



Creating Stored Processes

With Cascading, Dynamic Prompts

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SAS Stored Process

- n SAS program
 - n hosted on a server
 - n registered in the metadata
- n advantageous
 - n centrally located code, server based
 - n flexibility and consistency
 - n multiple ways to invoke



SAS Stored Process

- n invoked a number of ways
 - n Add-in for Microsoft Office - AMO
 - n Web Report Studio - WRS
 - n Information Delivery Portal – IDP
 - n STP web interface
 - n EG
- n runs on Workspace or Stored Process Server



SAS Stored Process

- n easily created
 - n EG project
 - n DI Studio
 - n .sas file
 - n SMC
- n output options
- n input parms



Input Parameters

- n every user wants something different
- n build a common process
 - n user selected parameters to customize
 - n define selection criteria
 - n specify output destination(s)
- n customized reporting

Input Parameters – 9.1.3

The screenshot shows the 'Add New Parameter' dialog box with the 'Data Type and Values' tab selected. The 'Data type' is set to 'String' and the 'Data value type' is set to 'A list of values'. The 'Value list' area contains the text '< Click here to enter values >'. The 'Options' section includes several checkboxes: 'Default value' (unchecked), 'Single value only' (selected), 'Allow value not in the list' (unchecked), 'Allow multiple values' (unselected), 'A value is required at runtime' (unchecked), 'Prompt for value' (checked), 'Allow macro substitution' (unchecked), and 'Enclose values within quotes' (unchecked). A 'Separator' field is also present. At the bottom, there are buttons for 'Add and New', 'Add and Close', 'Cancel', and 'Help', along with a 'Load Values' button and navigation arrows.

Add New Parameter

General | **Data Type and Values**

Data type:
String

Data value type:
A list of values

Value list:
< Click here to enter values >

Options:

Default value:

Single value only
 Allow value not in the list

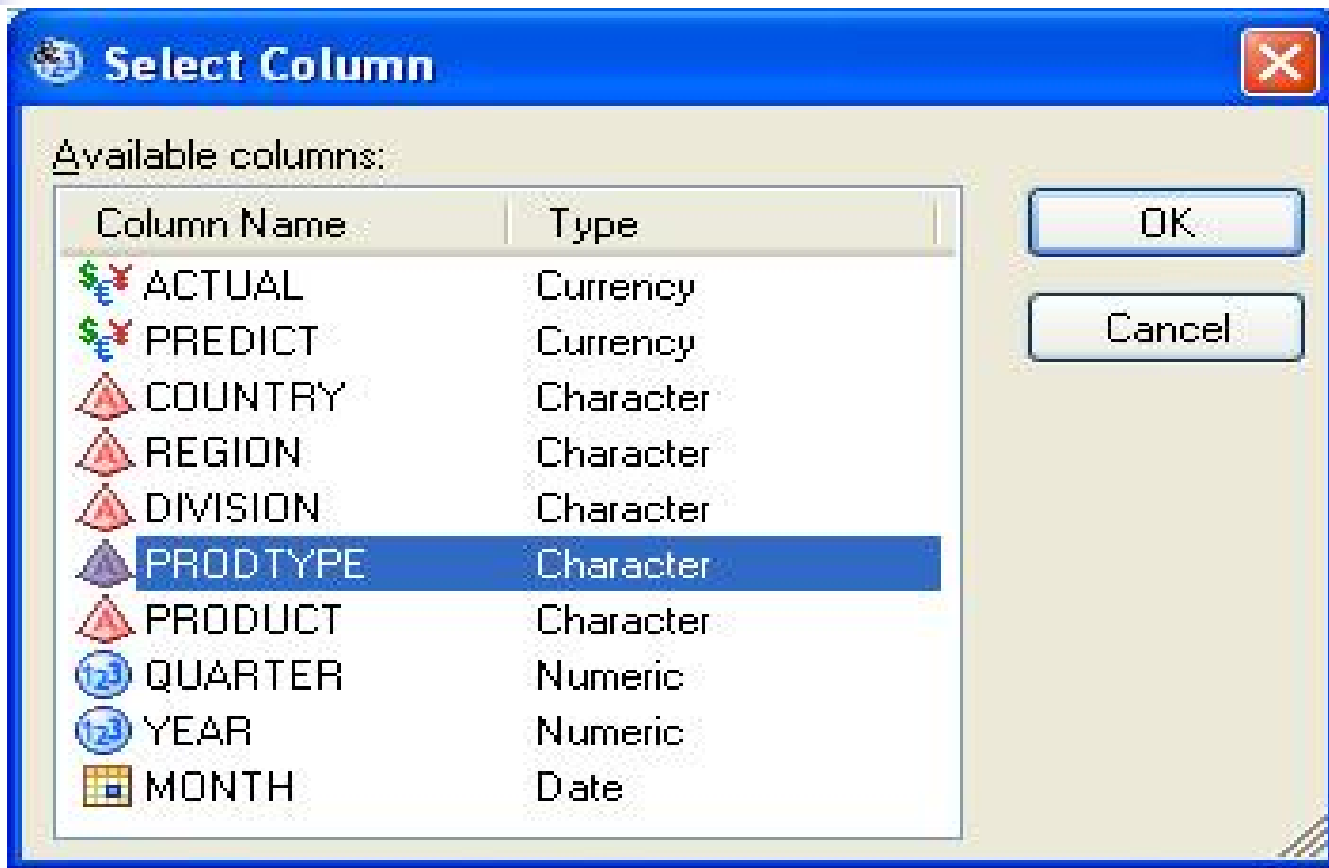
Allow multiple values
Separator: _____

A value is required at runtime
 Prompt for value
 Allow macro substitution
 Enclose values within quotes

Load Values

Add and New | Add and Close | Cancel | Help

Input Parameters – 9.1.3



Input Parameters – 9.1.3

STP Parameters

General

Product Type

FURNITURE
OFFICE

* Select up to 2 value(s).

Product

BED
CHAIR
DESK
SOFA
TABLE

Select up to 5 value(s).

(* denotes required parameter)

Run Cancel

sas



Input Parameters – 9.1.3

- n static

- n list of parm values built when STP defined

- n now selling kitchen stuff ?

- n unlinked

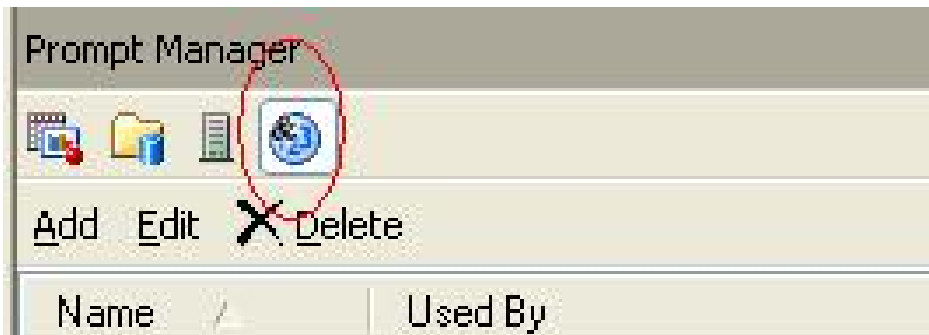
- n office / bed

- n empty report

- n ;-(

Define Parameters – 9.2

n define prompts to the EG project



Define Parameters

Add New Prompt

General Prompt Type and Values

Name:
prodtype

Displayed text:
Product Type

Description:

Options

Hide from user Requires a non-blank value

Read-only values Use prompt value throughout project

OK Cancel Help

Define Parameters

Add New Prompt

General Prompt Type and Values

Prompt type:
Text

Method for populating prompt:
User selects values from a dynamic list

Number of values:
Multiple values

Minimum value count: Maximum value count:

Minimum length: Maximum length:

Data source:
PRDSALE

Unformatted Values
Column:
PRODTYPE

Formatted (Displayed) Values
Column: Use 'Unformatted Values' column Format: Default format (\$CHAR10.)

Append formatted values with unformatted values

Include Special Values
 All possible values

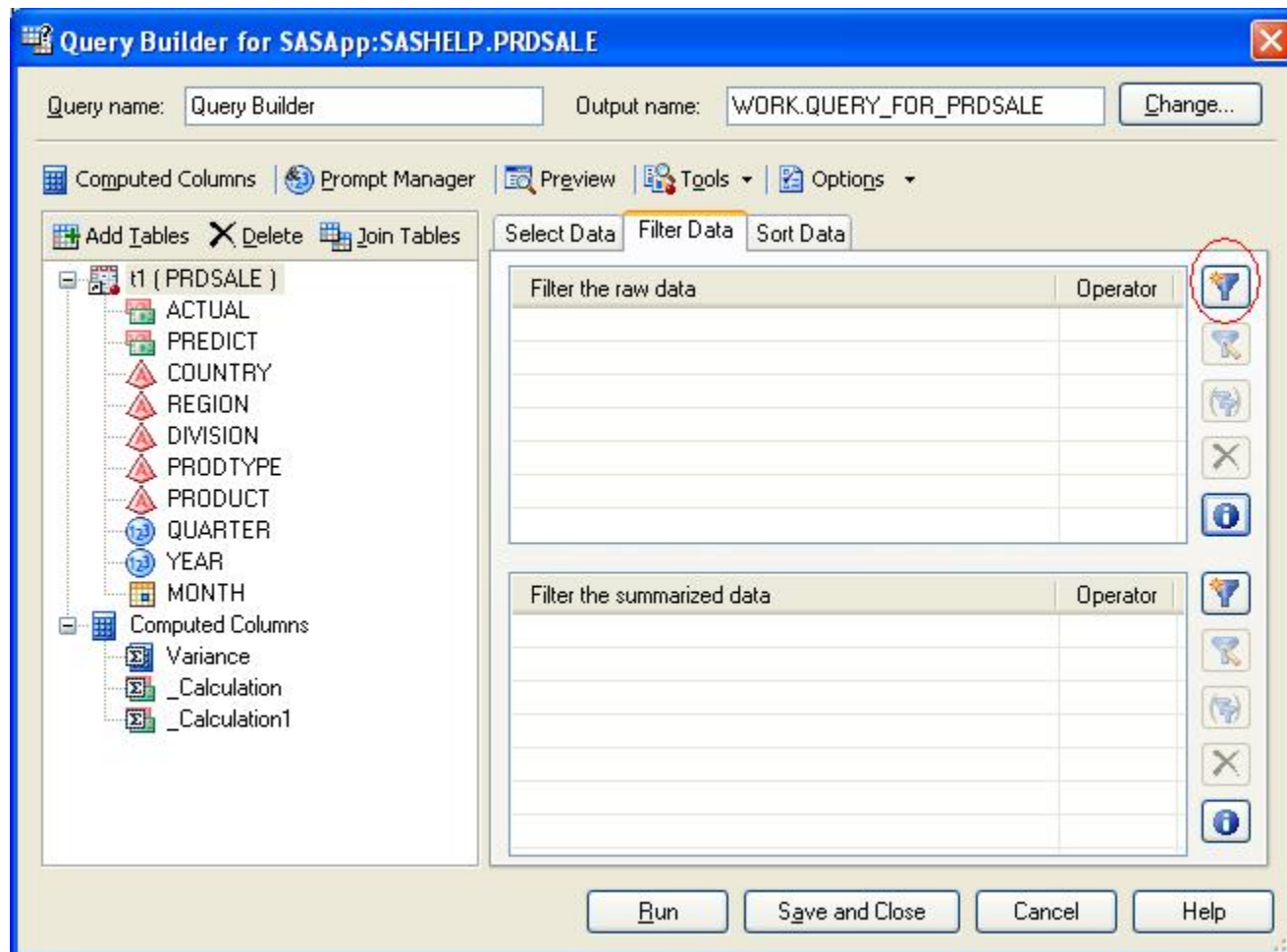
Sort order: Default sort order Default values: (None)

Allow user to specify additional (unformatted) values

OK Cancel Help

- n many different prompt types
- n single, ranges, multiple
- n static, dynamic
- n optional, required

Use Parameters – 9.2



Use Parameters

New Filter ✕

3 of 4 Build a basic filter sas

Identifier:

Column Name:

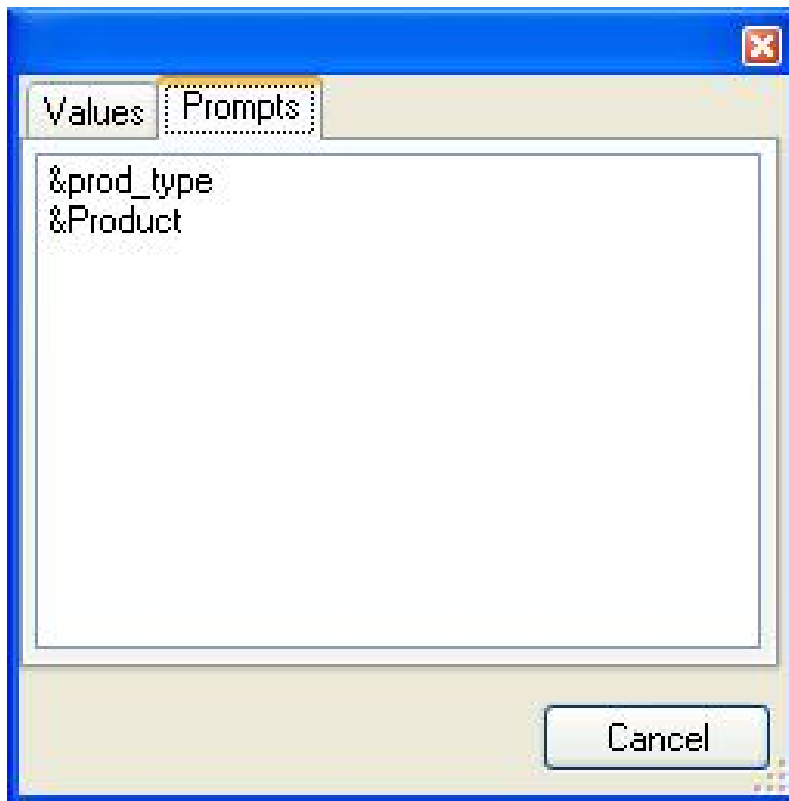
Operator:

Generate filter for a prompt value (only applies to prompt types)

Values:

Enclose values in quotes

Use Parameters



Use Parameters

The screenshot shows the 'New Filter' dialog box in SAS, titled '3 of 4 Build a basic filter'. The dialog is divided into several sections. The top section contains the SAS logo and the title. Below this, there are three input fields: 'Identifier' with the value 't1.PRODTYPE', 'Column Name' with 'PRODTYPE', and 'Operator' with a dropdown menu set to 'In a list'. A checkbox labeled 'Generate filter for a prompt value (only applies to prompt types)' is unchecked. The 'Value' section has a dropdown menu with '&prod_type' selected, and a text area below it containing the SAS macro call '%_eg_WhereParam(t1.PRODTYPE , prod_type, IN, TYPE=S)'. A checkbox 'Enclose values in quotes' is also unchecked. At the bottom, there are five buttons: '<Back', 'Next>', 'Finish', 'Cancel', and 'Help'.

3 of 4 Build a basic filter

Identifier: t1.PRODTYPE

Column Name: PRODTYPE

Operator: In a list

Generate filter for a prompt value (only applies to prompt types)

Value: &prod_type

%_eg_WhereParam(t1.PRODTYPE , prod_type, IN, TYPE=S)

Enclose values in quotes

<Back Next> Finish Cancel Help


Use Parameters

Specify Values for Project Prompts

Show only required items (denoted by ★)

General [Reset group defaults](#)

★ Product Type


Available: 

Selected:

FURNITURE
OFFICE

OFFICE

★ Product

Available: 

Selected:

BED
CHAIR
DESK
SOFA
TABLE

BED

Run Cancel

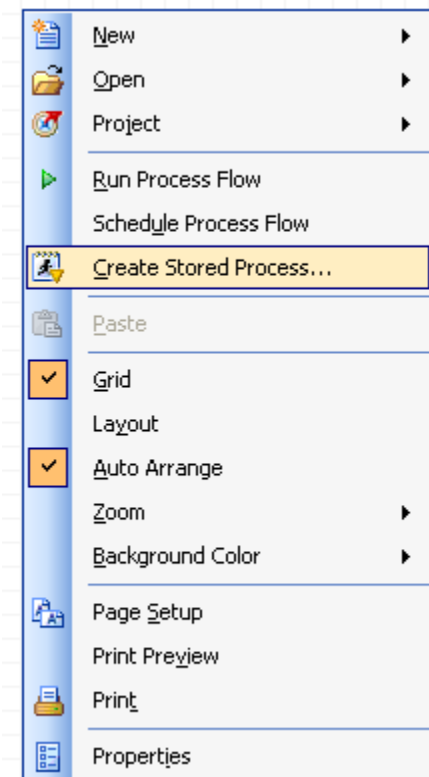
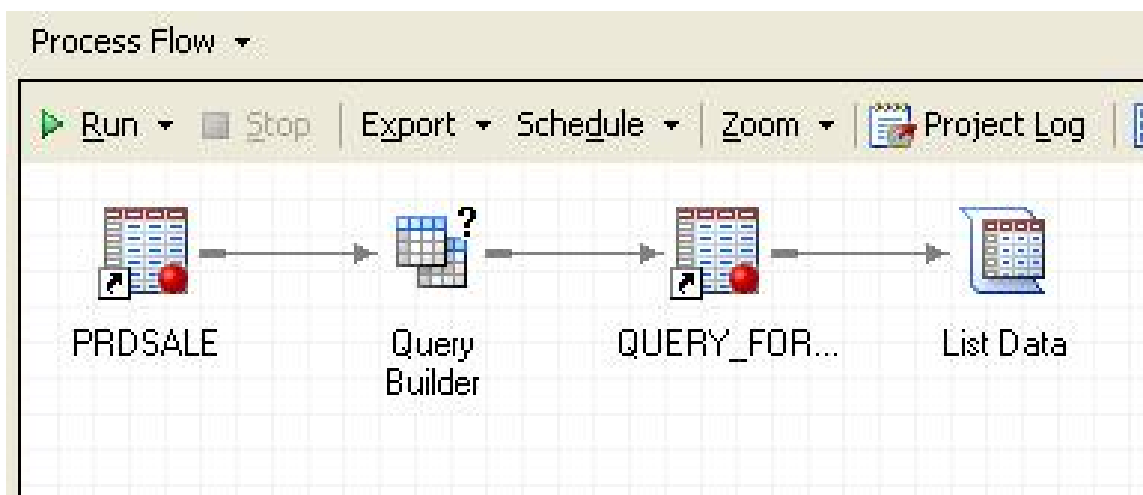
Cascading Prompts ?

n EG 4.2 / 4.3

n allows *dynamic* prompts

n not *cascading* prompts

n create a stored process



Create Stored Process



Create New SAS Stored Process Wizard

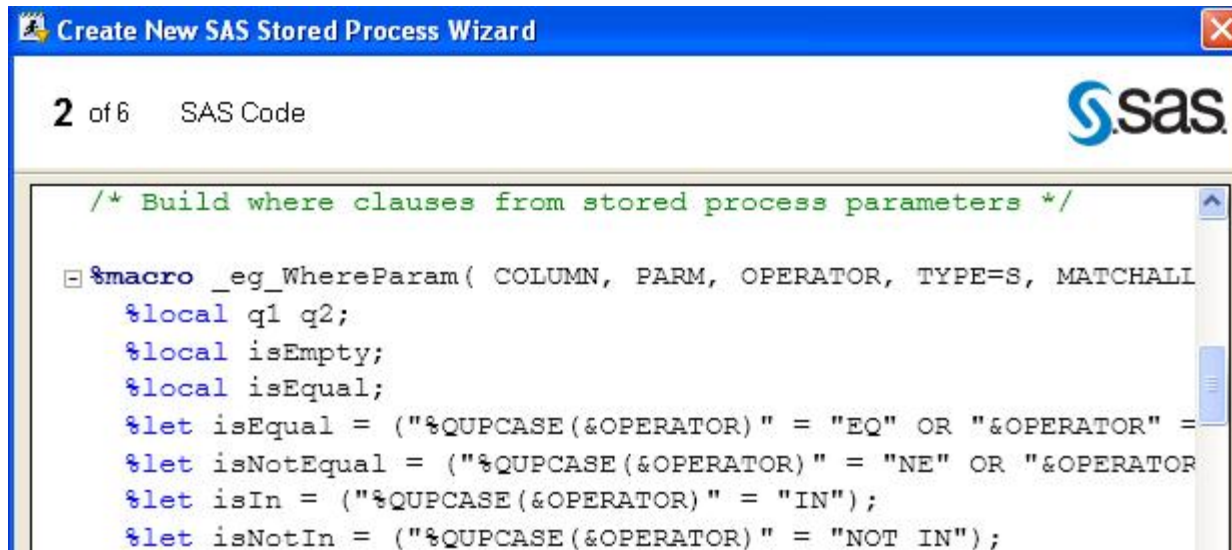
1 of 6 Name and Description

Save Stored Process as:

Name:
TASS STP

Location:
/Users/Harry/My Folder

(Example: /BIP Tree/My Folder Name)



Create New SAS Stored Process Wizard

2 of 6 SAS Code

```
/* Build where clauses from stored process parameters */  
  
%macro _eg_WhereParam( COLUMN, PARM, OPERATOR, TYPE=S, MATCHALL  
  %local q1 q2;  
  %local isEmpty;  
  %local isEqual;  
  %let isEqual = ("%QUPCASE(&OPERATOR)" = "EQ" OR "&OPERATOR" =  
  %let isNotEqual = ("%QUPCASE(&OPERATOR)" = "NE" OR "&OPERATOR"  
  %let isIn = ("%QUPCASE(&OPERATOR)" = "IN");  
  %let isNotIn = ("%QUPCASE(&OPERATOR)" = "NOT IN");
```



%_eg_WhereParam

n ranges

n *column* between *¶m_min* and *¶m_max*

n special values

n date "*&date_param*"d

n datetime "*&datetime_parm*"dt

n in list

n *column* in (*¶m1*, *¶m2*... *¶mN*)



%_eg_WhereParam

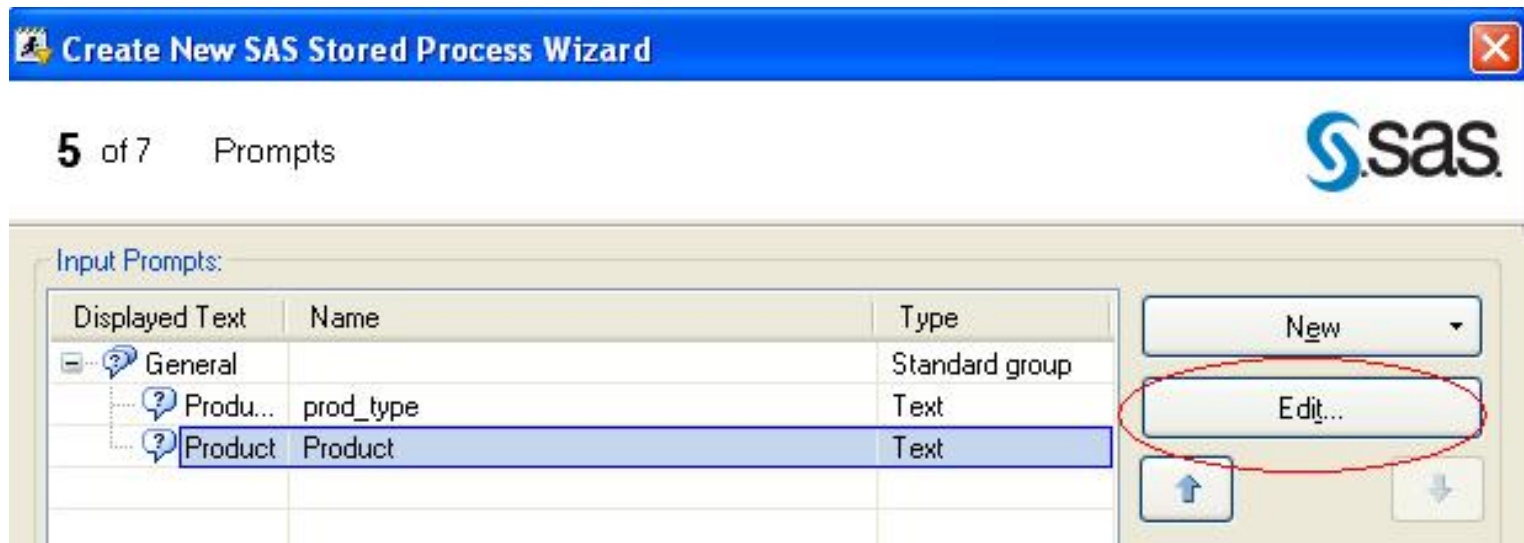
n in list

n *column* in (¶m1, ¶m2... ¶mN)

Items Selected	Macro Variables Created	Comment
0	param_count	value of zero
1	param_count, param1	param_count = 1
> 1	param_count, param0 , param1, param2 ... paramN	param_count = N param0 exists only when N > 1

Create Stored Process

- n *cascading* prompts are available to stored processes



Create Stored Process

The screenshot shows the 'Edit Prompt' dialog box with the 'Dependencies' tab selected. The dialog has three tabs: 'General', 'Prompt Type and Values', and 'Dependencies'. The 'Dependencies' tab is circled in red. Below the tabs, there is a text label: 'This prompt depends on the value of the following prompts:'. Below this label is a table with two columns: 'Prompt' and 'Description of Dependency'. The table contains one row: 'Product Type' (with a dropdown arrow) and 'PRDSALE.PRODTYPE Equal Value of "Product Type"'. To the right of the table are 'Add' and 'Delete' buttons. Below the table is a 'Dependency' section with three fields: 'Column:' (dropdown with 'PRODTYPE'), 'Operator:' (dropdown with 'Equal'), and 'Value of:' (text field with 'Product Type'). At the bottom, there is another text label: 'The following prompts depend on the value of this prompt:'. Below this label is a table with two columns: 'Prompt' and 'Description of Dependency'. The table contains one row: 'No other prompts depend on this prompt'.

Prompt	Description of Dependency
Product Type	PRDSALE.PRODTYPE Equal Value of "Product Type"

Dependency

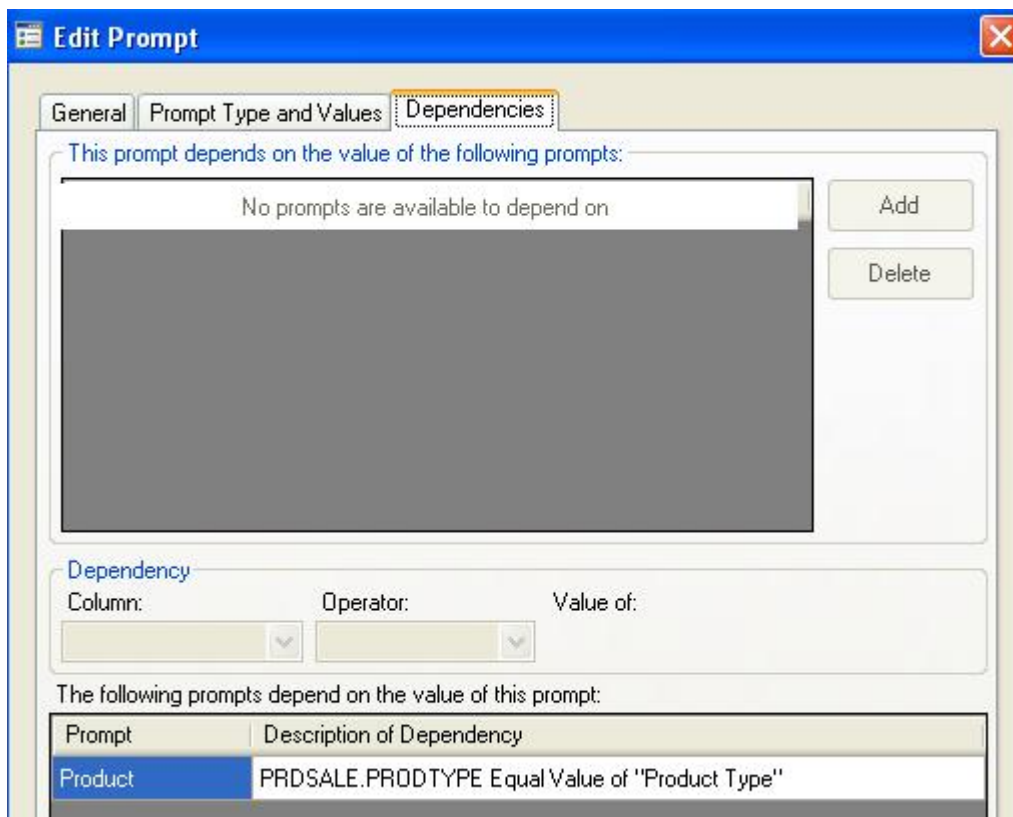
Column: PRODTYPE Operator: Equal Value of: Product Type

The following prompts depend on the value of this prompt:

Prompt	Description of Dependency
No other prompts depend on this prompt	

- n additional tab
- n Product *depends on* Product Type

Create Stored Process



n Product Type now shows a dependency

Execute Stored Process

Specify Values for TASS STP

Show only required items (denoted by ★)

General [Reset group defaults](#)

★ Product Type
Available:

FURNITURE
OFFICE

Selected:

★ Product
Available:

Selected:

Run Cancel

Execute Stored Process

Specify Values for TASS STP [Close]

Show only required items (denoted by ★)

General [Reset group defaults](#)

★ Product Type
Available: 🏠

FURNITURE OFFICE	➡	Selected: OFFICE	✕
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★ Product
Available: 🏠

CHAIR DESK TABLE	➡	Selected:	✕
------------------------	---	-----------	---

Run Cancel



Execute Stored Process

Report Listing

Row number	Year	Product type	Product	SUM_of_ACTUAL	SUM_of_PREDICT	SUM_of_Variance
1	1993	OFFICE	DESK	\$76,167.00	\$68,827.00	\$7,340
2	1994	OFFICE	DESK	\$73,065.00	\$77,368.00	\$-4,303

Execute Stored Process - Excel

The screenshot displays the Microsoft Excel interface with the 'TASS STP' dialog box open. The Excel window title is 'Microsoft Excel - Book1'. The menu bar includes File, Edit, View, Insert, Format, Tools, Data, SAS, Window, and Help. The toolbar shows various icons, including 'Page Setup...', '100%', and font settings (Arial, 10, Bold, Italic, Underline). The 'TASS STP' dialog box has a blue title bar and a close button. It contains a checkbox for 'Show only required items (denoted by *)' which is unchecked. Below this is a 'General' section with a 'Reset group defaults' link. The 'General' section is divided into two parts: 'Product Type' and 'Product'. Each part has an 'Available:' list on the left and a 'Selected:' list on the right. In the 'Product Type' section, the 'Available:' list contains 'FURNITURE' and 'OFFICE', and the 'Selected:' list is empty. In the 'Product' section, both the 'Available:' and 'Selected:' lists are empty. Arrows indicate the flow of items from the 'Available:' list to the 'Selected:' list.

Execute Stored Process - Excel

The screenshot shows a dialog box titled "TASS STP" with a close button in the top right corner. Below the title bar is a checkbox labeled "Show only required items (denoted by *)" which is currently unchecked. The main area is divided into two sections: "General" and "Product".

General section:

- Item: *** Product Type** (marked as required with an asterisk)
- Available: A list box containing "FURNITURE" and "OFFICE".
- Selected: A list box containing "FURNITURE" and "OFFICE".
- Buttons: Two arrows (one grey, one blue) point from the Available list to the Selected list. A close button (X) is next to the Selected list.

Product section:

- Item: *** Product** (marked as required with an asterisk)
- Available: A list box containing "BED", "CHAIR", "DESK", "SOFA", and "TABLE".
- Selected: An empty list box.
- Buttons: Two arrows (one grey, one blue) point from the Available list to the Selected list. A close button (X) is next to the Selected list.

At the bottom right of the dialog are two buttons: "Run" and "Cancel".



Execute Stored Process - Excel

	A	B	C	D	E	F	G
1	Report Listing						
2							
3	Row number	Year	Product type	Product	SUM of ACTUAL	SUM of PREDICT	SUM of Variance
4	1	1993	FURNITURE	BED	\$69,463.00	\$70,923.00	(\$1,460)
5	2	1993	OFFICE	DESK	\$76,167.00	\$68,827.00	\$7,340
6	3	1994	FURNITURE	BED	\$72,574.00	\$66,944.00	\$5,630
7	4	1994	OFFICE	DESK	\$73,065.00	\$77,368.00	(\$4,303)

Define Stored Process in SMC

New Prompt

General Prompt Type and Values

Prompt type:
Text

Method for populating prompt: User selects values from a dynamic list

Number of values: Multiple values

Text type:
Single line

Minimum value count: 1

Maximum value count:

Minimum length:

Maximum length:

Maximum number of values to display at a time:

Data source:
/Data/PRDSALE(Table) Browse...

Unformatted Values

Column:
Product type

OK Cancel Help

Define Stored Process in SMC

The screenshot shows the 'New Prompt' dialog box with the 'Prompt Type and Values' tab selected. The dialog is titled 'New Prompt' and has three tabs: 'General', 'Prompt Type and Values', and 'Dependencies'. The 'Prompt Type and Values' tab contains the following fields and controls:

- Prompt type:** A dropdown menu set to 'Text'.
- Method for populating prompt:** A dropdown menu set to 'User selects values from a dynamic list'.
- Number of values:** A dropdown menu set to 'Multiple values'.
- Text type:** A dropdown menu set to 'Single line'.
- Minimum value count:** An empty text input field.
- Maximum value count:** An empty text input field.
- Minimum length:** An empty text input field.
- Maximum length:** An empty text input field.
- Maximum number of values to display at a time:** An empty text input field.
- Data source:** A dropdown menu set to '/Data/PRDSALE(Table)' and a 'Browse...' button.

At the bottom of the dialog, there are three buttons: 'OK', 'Cancel', and 'Help'.

Define Stored Process in SMC

New Prompt

General Prompt Type and Values **Dependencies**

This prompt depends on the value of each of the following prompts:

Prompt	Description of Dependency	Add	Delete
Product Type	PRDSALE.Product type Equal Value of "Product Type"		

Dependency

Column: Product type Operator: Equal Value of prompt: Product Type

The following prompts depend on the value of this prompt:

OK Cancel Help



Web Interface to Excel

```
%global _odsdest _odsoptions _odsstyle ;
```

```
%macro check_web;
```

```
  %if %upcase(%scan(%bquote(&_client),1)) = STOREDPROCESSSERVICE %then %do;
```

```
    data _null_;
```

```
      rc = stpsrv_header('Content-type', 'application/vnd.ms-excel');
```

```
      rc = stpsrv_header('Content-disposition', "attachment;
```

```
        filename=detail_extract_&sysdate9._&stime.xls");
```

```
    run;
```

```
    %let _ODSDEST      = tagsets.excelXP;
```

```
    %let _ODSOPTIONS = options (autofilter='all' frozen_headers='yes' );
```

```
    %let _ODSSTYLE    = seaside;
```

```
  %end;
```

```
%mend check_web;
```

```
%check_web
```

```
%stpbegin;
```



Conclusion

- n parameters
 - n provide customized results
 - n dynamic = data driven
 - n cascading = data relationships

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