.
3. Select **A11** to **M11** (GROSS SALES REVENUE), from the **Format** menu, click **Cells**, and then click the **Patterns** tab.
4. Under **Color**, click **Gray - 25%**.  
Gray - 25% is in the last column, second to last (above white).  
The row color appears shaded.
5. Repeat steps 3 and 4 for
  - **A15 to M15 (TOTAL DISCOUNTS AND ALLOWANCES)**
  - **A17 to M17 (NET SALES REVENUE)**
6. From the **Tools** menu, click **Options**.
7. On the **View** tab, clear the checkbox for **Gridlines** and **Sheet tabs**, and then click **OK**.

## Task 2. Add a customized menu.

1. From the **Tools** menu, click **Customize**, and then click the **Commands** tab.
2. In the **Categories** list, scroll down and then click **New Menu**.
3. Under **Commands**, drag the new menu icon into the Excel toolbar between **TM1** and **Help**.
4. With the **Customize** dialog box still open, right-click **New Menu**.
5. In the **Name** box, delete **New Menu**, and type **GreatOutdoors**, and then press **Enter**.
6. In the **Customize** box, drag **New Menu** below **Great Outdoors**.
7. Right-click **New Menu**, and change the name to **Great Outdoors Reports**.



You want to be able to open Sales\_Plan\_Action\_Button.xls from this menu.

8. In the **Customize** box, under **Categories**, scroll up, and then click **File**.
  9. Under **Commands**, drag **Open** beside **Great Outdoors Reports**.
  10. Right-click **Open**, and change the **Name** to **Sales\_Plan\_Data\_Validation.xls**, and then press **Enter**.
  11. Right-click **Sales\_Plan\_Data\_Validation.xls**, click **Assign Hyperlink**, and then click **Open**.
  12. Click **Recent Files** and then click **C:\Edcognos\P6502\GreatOutdoors\Sales\_Plan\_Data\_Validation.xls**, and then click **OK**.
  13. Click **Close** in the Customize box.  
Next you want to test the menu.
14. From the **File** menu, click **Close**, saving if prompted.
  15. From the **Great Outdoors** menu, point to **Great Outdoors Reports**, and then click **Sales\_Plan\_Data\_Validation.xls**.

16. If prompted, click **Yes** to close the warning about harmful hyperlinks.

The result appears as shown below:

	A	B	C	D
10	<b>Unit Sale Price</b>	104.9113606	106.2489038	97.52263915
11	<b>GROSS SALES REVENUE</b>	277163120.3	208866645.1	535860083.4
12	<b>Returns and Allowances</b>	12334860.55	9367211.44	23345673.69
13	<b>Cash Discount</b>	9124749.16	6929427.34	17270043.29
14	<b>Volume Discount</b>	5948587.8	4517409.57	11258642.12
15	<b>TOTAL DISCOUNTS AND ALLOWANCES</b>	27408197.51	20814048.35	51874359.1
16	<b>Freight</b>	28370179.32	21544586.35	53695049.73
17	<b>NET SALES REVENUE</b>	221384743.5	166508010.4	430290674.6
18	<b>Unit Cost</b>	76.61714502	78.98908813	68.65913461
19	<b>COST OF SALES</b>	202413226.5	155278645.2	377263063.4
20	<b>GROSS MARGIN</b>	18971517.04	11229365.21	53027611.13
21	<b>GROSS MARGIN %</b>	0	0	0

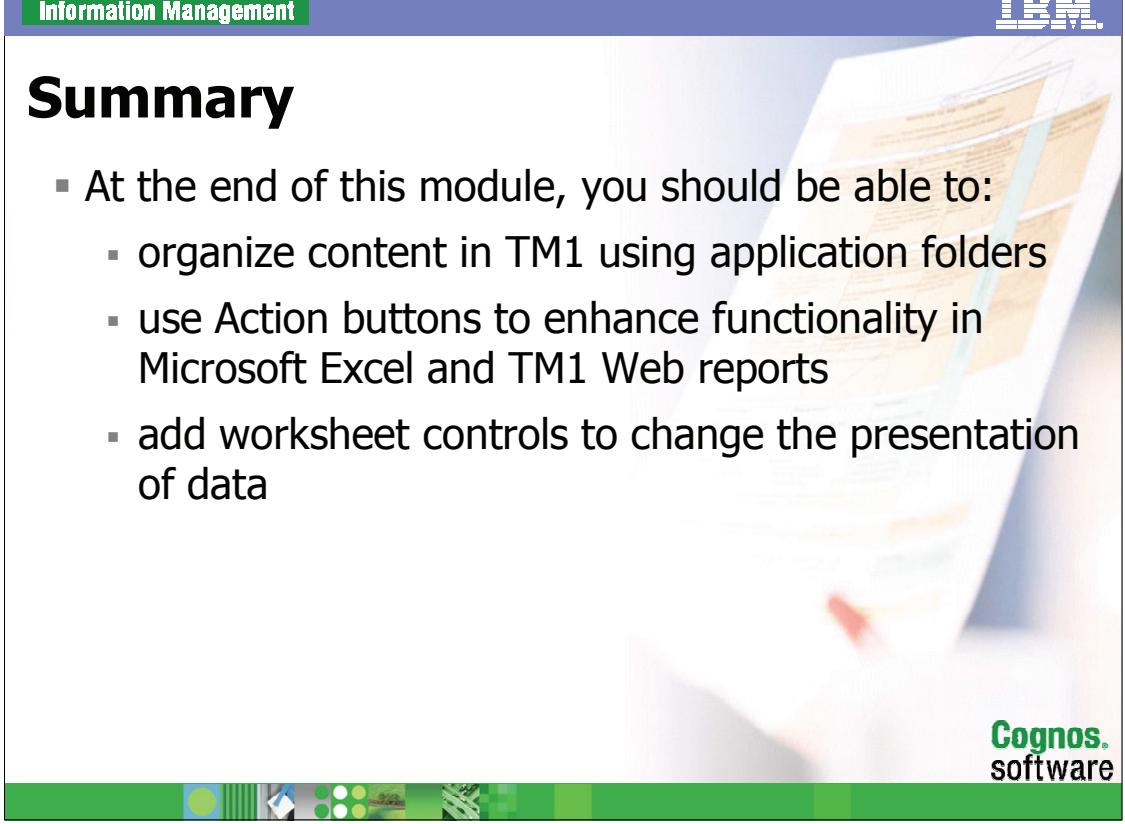
17. Close all open windows and then close the TM1 Server.

### Results:

You changed the formatting on a report to make the report more readable and to emphasize totals.

## Summary

- At the end of this module, you should be able to:
  - organize content in TM1 using application folders
  - use Action buttons to enhance functionality in Microsoft Excel and TM1 Web reports
  - add worksheet controls to change the presentation of data



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## **Optimize and Tune TM1 Models**

IBM Cognos TM1 (v9.5)



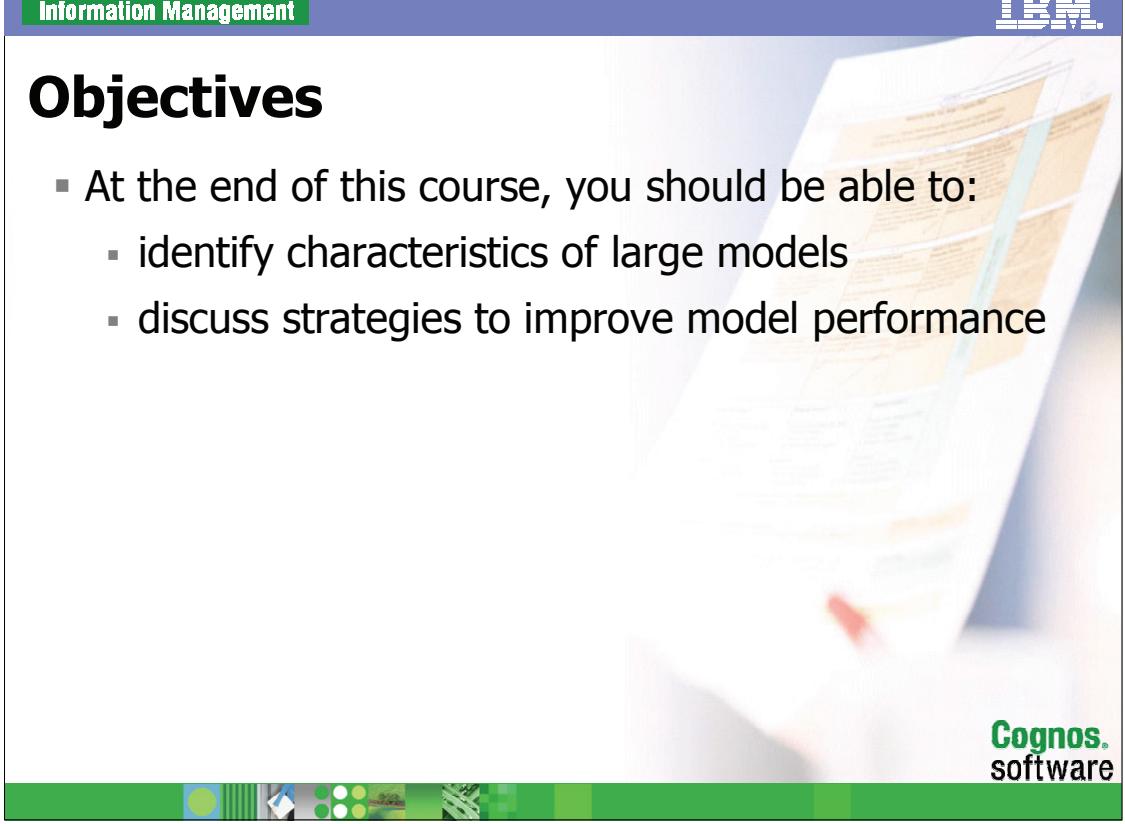
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# Objectives

- At the end of this course, you should be able to:
  - identify characteristics of large models
  - discuss strategies to improve model performance



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**INTERACTION - Star Sticker:** place a star next to each bullet as it is discussed.

## TM1 Model Size

- A TM1 model may start relatively small:
  - as a prototype.
  - to address a single requirement.
  - to meet the needs of a single department.
  - in a single location.

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## Models May Grow Rapidly

- A prototype may be put into production once value is perceived from it.
- The requirements may become more complex.
- More data and users may put strain on the model.
- Users may be geographically distributed across a WAN.



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It is relatively easy to create a simple prototype. However, it should only be used as a starting point in order to identify requirements or early user adoption. A prototype may only have been designed with a subset of data and requirements in mind. The prototype should be used to help determine the requirements for the production model.

It may not utilize best practices for design.

Best practices for a small model may not be the same as for a large one

---

**INTERACTION - Microphone:** Ask participants if they are currently or have developed models using a prototype. Is anyone planning to create a prototype? Discuss.

## Impact to the Model Performance

- The model performance may be significantly impacted by the rapid growth of a model
- It is recommended you periodically evaluate the model to enhance performance
  - decisions may be made whether to:
    - tune the model
    - toss it and redesign

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If model was not intended to move into a production environment, there may be enhancements that can be made to improve performance. Over time, users may request enhancements or develop new requirements.

Continually ask yourself:

- Why does this object exist?
- Can I make a more general version of this object?

If you're not 100% sure why something exists, get rid of it!

## Improve Individual Cube Performance

- Dimension Order can have a significant impact on:
  - Memory consumption
  - Recalculation times
- Cube dimension ordering:
  - the suggested order is; small/sparse > large/sparse > small/dense > large/dense.
  - periodically use the Cube Optimizer.
- Recommendation: Design the cubes with dimensions in "natural business" order, then use Cube Optimizer as necessary

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TM1 functions in spreadsheets and rules may be referencing dimensions in a specific order so it is important not to physically change the dimension order. The Cube Optimizer allows internal re-ordering of cube dimensions to decrease storage requirements and increase recalculation performance.

Dimension order is important to TM1, because:

- Recalculation engine is RAM-based, on-the-fly

The sparsity algorithm needs to "prune" dimension branches as early as possible for best performance.

It requires 2X of cube memory footprint to be available (e.g. 1GB must be available to re-order a 500MB cube).

## Simple Rule & Feeder Enhancements

- Place calculations you expect to change often in Rules, even though the "math" could be done somewhat faster with Consolidations.
  - Consolidations are at least an order of magnitude faster than Rules.
- Check feeders for over-feeding.
- Review and remove out of date or rules that no longer need to be calculated dynamically.

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The rules editor allows for comments to be included with rules and feeders. When a calculation needs to be reviewed or changed frequently, it is better to write it in the Rules Editor or in a Rule Worksheet.

The Rules Tracer can help trace rules and feeders.

Conditional feeders can be used to minimize the storage impact of rule feeders. The typical situation occurs when rule values are calculated by multiplying factors, any of which may be zero. This means that the value should be fed only when all the factors are non-zero.

It is also recommended that rules be reviewed to verify it is still necessary to dynamically calculate them. Data for last year may no longer need to be calculated but instead the resulting values may be stored in a cube (as opposed to being calculated on the fly).

---

Locking calculated values is also referred to as "Freezing History". There is a document on the Proven Practices site entitled, "Freezing History in TM1.doc" for more information. The example will extract the calculated data from the cube to a text file. The rule is altered to include a logical statement identifying where the calculation should occur and then the data is imported back to the cube as stored data.

More information on Conditional Feeders can be found on the Proven Practices site in Optimizing TM1 Performance.doc or in the IBM Cognos TM1 Rules Guide.

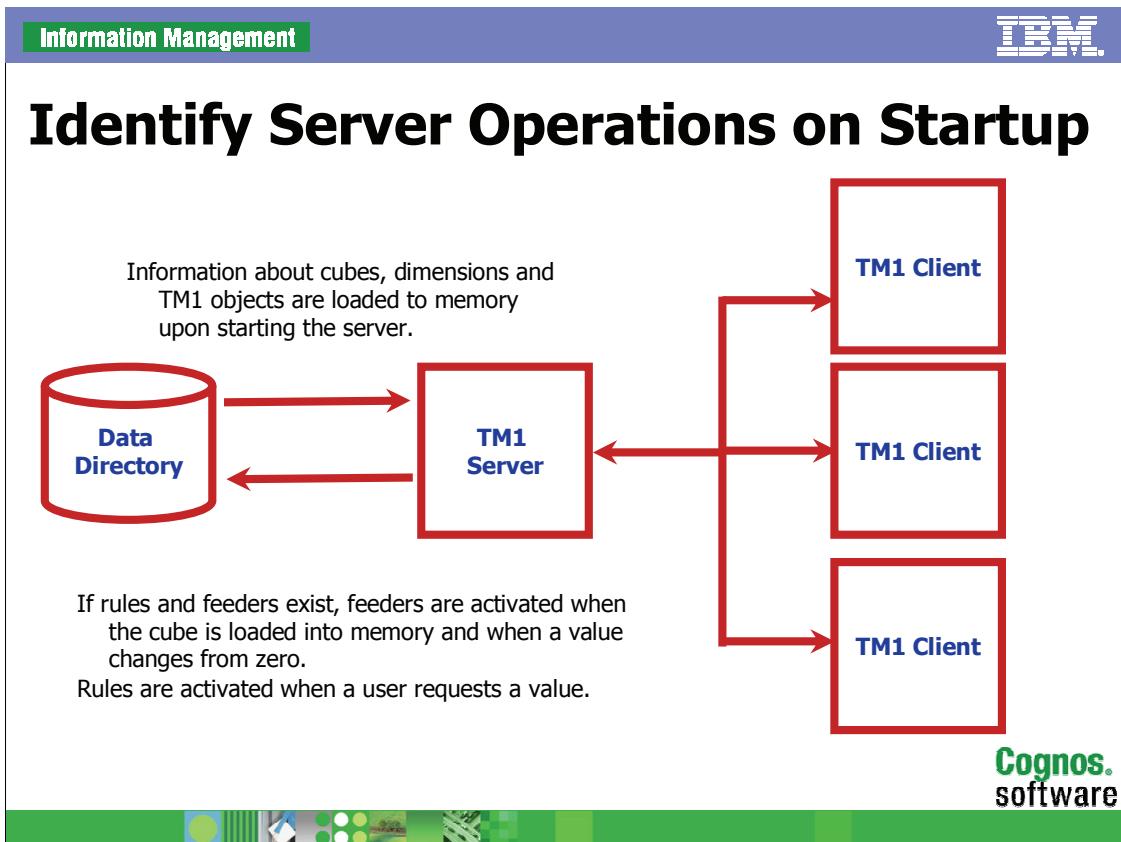
## Overview of TM1 Server Operations

- Data on a TM1 server is processed at different times. This allows processing time to be spread out over the course of the analysis.
- The key processes occur when:
  - the TM1 server is started.
  - data is requested from a user.
  - data is saved to the server.



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Understanding what type of process occurs at what time will can alter the way the model is designed.

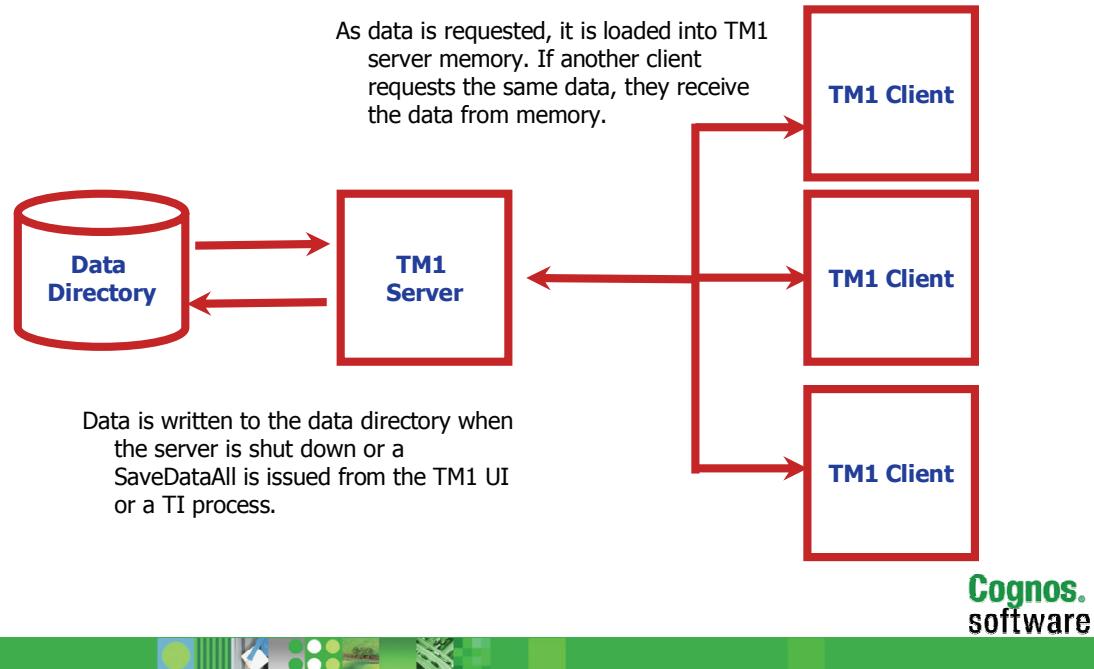


As a TM1 server is started, information about TM1 objects is loaded into memory. When a server is started from a desktop icon, the TM1s.log file is displayed. This displays the name of each object as it is loaded into memory.

Information about dimensions, cubes and other TM1 structures are loaded into memory. Data stored in the cubes is not yet loaded.

**INTERACTION - Line > Arrow:** Draw arrows first from the Data Directory to the TM1 Server. Next draw an arrow from the TM1 server to the Data directory while discussing the second paragraph.

## Identify Server Operations for Data Requests

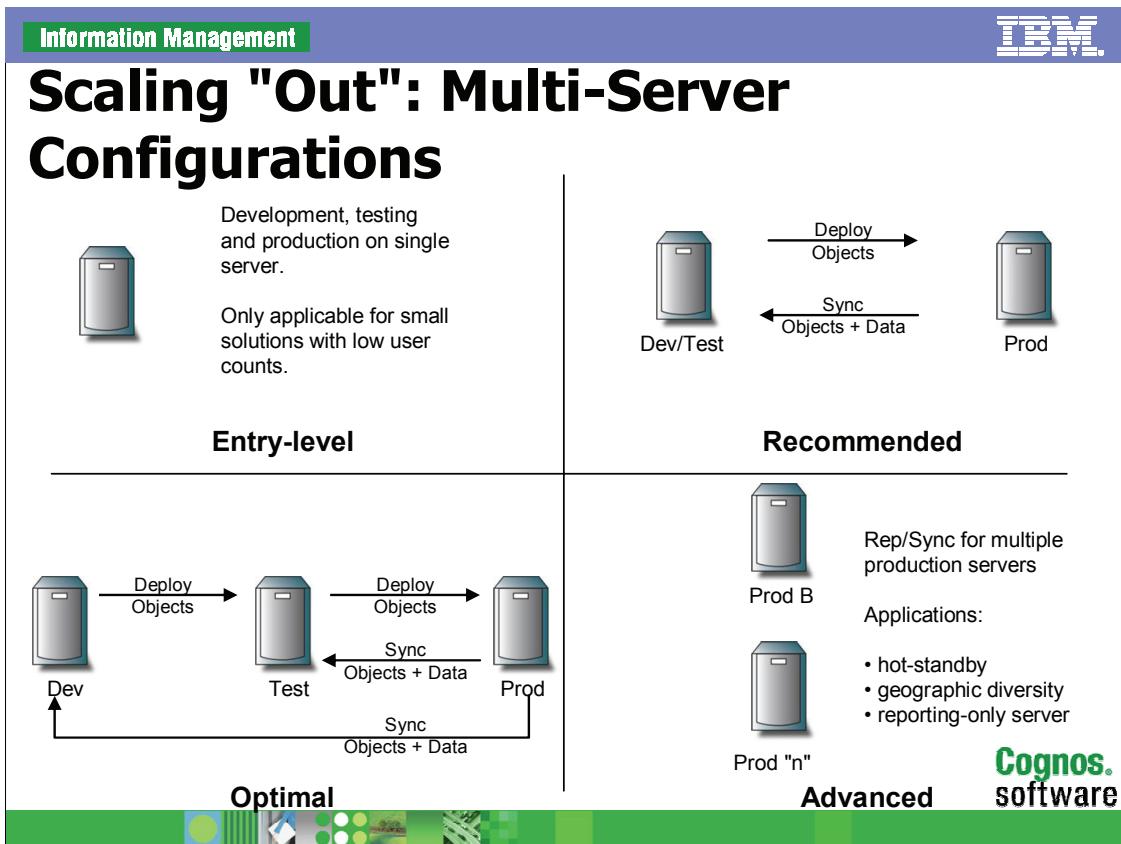


As data in a cube is requested, it is held in the server memory. If the same data is later requested, the data in memory is presented. This enables TM1 to respond very rapidly to the second request.

Data remains in memory until it is explicitly written to the cubes using one of the following methods:

- from Server Explorer, click Save Data.
- from a TI process or chore using SaveDataAll.
- shut down the server.

**INTERACTION - Line > Arrow:** Draw lines from the Data Directory to the TM1 Server, to the TM1 clients, back to the TM1 server and finally the Data Directory.



Scaling "out" refers to the act of increasing the number of host machines or TM1 server instances. Scaling "up" is adding additional memory and/or CPUs to an existing host machine.

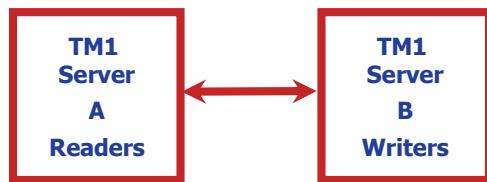
As the number of users grow, it may be necessary to have separate servers based on activity (reader/writer), geography, or other functional area. This is not required for TM1 to function but could improve server performance.

---

Replication and Synchronization is a utility in TM1 that allows you to create a copy of TM1 objects and then synchronize the transactions that occur on them. It is discussed in detail with demos and a workshop in P6505 IBM Cognos TM1: Administer the Technical Environment. More information may also be found in the TMI Operations Guide.

## Mirrored Servers

- All cubes, dimensions, and other objects are synchronized.
- Addresses problem of contention between 'Readers' and 'Writers' seeking to access the same data.

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The worst case scenario for multi-user performance occurs when there are users performing updates while other users are performing long calculations.

Even though write operations generally take very little time, because of the queuing rules, if there is a writer waiting while a long calculation is taking place, all users will queue behind the writer. If in turn there are other readers requesting long calculations and there are writers interspersed between them the result is that all requests are processed sequentially, and the average waiting times may get unacceptably long.

The idea is to segregate readers and writers into separate "mirrored servers". By mirrored servers we mean servers where all cubes, dimensions and other objects are synchronized. The synchronization may be done on a regular interval or on demand.

The effect is that between synchronizations, the reader's server acts as a read-only server and will deliver all the benefits of stored calculations.

**INTERACTION - Line > Arrow: Draw arrows between the two servers**

## Improve Server Performance

- Utilize to a 64-bit server platform.
- Consider loading data in batches and/or using multiple processors.
- Use the TM1 API to run TI processes from a command line.
  - A TI process will lock data for the duration of the process.
  - Multiple TI processes can be run from the command line.

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All Win32 systems are bound by an immutable limit:  $2^{32}$  = approximately 4GB, meaning that 32-bit processors, and Win32, can only access 4GB of RAM.

By default, Win32 operating systems reserve 2GB of this 4GB space for the O/S, leaving 2GB for all applications. On "advanced" versions of Windows Server, a "3GB switch" can be set to force the O/S to work within 1GB, and leave 3GB available for all applications.

One of the most attractive features of the x64 platform is that it natively supports both 32-bit and 64-bit applications and device drivers, allowing IT administrators to gracefully transition from 32-bit to 64-bit operation over time.

For TM1, one immediate benefit is that 32-bit applications that are "Large Address Aware" under x64 receive one (1) extra GB of address space, up to a full 4GB. This can offer dramatic improvements in performance and stability, as it adds a significant "safety buffer" for large TM1 views and calculations.

True 64-bit applications executing under x64 can address as much physical RAM as is available on the host machine that has not been reserved by the O/S.

---

More information may be found on the IBM Cognos Proven Practice web site in a document entitled, TM1 Enterprise Infrastructure Guide.doc.

## Summary

- At the end of this course, you should be able to:
  - identify characteristics of large models
  - discuss strategies to improve model performance

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**INTERACTION - Check Sticker:** Click the check mark as you discuss each bullet.

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## Identify Common Data Structures

IBM Cognos TM1 9.5



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# Objectives

- At the end of this module, you should be able to:
  - identify characteristics of operational and reporting databases
  - discuss Online Analytical Processing (OLAP)
  - examine core model design principles
  - identify the basic tasks required to create a TM1 model and deploy it



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## Examine the Role of an IBM Cognos TM1 Metadata Model

- An IBM Cognos TM1 model provides a business presentation view of an organization's data sources.
- TM1 consumers use the model to analyze and report on their data sources.

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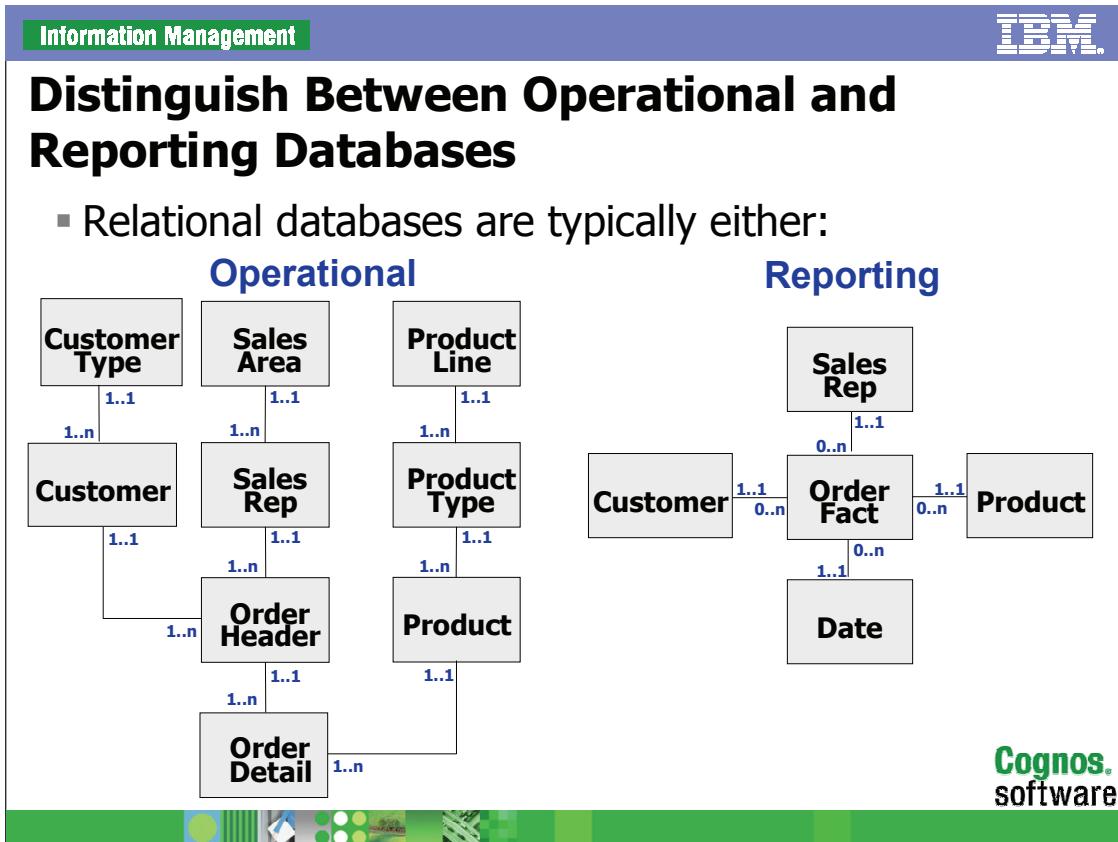
graph TD
    Analysis[Analysis and Reporting Layer] --> Model[IBM Cognos TM1 Model]
    Model --> Relational[Relational]
    Model --> Files[Files]
    Model --> Cubes[Cubes]
    Model --> Other[Other]
    subgraph Bottom [ ]
        Relational
        Files
        Cubes
        Other
    end
    
```

An IBM Cognos TM1 model can hide the structural complexity of your underlying data sources. By creating an IBM Cognos TM1 model, you have more control over how your data is presented to IBM Cognos TM1 end users. You can also choose which data to display to your end users and how it will be organized. The overall goal of modeling the metadata is to create a model that provides predictable results as well as an easy-to-use view of the metadata for authors and analysts.

This module will focus on some industry standard data structures. This knowledge is essential before beginning a metadata modeling project.

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Your underlying data sources may be very diverse. For example, you may have operational or reporting data in one or more relational databases. You may also have legacy data in various file formats, such as text, comma separated values (.csv), and spreadsheets (XLS). Online analytical processing (OLAP) sources can include cubes, as well as other sources such as SAP BW.



Operational databases are:

- used to track the day-to-day operations of a business
- usually normalized or part of an enterprise resource planning (ERP) vendor package

Reporting databases are:

- typically a copy of the operational data
- structured differently from operational databases to make reporting faster and easier
- usually dimensional, taking the form of a star schema design

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TM1 cubes can use either of these sources of data. TM1 does not require a star schema but a cube structure uses many of the same modeling principles.

## Identify Features of an Operational Database

- Operational databases:
  - are designed to maximize accuracy and minimize redundancy
  - are optimized for writing and updating data rather than reading data
  - often result in monolithic designs with multiple joins
- Large queries can perform slowly.



It can be difficult to report from an operational database because:

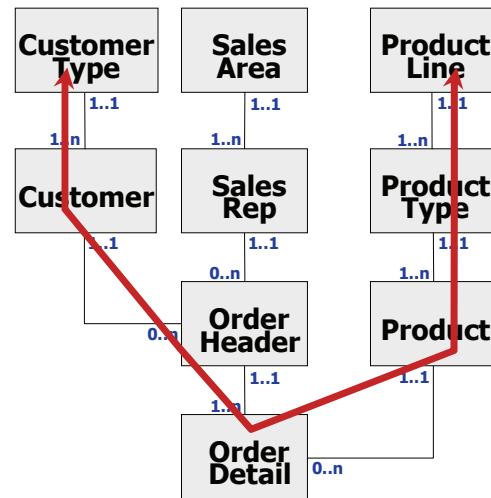
- reading the data can impact the performance of the system
- the number of tables that must be joined to satisfy a business question can be prohibitively large
- a more complex database requires more metadata modeling efforts to make it consumable by business users

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Operational systems are designed with one goal in mind: to get data into the database quickly. These databases are normalized to reduce redundancy. Having little to no redundancy ensures that there is data integrity and that database triggers function properly, so that the right data is captured.

## Identify Issues with Operational Databases

- "Show all customer types that bought from a product line."
- The query must check data in seven tables before returning a result set.



**Query requires 7 tables**

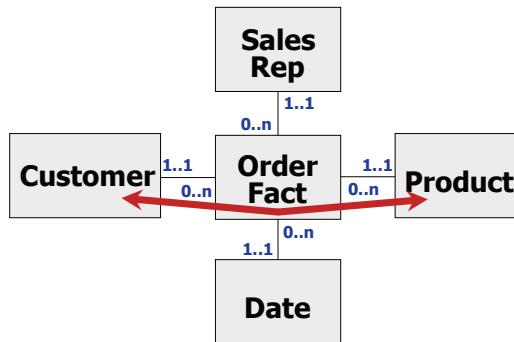
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Operational databases may be too complex for general reporting. As a result, reports that are generated against these structures may take a long time to run. They may also have unpredictable results.

As shown in the slide example, a report may need to access many tables to retrieve all the necessary data.

## Examine Reporting Databases (Star Schema Design)

- Transactional data is stored in a fact table
- Reference data is stored in separate dimension tables



**Query only requires 3 tables**

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A star schema is a design with two basic components:

- a central table, known as the fact table (typically numeric data)
- satellite tables, known as the dimension tables

Because a star schema database contains fewer tables than a fully normalized database, query performance is much faster.

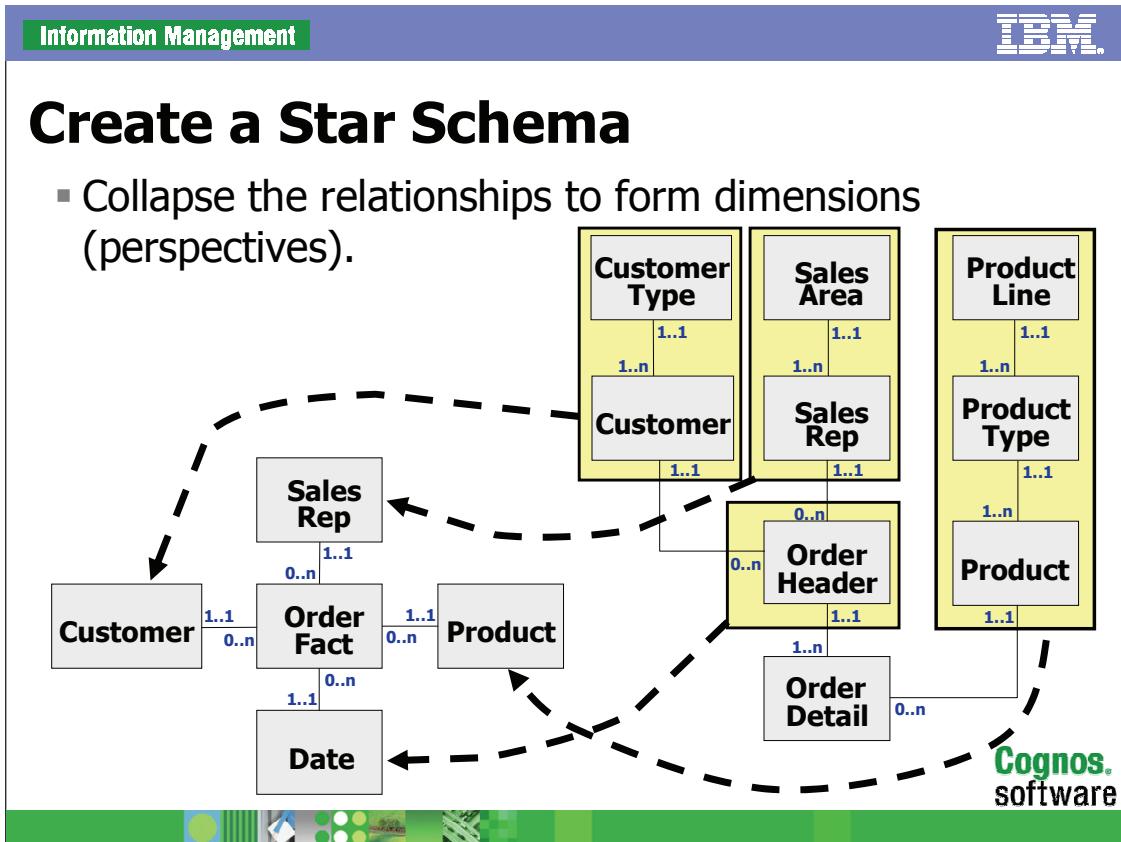
- A typical query against a star schema database focuses on the central fact table and makes integrity checks against the related dimension tables.

If the query is to retrieve information about a specific subject area only, such as all the products that belong to a particular product line, then the query will be even faster.

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When building a TM1 cube, instead of creating a 'fact table' you will identify the numeric data for your cube. This data will probably be identified in your 'Measures' dimension.

Instead of creating dimension 'tables', in TM1 you will build dimensions and define a hierarchy.



Each table in a star schema database will contain an expanded set of data.

Extract Transform and Load (ETL) tools can be used to create a star schema data warehouse, or you may use a metadata modeling tool to emulate a star schema structure by generating the appropriate SQL at report design time.

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In TM1 the star schema is not required but the ability to combine relational data to build dimensions and measures/facts is very important.

TM1 does have an ETL tool called Turbo Integrator (TI). We will use this to build dimensions based on external data. We will also import data into cubes using TI.

# Examine Operational Data

- Data is normalized

Product Line Table

PL#	PL_Desc
a	Classic Tents
b	Moose Boots

2 rows

Product Type Table

PL#	PT#	PT_Desc
a	1	Pup Tents
a	2	Family Tents
b	11	Child Boots
b	12	Adult Boots

4 rows

Product Table

PT#	Prod#	Prod_Desc
1	101	1 Sleeper
1	102	2 Sleeper
2	201	4 Sleeper
2	203	6 Sleeper
11	1101	Wet Proof
12	1102	Hikers+

6 rows

Before collapsing into a star schema dimension 

The slide example shows three normalized tables that represent three hierarchical levels. Products roll up into product types, and product types roll up into product lines.

The Product Line table has two rows that indicate two lines of products sold by the company.

The Product Type table contains four rows to indicate the four types of products that fall under the previous two product lines (two types per product line).

The Product table contains the greatest level of detail. It holds 6 rows to represent the 6 products that fall under the four product types.

# Examine Reporting Data

- Data is de-normalized

**Product Dimension Table**

PL#	PL_Desc	PT#	PT_Desc	Prod#	Prod_Desc
A	Classic Tents	1	Pup Tents	101	1 Sleeper
A	Classic Tents	1	Pup Tents	102	2 Sleeper
A	Classic Tents	2	Family Tents	201	4 Sleeper
A	Classic Tents	2	Family Tents	203	6 Sleeper
B	Moose Boots	11	Child Boots	1101	Wet Proof
B	Moose Boots	12	Adult Boots	1102	Hikers

**6 rows**

**After collapsing into a star schema dimension** 

The slide example shows a de-normalized dimension table created from the three normalized tables shown on the previous slide.

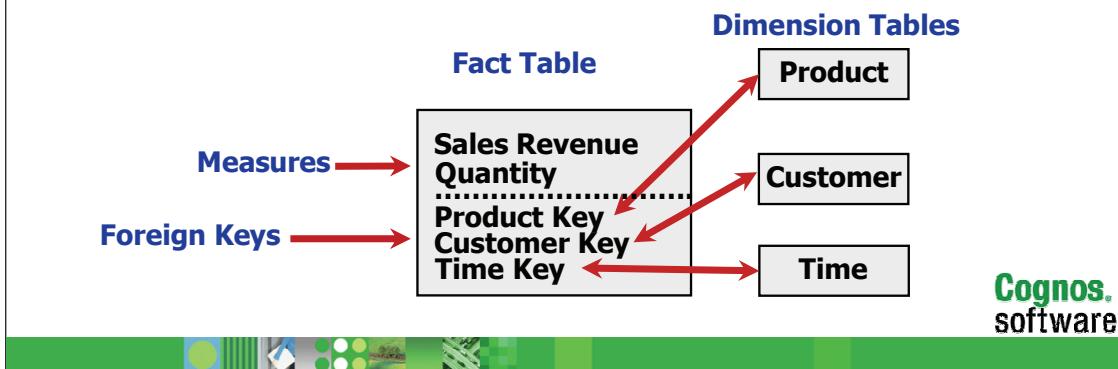
The Product Line table forms the first two columns of the new dimension table (PL# and PL\_Desc), the Product Type table forms the next two columns (PT# and PT\_Desc), and the Product table forms the last two columns (Prod# and Prod\_Desc).

The main characteristic of this table is its redundancy. Note that each product line (Classic Tents and Moose Boots) is repeated, once for each product that the product line contains. The same applies for product type.

This type of table is unsuitable for a normalized system, but is ideal for a reporting and analysis structure.

## Examine Fact Tables

- Fact tables contain the (usually additive) values by which a company measures itself:
  - Standard Selling Price - not additive
  - Sale Amount - additive



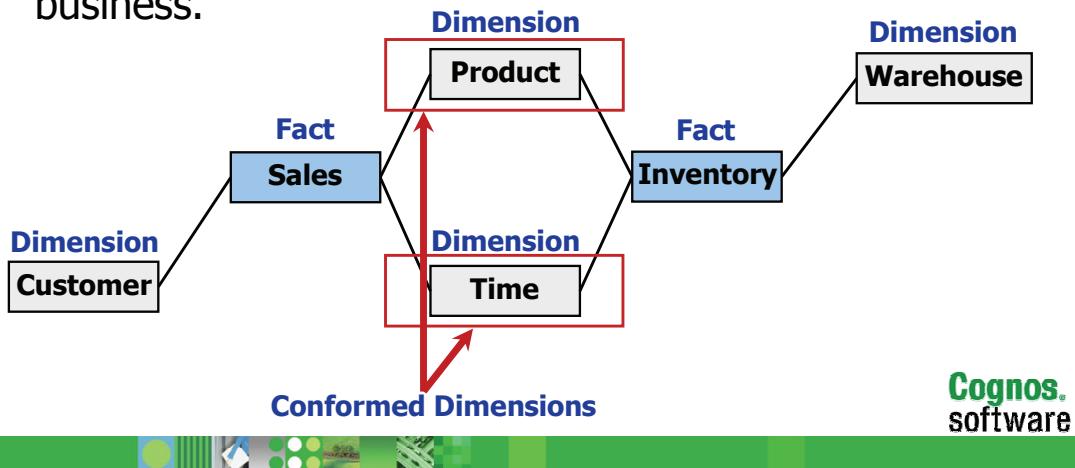
Fact tables are the focal point of any star schema, and typically contain the most rows. There are typically no descriptive attributes in a fact table. Instead, there are foreign keys that relate to the dimension tables, which contain descriptive attributes. Facts in a fact table are also known as metrics, measures, or key performance indicators.

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In TM1, you will identify the measures. These will usually be additive but not always (as in the example above). When you look at data to load into a TM1 cube, that data will need to be similar to a 'fact table' where elements from each dimension in the cube identify where to place the data into a given cube. This will be done in the Load and Maintain Data module.

## Examine Dimension Tables

- Dimension tables provide descriptive information.
- Dimension tables may be "conformed" so that they are applicable to multiple fact tables across the business.



A conformed dimension is one which is common to several fact tables; it has the same meaning and content when being referred to from several fact tables.

In the slide example, you can query either sales or inventory data through the Product dimension table, the Time dimension table, or both. For example, Product acts as a context when you want to compare quantity sold with stock count.

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In TM1 dimensions can easily be shared among cubes, such as Sales and Inventory. TM1 allows dimensions to have multiple hierarchies to support multiple cube structures. Additionally, dimension attributes may be used to support different dimension format requirements across cubes.

## Identify Issues with a Star Schema

- Data is only as current as the last data load.
- Structural issues:
  - the distinct count problem
  - very large dimension tables
  - snowflakes
- Fact issues:
  - different levels of granularity (detail) in fact tables

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Data is periodically loaded from an operational system into the reporting database (star schema layout). Therefore the data is only as current as the last time it was loaded.

When reporting against a star schema database, you may encounter difficulties in counting the exact number of items in the dimension, such as separate products.

The star schema may also include large dimension tables that result in reports that run too slowly. These tables may be broken out into smaller tables through a normalization process, which in turn creates snowflake tables.

In some cases, fact tables can have different levels of granularity. For example the data values may either be associated with the day level or the month level. The granularity may change based on the dimensions referenced in the fact table.

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TM1 is a multidimensional database employing On Line Analytical Processing (OLAP) technology to provide faster access to data.

## What is OLAP?

- Online Analytic Processing (OLAP) is category of software tools that provides analysis of data stored in a database.
- With OLAP tools, users can analyze different dimensions of multidimensional data.



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With OLAP, data is stored in cubes, which are made of two or more dimensions. Each dimension has a hierarchical structure.

You can drill down (or drill up) on a dimension to view data at the level of detail that you choose. For example, you can drill down on the products dimension to view information about camping equipment. You can drill down another level to tents, or even more to view information about a specific type of tent. With OLAP, you can also slice and dice the data to view the dimensions that are of interest to you.

## OLAP vs. OLTP (Relational)

	OLAP	OLTP
Definition	Analytical Processing against Multi-Dimensional Data	Transaction Processing against Relational Data
Purpose	Optimize the business	Automate the business
Use	Planning, Modeling, Analysis	Transaction Processing
Schema	Multi-dimensional, Hierarchical	Two-dimensional, Normalized
Reporting	Cross Tab, Interactive, speed of thought analysis from multiple perspectives	Query-based, batch run, banded transactional reporting
Implementation	Fast to deploy & Easy to change	Slow to deploy and difficult to change

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### OLAP - On-Line Analytical Processing:

- designed for ad hoc data access and analysis
- fast aggregation of hierarchies / fast computations
- ideal for management of data with multiple dimensions

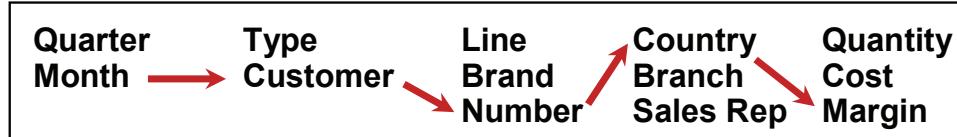
**INTERACTION - Text Chat** - Ask participants to type OLAP or OLTP as you state a characteristic. For example, if you say Transaction Processing. Participants should type OLTP.

# Dimensional Analysis Example

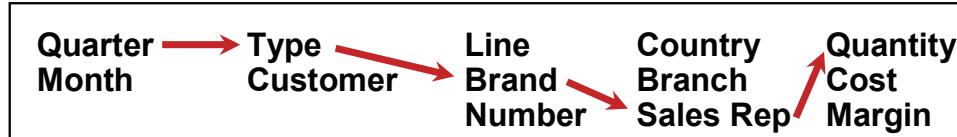
## Comprehensive Analysis

When? Time (2007)	Who? Customers (Channels)	What? Product (Type)	Where? Location (Region)	Result? Indicator (Revenue)
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## Combination 1

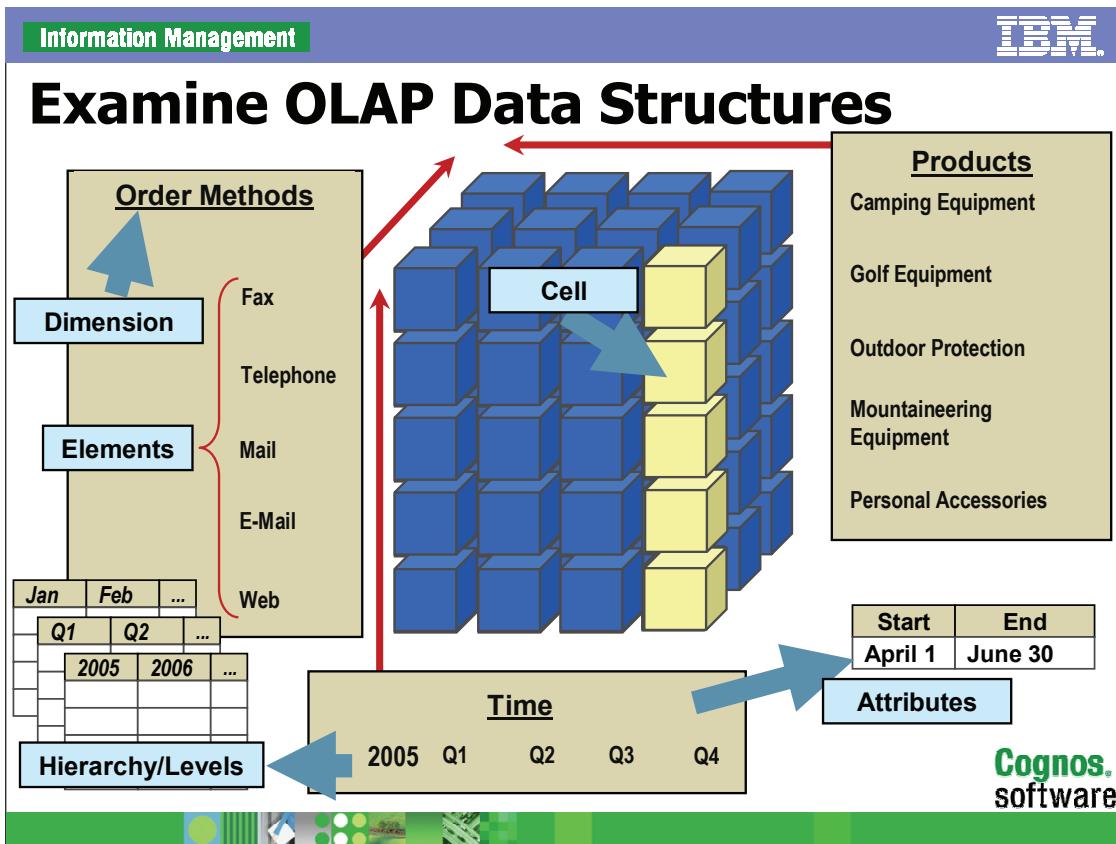


## Combination 2

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This example shows that each dimension answers a specific business question. The data you view depends on the choices you make in each dimension.

**INTERACTION - Microphone:** Ask participants to share some examples of the types of analysis questions their model will answer.



The OLAP structure consists of the following:

- Dimensions - contain members that may be structured into hierarchies and levels
- Elements/Members - are data entities that provide context to cell values
- Hierarchies - provide context to the level structures they contain
- Levels - provide structure for the members of a hierarchy
- Attributes - provide additional information for members
- Cells - are intersection points containing values (measures) for various members from different dimensions (also referred to as tuples)
- Slice - is a two dimensional view of multidimensional data.

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With a slice, you have a dimension on each of the x and y axis, and other dimensions along the title.

# The Three Core Design Principles

## DFF: Design For Functionality

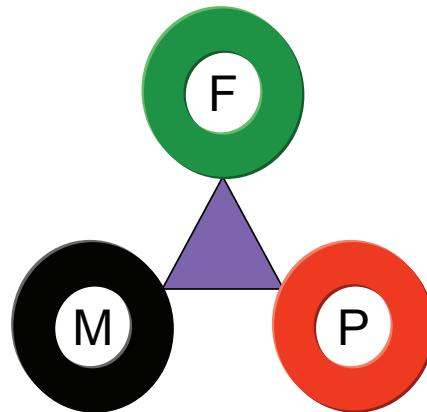
The solution must fulfill its design intent  
Make the solution intuitive and "discoverable"

## DFM: Design For Maintainability

Think beyond the immediate requirements  
Adhere to coherent design standards

## DFP: Design For Performance

Leverage TM1's unique strengths  
Avoid known performance bottlenecks



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Functionality, Maintainability, and Performance are often in conflict with each other.

Principles	Effect
Functionality vs. Maintainability	If the design does not meet the intent, it does not matter how maintainable it is.
Maintainability vs. Performance	In a BPM application, it is usually more important to make the solution maintainable than to wring out every last ounce of performance.

Every solution is different. As the Architect, it is your job to make effective choices.

## Create a Model in TM1

- To create a TM1 application:
  1. define dimensions
    - populate the dimensions with elements, in the Dimension Editor, manually or from external sources
  2. create cube structures
  3. identify and load data (manually or from external sources)
  4. apply business rules
  5. deploy the model to Microsoft Excel and the Web

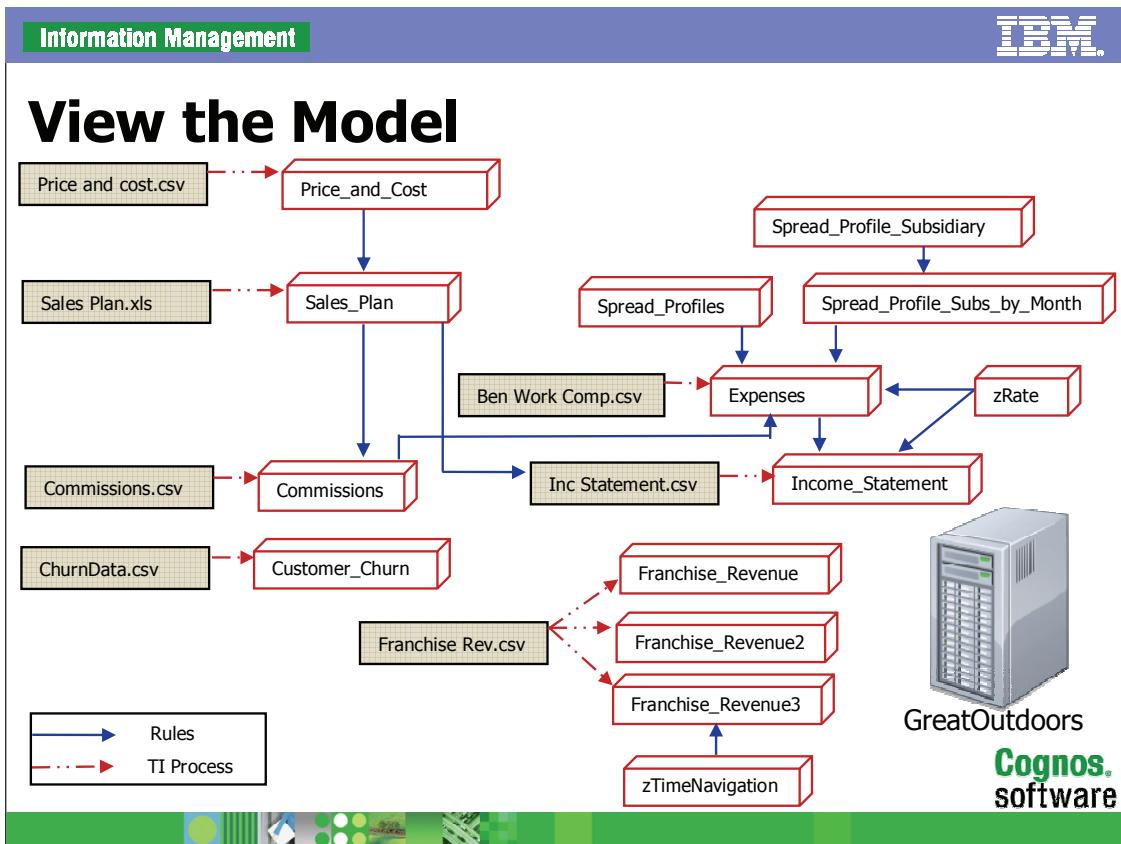
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An application consists of a model (on the back-end) and forms (on the front-end presentation layer).

As an application is developed, keep the core design principles in mind.

Once the application is deployed to Microsoft Excel and the Web, users can enter, submit, accept, or reject data, and examine reports depending on their user privileges.



This diagram depicts how data flows through the model we build throughout this course.

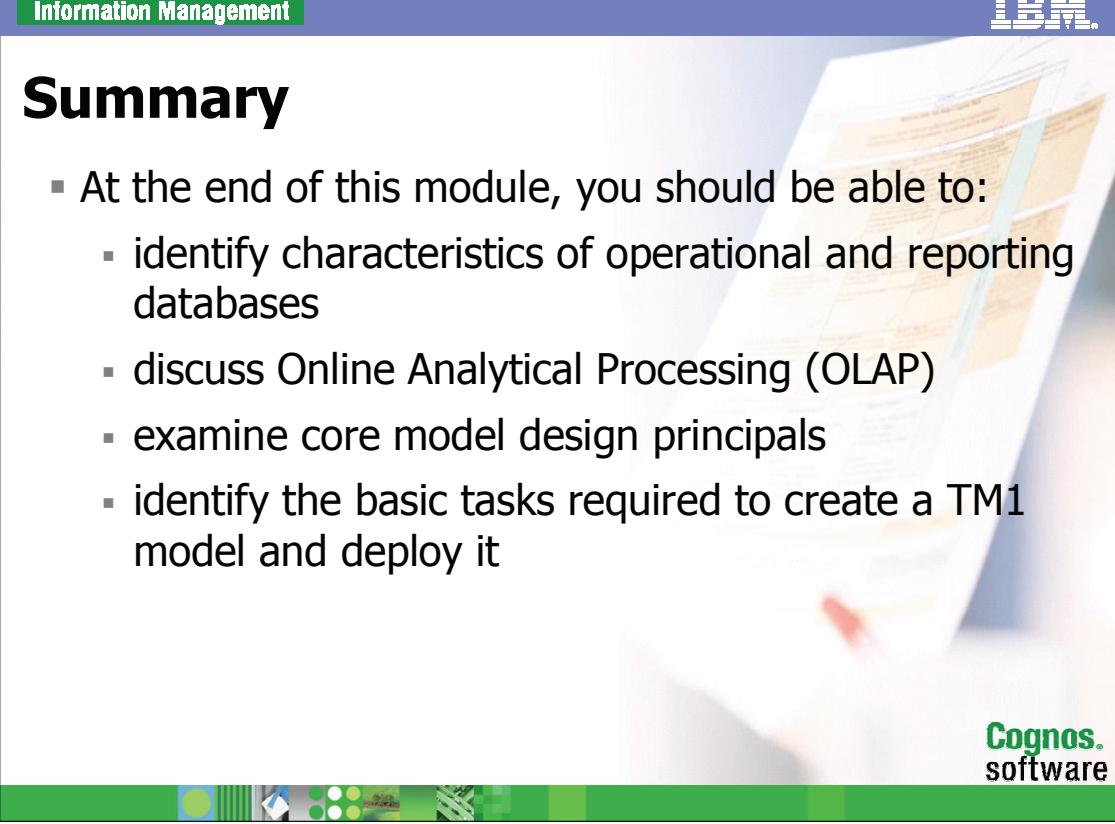
Shaded boxes represent the external data sources (ODBC, text files).

Dashed (red) lines indicate data coming in through Turbo Integrator (TI).

Solid (blue) lines indicate data being shared through rules.

## Summary

- At the end of this module, you should be able to:
  - identify characteristics of operational and reporting databases
  - discuss Online Analytical Processing (OLAP)
  - examine core model design principals
  - identify the basic tasks required to create a TM1 model and deploy it



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**INTERACTION - Star Sticker:** place a star next to each objective as it is reviewed.