

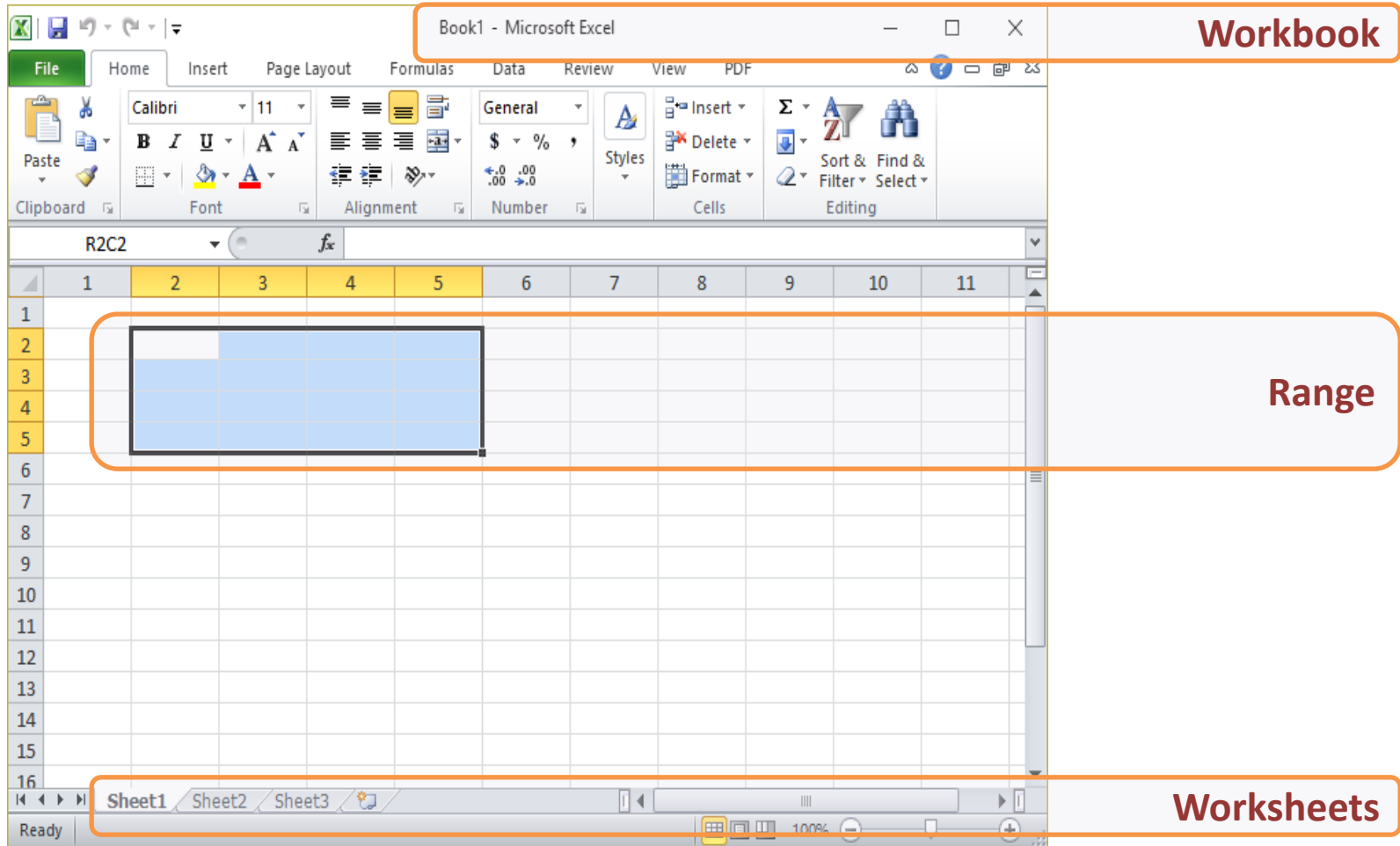
Using PxPlus Excel Object

PxPlus 2017 (v14) & PxPlus 2018 (v15)

Excel MSDN Terminology

- **Application object**
 - The Excel application itself
- **Workbook**
 - An Excel file containing spreadsheet(s)
- **Worksheet**
 - Individual tab/spreadsheet
- **Range**
 - Selected range (for applying fonts, formatting etc.)

Excel Screen (default values)



PxPlus Excel Object

*obj/excel.pvc

- Instantiation

```
x=new ("*obj/excel")
```

where 'x' is the object identifier and could be any numeric variable

Application Properties

- **EXCEL** (*Read Only*)
 - Handle to the Excel Application object
- **ECONSTANTS** (*Read Only*)
 - Handle to the Excel Named Constants object
- **ERROR** (*Read Only*)
 - Handle to the Excel Error object
- **VISIBLE**
 - Allows Excel application to be made visible
 - Defaults to Off (0)
- **DISPLAY_ALERTS**
 - Allows suppression of Excel message boxes (e.g. saving changes on close)
 - Defaults to Off (0)

Workbook Properties

- **ACTIVE_WORKBOOK** (*Read Only*)
 - Handle to the active workbook object
 - `x'Active_Workbook = x'EXCEL'ActiveWorkbook`

- **WORKBOOKS_COUNT** (*Read Only*)
 - Number of workbooks open
 - `x'Workbooks_Count = x'EXCEL'WORKBOOKS'Count`

Arguments in
blue italics
are optional


Workbook Methods

- CreateWorkbook(path\$, *overwrite_flag*)
- OpenWorkbook(path\$)
- SetWorkbook(workbook or workbook_name\$)
- SaveWorkbook(*workbook or workbook_name\$*)
- SaveAsWorkbook(workbook_path\$, *workbook or workbook_name\$*)
- SaveWorkbooks()
- CloseWorkbook(*workbook or workbook_name\$*)
- CloseWorkbooks()

General Notes

- Workbooks can be referred to by index number (workbook) or by name such as "name.xlsx" (workbook_name\$)
- In Excel, index numbers correspond to the order workbooks were opened
- Methods that take optional workbook or workbook_name\$ arguments will use the **ACTIVE_WORKBOOK** property if no workbook argument is passed
- SaveWorkbooks() and CloseWorkbooks() act on all opened workbooks
- Most methods return '1' for success and '0' for failure

SaveAsWorkbook() Method

- SaveAsWorkbook(workbook_path\$, *workbook or workbook_name\$*)
- Enhanced for PxPlus 2018 
- Allows a workbook or a workbook_name\$ to be specified (rather than always saving the current workbook)
- Saves the workbook with the file type specified in the workbook_path\$ variable
 - Defaults to an Excel Workbook file type (.xlsx)
 - Also supports the file types on the following slide

SaveAsWorkbook – File Extensions

Extension	Description	Extension	Description
.xlsx	Excel Workbook (default)	.csv	CSV (Comma delimited)
.xlsm	Excel Macro-Enabled Workbook	.txt	Text (Tab delimited)
.xlsb	Excel Binary Workbook	.prm	Formatted Text (space delimited)
.xls	Excel 97-2003 Workbook	.dif	DIF Data Interchange Format
.xml	XML Data	.slk	SYLK (symbolic Link)
.mht, .mhtml	Single File Web Page	.xlam	Excel Add-In
.htm, .html	Web Page	.xla	Excel 97-2003 Add In
.xltx	Excel Template	.pdf	PDF
.xltn	Excel Macro-Enabled Template	.ods	OpenDocument Spreadsheet
.xlt	Excel 97-2003 Template	.xps	XPS Document

Worksheet Property and Methods

- **ACTIVE_SHEET** (*Read Only*)
 - Active worksheet object on the active workbook
 - `x'Active_Sheet = x'EXCEL'ActiveSheet`
- CreateWorksheet(worksheet_name\$, *tab_index*)
 - Created before **ACTIVE_SHEET** unless a tab index is specified
- SetWorksheet(worksheet or worksheet_name\$)
- PrintWorksheet(*worksheet or worksheet_name\$*)



2018

Arguments for Range Methods

Argument	Description	Example
cells\$	Range	A12 (single) or A2:D5 (range) Range_Name
col	Column Number	1 – 16384
col\$	Column Letter	"B" or "AC"
row	Row Number	1 – 1048576


Range Property and Methods

- **ACTIVE_RANGE** (*Read Only*)
 - Active range object for the active worksheet
 - `x'Active_Range = x'EXCEL'Selection`
- `SetRange(cells$, worksheet or worksheet_name$)`
- `SetRangeColumn(col or col$, worksheet or worksheet_name$)`
- `SetRangeRow(row, worksheet or worksheet_name$)`

Note:

Setting ranges by row or column can be slow

Named Ranges

- New for PxPlus 2018 
- 'Named' Ranges can be defined and used anywhere a range value (such as "A1:G20") would be specified.
- AddNamedRange(name\$,cells\$, *worksheet or worksheet_name\$*)
- DeleteNamedRange(name\$, *worksheet or worksheet_name\$*)
 - where name\$ cannot contain spaces

Set Column Widths Method

- New for PxPlus 2018



- Allows width of columns in a range to be set (in pixels)
- `SetColumnWidth(width, cells$, worksheet or worksheet_name$)`

FindReplace Method and related Properties

- FindReplaceAll(find\$, replace\$, *worksheet or worksheet_name\$ or "All"*)
- **CASE_SENSITIVE_SEARCH**
 - Defaults to '0' for case insensitive searches
 - Set to '1' for case sensitive searches
- **MATCH_ENTIRE_CELL**
 - Defaults to '0' for partial matches within cell contents
 - Set to '1' to force matches on the entire cell contents

Cell Value Methods and related Property

- **SEPS**



2018

- New Property for PxPlus 2018
 - Defaults to standard PxPlus field delimiter **SEP** (\$8A\$)
-
- `Read$(cells$, worksheet or worksheet_name$)`
 - Returns a string for one cell or a **SEPS** delimited string for multiple cells
 - `Write(cell_values$, cells$, worksheet or worksheet_name$)`
 - `cell_values$` is a string or a **SEPS** delimited string
 - Returns '0', '1' or '-1' (discrepancy in cell counts)

Cell Formatting Methods

- SetColor(color_index or color\$, *cells\$, worksheet or worksheet_name\$*)
- SetFillColor(color_index or color\$, *cells\$, worksheet or worksheet_name\$*)
 - Excel color_index is an integer value from 1 to 56
 - color\$ is one of 16 basic PxPlus named colors such as "red" or "light cyan"
 - RGB colors not yet supported
- SetFont(font\$, *cells\$, worksheet or worksheet_name\$*)
 - font\$ is comma separated "name\$,size\$,style\$"
 - e.g. "Arial" or "Arial,12,Bold"

Column and Row Methods

- Columns
 - InsertColumn(col or col\$, *worksheet or worksheet_name\$*)
 - DeleteColumn(col or col\$, *worksheet or worksheet_name\$*)

- Rows
 - InsertRow(row, *worksheet or worksheet_name\$*)
 - DeleteRow(row, *worksheet or worksheet_name\$*)

Excel Named Constants

- Excel Object Model incorporates hundreds of global named constants
- If required, these Excel constants may be accessed via the **ECONSTANTS** property
- Example
 - constants used for **MATCH_ENTIRE_CELL** property

```
x' ECONSTANTS' xlPart (2)
```

```
x' ECONSTANTS' xlWhole (1)
```

Excel Error Object

- Excel contains an **ERROR** object which may help when debugging code
- Checking the **ERROR'Description\$** property may give more information if a method fails

```
return_value=x'OpenWorkbook("badfile")  
  
if not (return_value) msgbox x'Error'Description$
```

Excel Demo Program

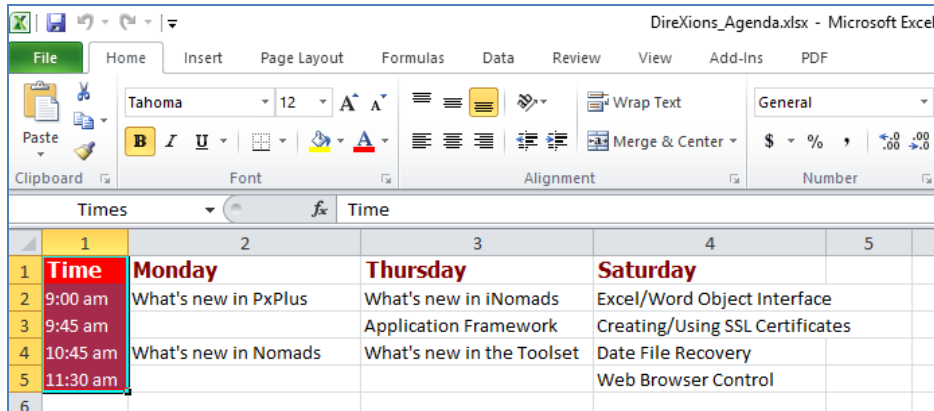
1. Instantiate Excel object
2. Make Excel visible to check progress
3. Create a workbook
4. Check some properties
5. Create a worksheet
6. Write some data
7. Insert a new column (A)
8. Create some named ranges
9. Change separator and populate named column

Excel Demo Program

continued ...

10. Copy data from one worksheet to another
11. Format (color and font) header row and first column
12. Show use of ERROR object
13. Find and Replace
14. Save
15. Save in different formats
16. Close Workbook
17. Drop object

Excel Demo Program Results

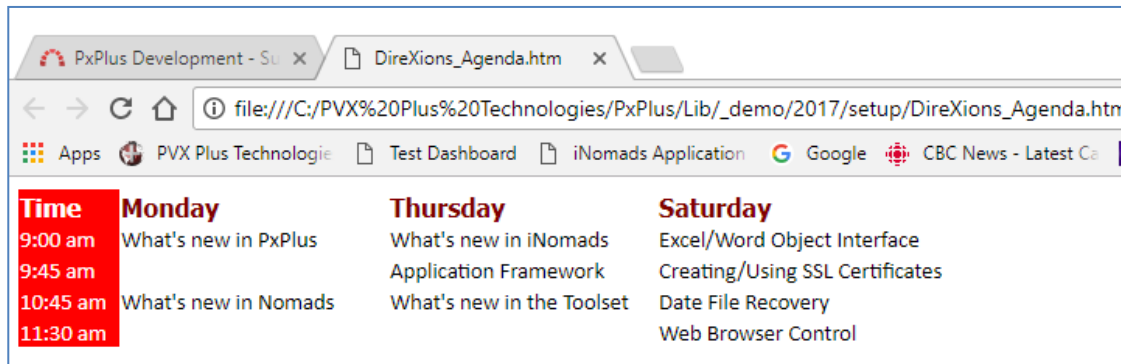


DireXions_Agenda.xlsx - Microsoft Excel

	1	2	3	4	5
1	Time	Monday	Thursday	Saturday	
2	9:00 am	What's new in PxPlus	What's new in iNomads	Excel/Word Object Interface	
3	9:45 am		Application Framework	Creating/Using SSL Certificates	
4	10:45 am	What's new in Nomads	What's new in the Toolset	Date File Recovery	
5	11:30 am			Web Browser Control	
6					

Spreadsheet (.xlsx)

Web Page (.htm)

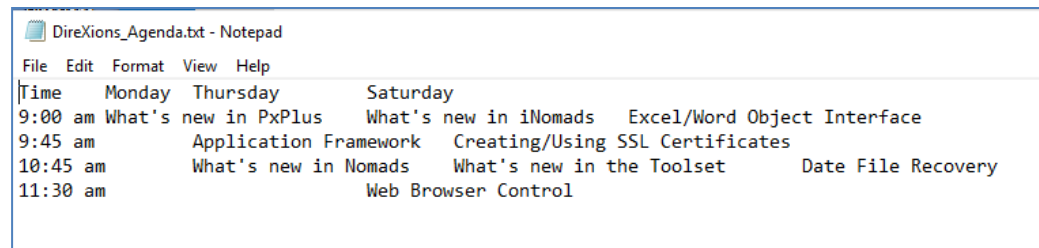


PxPlus Development - Su x DireXions_Agenda.htm x

file:///C:/PVX%20Plus%20Technologies/PxPlus/Lib/_demo/2017/setup/DireXions_Agenda.htm

Time	Monday	Thursday	Saturday
9:00 am	What's new in PxPlus	What's new in iNomads	Excel/Word Object Interface
9:45 am		Application Framework	Creating/Using SSL Certificates
10:45 am	What's new in Nomads	What's new in the Toolset	Date File Recovery
11:30 am			Web Browser Control

Text file (.txt)



DireXions_Agenda.txt - Notepad

```
File Edit Format View Help
Time Monday Thursday Saturday
9:00 am What's new in PxPlus What's new in iNomads Excel/Word Object Interface
9:45 am Application Framework Creating/Using SSL Certificates
10:45 am What's new in Nomads What's new in the Toolset Date File Recovery
11:30 am Web Browser Control
```


Review

- Created flexible methods for the most common functionality from Microsoft's objects
- Simplify and speed development
- Experienced users can still access all Microsoft functionality via properties exposing handles to the MS objects, errors and constants

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.

- [PxPlus Excel Object](#)
- [PxPlus Word Object](#)