

From my Laboratory & Support Work

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Agenda

- › Not yet published libraries
- › How to display this?
- › From support topics

Libraries

Not yet published libraries



Libraries

- › DateTime
 - › Collection of date and time handling functions
- › Printing
 - › Collection of functions to get information from a printer, installed printer(drivers)



Date and Time related functions

cDateTimeHandler

- › Get and Set of the Windows SystemTime (current system time in UTC format)
- › Get UNIX time from current datetime (UNIX time calcs from 1/1/1970)
- › Calc datetime (UTC or local) from a UNIX timestamp

Now as UNIX Epoch time	<input type="text" value="1637592098"/>	To local datetime	Local:	<input type="text" value="22-11-2021 15:41:38"/>
		To UTC datetime	UTC:	<input type="text" value="22-11-2021 14:41:38"/>

- › ISO8601WeekNumber
- › CurrentUTCDateTime
- › DateTimeToUnixTime

Get	<input type="text" value="22-11-2021 14:42:27"/>
-----	--

cDateTimeHandler

- › DateTimeToFileTime (Filetime calculates from 1/1/1601)
- › CompareFileTimes

cDateTimeHandler

- › Current timezone information
- › Retrieve a list of timezones stored in Windows with date and time of switching to DST and back.

Bias	First Year	Last Year	Standard Name	To Standard Date	Standard Bias	Daylight Name	To Daylight Date	Daylight Bias	TimeZone Key Name	Dynamic Daylight Disabled
240	2004	2020	Central Brazilian Stan...		0	Central Brazilian Dayli...		-60	Central Brazilian Stand...	<input type="checkbox"/>
-60			Central Europe Stand...	okt last zo 03:...	0	Central Europe Daylig...	mrt last zo 02:...	-60	Central Europe Standa...	<input type="checkbox"/>
-60			Central European Sta...	okt last zo 03:...	0	Central European Day...	mrt last zo 02:...	-60	Central European Stan...	<input type="checkbox"/>
-660			Central Pacific Stand...		0	Central Pacific Daylig...		-60	Central Pacific Standar...	<input type="checkbox"/>
360	2006	2007	Central Standard Time	nov 1st zo 02:...	0	Central Daylight Time	mrt 2nd zo 02:...	-60	Central Standard Time	<input type="checkbox"/>

Read

Year	Bias	To Standard Date	Standard Bias	To Daylight Date	Daylight Bias
2020	-60	25-10-2020 03:00:00	0	29-03-2020 02:00:00	-60
2021	-60	31-10-2021 03:00:00	0	28-03-2021 02:00:00	-60
2022	-60	30-10-2022 03:00:00	0	27-03-2022 02:00:00	-60

cMathHandler

- › Floor and Ceiling function
 - › Other languages use these functions and it makes it easier to read and compare code



Collection of classes, functions for printing

cPrintersHandler

- › TestPrinter status
 - › Pass printername and function returns status
- › ChangeDefaultPrinter
 - › Pass name of the printer
- › Enumerate the available printers on local machine
 - › Enumerates the list of printers to which the user has made previous connections or all

cDefaultPrinter

- › DefaultPrinter
 - › Returns the name of the current default printer
- › ChangeDefaultPrinter
 - › Pass name of the printer to become the new default

cPrinterDriversHandler

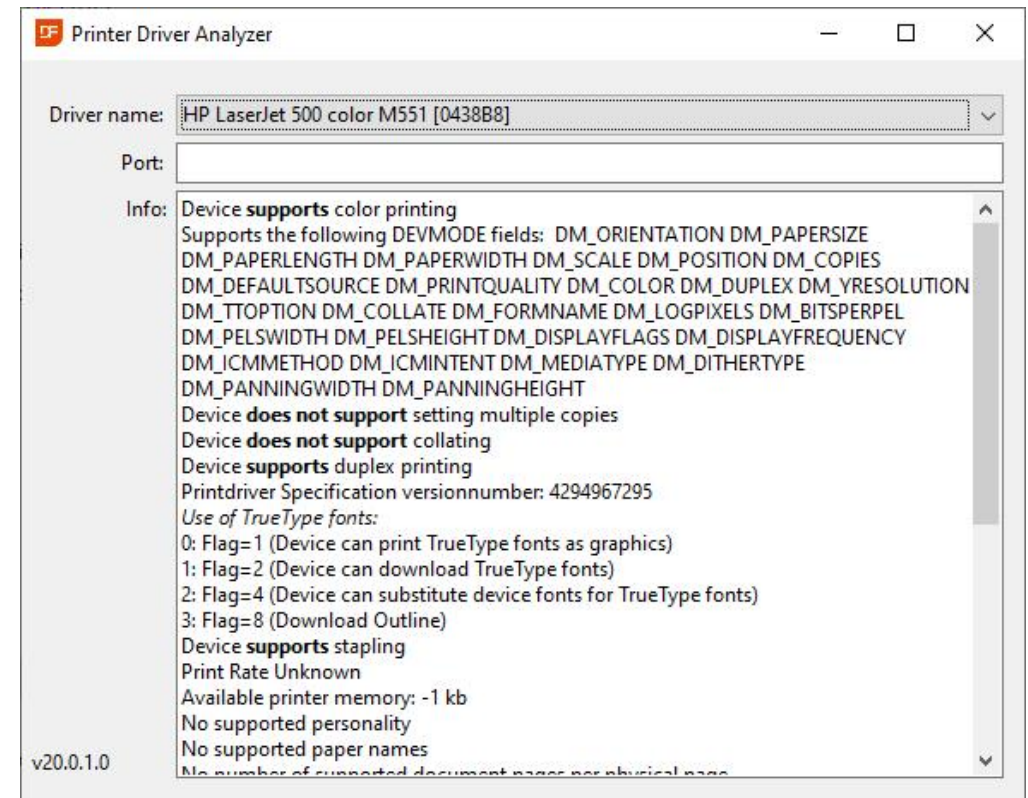
- › Enumerate the available printer drivers
 - › Pass servername, environment and info type
 - › Info type is about how much information you want to get
 - › Only the name of the printer driver or extended information

The screenshot shows the Windows Device Manager 'Drivers' tab. A list of drivers is visible, including 'Send to Microsoft OneNote 16 Driver', 'Microsoft XPS Document Writer v4', and 'HP LaserJet P3011/P3015 PCL6 Class Driver'. A 'DriverInfo' dialog box is open for the selected HP driver, displaying the following information:

Attribute	Value
Version	4
DriverName	HP LaserJet P3011/P3015 PCL6 Class Driver
Environment	Windows x64
DriverPath	C:\Windows\System32\DriverStore\FileRepository\ntpri...
DataFile	C:\Windows\System32\DriverStore\FileRepository\prnh...
ConfigFile	C:\Windows\System32\DriverStore\FileRepository\prn...
HelpFile	
DependentFiles	C:\Windows\System32\DriverStore\FileRepository\prnh... C:\Windows\System32\DriverStore\FileRepository\prnh... C:\Windows\System32\DriverStore\FileRepository\prnh... C:\Windows\System32\DriverStore\FileRepository\prnh...

cDeviceCapabilities

- › Contains functions to discover what printer options are supported
- › Used by Printer Driver Analyzer tool available for download from www.dataaccess.eu



cPrinterPortsHandler

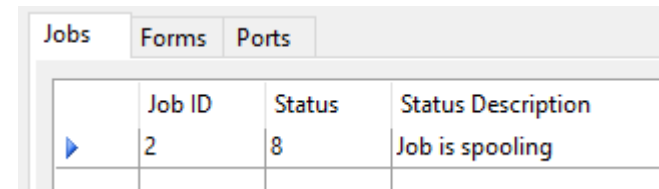
- › Enumerate the available ports for a specific printer
 - › Pass printername and ports type
 - › Port type is about how much information you want to get
 - › Only name of the port or also description and monitor name

Jobs	Forms	Ports
		Name
		▶ WSD-556eca21-7440-4...
		WSD-81eef36f-3260-4...
		WSD-d96b9db9-5cc5-...
		WSD-ef8e5268-cffd-4...
		SHRFAX:
		COM1:
		COM2:

Jobs	Forms	Ports			
		Name	Monitor	Description	Type
		▶ WSD-556eca21-7440-4...	WSD Port Monitor	IPP Port	9
		WSD-81eef36f-3260-4...	WSD Port Monitor	WSD Port	9
		WSD-d96b9db9-5cc5-...	WSD Port Monitor	WSD Port	9
		WSD-ef8e5268-cffd-4...	WSD Port Monitor	WSD Port	9
		SHRFAX:	Microsoft Shared Fax ...	Fax Monitor Port	1
		COM1:	Local Monitor	Local Port	3
		COM2:	Local Monitor	Local Port	3

cPrinterJobsHandler

- › Enumerate the available jobs for a specific printer
 - › Pass printername and jobs type
 - › Job type is about how much information you want to get
 - › Limited number of job information items or more



Job ID	Status	Status Description
2	8	Job is spooling

cPrinterFormsHandler

- › Enumerate the available forms for a specific printer
 - › Pass printername and forms type
 - › Forms type is about how much information you want to get

Forms	Ports	
Form Name	Size	Imageable
C size sheet	Width: 431,8mm, Height:...	Width: 431,8
D size sheet	Width: 558,8mm, Height:...	Width: 558,8
E size sheet	Width: 863,6mm, Height:...	Width: 863,6
Envelope DL	Width: 110mm, Height: 2...	Width: 110m

Forms	Ports				
Form Name	Size	Imageable	MUI DLL	DisplayNa...	LanguagelD
C size sheet	Width: 431,...	Width: 431,...	localspl.dll...	C size sheet	1033
D size sheet	Width: 558,...	Width: 558,...	localspl.dll...	D size sheet	1033
E size sheet	Width: 863,...	Width: 863,...	localspl.dll...	E size sheet	1033
Envelope DL	Width: 110...	Width: 110...	localspl.dll...	Envelope DL	1033
Envelope C5	Width: 162...	Width: 162...	localspl.dll...	Envelope C5	1033
Envelope C3	Width: 324...	Width: 324...	localspl.dll...	Envelope C3	1033
Envelope C4	Width: 229...	Width: 229...	localspl.dll...	Envelope C4	1033

When?

- › Build for v20 are being made and soon available from www.dataaccess.eu



How to display this?

How to display this

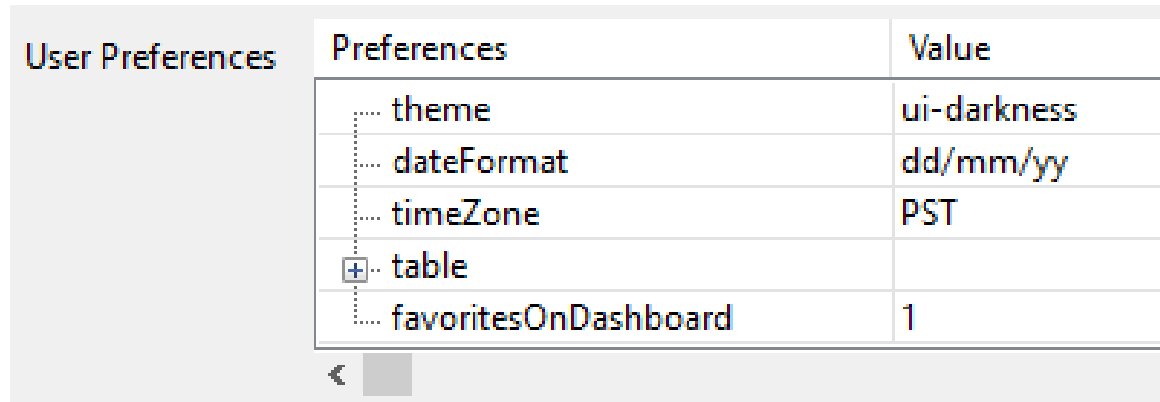
- › In a sample database from Microsoft I found the following content

	PersonID	FullName	UserPreferences	CustomFields	OtherLanguages
1	1	Data Conversion Only	{ "theme": "blitzer", "dateFormat": "yy-mm-dd", "timeZo...	NULL	NULL
2	2	Kayla Woodcock	{ "theme": "humanity", "dateFormat": "dd/mm/yy", "tim...	{ "OtherLanguages": ["Polish", "Chinese", "Japanes...	["Polish", "Chinese", "Japanese"]
3	3	Hudson Onslow	{ "theme": "dark-hive", "dateFormat": "DD, MM d, yy", ...	{ "OtherLanguages": [], "HireDate": "2012-03-05T0...	[]
4	4	Isabella Rupp	{ "theme": "ui-darkness", "dateFormat": "dd/mm/yy", "ti...	{ "OtherLanguages": ["Turkish", "Slovenian"], "Hire...	["Turkish", "Slovenian"]
5	5	Eva Muirden	{ "theme": "le-frog", "dateFormat": "dd/mm/yy", "timeZ...	{ "OtherLanguages": ["Lithuanian"], "HireDate": "20...	["Lithuanian"]
6	6	Sophia Hinton	{ "theme": "black-tie", "dateFormat": "mm/dd/yy", "time...	{ "OtherLanguages": ["Swedish"], "HireDate": "200...	["Swedish"]
7	7	Amy Trefl	{ "theme": "ui-darkness", "dateFormat": "mm/dd/yy", "ti...	{ "OtherLanguages": ["Slovak", "Spanish", "Polish"] ...	["Slovak", "Spanish", "Polish"]

- › It is JSON data
- › Of course one can use an editor but since the data is JSON I wondered if I could find a different way

cJSONViewer

- › I used the same component as the DataFlex Studio uses in the debugger for the local variables



Preferences	Value
theme	ui-darkness
dateFormat	dd/mm/yy
timeZone	PST
<input checked="" type="checkbox"/> table	
favoritesOnDashboard	1

cJSONViewer

› Simple to use!

```
Object oPeopleOtherLanguages is a cWWIJsonViewer
```

```
  Set Size to 70 230
```

```
  Set Location to 82 65
```

```
  Set peAnchors to anTopLeftRight
```

```
  Set Label to "Other Languages"
```

```
  Entry_Item People.OtherLanguages
```

```
  Procedure OnCreate
```

```
    Send InsertColumn 0 'Language' OLE_VT_Bstr 400
```

```
  End_Procedure
```

```
End_Object
```

› WWI is a prefix for the example project I was developing

Viewer / Editor

- › For this example project I first focused on a viewer but in real world it should support editing too
- › I don't think it is hard to make but simply I had not thought about this till I needed to prepare for this conference

Common support topics

Topics from support tickets



Grids

- › Replacement of (db)Grids
 - › dfTable is obsolete warning
 - › How to do Multi select

Warning

- › CodeJock based grids were introduced in 2010 so it is time to update all old Grid, dbGrid, List, dbList objects with cCJGrid and cDbCJGrid, cGrid, cCJGridPromptList and cDbCJGridPromptList objects
- › You get a lot of new features such as
 - › Freeze column
 - › Drag and drop columns
 - › Insert columns
 - › Coloring/font formatting
 - › Easy show a different value
 - › Sort by any column

How to convert?

- › It is all manual work
- › Start with dragging a c(DB)CJGrid object from the class palette to the view
- › Copy size and location of the old grid to the new one
- › For each Entry_Item you create a new cDBGridColumn object
 - › Copy Header_Item to psCaption property value
 - › Copy Form_Width to piWidth property

How to convert

- › Check out the events now available per column or the grid
- › Check out all new features of the CodeJock based grid
- › Realize that some features are now different
 - › Loading time of the data is an import one
 - › It is no longer item based

Grid - sorting

- › In a cCJGrid you can sort the data by sending the message SortGridByColumn and automatically via pbHeaderReorders
- › In a cDbCJGid object the data is usually not static which means the grid needs a database index for a different sort order
 - › With the DataFlex embedded database this is limited to 15 indexes
 - › With a CLI based database temporary (runtime) indexes can be created to sort on any column
 - › Database Explorer supports automatically create temporary indexes

Table	Confirmation	List of tabl
<input checked="" type="checkbox"/>	Open/Set Tables Readonly	
<input type="checkbox"/>	Open All Related-to Tables	
<input type="checkbox"/>	Open All Related-from Tables	
<input type="checkbox"/>	Zerofile Allowed	
<input type="checkbox"/>	High Data Integrity	
<input type="checkbox"/>	Create Temporary Indexes	
<input checked="" type="checkbox"/>	Allow Open Unlisted Tables	

Multi Select

- › How can I make use of multi select?
 - › For example to pick inventory items and create orderlines for each of the selected inventory items

Multi Select

- › In this support topic we created a table with products owned by a customer and one can use the selection list to pick more than one product from the selectionlist
- › We used the most flexible way which is a combination of phmPromptUpdateCallback and pbMultipleSelection in a Prompt_Callback event

```
Procedure Prompt_Callback Handle hoPrompt  
    Set pbMultipleSelection of hoPrompt to True  
    Set phmPromptUpdateCallback of hoPrompt to (RefProc (CopyProductInfo))  
    Set peUpdateMode of hoPrompt to umPromptCustom
```

Multi Select

```
Procedure CopyProductInfo Handle hoPrompt
  RowID[] SelectedProductRowIds
  Integer iElements iElement
  Boolean bFound bErr

  Get SelectedRowIds of hoPrompt to SelectedProductRowIds
  Move (SizeOfArray (SelectedProductRowIds)) to iElements
  If (iElements > 0) Begin
    Decrement iElements
    For iElement from 0 to iElements
      Send Clear of oCustomerProducts_DD
      Get FindByRowIndex of oProduct_DD Product.File_Number SelectedProductRowIds[iElement] to bFound
      Get Request_Validate of oCustomerProducts_DD to bErr
      If (not (bErr)) Begin
        Send Request_Save of oCustomerProducts_DD
      End
    Loop
  End
End_Procedure
```


Enhance select with filter

- › The support topic was extended with an option to hide all the products that were already in the current products owned
- › Since we used an SQL database we could make use of psSQLFilter

```
Move ("not product.ID in (select CustomerProducts.ProductID from CustomerProducts where CustomerProducts.CustomerID=" + ;  
    Cast (Customer.ID, String) + ")") to sFilter  
Get Server of hoPrompt to hoServer  
Set psSQLFilter of hoServer to sFilter  
Set pbUseDDSQLFilters of hoServer to True
```

```
Get Server of hoPrompt to hoServer  
Set psSQLFilter of hoServer to ""  
Set pbUseDDSQLFilters of hoServer to False
```

- › And to CopyProductInfo



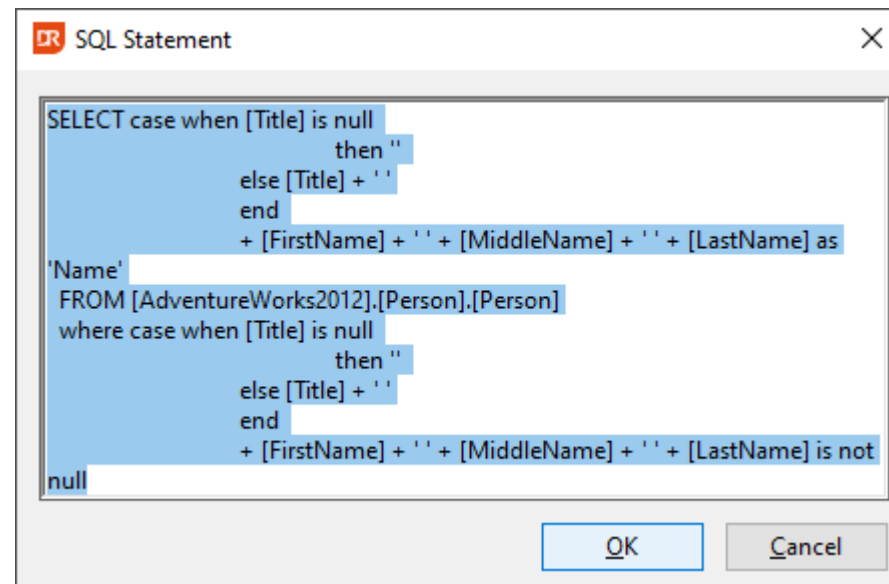
Use SQL in DataFlex Reports

Use of SQL statements in DR

› How can I make use of SQL statement?

Use of SQL statement in DR

- › The data for a report can be delivered via a SQL statement
 - › This way you can pass any valid SQL statement to the server and work with the result of the operation



```
SQL Statement
SELECT case when [Title] is null
        then ''
        else [Title] + ''
        end
        + [FirstName] + '' + [MiddleName] + '' + [LastName] as
'Name'
FROM [AdventureWorks2012].[Person].[Person]
where case when [Title] is null
        then ''
        else [Title] + ''
        end
        + [FirstName] + '' + [MiddleName] + '' + [LastName] is not
null
OK Cancel
```

Use of SQL statements in DR

- › The SQL() function can be used to return a single value from a table
 - › For example getting the description of a row from the codemast table
 - › For the embedded database there is a DLL delivered named CodeMast.dll
 - › For and SQL environment you would use

```
return SQL("Select `codemast`.`description` From  
`codemast` where `codemast`.`code`='"-  
{orderheader.Ship_Via}-' and  
`codemast`.`type`='SHIPPING'")
```



Sorting differences between DR and SSMS

Sorting differences

- › When I compare the sorted results from DataFlex Reports with the sorted results in SQL Server Management Studio I see differences. How come?

Sorting differences

- › SQL Server uses the selected collation for a table or column for its sorting
- › DataFlex Reports uses
 - › Version 8: UTF ICU library
 - › Version 7: ANSI sorting defined in sort table loaded in report



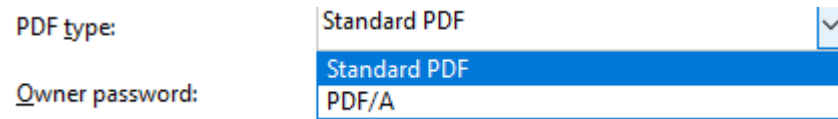
PDF/A creation in DR

PDF/A

- › How can I make a PDF/A – PDF specialized for use in the archiving and long-term preservation of electronic documents – when exporting my DataFlex Reports report?

PDF/A

- › In the DataFlex Reports Studio it is a choice



- › Via report integration it is a member in the export options structure

```
Struct drPDFExportOptions
  Integer iPageMode
  Integer iPDFType
  String sOwnerPassword
  String sUserPassword
  Integer iImageQuality
  Integer bAllPages
  Integer iPage
End_Struct
```

```
Define C_drPDFTypes for Integer
  Define C_drPDFNormal for 0
  Define C_drPDFA for 1
```

A night photograph of a traditional Chinese temple. The temple features a dark, multi-tiered roof with ornate decorations, including a dragon sculpture. The facade is illuminated with warm lights, highlighting intricate carvings and a large circular window with a geometric pattern. A central archway is decorated with a peacock feather pattern. To the right, a smaller structure with a pointed roof is also lit up. The scene is set against a dark background with bare tree branches in the foreground. The text "No filelist needed" is overlaid in the center in a light blue font.

No filelist needed

No Filelist

- › How can I make an application without the need for a filelist?

No Filelist

- › In standard applications the cApplication object refers to a workspace configuration file (usually named config.ws)
- › The config.ws contains the paths of the workspace and also where to find the filelist
- › Easy and useful for most applications as they are database driven applications
- › If you do not need paths and/or a filelist simply set psAutoOpenWorkspace to "" (empty string)
- › You can still use tables in the application, but you need to tell the application where to find the data and the filelist



Duplicate order (line)

Duplicate order(line)

- › I need a way to duplicate the current row in a cDbCJGrid or a complete row in a table where related information is present

Duplicate order(line)

- › Two ways
 - › NewRecord command
 - › Gathering information from DDO and connected DDOs and based on this create one or more new rows in the table

Duplicate order(line)

- › NewRecord command
 - › Global buffer, skipping DD rules
- › Gathering information from DDO and connected DDOs and based on this create one or more new rows in the table
- › In both cases it is not something that can be easily automated as one needs to avoid that the database reports that duplicate rows are not allowed



(COM) errors related to tab-pages

Control not created yet

- › I have a cDbCJGrid control on the 2nd tab-page in a view. We get COM errors when the application tries to address the grid before the operator opened the tab-page. What can we do about this?

Control not yet created

- › The similar problem occurs with for example a treeview is located on the 2nd or more tab-page
 - › Similar in no error but no or incorrect content

Control not created yet

- › The ‘normal’ way to fill or control the grid for the first time is inside the Activating event
- › Test on IsComObjectCreated
- › Add code that opens each tab-page when the tab dialog gets added to the focus tree

```
Procedure DisplayAllTabs
  Integer iTabs iTab

  Get Button_Count to iTabs
  If (iTabs > 0) Begin
    Decrement iTabs
    For iTab from 1 to iTabs
      Send Request_Switch_To_Tab iTab 2
    Loop
    Send Request_Switch_To_Tab 0 2
  End
End_Procedure
```



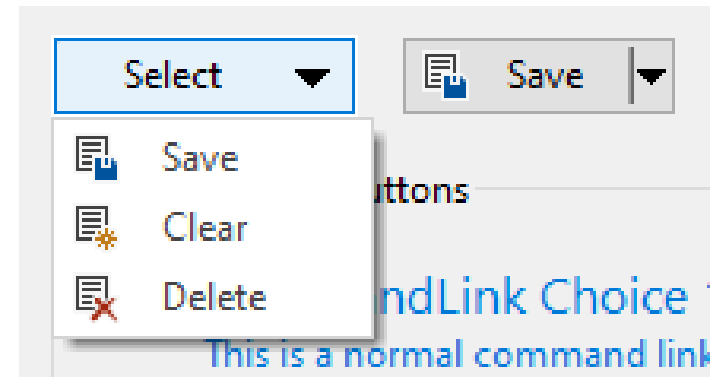
How to organize my buttons

How to organize my buttons?

- › I have too many buttons in my application view. Can I somehow group them?

How to organize my buttons?

- › You can use a splitbutton
- › Find two examples in DemoButtonTest.vw (Order entry)
- › Drop down list can have icons but does not need them
- › View also demonstrates the use of text and picture in a button
 - › Private interface uses an imagelist
 - › Public interface uses psImage
 - › With the classic way (bitmap property) button does not support text and picture





Thank you!
Are there any questions?