

Using Dynamic Data Classes

PxPlus 2017 (v14) & PxPlus 2018 (v15)

Agenda

Dynamic Data Classes

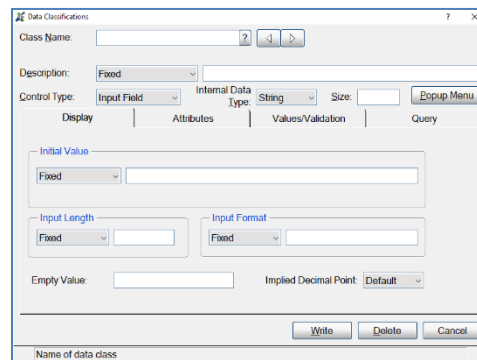
- Overview of 2018 Enhancements
- Data Class Definitions
- Data Dictionary
- NOMADS Designer
 - Usability Improvements
 - Radio Button Data Classes
 - Static Control Properties
 - Dynamic Control Properties
 - Property Sheets



Data Class Overview

- Used to implement standardized definitions for commonly used elements
- Provide consistency to Data Dictionary and panel design
- Various properties for the controls are defined and the Data Class then acts as a 'template' when defining controls in NOMADS or the Data Dictionary

- Not New



The screenshot shows a dialog box titled "Data Classifications". It contains several fields and controls for defining a data class. The "Class Name" field is empty. The "Description" field is set to "Fixed". The "Control Type" is set to "Input Field". The "Internal Data Type" is set to "String". The "Size" field is empty. There is a "Popup Menu" button. Below these are tabs for "Display", "Attributes", "Values/Validation", and "Query". The "Initial Value" field is set to "Fixed". The "Input Length" field is set to "Fixed". The "Input Format" field is set to "Fixed". The "Empty Value" field is empty. The "Implied Decimal Point" is set to "Default". At the bottom, there are "Write", "Delete", and "Cancel" buttons. A status bar at the bottom left says "Name of data class".

Data Class Controls

- Available for **input** type controls

Balance:

Multi Line

Show unpaid only

Check Box

Txid	Description
CSTMNT	Client file maintenance
DPTMNT	Department file maintenance
GENRPT	Generate Report
INVPRT	Print Invoice
MNUMNT	Menu tree maintenance
ORDENT	Order Entry
PRDMNT	Product file maintanance

List Box

Default Payment Method:

Drop Box

Send Output To

Viewer PDF File

Radio Button

Issue

- Historically, assigning a Data Class when creating a control in NOMADS would copy over Data Class values into the control.
- Once the control was created – the Data Class used to create the control no longer served any purpose



What if the Data Class changes?

PxPlus 2018 Enhancements



2018

1. Introduced the concept of **Dynamic** Data Class properties
2. Added more properties to Data Class Definitions
3. Updated Data Dictionary Maintenance to support these changes
4. Usability enhancements in NOMADS designers

Dynamic Data Class Properties

- Select Data Class properties can now be designated as **Dynamic** on NOMADS controls
- Dynamic properties will be evaluated at run-time (NOMADS or *iNomads*) - taking their values from what is defined in the class at that time

DATA CLASS DEFINITIONS

Data Class Definitions

2018

- Re-organized panel control order to move **Control Type** after **Class Name**
- Renamed **Input Field** to **Multi Line**
- Added **Dynamic** checkbox
 - Defaults to checked for new Data Classes
- Indicated which Data Class properties can be made dynamic with *
- Added **Visual Class**, **iNomads Class**, **Attributes** and other select properties
- Added message box warning when deleting a Data Class

Multi Line Data Classes

Data Class Definition

Properties with *asterisk* can be dynamic

Tab	New for PxPlus 2018
Display	Separator *Visual Class *iNomads Class
Attributes	9 new Attributes Scrollbars Object Persistence Alt-Key
User Aids (new)	*Help Reference *Floating Tip *Message Bar
Validation	n/a
Query	n/a

Other Controls

- Similar changes for **Drop Boxes, List Boxes** and **Check Boxes**
 - For Check Boxes - added definitions of Bitmaps for up to 3 states
- **Radio Buttons**
 - Added Control Height
 - Added User Aids tab (Help, Tip, Message Bar)
 - Addressed issues with duplicate/missing Translation Values

DATA DICTIONARY

Data Dictionary

- Data Classes can be assigned when defining an Element in the Data Dictionary
- Element is populated from information in the Data Class
 - Display Tab - Short Description, Length, Default Value, Validation, Print Format and User Defined Tag Field
 - User Aids
 - Query Tab

Dictionary Enhancements

2018

- Edited Labels to correspond with labels in NOMADS designer
- Help Reference on User Aids tab is now also copied from the Data Class
- Added ability to have Non-Query logic come over from the Data Class
- Added a **Reapply Data Class** button to facilitate applying changes when Data Classes are updated

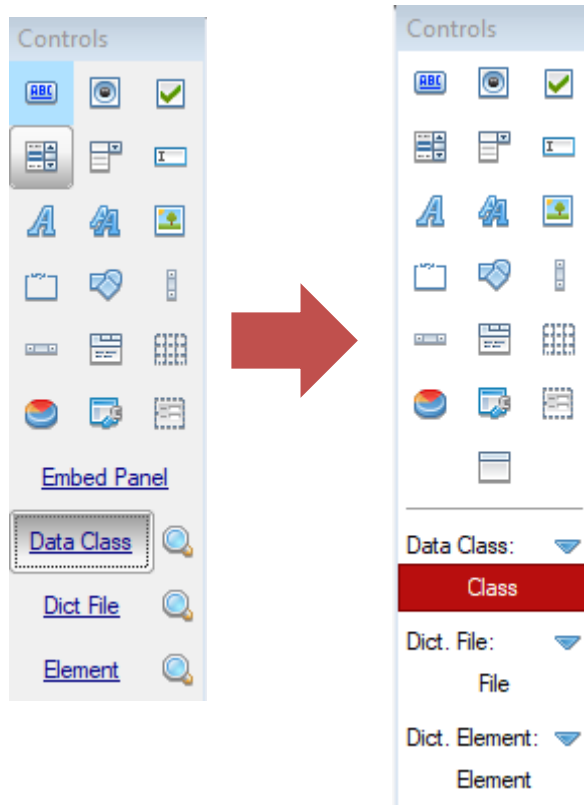
NOMADS DESIGNER

Data Classes in NOMADS

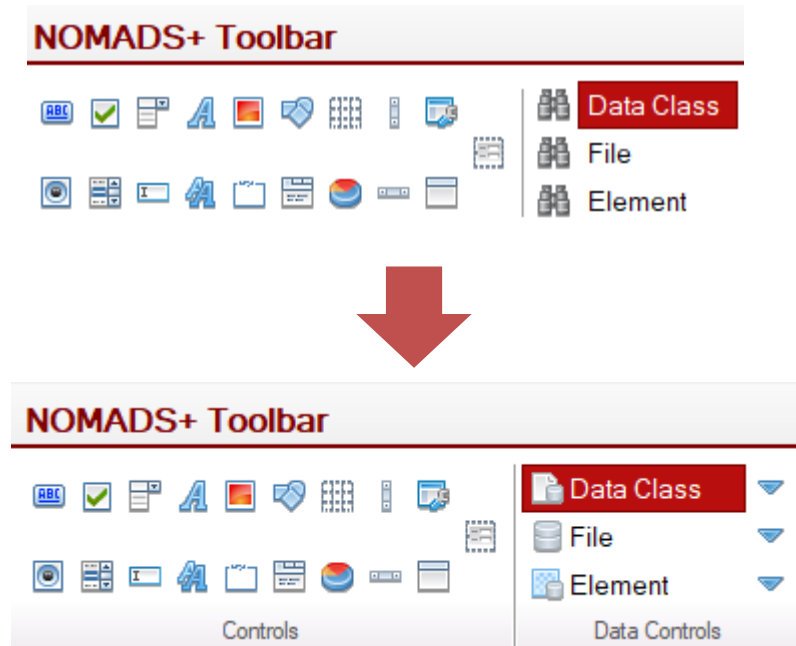
- Data Classes are used in the NOMADS designer in one of 3 ways:
 1. Assigned after drawing a control
 2. Creating a control directly using a Data Class
 3. Creating a control using a Data Dictionary Element which has a Data Class assigned

NOMADS Control Toolbars

Folder Style/
Property Sheets



NOMADS+



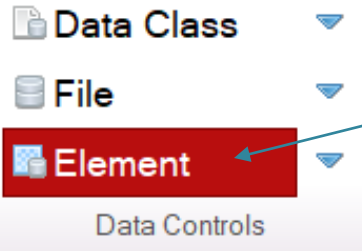
2018

Data Controls Usability



Split NOMADS+ toolbar into Controls, Data Controls, Update, Maintain and Edit sections

Added icons to radio buttons



Redesigned query buttons

Pressing radio button will launch the query if no prior selection has been made

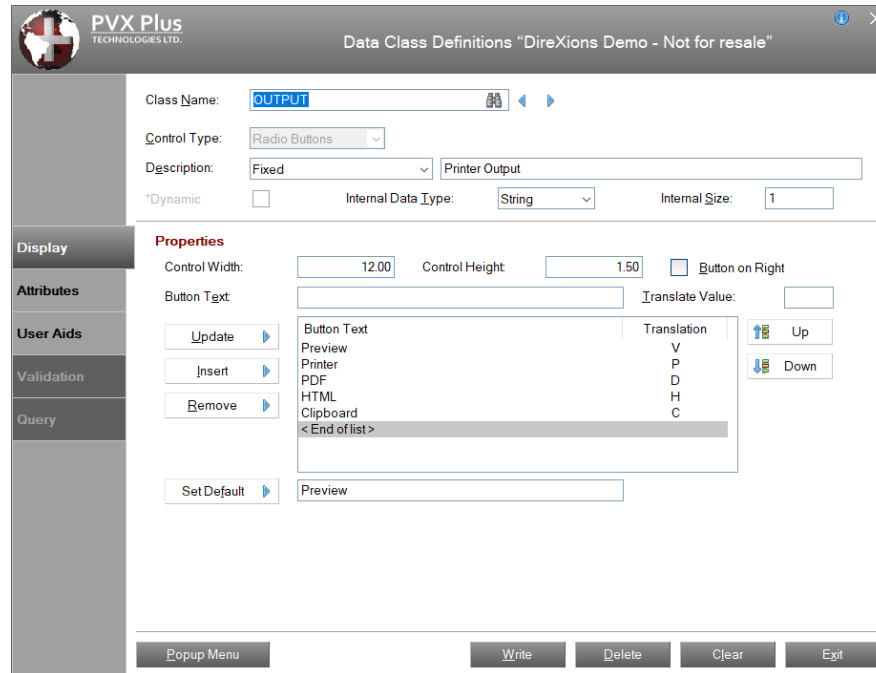
Table Name	Element Name	Description	Data Class
FW_CodeTables	codeValue	Value	
FW_CodeTables	codeDesc	Description	
FW_CodeTables	lastChangedDate	Date Last Changed	*DATE
FW_CodeTables	lastChangedUID	Last Changed User	
FW_ClassSeg	clsName	Class Name	
FW_ClassSeg	clsSegNo	Segment #	

New query for use with the Element radio button if no File has been selected

Made use of drop queries (NOMADS+ only)

Radio Button Data Classes

- Different than other Data Classes because multiple controls are created
- Cannot be **Dynamic**



Radio Button Data Classes

- Only available when drawing a Data Class Data Control
- Select a Radio Button Data Class and draw a control in the designer
- Orientation of the control size drawn will determine radio button locations
 - Portrait will result in vertically stacked buttons
 - Landscape will result in side-by-side buttons

'Dynamic' vs. 'Static'

- A Data Class can now be designated as a **Dynamic** Data Class
 - This distinction is used *ONLY* when first applying the data class in the NOMADS designer
 - Static class will set static values from the Data Class
 - Dynamic classes will initially make all allowable properties dynamic
- Once a control is created - individual properties can be made dynamic or static regardless of how the Data Class was originally designated



Note:

NOMADS Reapply Data Class

2018

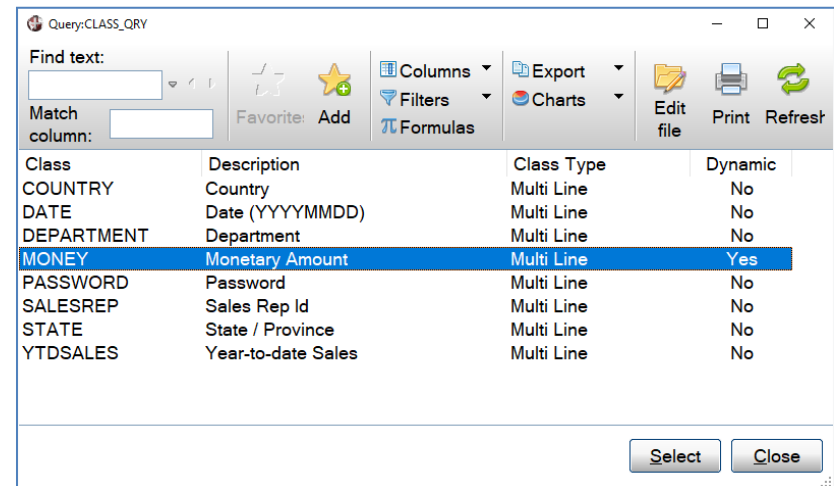
- Similar to the **Reapply Data Class** button in the Data Dictionary
- Available for:
 - Multi-lines
 - Check Boxes
 - Drop Boxes
 - List Boxes
- Current values from the Data Class (either static or dynamic) will be copied over existing values of the control
- Control's size (height and width) will **not** be changed

Query Enhancements

2018

- Data Class Query is now filtered to only show Data Classes that match the control type
 - Tristate Check Boxes with Check Boxes
 - Variable Drop Boxes with Drop Boxes
 - Variable List boxes with List Boxes

- New Column to indicate if the Data Class is 'Dynamic'



The screenshot shows a window titled "Query:CLASS_QRY" with a toolbar containing "Find text:", "Match column:", "Favorite: Add", "Columns", "Filters", "Formulas", "Export", "Charts", "Edit file", "Print", and "Refresh". Below the toolbar is a table with the following data:

Class	Description	Class Type	Dynamic
COUNTRY	Country	Multi Line	No
DATE	Date (YYYYMMDD)	Multi Line	No
DEPARTMENT	Department	Multi Line	No
MONEY	Monetary Amount	Multi Line	Yes
PASSWORD	Password	Multi Line	No
SALESREP	Sales Rep Id	Multi Line	No
STATE	State / Province	Multi Line	No
YTDSALES	Year-to-date Sales	Multi Line	No

At the bottom right of the window are "Select" and "Close" buttons.

Static Control Properties

- Dynamic checkbox in Data Class Definitions has not been checked
- Behavior when assigning a Data Class will remain the same as in previous versions
- Static values are written into the control from the current values in the Data Class
- Subsequent changes to the Data Class will not affect the values associated with the control

Static Data Class Defaults

- Data Class Control:
 - All properties are copied from the Data Class Definition
- Data Dictionary Element:
 - Non-Data Dictionary related properties will be copied from the Class definition
 - Data Dictionary properties will be copied from the Data Dictionary definition
 - In case of discrepancy between the Data Class and the Data Dictionary – the Data Dictionary wins

Dynamic Data Properties

- Expressions are used to make all allowable control properties dynamic

```
%nomads 'class' text$
```

- Values will be read from the settings associated with the Data Class at run time
- Changes made to the Data Class will automatically be applied to the control
- How is this accomplished?

NOMADS Data Class Object

2018

*obj/class.pvc

- Mechanism for Dynamic Data Class properties
- Instantiated automatically within the NOMADS object (***obj/nomads.pvc**) and can therefore be referenced as **%nomads'class**
- Setting the ID\$ property to the current Data Class gives access to all other dynamic property values
 - NOMADS designer
 - Run-time in NOMADS
 - *iNomads*

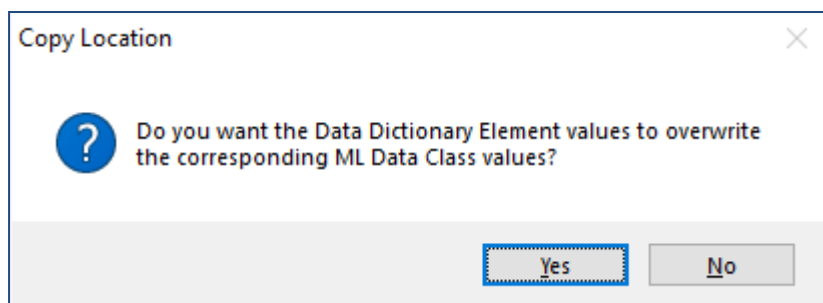
Dynamic Control Properties

The screenshot shows the 'Multi Line Properties' dialog in PVX Plus. The 'Dynamic Class' checkbox is checked and highlighted with an orange box, labeled 'Check Box'. The 'Floating Tip' and 'Message Bar' sections have dropdown menus set to 'Dynamic', both highlighted with orange boxes and labeled 'Drop Box'.

- Dynamic options are not available if no Data Class has been assigned

Dynamic Data Class Defaults

- Data Class Control:
 - All properties are copied from the Data Class Definition – some as dynamic



- Data Dictionary Element:
 - Non-Data Dictionary related properties will be copied from the Class definition (may be dynamic)
 - User is prompted to determine if Data Dictionary properties will be copied from the Data Dictionary definition (static) or the Data Class Definition (may be dynamic)

NOMADS – PROPERTY SHEETS

Property Sheets Designer

Panel Static: Properties For 'DROP_BOX_1' (Drop box)

Properties Preview Test Help

Property	Value
Name/Type	
Control Name	DROP_BOX_1
Control Type	Drop box
Data Class	PAYMENTTYPE
Events	
Background Loading	...
On Change	...
On Focus	...
Post Create	...
Coordinates	
Column	41.00
Height	1.25
Line	1.25
Width	20.00
Display	
Alt-Key	...
Automation Text	...
Default Setting	Expression= %nomads'class'default\$
Input Length	...
List Values	Expression= %nomads'class'values\$
Object Persistence	Default
Translation Values	Expression= %nomads'class'translate\$
Smart Load	...
Attributes	
Allow Variable Input	<input type="checkbox"/>
Auto Tab Skip	<input type="checkbox"/>
Automatic (signal all cha	<input type="checkbox"/>

- Similar to NOMADS+ and Folder Style



Assign Data Class

Data Class Options

Class: PAYMENTTYPE

Dynamic Class

Reapply Class

Ok Cancel

- Assign Data Class dialog

Property Sheets Designer

Panel : Properties For 'PAYMENTTYPE' (Drop box)

Properties [Preview] [Test] [Help]

Property	Value
Initially Hidden	<input type="checkbox"/>
Signal On Exit	<input type="checkbox"/>
Strip Trailing Spaces	<input type="checkbox"/>
Tab Stop	<input checked="" type="checkbox"/>
Disable On Empty	<input type="checkbox"/>
Ignore Change Flag	<input type="checkbox"/>
Colors	
Background	Default ...
Foreground	Default ...
Font	
Font	<Default Graphic Font> ...
User Aids	
Floating Tip	Expression= %nomads'class'tip\$...
Help Reference	=%nomads'class'help\$...
Message Bar	Expression= %nomads'class'message\$...
Other	
Comments	...
Groups	FIELDS ...
Popup Menu	...
Query	Panel/Expression= %nomads'class'que ...
Security	...
User Tag	Expression= %nomads'class'tag\$...
Visual Class	Expression= %nomads'class'visual_clas ...
iNomads Class	Expression= %nomads'class'inomads_cl ...

- Dynamic Check Box

Help Reference

Dynamic (from Data Class)

Help

Type: [External] [Fixed]

File Name: <Default Help File>

Keyword Reference Popup [Test]

[OK] [Cancel]

- Dynamic Drop Box

User Tag

[Dynamic]

%nomads'class'tag\$

[OK] [Cancel]

Review

- Existing Data Class functionality has been reviewed and standardized
- Data Class Definitions have been expanded to include more properties
- **Re-apply Data Class** buttons created to simplify applying the new changes to existing controls or Data Dictionary Elements
- Select properties of controls with Data Classes may now be made **Dynamic** on a property by property basis
- Dynamic properties will be evaluated from the current Data Class settings at run time

Additional Resources

The help link(s) below refer to the current on-line help pages. The functionality may have been further updated since the PxPlus 2018 (version 15) release

- [Data Classes](#)
- [Dynamic Control Properties](#)
- [Data Classes – FAQs](#)
- [Data Dictionary Maintenance](#)
 - [Element Description](#)
- [NOMADS Controls Toolbar](#)