



# IBM Tivoli Netcool Performance Manager for Wireless 9.1.2

*UDC editor*

**Tivoli.** software



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IBM Tivoli Netcool Performance Manager for Wireless 9.1.2 - UDC Editor

## Assumptions

Before attempting this module, you should already know how to use IBM Tivoli Netcool Performance Manager for Wireless 9.1.2 (TNPMW) software to:

- Log in to the Performance Manager for Wireless interface
- Create a basic report definition
- Navigate to the **Tools** tab

Assumptions.

Before attempting this module, you should already know how to use IBM Tivoli Netcool Performance Manager for Wireless 9.1.2 (TNPMW) software to log in to the TNPMW interface as an administrator, create a basic report definition, and navigate to the **Tools** tab.

## Assumptions (continued)

You should also know the following acronyms:

- Peg Count (Peg)
- Primitive Calculation (PCalc)
- User Defined Calculation (UDC)

If you can not perform the previous tasks, you can learn how to do them by taking an IBM Tivoli Netcool Performance Manager for Wireless 9.1.2 user course:

[http://www.ibm.com/software/tivoli/education/edu\\_prd.html#X916845N81075L22](http://www.ibm.com/software/tivoli/education/edu_prd.html#X916845N81075L22)



You should also know the acronyms Peg Count (Peg), Primitive Calculation (PCalc), and User Defined Calculation (UDC).

If you can not perform the previous tasks, you can learn how to do them by taking an IBM Tivoli Netcool Performance Manager for Wireless 9.1.2 User course.

## Objectives

Upon completion of this module, you should be able to:

- ▶ Define the terms Peg, PCalc, and UDC
- ▶ Use the User Interface to create a User Defined Calculation

Objectives.

Upon completion of this module, you should be able to: Define the terms Peg, PCalc, and UDC; Use the User Interface to create a User Defined Calculation.

## Agenda

- Definitions
- UDC Editor

This lesson uses the following agenda: **Definitions**—the terminology used to understand the UDC Editor; How to use the **UDC Editor** to create a UDC.

## Definitions

### Technology package building blocks:

- ▶ Pegs (peg counts) are performance metrics that map directly to vendor counters loaded into a database table
- ▶ PCalcs are primitive calculations and are derived values from peg counts. They are often simple percentage or total calculations. An example is:

$$\%\_lac\_update\_success = lac\_update\_successes / lac\_update\_attempts * 100$$

Definitions.

You must understand several words, phrases, and acronyms before working with the UDC Editor.

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## Definitions

### Custom analytics

Customers define their own user defined calculations (UDC), which are composed of:

- Peg counters and PCalcs from the Technology Pack
- UDC

**Note:** A UDC can contain one or more Pegs, PCalcs, and other UDC.

Definitions.

Custom Analytics:

Customers define their own *User Defined Calculations* (UDC), which are composed of peg counters and PCalcs from the Technology Pack and other UDC that have been created.

**Note:** A UDC can contain one or more Pegs, PCalcs, or other UDCs.

## UDC editor

- With the UDC editor you can create a custom calculation field using existing fields available on the Performance Manager for Wireless server
- The UDC field can be defined as an expression using supported operators

UDC Editor.

With the UDC editor you can create a custom calculation field using existing fields available on the Performance Manager for Wireless server.

The UDC field can be defined as an expression using supported operators.



## UDC editor: Some supported operators

- Math operators:
  - ▶ +, -, /, \*, round, trunc
- Formatting conversion:
  - ▶ NumToString, StringToInt
- Not an inclusive list



UDC Editor: some supported operators.

### **Math operators:**

Include Add **+**, subtract **-**, divide **/**, multiply **\***, round off to a specified decimal **round**, and truncate **trunc**.

### **Formatting Conversion:**

Include Number to String **NumToString** and String to Integer **StringToInt**.

This list does not include all of the supported operators.

## Create a UDC process

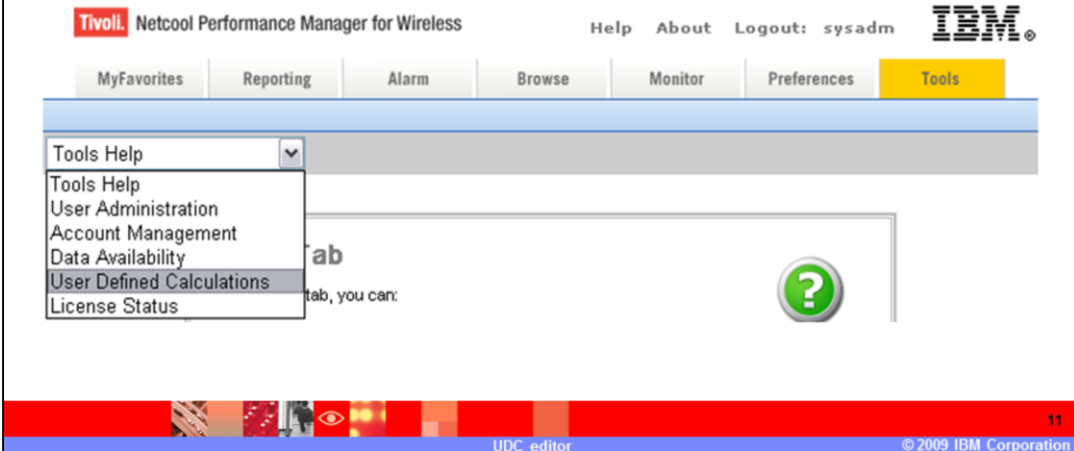
1. Log in using the user account which will own the UDC
2. Select the **Tools** tab
3. Select the **User Defined Calculations** tool
4. Select the **Entity** level
5. Click the **new** button
6. Select the **2. UDC Definition Tab**
7. Build the expression in the work area
8. Click the **validate** button
9. Select the **3. UDC Properties** tab
10. Select and enter the UDC attributes
11. Click the **save** button
12. Select the **1. Browse UDCs** tab to verify that the UDC is complete

Create a UDC Process:

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## Open the UDC editor

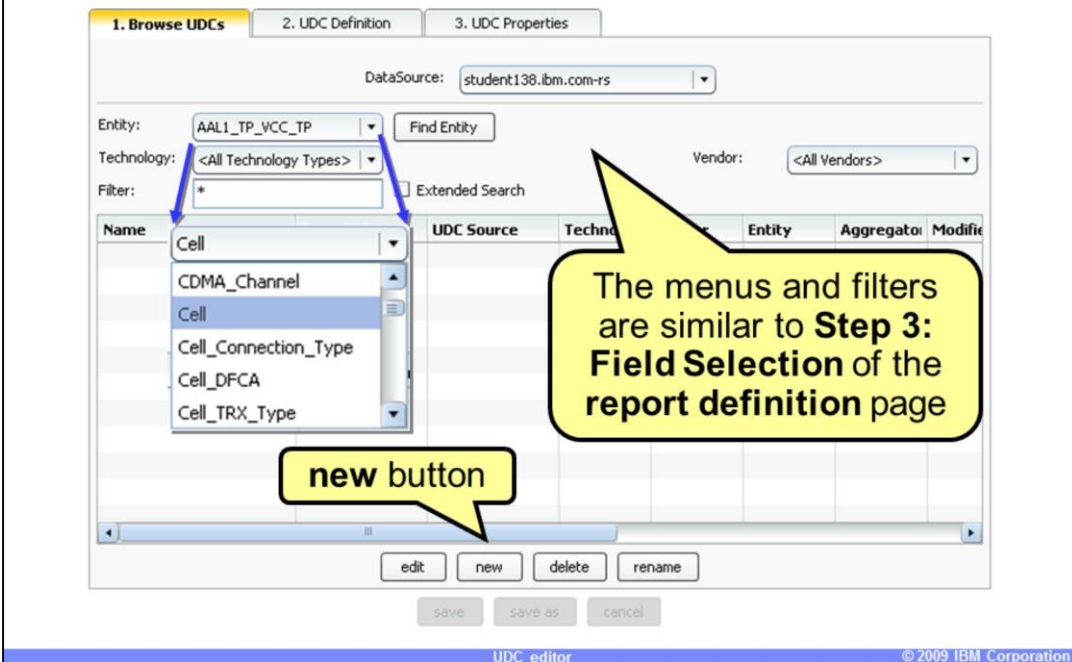
1. Log in using the user account that you want to own the UDC
2. Select the **Tools** tab
3. Use the menu to select **User Defined Calculations**



Opening the UDC Editor takes three steps.

1. Log in using the user account that you want to own the UDC.
2. Navigate to the **Tools** tab.
3. Use the menu to select **User Defined Calculations**.

## UDC editor main parts



The UDC Editor has three tabs **1. Browse UDCs**, **2. UDC Definition**, and **3. UDC Properties**. When you open the UDC Editor, the **1. Browse UDCs** tab is displayed. The other two are not available until you either select an existing UDC or click the **new** button.

The **DataSource** default value is the server you are logged in to.

The remaining fields are similar to **Step 3: Field Selection** on the **report definition** page, with which you should be familiar. The rows in the lower part of the display contain all of the UDCs that have been created for the entity selected.

The **Entity** value menu is alphabetic, and the default value is the first. You can scroll to the entity required. Alternatively, you can open the menu and type the first letter of the entity's name until it is located. Then press the **Enter** key to select the entity. When you have selected the entity level for the UDC, the display updates. You can apply other filters to locate a UDC to edit if required. To create a new UDC, click the **new** button.

## UDC editor 2. UDC definition tab

1. Browse UDCs    **2. UDC Definition - Cell**    3. UDC Properties

Entity: Cell    Find Entity

Technology: GSM    Field Type: Peg Count    Vendor: Nokia

Filter: \*bad\_frame\*     Extended Search

Group	Name	Description	PC	UI	Tε	Vε	Entity	Field Type	Aggregator	Modified	Data Type	Headings
Nokia.Packet	bad_frame_ind_L	Number of bad f			GSI	Nol	Cell	Peg Count	Sum		Integer	bad f
Nokia.Packet	bad_frame_ind_L	Number of bad f			GSI	Nol	Cell	Peg Count	Sum		Integer	bad f
Nokia.Packet	bad_frame_ind_L	Number of bad f			GSI	Nol	Cell	Peg Count	Sum		Integer	bad f

Functions

- Math
- String
- Miscellaneous
- Operators

Click triangles to access functions

Click the field, operator button, or function once to copy it to the work area

save    save as    cancel

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After you select the entity **Cell** and click the **new** button, tab **2. UDC Definition** is active. Notice that it reads “**2.UDC Definition – Cell**,” indicating that the entity level of the UDC being defined is cell. When you open this tab, you see a pop-up window displayed while the rows of data are being loaded.

The **Technology**, **Field Type**, **Vendor**, **Filter**, and **Extended Search** features work the same here as on the **define report** page. The UDC being created uses fields that are peg counters and contain the string **bad\_frame**. The filters have been set to display the peg counters required for the UDC. Notice the three fields are listed.

You can change the column width and scroll to view more columns and see their data. You can see what the **Aggregator**, **Data Type**, and **Headings** are. You need this information for the **3. UDC Properties** tab.

Below the fields listing are the mathematical operator buttons plus, minus, and so on.

On the left edge of the screen is the **Functions** list. You can open a folder by clicking on the arrow next to it. When you have located the required function, click in the work area (right window) where you want the function to be copied. Click the function once, and it is copied to the appropriate box to the left of your cursor. It will look like **Function (number)**. For this demonstration, the three peg counts are added together.

## UDC editor 2. UDC definition tab first field

1. Browse UDCs    2. UDC Definition - Cell    3. UDC Properties

Entity: Cell    Find Entity    Technology: GSM    Field Type: Peg Count    Filter: \*bad\_frame\*    Extended Search

Group	Name	Description	PC	UI	Entity	Field Type	Aggregator	Modified	Data Type	Head
Nokia.Packet	bad_frame_ind_ul	Number of bad f			GSI Nol Cell	Peg Count	Sum		Integer	bad f
Nokia.Packet	bad_frame_ind_ul	Number of bad f			GSI Nol Cell	Peg Count	Sum		Integer	bad f
Nokia.Packet	bad_frame_ind_ul	Number of bad f			GSI Nol Cell	Peg Count	Sum		Integer	bad f

Click field once

Click + button once

Functions  
 Math  
 String  
 Miscellaneous  
 Operators

[Cell][{Nokia.Packet\_Control\_Unit.bad\_frame\_ind\_ul\_cs1}] +

The field and + are copied to the work area

save    save as    cancel

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UDC Editor 2. UDC Definition tab first field.

First, you click the field once. It is copied to the work area.

Next click the + button to copy that operator to the work area.

## UDC editor 2. UDC definition tab second field

1. Browse UDCs    2. UDC Definition - Cell    3. UDC Properties

Entity: Cell    Find Entity

Technology: GSM    Field Type: Peg Count

Filter: \*bad\_frame\*    Extended Search

Group	Name	Description	PC	UI	Te	Priority	Field Type	Aggregator	Modified	Data Type	Head
Nokia.Packet	bad_frame_ind_u	Number of bad f			GSI	Nol	Cell	Peg Count	Sum	Integer	bad f
Nokia.Packet	bad_frame_ind_u	Number of bad f			GSI	Nol	Cell	Peg Count	Sum	Integer	bad f
	bad f				GSI	Nol	Cell	Peg Count	Sum	Integer	bad f

Functions

- Math
- String
- Miscellaneous
- Operators

[Cell]{{Nokia.Packet\_Control\_Unit.bad\_frame\_ind\_ul\_cs1}} +  
[Cell]{{Nokia.Packet\_Control\_Unit.bad\_frame\_ind\_ul\_cs2}} +

save    save as    cancel

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UDC Editor 2. UDC Definition tab second field.

Repeat with the second field. Click the field and the + button each once to copy them to the work area. You can alternatively type the characters in the work area. Be careful to use the correct number of open and close parentheses when writing your UDC statement.



## UDC editor: Validation with error

1. Browse UDCs    2. UDC Definition - Cell    3. UDC Properties

Entity: Cell    Find Entity

Technology: GSM    Field Type: Peg Count    Vendor: Nokia

Filter: \*bad\_frame\*     Extended Search

PC	UI	Te	Ve	Entity	Field Type	Aggregator	Modified	Data Type
f				GSI Nol Cell	Peg Count	Sum		Integer
					Peg Count	Sum		Integer
					Peg Count	Sum		Integer

Functions

- Math
- String
- Miscellaneous
- Operators

validate

save    save as    cancel

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Click validate

If the expression is incorrect, **Error** is displayed with additional information

Error

Failed to parse expression on entity Cell:  
 [Cell][Nokia.Packet\_Control\_Unit.bad\_frame\_ind\_ul\_cs1] +  
 [Cell][Nokia.Packet\_Control\_Unit.bad\_frame\_ind\_ul\_cs2]  
 [Cell][Nokia.Packet\_Control\_Unit.bad\_frame\_ind\_ul\_unack]  
 Error: line 1:121: unexpected token: [

OK

UDC Editor: validation.

Repeat with the third field. Now all three fields are added together. The next step is to validate the expression by clicking the **validate** button.

The validation checks for expression syntax and that the selected fields exist.

To demonstrate an error, this example has deleted the plus (+) operator between the last two fields.

When the validation does not pass, an **Error** is displayed with additional information. You must correct the error before saving the UDC.



## UDC editor: Successful validation

1. Browse UDCs    2. UDC Definition - Cell    3. UDC Properties

Entity: Cell    Find Entity

Technology: GSM    Field Type: Peg Count    Vendor: Nokia

Filter: \*bad\_frame\*     Extended Search

PC	UI	Te	Ve	Entity	Field Type	Aggregator	Modified	Data Type
f				GSI Nol Cell	Peg Count	Sum		Integer
f					Peg Count	Sum		Integer
f					Peg Count	Sum		Integer

Functions

- Math
- String
- Miscellaneous
- Operators

validate

save    save as    cancel

Validate

Validation succeeded.

OK

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UDC Editor: successful validation.

This example has the missing addition (+) operator replaced in the statement. So if you clicked the **validate** button, the **Validate** box would be displayed. Click the **OK** button to close the box, and then click the **3. UDC Properties** tab.

## UDC editor 3. UDC properties tab

The screenshot shows the '3. UDC Properties' tab in the UDC editor. The form contains the following fields and options:

- Name \***: bad\_frame\_ind\_ul
- Description**: (empty)
- Heading Line 1**: bad frame ind
- Heading Line 2**: ul
- Aggregation Type**: Sum
- Data Type**: Integer
- Complex?**:
- Technology \***:
  - Generic
  - GPRS
  - GSM
  - UMTS

At the bottom of the form are three buttons: **save**, **save as**, and **cancel**. A yellow callout box with a bracket pointing to the form fields contains the text: "Fill in the fields and make the selections." Another yellow callout box with a pointer to the **save** button contains the text: "Click **save**".

On the UDC Editor **3. UDC Properties** tab, you fill in or select the following information:

**Name:** The UDC name must be unique, without spaces. Underscores are permitted. The name is the same as the one in the **Field Selection** step and other locations, such as **Ranking** field selection and **Traffic Filter** field selection. Provide a name that makes sense.

**Description:** What you type here is displayed in the **Field Selection** step columns and on the **1. Browse UDCs** tab. Blank spaces are permitted.

**Heading Line 1** and **Heading Line 2:** What you type here is displayed on the report result Heading 1 and Heading 2. It also is displayed in the **Field Selection** step columns and on the **1. Browse UDCs** tab.

**Aggregation Type:** You must select the correct aggregator for the UDC you have created. For this example with three **Sum** peg counts added together, the correct **Aggregation Type** is **Sum**.

**Data Type:** You must determine what the data type is for your UDC. You can choose from **String**, **Integer**, and **Float**.

**Complex?** Because this UDC has mathematical operators, it is complex. Select the check box.

**Technology:** Select the check boxes for the applicable technologies. Because this UDC uses only GSM peg counts, it is only applicable for GSM technology.

You can return to the other tabs to verify that all of the data entered is correct. When all items are selected and filled in correctly, click the **save** button.

## UDC editor 1. Browse UDCs tab

The UDC is displayed in the list with its attributes in the associated columns.

Point at a field to display a pop up box with the hidden data, such as this **Modify** cell.

Name	Descr	UDC Source	Tech	Ver	Entity	Aggre	Modi	Data	Heading 1	Heading 2	Owner	Complex
bad_frame_ind_ul		[Cell]![(Nokia.F	GSM		Cell	Sum	3/16/09 6:15 PM	Integer	bad frame ind ul		sysadm	Y

### UDC Editor 1. Browse UDCs tab.

On the **1. Browse UDCs** tab, the UDC is displayed in the list with its attributes in the associated columns. This example has the columns resized so that all of them are visible without scrolling. Point at a field to display a pop-up box with the hidden data, such as this **Modify** cell. This UDC is complete and valid. You could use it in a report definition. To leave the editor, click another tab. Remember that you used a specific user account to own the UDC you created. You might have to log in again with another user account before performing another task.

## Create a UDC process review

1. Log in using the user account that will own the UDC
2. Select the **Tools** tab
3. Select the **User Defined Calculations** tool
4. Select the **Entity** level
5. Click the **new** button
6. Select the **2. UDC Definition** tab
7. Build the statement in the work area
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Create a UDC process review.

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10. Select and enter the UDC attributes.
11. Click the **save** button.
12. Select the **1. Browse UDCs** tab to verify the UDC is complete.

## Summary

- You should now be able to:
  - ▶ Define the terms Peg, PCalc, and UDC
  - ▶ Use the User Interface to create a User Defined Calculation

Summary.

You should now be able to: Define the terms Peg, PCalc, and UDC; Use the User Interface to create a User Defined Calculation.

## Training roadmap for IBM Tivoli Netcool Performance Manager for Wireless

- Click this link to the training page:

[http://www.ibm.com/software/tivoli/education/edu\\_prd.html](http://www.ibm.com/software/tivoli/education/edu_prd.html)

- Click this link for the section on IBM Tivoli Netcool Performance Manager for Wireless:

[http://www.ibm.com/software/tivoli/education/edu\\_prd.html#X916845N81075L22](http://www.ibm.com/software/tivoli/education/edu_prd.html#X916845N81075L22)



Training roadmap for IBM Tivoli Netcool Performance Manager for Wireless.

Click this link to the training page.

Click this link for the section on IBM Tivoli Netcool Performance Manager for Wireless.

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