



iEXL

**Excel spreadsheet
generation & design**

IBM i on Power (Iseries/AS400)

Work Manual



WWW.IEXLSOFTWARE.COM
WWW.IEXLSUPPORT.COM
WWW.IEXLBLOG.COM

SYSTEM PREREQUISITES

Operating System level V5R4M0 onwards
IBM I Java Virtual Machine 1.4 onwards
IBM Licensed program 5722SS1 Option 13

LIMITATIONS

All Excel limits apply, i.e., # of fonts;
of sheets; column widths.
iEXL: Numeric field size maximum is 29 with 9DP's
iEXL: Total file width 10,000 characters

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1

Introduction

Command iEXL Overview

The iEXL product has been designed to simplify the creation of Excel spreadsheets directly on IBM i on Power, AS/400, I SERIES, I5 or IBM I (referred to as IBM I after). There is no need for further PC packages or Database communications setup to use the iEXL product. The system uses Apache POI software to generate the spreadsheets which is supplied as part of this product.

At its most basic the product can be used to simply transfer a data file into a spreadsheet. If required, using its inbuilt functionality it can be used to set fonts, styles, headings, colours, images, page breaks, freeze panes, passwords protection, etc to generate more professional looking spreadsheets. The software can be used by any person that can access data files.

Many of the formatting options can be achieved without any programming. Using the menu system and inbuilt screen options such as fonts, Styles, Images, heading can be added to create a spreadsheet.

A simple example for the use of iEXL is where a user runs a Query on a weekly basis that generates an output file. It may be of use to have this data transferred to Excel. This can be achieved by creating a schedule job that would read the Query file using the iEXL product.

On the more complex side a user may receive an existing IBM I report that may be of use as a spreadsheet but retaining the IBM I report format. This could be achieved by the IS department modifying the existing program that generates the report. As the report is generated, a work file is created with the same data as the report, placed in the associated spreadsheet column. Taking this approach means you do not have to create new programs but make a simple modification to an existing program.

The iEXL product can also be used to display the generated spreadsheet directly on your screen. You may want to modify a subfile program so the user can have the ability to load the data into Excel and have that displayed immediately.

iEXL also has the functionality of server jobs or iEXL instances. Individual or groups of spreadsheet can be directed to an active job which reduces processing time. This would allow named departments to have their own jobs allocated to them or high usage jobs to active jobs waiting for the next spreadsheet. However the option exists to simply transfer the data file to Excel and use its functionality to process the data.

As long as the file exists on the IBM I it could have been created by RPG, COBOL, JAVA, SQL, Query, etc. it can be uploaded to Excel with the iEXL product. The system has been enabled with UNICODE processing for multi language use.

Whichever of the above suits your needs you can then e-mail the generated spreadsheet to both internal and external people. Using the inbuilt e-mail capabilities of IBM I (SMTP) and RPG mail supplied as part of this product you specify which spreadsheet is sent out and who it is sent to.

iEXL Set-up

Before using iEXL you should read the installation instructions fully. It shows how to set command parameter defaults for your own system. It also contains information of email file entries.

As well as the installation manual you should read the 'Getting started section within this Manual'. This provides a step by step example of starting to use iEXL. It will explain the command parameters that need to be set before using the system.

To use the iEXL software add Library IDDEXL to your Library List after QTEMP. Enter iEXL on a command line as press F4. To use the menu system enter Go Idsmain.

2

Command IEXL

IEXL Parameters

```

Generate Excel Spreadsheet (IEXL)

Type choices, press Enter.

System Name . . . . . '10.10.10.1' Character value
Spreadsheet Directory . . . . . '\idexl\idexl_spreadsheets'

File . . . . . _____ Name
Library . . . . . *LIBL Name, *LIBL
Member . . . . . *FIRST Name, *FIRST, *LAST
+ for more values _____
*LIBL
*FIRST

More...
F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

MA a 05/037
    
```

```

Generate Excel Spreadsheet (IEXL)

Type choices, press Enter.

Spreadsheet Name . . . . . *NONE
+ for more values _____

View existing spreadsheet . . . N Y, N
Distribution List ID . . . _____ Character value
Distribution List ID Qualifier _____ Character value
Send E-mail . . . . . N Y, N
E-mail confirmation window . . . N Y, N

More...
F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys
    
```

```

Generate Excel Spreadsheet (IEXL)

Type choices, press Enter.

E-Mail Subject . . . . . _____
E-mail Body Text Directory . . . _____
E-mail to be sent from . . . . . _____
E-mail to be sent To . . . . . _____

More...
F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

MA a 05/037
    
```

```

Generate Excel Spreadsheet (IEXL)

Type choices, press Enter.

View data in Excel . . . . . N Y, N
System Field Text . . . . . N Y, N
Store a copy of the document . . . N Y, N
Process empty work files . . . . Y Y, N
Process using server job . . . . N Y, N
Zip file . . . . . N Y, N

Bottom
F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

MA a 05/037
    
```

System Name

System Name should be set to either the host name or the IP address of your system. You can enter this each time you run the command or use the following command CHGCMDDFT CMD(IDDEXL/IEXL) NEWDFT('sysn("10.10.10.1")') Where '10.10.10.1' should be replaced with either your machine name or IP address.

Directory Name for Spreadsheet

The directory name is where the file will be generated, processed and stored. This parameter can be changed to any existing directory so that spreadsheets may be stored in different areas of the IFS. For example this may be useful to separate spreadsheets for different departments or companies.

File/Member and Library Name

This identifies the file that will be used to generate the spreadsheet.
*LIBL can be used for the library name.
Up to 50 file names can be entered. Each file will be loaded into a separate sheet within the workbook

Spreadsheet Name

This will be the name of the spreadsheet generated.
Spreadsheet names cannot contain embedded blanks or '/'. The suffix '.XLS' will be automatically added to the name. This is the name that will be used to find attributes and other formatting controls that have been set using iEXL's formatting options.
Up to 50 spreadsheet names can be entered. Each spreadsheet name entered must be associated with a file name entered in the previous parameter. If a file name entered is not associated with a spreadsheet this parameter must be set to *NONE.

View Existing Spreadsheet

If this parameter is set to 'Y' the system will search for the spreadsheet name entered in the previous parameter.

Distribution List ID and Qualifier

Distribution List/Qualifier is used to identify a pre-defined entry that contains a list of people that require the spreadsheet being e-mailed to them. Also an e-mail address of the sender. See 'e-mail control files' later.

Send E-Mail

Setting this to 'Y' will initiate the sending of the e-mail/s. The e-mails will be issued dependant on the distribution list or From and To parameters later in this command.

E-mail Confirmation Window

A window asking a user to confirm sending of an email can be requested. This is only relevant to interactive jobs. This is also a parameter within the iEXL command that can be set to a default of Y or N.

E-Mail Subject

E-mail subject is the text that will be placed in the e-mail subject.

E-Mail Body Text File

E-mail body text is used to locate a file stored in the IFS that contains the text for the e-mail body.

E-Mail To Be Sent From

E-mail address of sender. Enter the e-mail address of the person who is sending the e-mail. This is the person who should appear to have sent the e-mail. This information is stored in a log file that shows who actually sent the e-mail. (Alternative to Distribution List)

E-Mail To Be Sent To

E-mail address of recipient. Enter the e-mail address of the person who will receive a copy of the e-mail. This is an extra person that will receive the e-mail in addition to the distribution list. If no distribution list is entered then this will be the only recipient of the e-mail. (Alternative to Distribution List)

View Data in Excel

If this is set to 'Y' the spreadsheet will be displayed on your screen.
Note, a shared network drive must exist that is mapped to the entry in the 'Directory Name for Spreadsheet'. See prerequisites later in the spreadsheet generation section.

System Field Text

If this is set to 'Y' the field descriptions held within the file/field description will be used as column headings within the spreadsheet. The text used is extracted from the TEXT DDS keyword.

Store a Copy of the Document

If this is set to 'Y', a copy of the document will be stored within the folder named on the 'Directory Name for Spreadsheet' parameter in the following format.
Spreadsheet name_Job Name_Date_Time.Xls

Process Using Server Job

Use this option to request the job be run within an active iEXL job or instance. This can save considerable processing time as it will use an already active server job. It can also be used to group specified spreadsheets to use a particular job.
When a server job is activated the system will start subsystem IEXL on your machine. All server jobs will then be run through this subsystem. See section 5 of this manual for a complete description.

'Zip File'

Set to 'Y' if you wish to have the generated file zipped. This will be the file e-mailed if that option has been selected.

3

Spreadsheet Control
and Design

The library IDDEXL must be added directly after QTEMP to use the iEXL software'. From a command line enter GO IDSMAIN.

The section describes how to create and maintain spreadsheet controls that allow you to design your spreadsheet. Through the various screens you can see how to create things such as column headings, styles, functions/formula etc. When you create your spreadsheet these control entries are located and applied to it which results in your formatted spreadsheet.

There are two ways in which the system can use these controls.

If you would like to format a complete column with a certain style such as font, colour, edit code this can be defined as a 'Column Default'. These column defaults can be used so that a formatted spreadsheet can be created without the need of any programming. Column default options exist for things such as styles, cell initialization, data sort, column hide, headings etc.

The second way in which the controls can be used is to specify the options so that specific cells within a sheet have the required format or value. Using the controls at cell level will require a work file to be created that contains information on which cell should or should not have a format applied to them. See example 2 for an example of a cell level work file.

```

IDSMAIN                               IDSMAIN Menu
Select one of the following:

  1. Spreadsheet Controls                15. Image Catalogue
  2. E-Mail controls                    22. Server Jobs
  3. On Line Documentation
  5. Search E-mail Log

                                           90. Signoff

Selection or command
===>

F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel
F13=Information Assistant  F16=System main menu

```

Select option 1 spreadsheet controls.

```

IDSWKM                               IDD Excel Spreadsheet Maintenance   9/28/11  19:17:21
Spreadsheet: IDSTEST
Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete  5=Setup  6=Duplicate

Sel  Spreadsheet
_   IDSTEST

Spreadsheet Description
Test Spreadsheet

Spreadsheet server Job Name
IEXLSRV2

More...

F3=Exit  F12=Cancel  F6=Add

```

The IDSTEST spreadsheet information will be displayed.

Use F6 to create a new spreadsheet definition.

Enter the spreadsheet name and description. If required you can enter the name of the server job that should be used to generate the spreadsheet. This must have been defined already using option 22 on the IDSMAIN menu. This is fully explained further on in this document.

Select option 5 to view the spreadsheet setup values.

Fonts and Styles (Attributes)

This screen is used to define style codes that you apply to cells and columns within a spreadsheet. Style codes include option such as Fonts, colours, edit codes, etc. Once the style code has been created it can be used as a default for a column or format a specific cell.

If the style is to be used as a default then no programming is required as you can use the various function keys from this screen to add your style to the required areas within your spreadsheet.

To create a style code press F6 from this screen and the create window will be displayed. You can use F4 on each field to view and select the allowed value.

```

IDSATRM          IDD Excel Attributes Maintenance      8/06/12  10:00:06

Spreadsheet Name: IDSTEST

Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

Sel  Style  Font                Cell  Background  Cell
      ST2                Colour  Colour      PointSize  Height
-
      Italic Bold Wrap Cell  Hrz  Column  Edit New  Page  Image Init
      700                Spaces Code Sheet Break  Code Cell
      Cell Text

Style Description

More...
F3=Exit  F12=Cancel  F6=Add  F10=Column Controls  F11=Edit Codes  F13=Headings
F14=Spreadsheet Level  F15=Sheet Names  F17=Functions  F24=More Keys
    
```

```

IDSATRM          IDD Excel Attributes Maintenance      4/06/12  11:46:25

Spreadsheet Name: IDSTEST

Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete
<---Function--->
Sel  Style  Rotation  Underline  Code  Start/End  Merge  Vert
      DFTST
      DV1
      HDR
      HDR1  45      1
      HDR2
      ST10
      ST11
      ST2
      ST3
      ST4
      ST5                1  P

More...
F3=Exit  F12=Cancel  F6=Add  F10=Column Controls  F11=Edit Codes  F13=Headings
F14=Spreadsheet Level  F15=Sheet Names  F17=Functions  F19=Images  F23=SFL View
    
```

Style

The style code can be set to any value. This code will be placed by you within your spreadsheet file to apply attributes to specific cells or complete rows.

This code can also be used to set default styles for your spreadsheet. This default code can then be used in the 'Column controls' and 'Spreadsheet Level' screens. Using default code allows you to format a spreadsheet with no programming required.

Font

This should be set to the required Excel font. If left blank your default font values will be used when your spreadsheet is displays. The system has predefined codes however more can be added if required. Use F4. Note that this is case specific

Cell Colour

This is used to apply a colour to the text within a given cell. Use F4.

Background Colour

This is used to apply a colour to the background within a cell. If this is required it must be used in conjunction within the cell pattern field. Use F4

Point Size

This is any valid number.

Cell Height

Specify the height you would like a cell to be. This will then be applied to the complete row.

Italic

Set this to '1' if you require the text within a cell to be displayed in italics.

Bold

Set this to '700'; if you require the text within a cell to be displayed in bold.

Wrap

Set this to '1' if you would like to have text within a cell to be wrapped.

Cell Pattern

This is used to apply a pattern within a cell. Use F4

Vertical Alignment

This is used to set the vertical alignment within a cell. Use F4

Column Control

If this is set to 'N' the data within a given cell will NOT be used to calculate column widths. As cells are created, the column width is calculated by the number of characters used within the cell. By setting this to 'N' the data in a particular cell will be excluded from column width calculations.

Spaces

Use this option to insert a given number of spaces after the text in a cell.

Edit Codes

Use this field to apply edit codes to cells. You may want to always have 2 decimal places even when the value might be 1.00 for example. This value is used to look for edit codes set up in the edit code control file.

New Sheet

Use this field to tell the system to start a new sheet within the spreadsheet. If a new sheet is not requested by using this option and the data exceeds 65535 rows then a new sheet will be automatically started.

Page Break

Use this field to tell the system to start a new page. This is used for printing a document and separating pages.

Image Code

Use this field to insert an image number that is linked to the image you would like to have placed in the document. Using an image code here will place the image dynamically into the related position. In other words you can move an image around.

Init Cell

This controls at cell level whether a cell will be initialized or not.

Cell Text

Use this field to place text within the spreadsheet. You may have a total or a break in some way within your data that would require a piece of text to go within it. If specified the text will be placed in the next cell in the spreadsheet.



Rotation

Cell text can be rotated by + or - 90 degrees. Use F23 to view this option.

Underline

Enter the required code to underline the text with a cell. The codes and their functions can be found in Appendix E of this document. Use F23 to view this option.

Functions

The code tells the system which function you would like to apply to this style. The start/end options tell the system to either start the function or end the function. It also allows a code to place the result of a function in a given place. See F4 for options.

The system will store the coordinates when a start request is found and then find that entry when the end request is found. If a place request is found, the system will move the result of the function to the requested cell.

If multiple starts are issued for the same function code the system will apply any end codes found in reverse order. In other words as end requests are found they are applied to the last start request that does not yet have an end request.

If a start is found but no end has been specified the system will do one of two things. If the function has been defined as a row function the system will place the result one column to the right of the last column. If the function has been specified as a column function the system will place the result one row after the last row of data.

Use F17 from this screen to create a function.

Merge

The merge option allows you to specify the start or end of a group of cells that should be merged.

The system will store the coordinates when a start request is found and then find that entry when the end request is found.

As with the functions option. If multiple starts are issued for the same merge area the system will apply any end codes found in reverse order. In other words as end requests are found they are applied to the last start request that does not yet have an end request.

Vertical Alignment

Use this option to vertically align values within a cell. This option is used in conjunction with the merge option.

Column Controls

```

IDSATRM          IDD Excel Attributes Maintenance      8/06/12  10:00:06
Spreadsheet Name: IDSTEST
Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete
Sel  Style  Font          Cell  Background  Cell
   -  ST2          700          Colour Colour      PointSize Height
   -          Italic Bold Wrap  Cell  Hrz  Column          Edit New  Page  Image Init
   -          Cell Text  Pattern Align Control Spaces Code Sheet Break  Code Cell
Style Description
More...
F3=Exit F12=Cancel F6=Add F10=Column Controls F11=Edit Codes F13=Headings
F14=Spreadsheet Level F15=Sheet Names F17=Functions F24=More Keys
    
```

Press F10 from the Attributes maintenance display.

```

IDSCWM          IDD Excel Column Controls Maintenance  3/31/12  09:03:52
Spreadsheet Name: IDSTEST
Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete  6=Insert Adjust  7=Delete Adjust
Sel  Column  Min  Max  Auto  Init  Default  Default  Sort
   -  Number  Width Width Filter Column Style  Function Seq  Hide
   -   1          10  10   Y      -      ST2          -      -      Y
   -   3          10  10   Y      -      ST2          -      -      Y
   -   6          10  10   Y      -      ST2          -      -      Y
   -   7          15  15   Y      -      ST2          -      -      Y
   -   8          10  10   Y      -      ST2          3      -      Y
Bottom
F3=Exit F12=Cancel F6=Add
    
```

The column controls screen allows you to set various values that will be applied to a spreadsheet as default settings when it is generated. This allows you to design your spreadsheet without the need for programming.

Column width Min/Max

These entries do not control the amount of characters that can be in any one cell, they control only the width of the columns when being displayed. If there are no entries in the above table to set minimum and maximum width values for a cell the system calculates the width on the amount of characters within a cell.

Auto Filter

The Auto Filter flag allows you to specify whether an auto filter will be applied to a specific column. If required set this to 'Y'.

Initialize Column

The initialise column tells the system to initialise all numeric and character cells within a column. If the column is a character column a blank cell will be initialised. If the column is numeric a zero cell will be initialised.

Normally blank/zero cells will not be processed as this can effect performance however it may be required so that cell attributes can be applied. If required set this to 'Y'.

Default Style

This option allows you to apply a default style to a column. The style will have been defined in the attribute maintenance screen. This allows styles to be applied with no programming required.

Default function

This option allows you to apply a default function to a column. The function will have been defined in the functions/formula maintenance screen. This allows a function to be applied with no programming required.

Sort sequence

You can use this option to sort the data into the required sequence. Give each entry a unique number.

Hide Column

Use this option to hide a particular column from being displayed in the spreadsheet. This does not stop the column from being generated.

Edit Codes

```

IDSATRM          IDD Excel Attributes Maintenance      8/06/12  10:00:06
Spreadsheet Name: IDSTEST
Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

Sel  Style  Font          Cell  Background  Cell
      ST2          Colour Colour  PointSize Height
-    -          -          10
      Italic Bold Wrap Cell  Hrz  Column  Edit New  Page  Image Init
      700          Pattern Align Control Spaces Code Sheet Break  Code Cell
      Cell Text

Style Description

More...
F3=Exit F12=Cancel F6=Add F10=Column Controls F11=Edit Codes F13=Headings
F14=Spreadsheet Level F15=Sheet Names F17=Functions F24=More Keys
    
```

Press F11 from the Attributes maintenance display.

```

IDSECM          IDD Excel Edit Code Maintenance      3/31/12  09:05:45
Spreadsheet Name: IDSTEST
Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

Edit Code  Edit          Additional
Sel  Number  Code          Characters
-    001    [YELLOW][#,##0.00];[GREEN]-[#,##0.00]  3
-    002    £00.00      2

Bottom

F3=Exit F12=Cancel F6=Add
Record updated successfully
    
```

The edit codes control how numeric data is displayed within any given cell in the spreadsheet. The edit code number is stored within a style which has previously been set up within the 'Fonts and Styles (Attributes)' section.

The above entries show that when edit code 1 is placed in a style/font, all data will and always have 2 decimal places. If the value is positive the cell will be yellow else it will be green

Edit code 2 will always start with a '£' sign and always have 2 decimal places.

Additional characters can be used to allow for the edit code characters within the data. If the numeric value is 100.00 and the edit codes changes the cell to display £100.00. The '£' sign creates 1 extra character within the cell so this value can be set to 1 which increases the cell width by 1.

Column Headings

```

IDSATRM          IDD Excel Attributes Maintenance      8/06/12  10:00:06
Spreadsheet Name: IDSTEST
Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete
Sel  Style  Font      Cell  Background  Cell
-   ST2    700          Colour Colour  PointSize Height
      Italic Bold Wrap Pattern Align Control Spaces Code Sheet Break  Code Cell
      Cell Text
Style Description
More...
F3=Exit F12=Cancel F6=Add F10=Column Controls F11=Edit Codes F13=Headings
F14=Spreadsheet Level F15=Sheet Names F17=Functions F24=More Keys
    
```

Press F13 from the Attributes maintenance display.

```

IDSHDM          IDD Excel Column Heading Maintenance  3/31/12  09:08:11
Spreadsheet Name: IDSTEST
Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete  6=Insert Adjust  7=Delete Adjust
8=Insert Blank Headings
Sel  Row  Column  Row Level  Cell Level  Short
-   Number Number Attribute Attribute  Description
-   1     1     HDR1          Time: *Time
-   1     2     Address 1
-   1     3     Town
-   1     4     Country
-   1     5     Post Code
-   1     6     Amount 1
-   1     7     Date: *Date
-   1     8     Amount 2
More...
F3=Exit F12=Cancel F6=Add F7=View Headings in Excel
Record updated successfully
    
```

Column headings can be added in two ways. The first is from the IEXL parameter 'System Field Text' which uses the system held field descriptions from the file/field descriptions. This is the TEXT keyword in the file DDS

The second way of placing column headings in the spreadsheet is to use the above options. The above entries tell the system that the text 'Town' should be placed in row 1 column 3 and the text 'Country' should be placed in row 1 column 4.

You can use options 6 and 7 to insert and delete heading and to adjust all headings in the same row.

You can use option 8 to insert blank headings. These can be used with the style codes created by the attribute maintenance screen to insert background attributes.

F7 can be used to display the headings within a spreadsheet as long as you have a mapped drive,

See Spreadsheet prerequisites later in this document for mapping drives. Also the spreadsheet named must already exist as a file in this case IDSTEST must exist as a file.

The entries in the above file are always searched for by the system when the spreadsheet is being created.

Spreadsheet Level Controls

```

IDSXCM          IDD Excel Spreadsheet Level Maintenance    3/31/12  09:08:58
Spreadsheet Name: IDSTEST
Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

Sel   Spreadsheet Heading
-     IDSTEST Page Header

      Spreadsheet Footer
      IDSTEST Page Footer

      Operational Init Num  Init Char  Protect  Default
      Attributes  Cells    Cells    Workbook Column Style
      1           Y

                                           Bottom

F3=Exit  F12=Cancel  F6=Add  F7=Freeze Pane
  
```

The spreadsheet level controls screen allows you to set various values that will be applied to a spreadsheet as default settings when it is generated. This allows you to design your spreadsheet without the need for programming.

Press F14 from the Attributes maintenance display.

Use F4 to display the complete entry.

The above entries tell the generation program that the page header 'IDSTEST Page Header' and 'IDSTEST page Footer' should be placed within the spreadsheet.

It also sets the print/display attribute within the spreadsheet to landscape by having an entry of '1'.

Operational attributes set to 'Y' will cause the generation of an extra sheet within the workbook. This will contain information such as which server, who, when, how etc the spreadsheet was generated. This can be used by an operations department to search through archived documents.

The next two fields will initialize all zero and blank cells. The system will not by default initialize empty cells.

By setting Protect Workbook to 'Y', the system will generate a password for the spreadsheet. The rules for password generation will be issued to all relevant IS staff by iData upon purchase.

The default column style can be used to apply a style to the whole workbook. The style will have already been defined within the attribute maintenance screen.

Freeze Panes

```

IDSFRZM          IDD Excel Freeze Pane Controls          8/26/10  19:53:38
Spreadsheet Name: IDSTEST
Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

      End Freeze   End Freeze   Start Display  Start Display
      Column      Row          Column         Row
Sel   -           0           7             0             7

                                           Bottom

F3=Exit  F12=Cancel  F8=Add
Record updated successfully
  
```

Within the Spreadsheet Level Maintenance screen you can press F7 to create freeze panes.

The above entries tell the system to freeze the first 7 rows of the spreadsheet and start displaying data from row 7 onwards.

End freeze column and Start display column can also be used to create a vertical freeze pane.

Sheet Names

```

IDSATRM          IDD Excel Attributes Maintenance      8/06/12  10:00:06

Spreadsheet Name: IDSTEST

Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

Sel  Style  Font                Cell  Background  Cell
      ST2   700                Colour Colour  PointSize Height
-
      Italic Bold Wrap Pattern Align Control Spaces Code Sheet Break Code Cell
      Cell Text

Style Description

More...
F3=Exit F12=Cancel F6=Add F10=Column Controls F11=Edit Codes F13=Headings
F14=Spreadsheet Level F15=Sheet Names F17=Functions F24=More Keys
    
```

Press F15 from the Attributes maintenance display.

```

IDSSNM          IDS Excel Sheet Name Maintenance      11/16/08  15:02:27

Spreadsheet Name: IDSTEST

Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

Sel  Sheet  Sheet
      Number Name
-
  01  IDSTest Sheet 1
  02  IDSTest Sheet 2

Bottom

F3=Exit F12=Cancel F6=Add
    
```

These entries can be used to name each individual sheet within the spreadsheet. In the above examples sheet 1 would be name 'IDSTEST Sheet 1' and sheet 2 would be named 'IDSTEST Sheet 2'. If no entries are found in the above file then the default name for a sheet is the spreadsheet name + '_' + sheet number.

Functions and Formula

```

IDSFCM          IDD Excel Function Code Maintenance  3/31/12  13:38:07

Spreadsheet Name: IDSTEST

Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

Sel  Number  Function  Row/  Style
      Column
-
  1   DIV     C         ST10
  2   AVERAGE C         ST11
  3   SUM     C         ST11

Bottom

F3=Exit F12=Cancel F6=Add

MA a 10/003
    
```

The above entries define three different functions.

1. Is division. The result of dividing two cells values
2. Is Average. The average of the range of cells selected
3. Is Sum. The sum of the range of cells selected

The Row/Column option tells the system whether the function is being applied to a row or column. This is only ever used when a function has been started but no end has been specified. If this happens and a row function has been specified the system will place the result of the function one column to the right of the end of the row. If a column function has been specified the system will place the result of the function one row after the end of the data.

You can select the style to apply a style that has been created via the attribute maintenance screens. This could be a colour, font, edit code etc.

See the Fonts and Style (Attributes) section within this document to see how a function is started, ended or placed.

Images

```

IDSATRM          IDD Excel Attributes Maintenance      8/06/12  10:00:06

Spreadsheet Name: IDSTEST

Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

Sel  Style  Font          Cell  Background  Cell
     ST2          Colour Colour  PointSize Height
     -          10
     Italic Bold Wrap Pattern Align Control Spaces Code Sheet Break  Code Cell
     700
     Cell Text

Style Description

More...
F3=Exit F12=Cancel F6=Add F10=Column Controls F11=Edit Codes F13=Headings
F14=Spreadsheet Level F15=Sheet Names F17=Functions F24=More Keys
    
```

Press F19 from the Attributes maintenance display

```

IDSIMGH          IDD Excel Image Controls              8/30/10  14:20:54

Spreadsheet Name: IDSTEST

Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

Sel  Sheet Image Image          Start Start End End
     Number Number Code          Column Row Column Row
     - 01      1  i3              5      2   7   4
     Dynamic Image: N
     Description..: Image 3

     - 01      1  i4              6      3   8   5
     Dynamic Image: Y
     Description..: Image 4

Bottom

F3=Exit F12=Cancel F6=Add
Record creation successful
    
```

Setting the dynamic image to 'Y' allows you to associate an image with a cell attribute. If you associate the above i3/i4 image code to an attribute the coordinates for the image 'i4' will be moved to the line and column that the attribute has been loaded into the work file.

Images that are defined as dynamic 'N' will be placed in the exact coordinates you have specified. Images are defined and controlled within the image catalogue which is maintained via option 15 from the IDSMMAIN menu.

Image Catalogue

```

IDSMMAIN          IDSMMAIN Menu

Select one of the following:

1. Spreadsheet Controls          15. Image Catalogue
2. E-Mail controls
3. On Line Documentation
5. Search E-mail Log

22. Server Jobs

90. Signoff

Selection or command
===> _____

F3=Exit F4=Prompt F9=Retrieve F12=Cancel
F13=Information Assistant F16=System main menu

MA a 20/007
    
```

Take option 15 from the IDSMMAIN menu.

```

IDSIMGCM          IDD Excel Image Catalogue Maintenance  9/06/10  12:52:35

Image Code: _____

Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

Sel  Image Code          Short Image Description
     -  i3              Image 3
     Image Description
     Image 3

Image Path
/iddexlimg/DSCN0476.JPG

Image Type
5 JPEG

More...

F3=Exit F12=Cancel F6=Add

a 03/019
    
```

The image catalogue defines the image path to the system and not to a specific spreadsheet. Once defined here the image can be linked to any spreadsheet. For image type values please see appendix D.

Data Triggers

Data triggers allow you to specify values and rules that will cause the system to apply attributes to cells and rows without any programming required. Press F18 on the attribute maintenance screen to display the trigger maintenance screen.

```

IDSATRM          IDD Attribute Trigger Value Maintenance    8/06/12  11:56:25
Spreadsheet Name: IDSTEST

Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

  Row/ Alpha      Numeric      Numeric
Sel Cell Trigger Value      Trigger Value      Rule
-   C   IDSTown

      Style
      TRG2

-   R   Scotland

      Style
      TRG3

More...

F3=Exit  F12=Cancel  F6=Add
    
```

Taking the above examples the style 'TRG2' will be applied to a cell when it contains the value 'IDSTown'. Style 'TRG3' will be applied to the row, starting at the point the data trigger was found. The definitions for 'TRG2' and 'TRG3' are as follows.

```

IDSATRM          IDD Excel Attributes Maintenance          8/06/12  12:02:11
Spreadsheet Name: IDSTEST

Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

Sel Style Font      Cell Background      Cell
-   TRG2           Colour Colour      PointSize Height
      17           13

      Cell Hrz Column      Edit New Page Image Init
      Italic Bold Wrap Pattern Align Control Spaces Code Sheet Break Code Cell
      000           1

      Cell Text

Style Description

More...

F3=Exit  F12=Cancel  F6=Add  F10=Column Controls  F11=Edit Codes  F13=Headings
F14=Spreadsheet Level  F15=Sheet Names  F17=Functions  F24=More Keys
    
```

```

IDSATRM          IDD Excel Attributes Maintenance          8/06/12  12:02:11
Spreadsheet Name: IDSTEST

Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

Sel Style Font      Cell Background      Cell
-   TRG3           Colour Colour      PointSize Height
      42           18

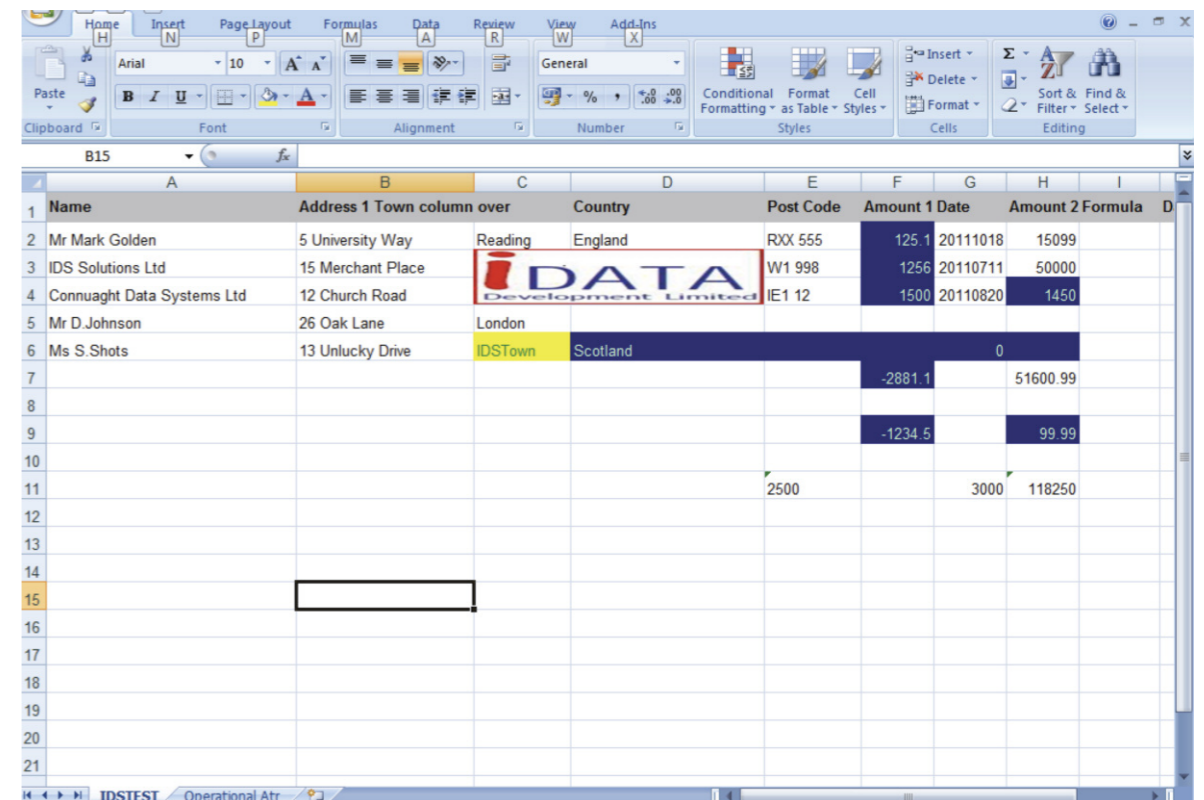
      Cell Hrz Column      Edit New Page Image Init
      Italic Bold Wrap Pattern Align Control Spaces Code Sheet Break Code Cell
      000           1

      Cell Text

Style Description

More...

F3=Exit  F12=Cancel  F6=Add  F10=Column Controls  F11=Edit Codes  F13=Headings
F14=Spreadsheet Level  F15=Sheet Names  F17=Functions  F24=More Keys
    
```



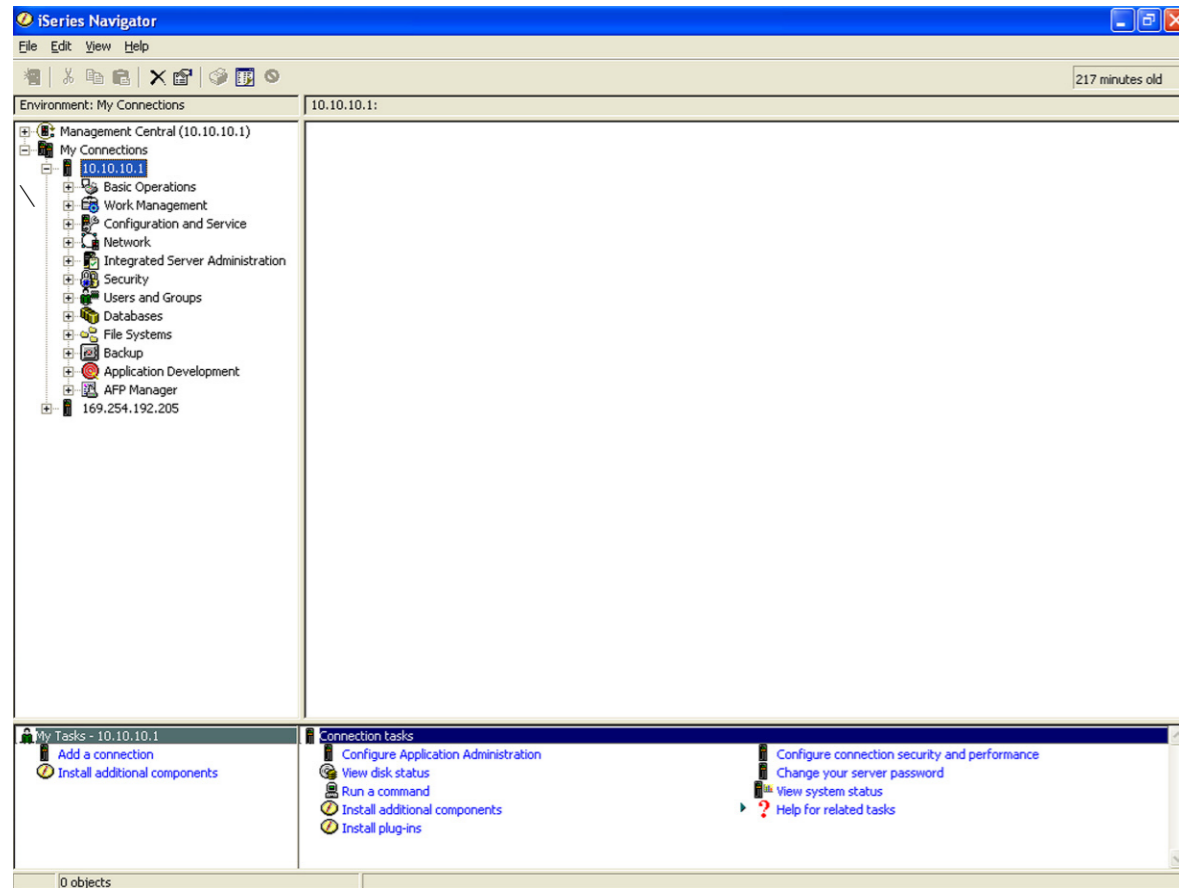
Note that the cell containing 'IDSTown' has change to the requested style.

The cell containing 'Scotland' and all cells in the row after have been changed to the requested style.

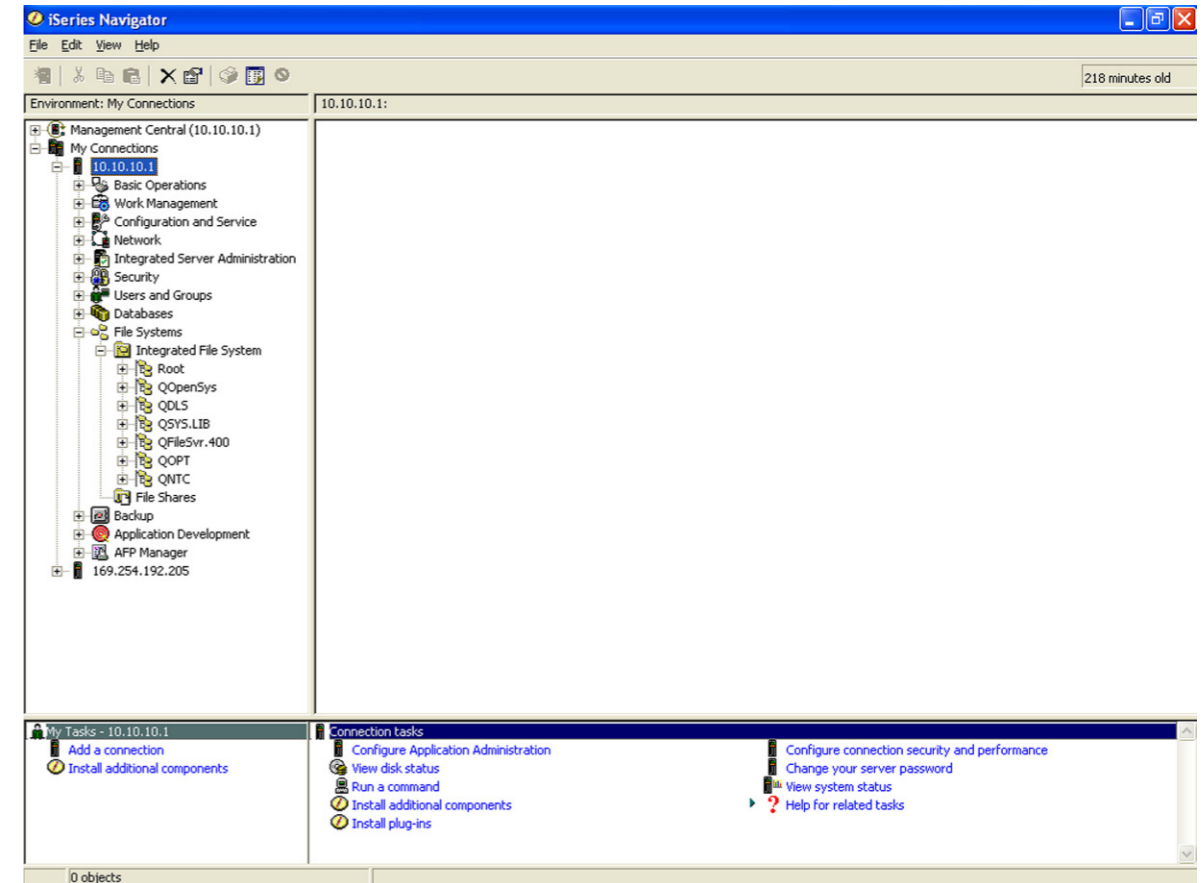
Spreadsheet Prerequisites

If you wish to use the iEXL facility to display spreadsheets directly to user's screens you must have a shared IBM I drive active. If you do not already have a shared drive mapped to your system follow the below instructions.

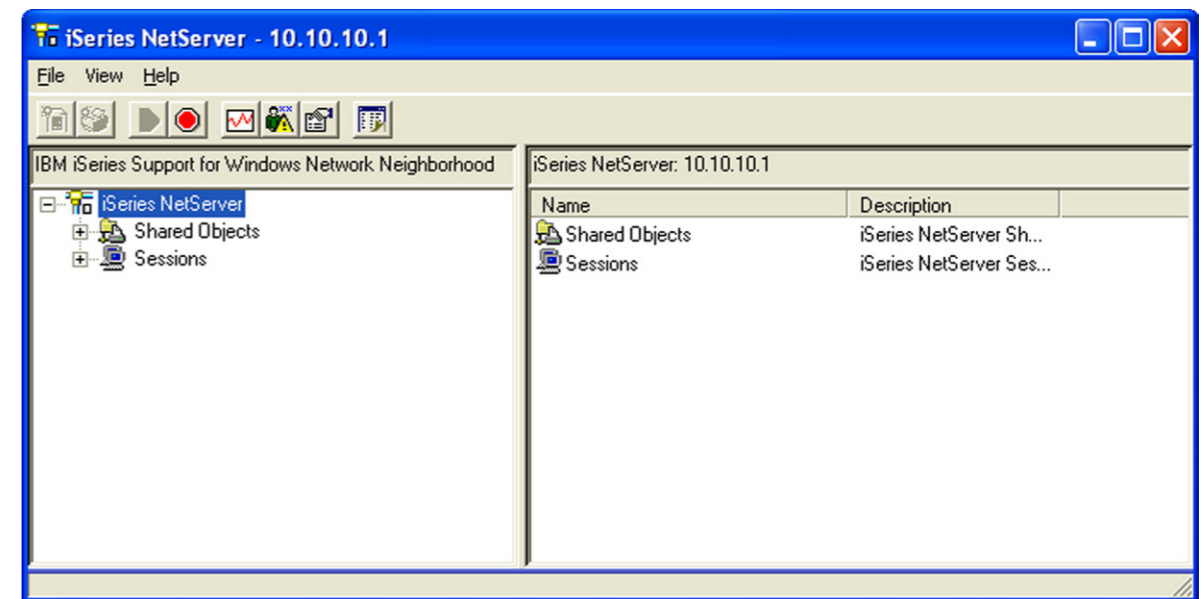
This is also required to use F7 within column headings.



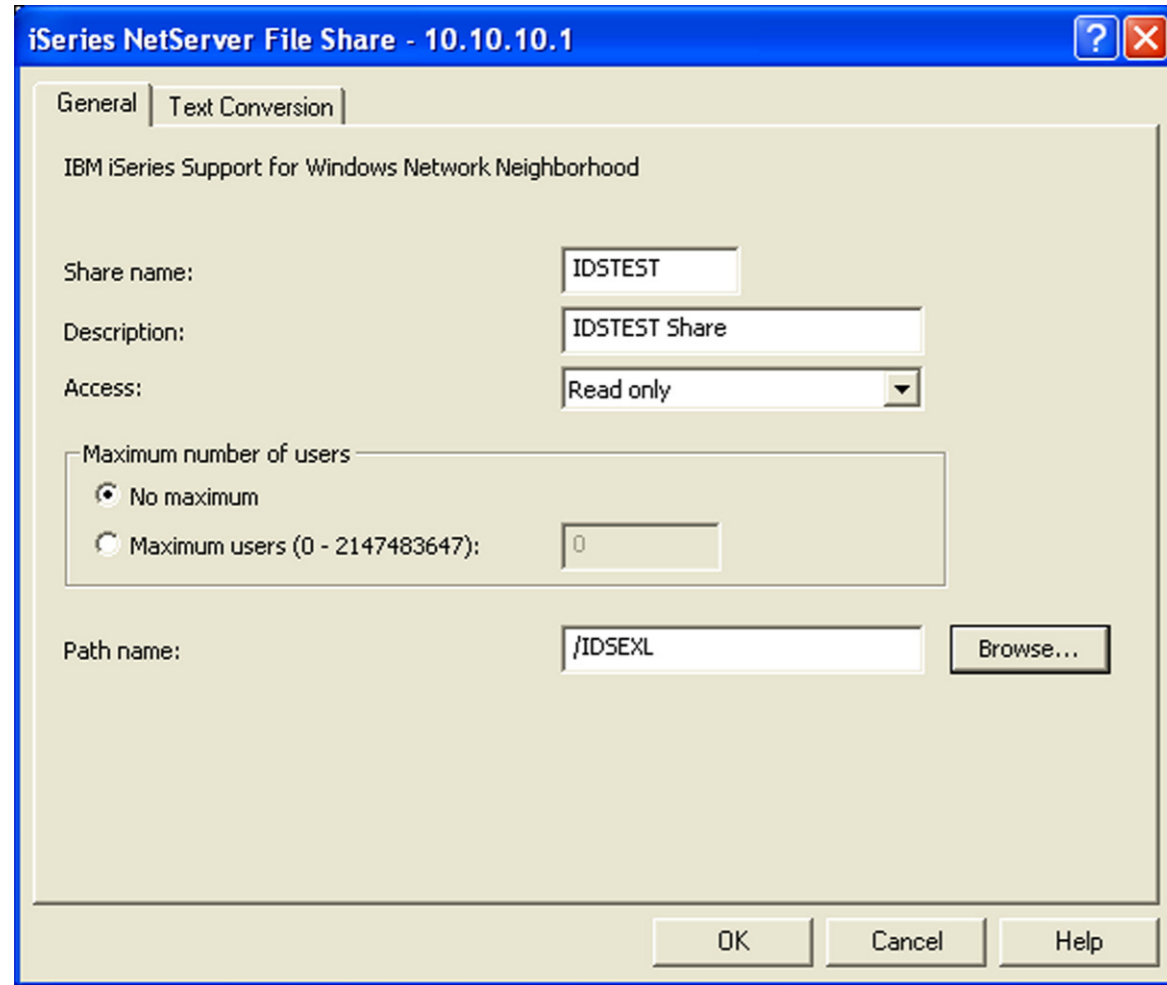
Select File Systems.



Right Click file shares and select 'Open Iseries Netserver'



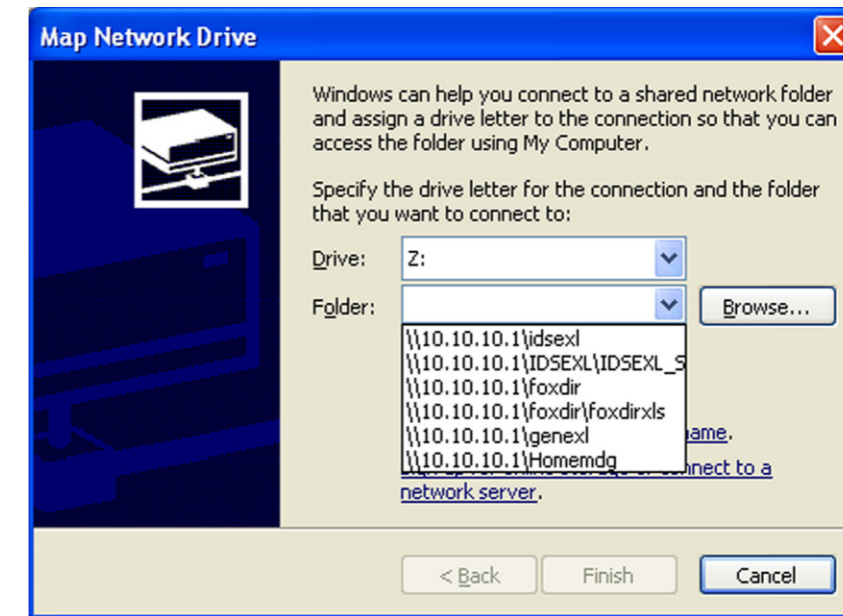
Right click shared objects and select new file.



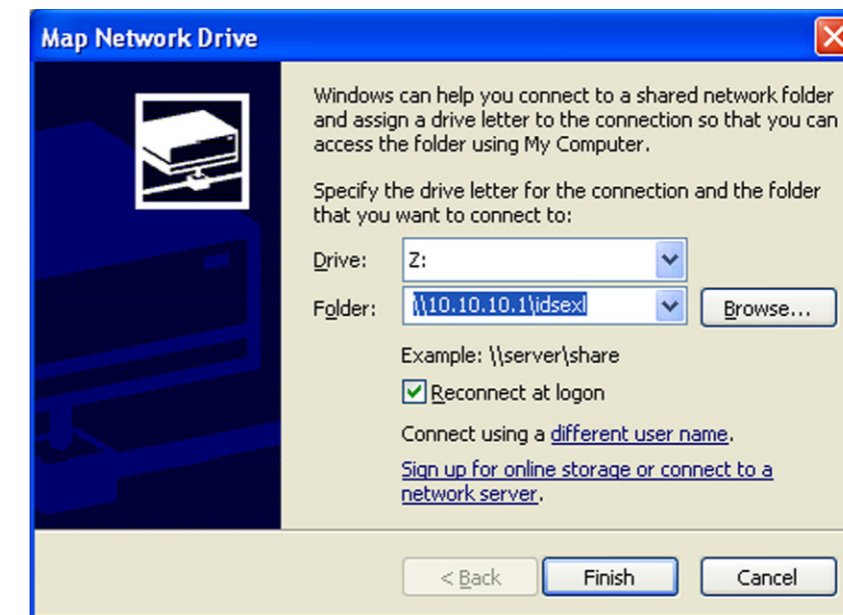
Enter required descriptions and select path. Press OK to create share.

Now that your shared IBM I drive is active, you need to map one of your PC or network drives to the IBM I share you have just created.

From Windows Explorer select tools, map network drive.



Select the required folder from your list



Select 'connect using a different user name'.

Enter your IBM I user ID and password.

Click 'Finish'

4

E-mail Control Files

The control files are maintained via a set of screens which will allow you to enter the required functions. These screens can be accessed from the IDSMMAIN menu.

From a command line enter GO IDSMMAIN

```

IDSMMAIN                                IDSMMAIN Menu
Select one of the following:

  1. Spreadsheet Controls                15. Image Catalogue
  2. E-Mail controls                    22. Server Jobs
  3. On Line Documentation
  5. Search E-mail Log

                                           90. Signoff

Selection or command
===>

F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel
F13=Information Assistant  F16=System main menu
  
```

Select option 2 E-mail Controls.

E-mail Authorities

```

IDSEAM                                IDS E-mail Authority Maintenance    11/18/08  19:34:55

User: MDG

Type choices, press Enter
  1=Update Record  3=Copy/Add  4=Delete  5=E-mail Header Level
  6=Copy All Levels

Sel  User      Active  Internal/  Short Description
  _  MDG        Y       External/Both  Mark Golden

                                           Bottom

F3=Exit  F12=Cancel  F6=Add
  
```

The E-mail system works on a user level basis where each user has their own specific entries for E-mails to be distributed. This can stop E-mails being sent inadvertently when a user runs a job.

This first screen controls if a user can send E-mails and what type of user they are. When jobs are run, the user is the user sign-on profile to the IBM I .

In the above example the user is MDG.

The user is active. The user can be either deleted permanently or set to inactive which will remove the authority to issue E-mail.

The user is defined as type both. Users can be defined as being authorised to send internal only, external only or both types of E-mails.

A short description can also be defined.

Once a user has been defined as being authorized to send E-mails they will need to be setup as to which E-mails can be sent. These are defined as E-mail Headings which are received from the distribution lists previously covered in the iEXL command description.

From the above screen select option 5 'E-mail Header Level'

E-mail Headers

```

IDSEHM      IDS E-mail Distribution List Header Maintenance  11/18/08  19:48:26
User: MDG      Short Description: Mark Golden
Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete  5=E-mail Recipients  6=Email Senders

Distribution  Distribution      Short
Sel  List      List Qualifier  Active  Description
┌───┴───┬───┴───┬───┴───┬───┴───┬───┴───
█ DLST1    DLST1Q         Y      Distribution List 1

Bottom

F3=Exit  F12=Cancel  F6=Add

```

In the above example the user MDG is set to issue E-mails via the distribution list DLST1 with qualifier DLST1Q. The list is active and has a brief description.

Again, like at authority level this entry can be deactivated rather than being deleted which removes this entry from the user MDG list.

To see a list of recipients for this distribution list select option 5.

E-mail Recipients

```

IDSETM      IDS E-mail Recipient Maintenance  11/18/08  20:10:01
User: MDG      Short Description: Distrbution List 1
Distribution List.....: DLST1  Distribution List Qualifier: DLST1Q
Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

Internal      Short
Sel  Active  External/Both  E-mail Address
┌───┴───┬───┴───┬───┴───┬───┴───┬───┴───
█ Y      I      M.SMITH@CMY1.COM
- Y      B      MARK_GOLDEN@CDS.CO.IE
- Y      B      ROBERT_HUNTER@CMPY2.COM
- Y      B      S.STRONG@CMPY2.COM

Bottom

F3=Exit  F12=Cancel  F6=Add

```

In the above example the entries for user MDG using distribution list DLST1, DLST1Q will issue 4 e-mails. All entries are active, however each can be disabled or deleted if required.

In the above example one 1 entry is defined as an internal E-mail address and three entries are defined as external. When user MDG was defined in the authority display it was defined as type 'B' for both, so all E-mails will be issued.

If the user MDG was changed to 'I' internal only then only the E-mail to M.SMITH@CMY1.COM would be issued.

Press F12 to return to the E-mails header screen.

E-mail Sender

```

IDSEHM   IDS E-mail Distribution List Header Maintenance  11/18/08  19:48:26
User: MDG           Short Description: Mark Golden
Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete  5=E-mail Recipients  6=Email Senders

  Distribution  Distribution      Short
Sel  List       List Qualifier  Active  Description
  |  DLST1     DLST1Q         Y       Distrbution List 1

Bottom

F3=Exit  F12=Cancel  F6=Add

```

Select option 6 to display the sender of this E-mail.

```

IDSESM   IDS E-mail Sender Maintenance  11/18/08  20:14:26
User: MDG           Short Description: Distribution List 1
Distribution List.....: DLST1   Distribution List Qualifier: DLST1Q
Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

Sel  Active  Internal      Short
      Y      External/Both E-mail Address
  |  Y      I      DAMIAN.NEDLOG@SENDER.CO.UK

Bottom

F3=Exit  F12=Cancel  F6=Add

```

This entry defines who the sender of the E-mail is to be. Only one entry per distribution list/distribution list qualifier is allowed. An E-mail log file is used to record which user and job actually sent the E-mail.

E-mail Body Text

A file can be created that contains any E-mail body text that you would like to be inserted into the E-mail. This file is entered in the 'E-mail body text file' parameter on the iEXL command. The file itself is stored in your named IFS directory

```

Copy selected text to clipboard
Browse : /IDSEXL/IDSEXL_EMailBodies/ExampleBody.Txt
Record : 2 of 20 by 14      Column : 1 180 by 79
Control : |

.....1.....2.....3.....4.....5.....6.....7.....

*****

                This E-mail Has been Issued by User MDG
                Company IDS.

Disclaimer
IDS Company Information.

*****

F3=Exit  F10=Display Hex  F12=Exit  F15=Services  F16=Repeat find
F19=Left  F20=Right

b MW 03/012

```

To create a directory to store these files see Appendix E.

E-mail Controls

A file named EMAILEPF is contained within the library IDDEXL. This contains control information about mail routers and default values for the E-mail system. There is no maintenance program supplied for this file as once it is setup it should not be changed.

```

Select and Sequence Fields

Type sequence numbers (1-999) to select fields, press Enter.

Seq  Field          File          Text
---  ---          ---          ---
 1   RESRVR         EMAILEPF     SMTP Mail Server
 2   REXDPT         EMAILEPF     Dft EXCEL Dir Path
 3   REBDPT         EMAILEPF     Dft E-Mail Body Dir Path
 4   RESYSN         EMAILEPF     System Name
 5   REDMNN         EMAILEPF     Domain Name
 6   REDEMA         EMAILEPF     Dft From E-Mail Address
 7   RECPH         EMAILEPF     Update CLASSPATH

Bottom

F3=Exit  F5=Refresh  F11=Display nulls  F12=Cancel  F17=Select files
F19=Display system field names  F20=Display entire name

MA  a  07/002

```

RESRVR: This should be set to the same value as MAILROUTER is set within your SMTP attributes. (The command CHGSMTPA can be used to view your MAILROUTER value.)

REXDPT: This should be set left blank.

REBDPT: This should be set left blank.

RESYSN: This should be left blank.

REDMNN: This should be set to the required domain name. I.E @CDS.CO.UK, @IDS.COM

REDEMA: Enter a default E-mail address for a sender, without specifying the domain name. If no sender address has been defined for the E-mail being sent this will be used in conjunction with the value in REDMNN to build a default sender E-mail address.

iEXL uses SMTP to send emails from your system to your mail server. This must be configured before you can successfully send emails. If you do not have SMTP configured on your system already a good reference site is:

http://www-912.ibm.com/s_dir/SLKBase.nsf/0/34879f5e413aa5cd8625697b0053f36a

Search E-mail Log

This screen can be used to search for any emails that have been sent. It allows for various keywords to be used to find a spreadsheet. This will then show the path to where the spreadsheet has been saved. This can help if a previously generated spreadsheet is requested again.

```

IDSEML          IDD E-mail Log Search          3/31/12  14:11:09

Search Criteria:
Job Name: _____ and/or Job Number: _____
and/or Job User: _____
and/or Distribution List: _____ and/or Dist/List Qualifier: _____
and/or Spreadsheet name: _____ and/or _____

Spreadsheet Path and Name

F3=Exit  F12=Cancel

MA  a  04/013

```

E-mail Search

The E-mail search screen allows you to search for any spreadsheets that have been saved and E-mailed. Various search criteria can be entered to allow the lookup.

```

IDSEML                IDD E-mail Log Search                1/22/12  12:14:35

Search Criteria:
Job Name: _____ and/or Job Number: _____
and/or Job User: _____
and/or Distribution List: _____ and/or Dist/List Qualifier: _____
and/or Spreadsheet name: _____ and/or _____

Spreadsheet Path and Name

F3=Exit  F12=Cancel

b                                04/013
  
```

Server Jobs

Server jobs have been designed to improve performance mainly when the Java Virtual Machine (JVM) is started. Each time a new request is made a new JVM has to be created which will use system resources.

If you choose to use a server job (see Page 9) iEXL will start a subsystem called iEXL. Within that subsystem a job with the same name as the server name associated with the spreadsheet will be started. This job will remain active for 1 hour after a request has been made. This means the JVM remains active and reduces system resources. An example of this is.

```

IDSWKM                IDD Excel Spreadsheet Maintenance    1/25/12  20:40:05

Spreadsheet: _____

Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete  5=Setup  6=Duplicate

Sel  Spreadsheet
_   IDSTEST

Spreadsheet Description
Test Spreadsheet

Spreadsheet server Job Name
IDTESTSVR

F3=Exit  F12=Cancel  F6=Add

More...

a                                03/015
  
```

Server job IDTESTSVR has been associated with the spreadsheet IDSTEST.

```

XLSSRV          IDD Excel Server Job Maintenance          1/25/12  20:41:37

Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

Sel  Server      Server
     Name        Description
  _  IDSTESTSVR  IDSTEST Server

F3=Exit  F12=Cancel  F6=Add

Bottom

MA a 10/003

```

IDSTESTSVR is then defined using option 22 from the IDSMMAIN menu.

This example shows a specific spreadsheet with a specific server job however many spreadsheets can be generated by one server job. For example you could have all accountancy spreadsheets generated by one server job.

5

Getting Started

Within this section you will see how to use iEXL to create a basic spreadsheet. This spreadsheet will be a simple download of data and contain no formatting. Its purpose is to show you how to set the relevant parameters within the iEXL command to create a spreadsheet and store it on your system. Once you have this working you should go on to read the examples which explain how to format the spreadsheet.

First of all, the iEXL command itself.

You need to add the library IDDEXL to your library list AFTER QTEMP. Then you can simply type in IEXL and press F4.

```

Generate Excel Spreadsheet (IEXL)

Type choices, press Enter.

System Name . . . . . '10.10.10.1'
Spreadsheet Directory . . . . . '\iddexlspd'

File . . . . .
Library . . . . . *LIBL      Name
Member . . . . . *FIRST     Name, *LIBL
                    + for more values      Name, *FIRST, *LAST
                    *LIBL
                    *FIRST

More...

F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

MA a 05/037

```

The two parameters we are looking at are 'System Name' and 'Spreadsheet Directory'. Once set they become the command defaults but can be changed at any time.

The system name needs to be set to the name of your system or IP address, system name being the simpler. If you do not know your system you can either ask your operations department or from a command line enter DSPJOB. If you use DSPJOB the system name will be displayed in the top right hand corner of the screen.

Once you have the system name the 'System Name' parameter can be set within the iEXL command.

Enter CHGCMDDFT and press F4 and fill in the entries as below.

```

Change Command Default (CHGCMDDFT)

Type choices, press Enter.

Command . . . . . > IEXL      Name
Library . . . . . > IDDEXL   Name, *LIBL, *CURLIB
New default parameter string . . > SYSN(S6553AF2)

Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

a 07/051

```

Replace 'S6553AF2' with your system name. The syntax of this command can be difficult so if you set the SYSN parameter incorrectly start from the F4 prompt again.

Once this is complete the iEXL command knows which system it is looking for.

Next you should set the 'Spreadsheet Directory' name which is the DIRN parameter within the command.

This parameter tells the system which IFS directory to work within and if required to store copies of generated spreadsheets.

To create a directory enter CRTDIR and press F4.

```

Create Directory (CRTDIR)

Type choices, press Enter.

Directory . . . . . > '/IDDEXLSPD'

Public authority for data . . . > *RWX      Name, *INDIR, *RWX, *RW...
Public authority for object . . > *ALL      *INDIR, *NONE, *ALL...
+ for more values
Auditing value for objects . . . *SYSVAL   *SYSVAL, *NONE, *USRPRF...
Scanning option for objects . . *PARENT   *PARENT, *YES, *NO, *CHGONLY
Restricted rename and unlink . . *NO       *NO, *YES

Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

a 05/037

```

Change the directory to a path that you wish to use. This can be any name, but for this example we are keeping it to a basic name and level. Change the next two parameters to '*RWX' and '*ALL'.

Now you have your directory created use the CHGCMDDFT command to change iEXL default value for directory name.

Enter CHGCMDDFT and press F4 and fill in the entries as below.

```

Change Command Default (CHGCMDDFT)

Type choices, press Enter.

Command . . . . . > iEXL      Name
Library . . . . . > IDDEXL   Name, *LIBL, *CURLIB
New default parameter string . . > DIRN('/IDDEXLPSD')

Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

```

Replace 'IDDEXLPSD' with your directory name. The syntax of this command can be difficult so if you set the DIRN parameter incorrectly start from the F4 prompt again.

Once this is complete the iEXL system knows which directory to use as a default. This can be changed to any valid directory when required.

Now that the command defaults are set you are ready to create a simple spreadsheet. Again this section does not contain any information on formatting the data within the spreadsheet. It is simply a demonstration of using the system and the examples section should be used to see how to format the spreadsheet.

Enter iEXL and press F4.

```

Generate Excel Spreadsheet (IEXL)

Type choices, press Enter.

System Name . . . . . S6553AF2
Spreadsheet Directory . . . . . '/IDDEXLPSD'

File . . . . . IDSTEST      Name
Library . . . . . IDDEXL      Name, *LIBL
Member . . . . . *FIRST      Name, *FIRST, *LAST
+ for more values

*LIBL
*FIRST

More...
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

```

Enter the file and library name of the file you wish to use. For test purposes we would suggest using a file with approx 10 fields and no more than 1000 records.

Page down until you can see the last parameters on the command.

```

Generate Excel Spreadsheet (IEXL)

Type choices, press Enter.

View data in Excel . . . . . N      Y, N
System Field Text . . . . . N      Y, N
Store a copy of the document . . Y      Y, N
Process empty work files . . . Y      Y, N
Process using server job . . . N      Y, N
Zip file . . . . . N      Y, N

Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

```

Change the 'Store a copy of the document' to 'Y'. This tells the system to store a copy of the generated spreadsheet in the directory name you have entered on the DIRN parameter.

Press enter to generate the spreadsheet. Various messages will be displayed during the creation of the file. The first time the system is used you will see QSH messages/screens which concern the creation of JAVA programs. This is a one off process.

To use any of the styles you have defined within the control files in the 'Spreadsheet design' section you must enter a value in the SPN parameter of the iEXL command. Using this parameter will cause the system to search for any styles, functions, headings, etc that have been created for a particular spreadsheet name.

At this point you are not using any programming method to associate the styles with the spreadsheet. The system will search for any styles that have been defined to be used at column level (See the 'Column control' section for more information) and apply that style to the complete column.

As well as styles the system will search for any column headings you have created when the SPN parameter on the iEXL command is used.

To create column heading do the following.

Enter 'GO IDSMAIN'

Select option 1 and then select option 5 against the 'IDSTEST' spreadsheet. Press F13 to display the column headings screen.

```

IDSHDM          IDD Excel Column Heading Maintenance    4/07/12  10:40:58
Spreadsheet Name: IDSTEST

Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete  6=Insert Adjust  7=Delete Adjust
8=Insert Blank Headings

   Row   Column Row Level Cell Level Short
Sel  Number Number Attribute Attribute Description
-     1     1           1           Name
-     1     2           1           Address 1
-     1     3           1           Town
-     1     4           1           Country
-     1     5           1           Post Code
-     1     6           1           Amount 1
-     1     7           1           Date
-     1     8           1           Amount 2

More...

F3=Exit  F12=Cancel  F6=Add  F7=View Headings in Excel

```

If you have a drive mapped to the 'DIRN' parameter on the iEXL command you can use F7 to display headings as you create them.

If you do not have a drive mapped, go back to the command line and enter IEXL FILE(IDSTEST) SPN(IDSTEST) CPYDOC(Y). The CPYDOC parameter will cause the system to store a copy of the spreadsheet in the directory specified in the DIRN parameter. You will still need to map a drive to view the spreadsheet as the file created is a real Excel spreadsheet.

The result of adding the headings is

Name	Address 1	Town	Country	Post Code	Amount 1	Date	Amount 2
Mr Mark Golden	5 University Way	Reading	England	RXX 555	125.1	20111018	15099
IDS Solutions Ltd	15 Merchant Place	London		W1 998	1256	20110711	50000
Connuaght Data Systems Ltd	12 Church Road	Sligo	Republic of Ireland	IE1 12	1500	20110820	1450
Mr D.Johnson	26 Oak Lane	London					
Ms S.Shots	13 Unlucky Drive	IDSTown	Scotland				
					-2881.1		51600.99
					-1234.5		99.99
							118249.98

The system has inserted your column headings.

To associate a style with a column heading do the following.

Go back into the column heading maintenance screen. Update record 1 with the following

```

IDSHDM          IDD Excel Column Heading Maintenance    4/07/12  10:49:23
Spreadsheet Name: IDSTEST
Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete  6=Insert Adjust  7=Delete Adjust
8=Insert Blank Headings

```

Sel	Row Number	Column Number	Row Level Attribute	Cell Level Attribute	Short Description
-	1	1	HDR1		Name
-	1	2			Address 1
-	1	3			Town
-	1	4			Country
-	1	5			Post Code
-	1	6			Amount 1
-	1	7			Date
-	1	8			Amount 2

```

More...

F3=Exit  F12=Cancel  F6=Add  F7=View Headings in Excel

```

See that the first entry now has a row level attribute of HDR1. Row level means that the system will apply that style/attribute to all cells in that row. A cell level attribute applies a style/attribute to a specific cell.

Now that you have specified an attribute it is linked with the headings you need to create. Press F12 to return to the attribute maintenance screen and press F6 to create the HDR1 style.

```

IDSATRM          IDD Excel Attributes Maintenance      8/06/12  10:00:0
Spreadsheet Name: IDSTEST                               Copy/Add
Style Font                                             Cell Background Cell
HDR1 _____ Colour Colour Pointsize Height
                                             Cell Hrz Column Edit New Page Image Init
Italic Bold Wrap Pattern Align Control Spaces Code Sheet Break Code Cell
- 700 - _____ - _____ - _____ - _____ -
Cell Text
_____
_____
Style Description
_____
F4=Prompt  F12=Cancel

```

The above tells the system that the HDR1 style should be point size 12 and bold.

Generate the spreadsheet again by using IEXL FILE(IDSTEST) SPN(IDSTEST) CPYDOC(Y) or F7 from the column heading maintenance screen.

1	Name	Address 1	Town	Country	Post Code	Amount	Date	Amount
2	Mr Mark Golden	5 University Way	Reading	England	RXX 555	125.1	20111018	15099
3	IDS Solutions Ltd	15 Merchant Place	London	England	W1 998	1256	20110711	50000
4	Connuaght Data Systems Ltd	12 Church Road	Sligo	Republic of Ireland	IE1 12	1500	20110820	1450
5	Mr D.Johnson	26 Oak Lane	London					
6	Ms S.Shots	13 Unlucky Drive	IDSTown	Scotland				
7						-2881.1		51600.99
8								
9						-1234.5		99.99
10								
11								
12								118249.98
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

You now have bold headings with a point size of 12. The code HDR1 can be any code, this is just a logical code for headings.

Now that you have your headings created we can apply a style to a complete column.

On the attribute maintenance screen create a new style.

```

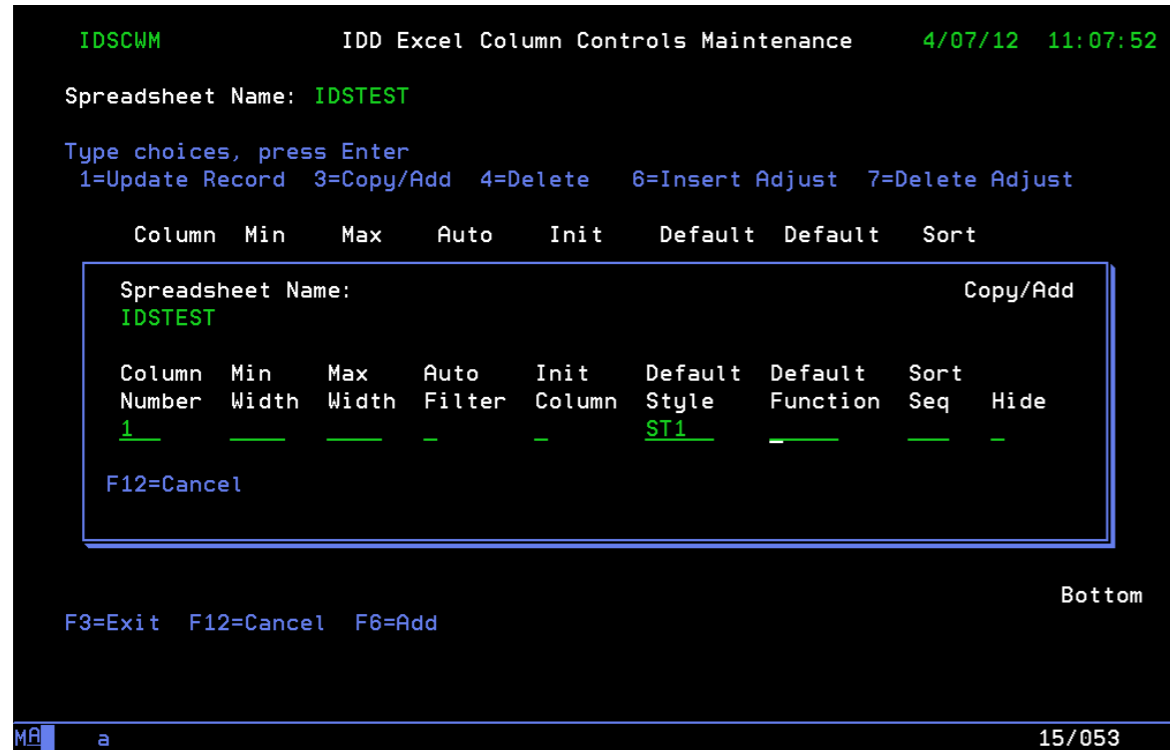
IDSATRM                IDD Excel Attributes Maintenance                8/06/12 10:11:1
-----
Spreadsheet Name:                Copy/Add
IDSTEST
-----
Style Font                Cell Background
Colour Colour                Pointsize Cell
ST1                10                Height
-----
Cell Hrz Column                Edit New Page Image Init
Italic Bold Wrap Pattern Align Control Spaces Code Sheet Break Code Cell
-----
Cell Text
-----
Style Description
-----
F4=Prompt F12=Cancel
-----
07/048

```

The style ST1 has been defined as having the colour code 10. Colour code 10 is for red however you can press F4 to view all available values. Press enter to create the style.

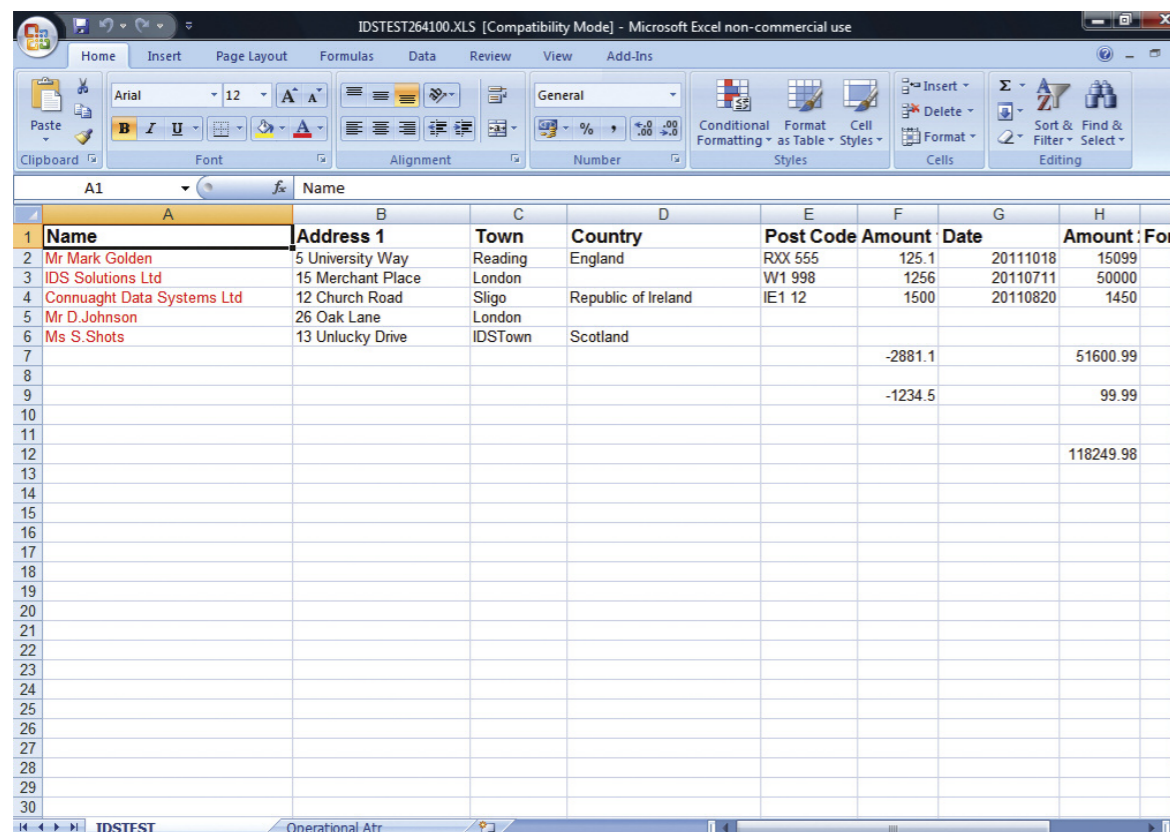
Press F10 to display column controls.

Press F6 to create a new entry.



The above entry tells the system that column one should have a default style of ST1. Press enter to create the column control.

Generate the spreadsheet again by using IEXL FILE(IDSTEST) SPN(IDSTEST) CPYDOC(Y) or F7 from the column heading maintenance screen.

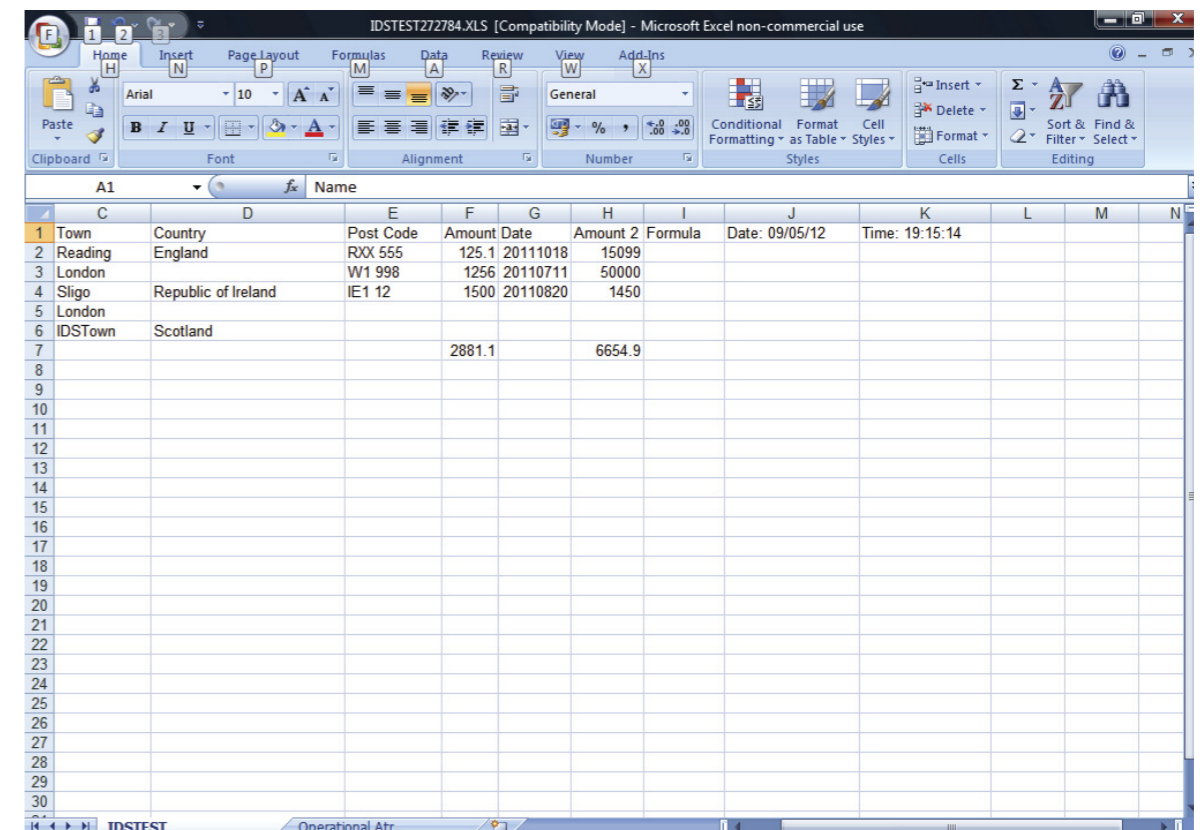


Column 1 has now been given a default colour of red. Note that the heading for column 1 is not red as column headings have their own style being applied.

The above examples are very basic and show you how to create and apply headings and styles with no programming involved. All options within a style can be applied this way and allows non technical users to create formatted spreadsheets.

Two reserved keywords exist for column headings which are *Date and *Time. If the system finds these words in the column headings it will insert the current system date or time depending on which has been specified.

Generate the spreadsheet again by using IEXL FILE(IDSTEST) SPN(IDSTEST) CPYDOC(Y) or F7 from the column heading maintenance screen.



Column 10 now contains the current date and column 11 now contains the current time. The format the date is placed in the spreadsheet is controlled by the entry in file EMAILEPF field REDFMT.

Valid values include, *YMD, *DMY, *MDY, *CYMD, *CDMY, *CMDY, *ISO, *USA, *EUR, *JIS, *LONGJUL.

For more information on the date format please see the iEXL installation manual under entries for EMAILEPF.

Example 2 – Spreadsheet with Attributes

The previous example showed you how to create headings and apply styles to a spreadsheet with no programming involved. This allows for a complete column to have a default style with all cells in that column looking the same.

You will for various reasons such as totals, error messages, data breaks need to have specific cells formatted differently to other cells in the same column or row. This does require a minimum amount of programming.

When the iEXL command runs it looks for specific field text associated with a field in a file. The system looks for the DDS keyword TEXT associated with each field. There are two specific values that the system searches for which are 'Atr Excel Rec' and 'Atr Excel Fld'. Note that this is case specific.

Take the following example

```

Select and Sequence Fields
Type sequence numbers (1-999) to select fields, press Enter.

Seq  Field      File      Text
---  -
DSRPGR  IDSTEST  Atr Excel Rec PGR
DSNAMA  IDSTEST  Atr Excel Fld NAM#
DSNAM#  IDSTEST  Customer Name
DSADRA  IDSTEST  Atr Excel Fld ADR1
DSADR1  IDSTEST  Address Line 1
DSAD2A  IDSTEST  Atr Excel Fld ADR2
DSADR2  IDSTEST  Address Line 2
DSAD3A  IDSTEST  Atr Excel Fld ADR3
DSADR3  IDSTEST  Address Line 3
DSPSTA  IDSTEST  Atr Excel Fld PSTC
DSPSTC  IDSTEST  Post Code
DSABLA  IDSTEST  Atr Excel Fld CT#
DSABAL  IDSTEST  Account Balance
DSLPLYA IDSTEST  Atr Excel Fld CT2

More...
F3=Exit  F5=Refresh  F11=Display nulls  F12=Cancel  F17=Select files
F19=Display system field names  F20=Display entire name
    
```

Note the first field in the file, DSRPGR has the DDS TEXT that contains 'Atr Excel Rec'. Note that this is case specific.

Note the second field in the file. DSNAMA has the DDS TEXT that contains 'Atr Excel Fld.' Note that this is case specific.

When the system finds a field with the above TEXT in them it recognises them as control fields and uses them to apply styles/attributes to the data within the file.

The code 'Atr Excel Rec' is a record 'Rec' level code that tells the system to apply a named style code to all fields within a row.

The code 'Atr Excel Fld' is a field 'Fld' level code that tells the system to apply a named style code to a specific cell. This code will be applied to the field directly after in the DDS.

In the above example all fields have a 'Atr Excel Fld' associated with them however you only need to create these control fields for fields that require styles to be applied.

Create the following Style

```

IDSATRM          IDD Excel Attributes Maintenance      8/06/12  10:12:5
-----
Spreadsheet Name:          Copy/Add
IDSTEST
Style Font                Cell   Background   Cell
Colour Colour           Pointsiz  Height
ST2                       11
Italic Bold Wrap Pattern Hrz Column Edit New Page Image Init
Code Code Sheet Break Code Cell
-----
Cell Text
-----
Style Description
F4=Prompt  F12=Cancel
    
```

The style ST2 has been defined as having the colour code 11. Colour code 11 is for green however you can press F4 to view all available values. Press enter to create the style.

Using UPDDTA, SQL or any other utility you have update record one to contain the ST2 code.

```

WORK WITH DATA IN A FILE           Mode . . . . : CHANGE
Format . . . . : RIDS                File . . . . : IDSTEST

*RECNR:          1                   DSRPGR: ST2
DSNAMA:
DSNAM#: Mr Mark Golden
DSADRA:
DSADR1: 5 University Way
DSAD2A:
DSADR2: Reading
DSAD3A:
DSADR3: England
DSPSTA:
DSPSTC: RXX 555
DSABLA:
DSABAL: 12510
DSLPLYA:
DSLPLYM: 20111018
DSCRDL:
DSCRDL: 1509900

F3=Exit          F5=Refresh      F6=Select format
F9=Insert        F10=Entry       F11=Change

MBA a 05/011

```

Note the field DSRPGR which is the 'Atr Excel Rec' field now contains the code ST2.

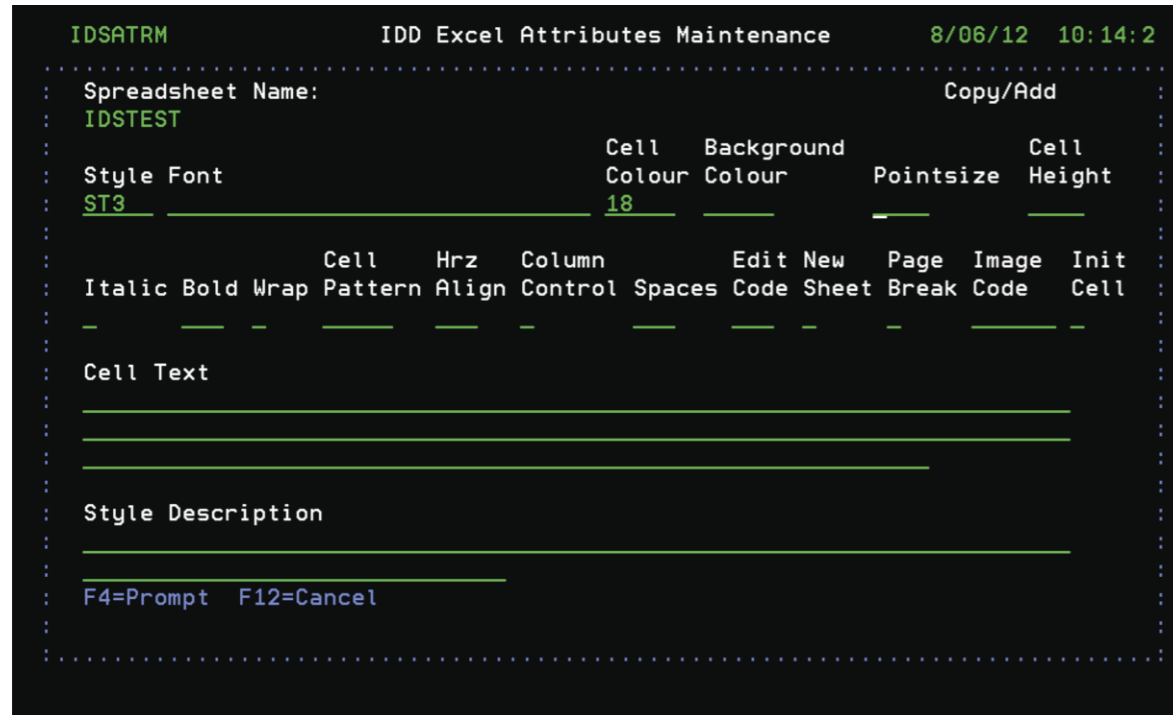
Generate the spreadsheet again by using IEXL FILE(IDSTEST) SPN(IDSTEST) CPYDOC(Y) or F7 from the column heading maintenance screen.

Name	Address 1	Town	Country	Post Code	Amount	Date	Amount: For
Mr Mark Golden	5 University Way	Reading	England	RXX 555	125.1	20111018	15099
IDS Solutions Ltd	15 Merchant Place	London		W1 998	1256	20110711	50000
Connuaght Data Systems Ltd	12 Church Road	Sligo	Republic of Ireland	IE1 12	1500	20110820	1450
Mr D Johnson	26 Oak Lane	London					
Ms S.Shots	13 Unlucky Drive	IDSTown	Scotland				
					-2881.1		51600.99
					-1234.5		99.99

The complete row has now been changed to green.

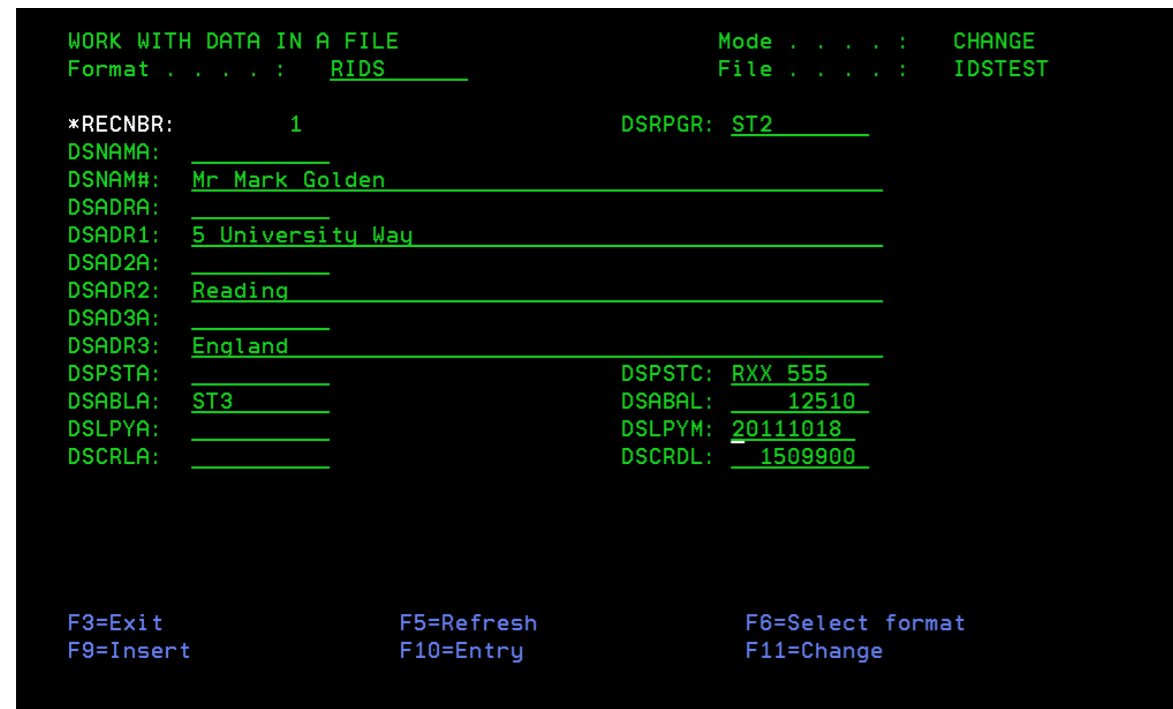
Now that you have specified the complete row should be green you may need to have a specific cell changed to something else.

Create the following Style



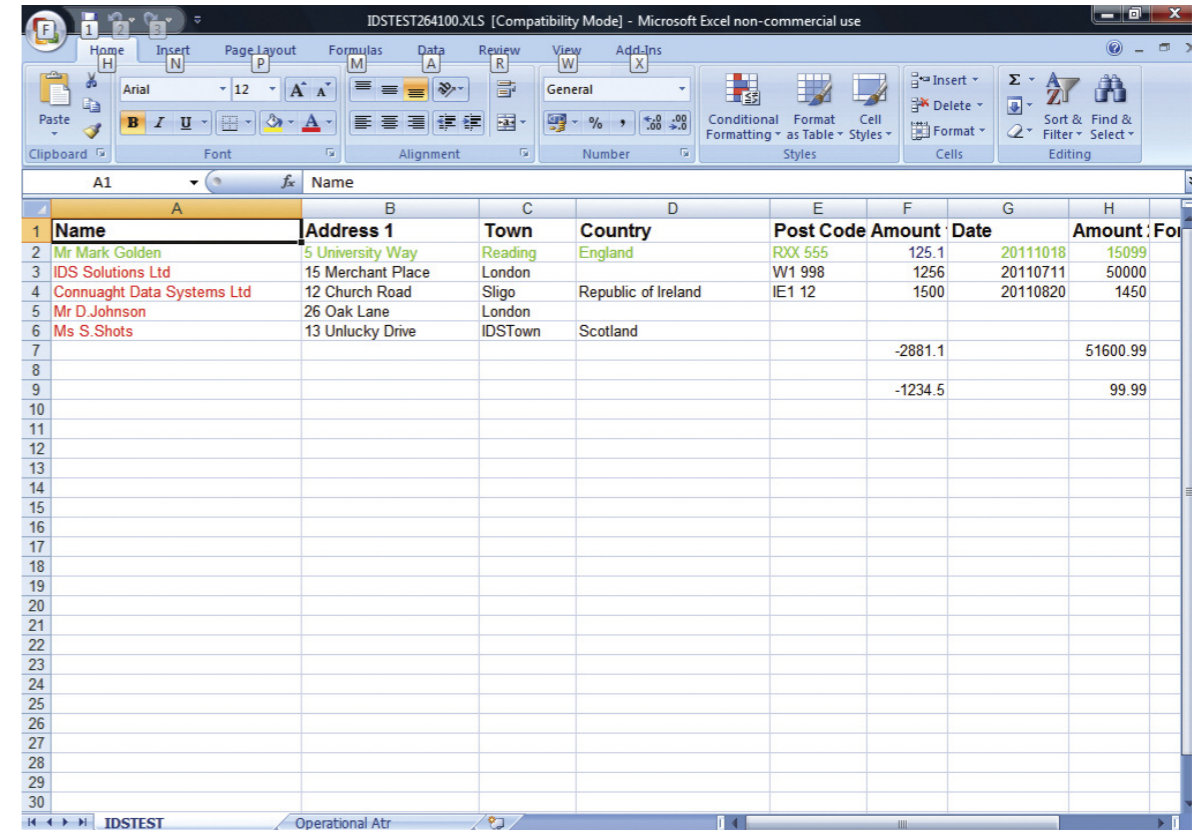
The style ST3 has been defined as having the colour code 18. Colour code 18 is for blue however you can press F4 to view all available values. Press enter to create the style.

Using UPDDTA, SQL or any other utility you have update record one to contain the ST3 code.



Note the field DSABLA which is the 'Atr Excel Fld' field now contains the code ST3.

Generate the spreadsheet again by using IEXL FILE(IDSTEST) SPN(IDSTEST) CPYDOC(Y) or F7 from the column heading maintenance screen.



The value 125.1 in row 2 column F has now been changed to blue.

The above examples have shown you how to design a spreadsheet with headings and fonts and to specify styles at column, row and cell level. This is just the very basic parts of iEXL but with the above examples you can create formatted, professional spreadsheets. Once one have a better understanding of the examples above use your own files, if you have not already done so, to create spreadsheets. Then start using the many more options and functions to design your spreadsheet.

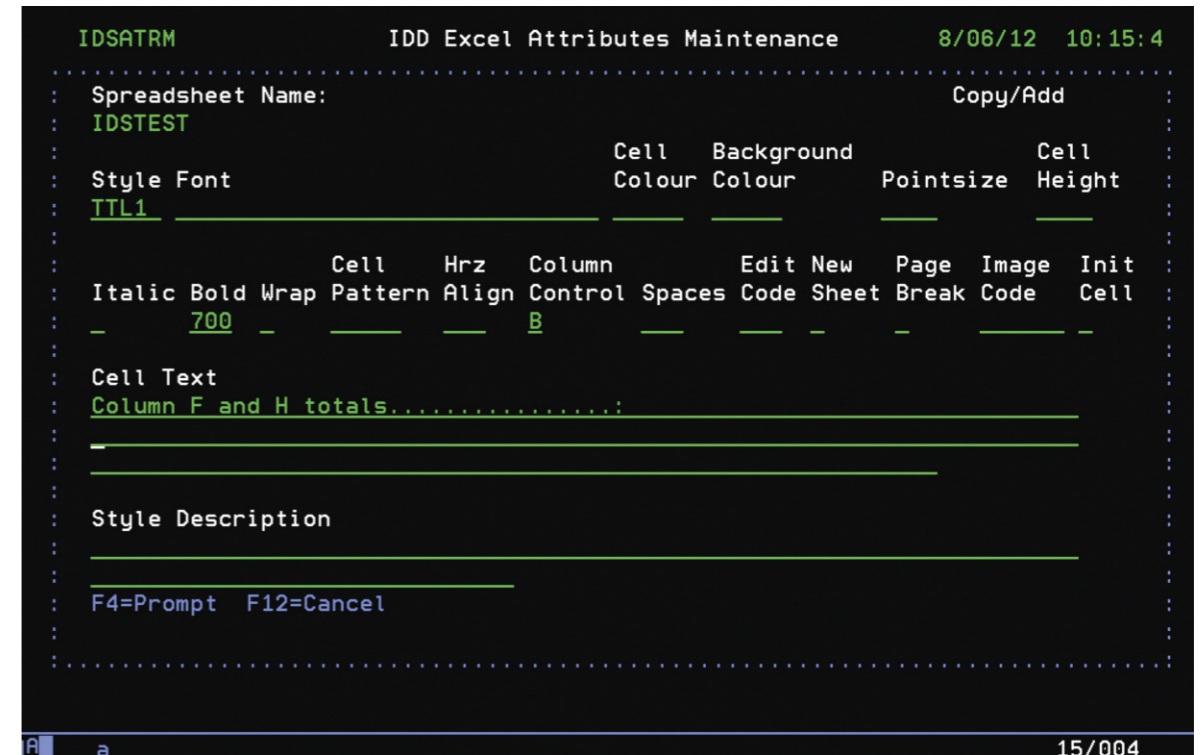
Example 3 – Spreadsheet with Text

Inserting text into a spreadsheet can be used for things such as totals, data breaks etc.

	A	B	C	D	E	F	G	H
1	Name	Address 1	Town	Country	Post Code	Amount	Date	Amount: For
2	Mr Mark Golden	5 University Way	Reading	England	RXX 555	125.1	20111018	15099
3	IDS Solutions Ltd	15 Merchant Place	London		W1 998	1256	20110711	50000
4	Connuaght Data Systems Ltd	12 Church Road	Sligo	Republic of Ireland	IE1 12	1500	20110820	1450
5	Mr D.Johnson	26 Oak Lane	London					
6	Ms S.Shots	13 Unlucky Drive	IDSTown	Scotland				
7								
8						2881.1		66549
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								

In the above example row 8 has two values of 2881.1 and 66549 which are column totals. It may be clearer to have some text added to the spreadsheet to indicate that these are totals.

From the attribute maintenance screen you can create a new style that contains some total text.



Here is a style called TTL1 which has the bold set on and the column control value set to 'N'. The column control being set to 'N' tells the system not to adjust the column width to allow for the width of the data.

Example 4 – Spreadsheet with Edit Codes

Using the previous example you can see that column F and H have numeric data within them.

Name	Address 1	Town	Country	Post Code	Amount	Date	Amount: Fo
Mr Mark Golden	5 University Way	Reading	England	RXX 555	125.1	20111018	15099
IDS Solutions Ltd	15 Merchant Place	London		W1 998	1256	20110711	50000
Connuaght Data Systems Ltd	12 Church Road	Sligo	Republic of Ireland	IE1 12	1500	20110820	1450
Mr D Johnson	26 Oak Lane	London					
Ms S. Shots	13 Unlucky Drive	IDSTown	Scotland				
Column F and H totals.....					2881.1		66549

You may wish to add edit codes to these columns so that data lines up or maybe a currency symbol.

To create the edit code Press F11 from the attribute maintenance screen.

```

IDSATRM          IDD Excel Attributes Maintenance      8/06/12  10:17:28
Spreadsheet Name: IDSTEST
Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

Sel  Style  Font          Cell  Background  Cell
      Colour Colour          PointSize Height
-   AS1
-   EMRG1
-   FCOL
-   HDR1          22
-   SMRG1         12
-   ST10          10
-   ST2           10
-   TRG1          10
-   TRG2          17   13
-   TRG3          42   18
-   TRG4          25   33

Bottom
F3=Exit F12=Cancel F6=Add F10=Column Controls F11=Edit Codes F13=Headings
F14=Spreadsheet Level F15=Sheet Names F17=Functions F24=More Keys
Copy/Add cancelled
    
```

The edit code maintenance screen is now displayed. Press F6 to create a new edit code.

```

IDSECM          IDD Excel Edit Code Maintenance      4/08/12  09:56:07
Spreadsheet Name: IDSTEST
Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete

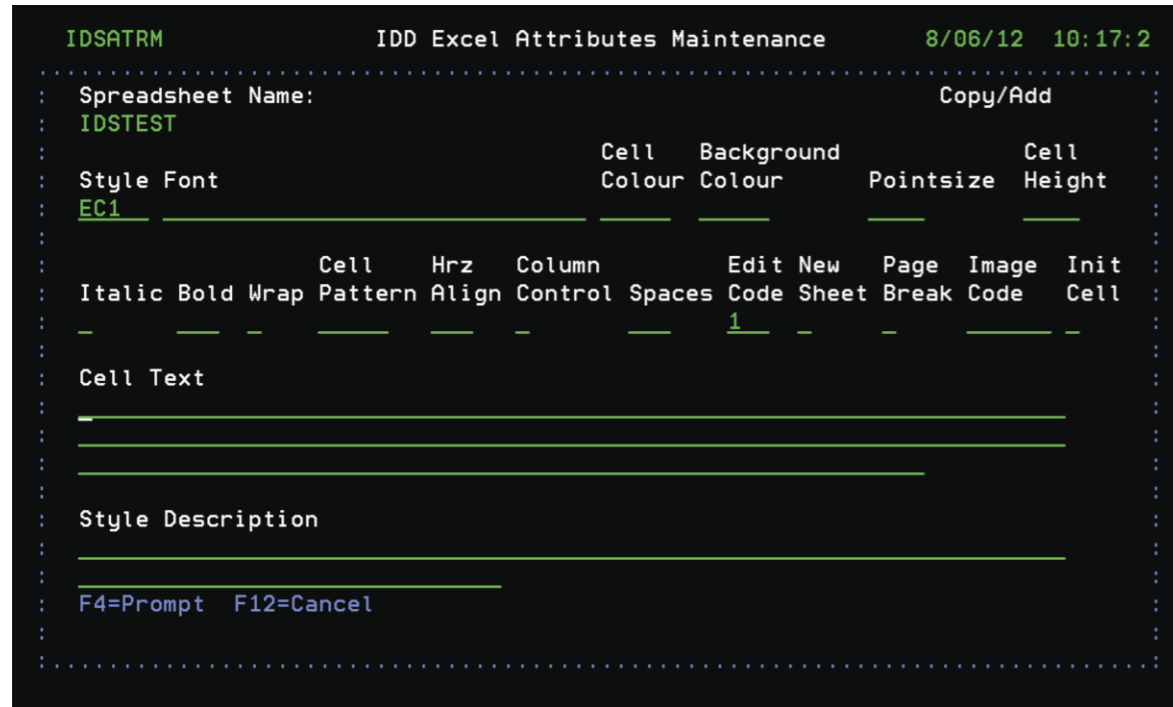
Edit Code  Edit          Additional
Spreadsheet Name:          Copy/Add
IDSTEST
Edit Code  Edit          Additional
Number     Code          Characters
1          £00.00          2
F12=Cancel

F3=Exit F12=Cancel F6=Add
Enter a valid spreadsheet name or press F6 to add a new entry
    
```

The above code tells the system that when the edit code 1 is applied to data that there should always be 2 decimal places and be preceded by a '£' sign. Press enter to create the edit code 1.

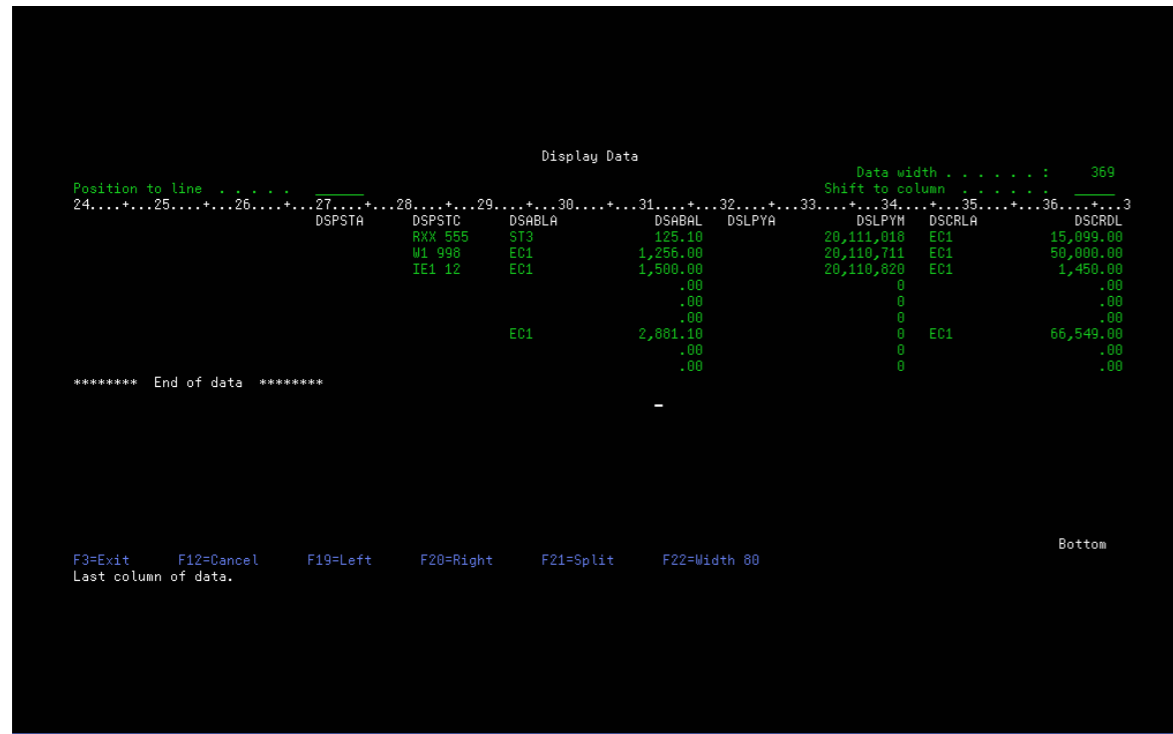
F12 to return to the attribute maintenance screen.

Press F6 to create a new style.



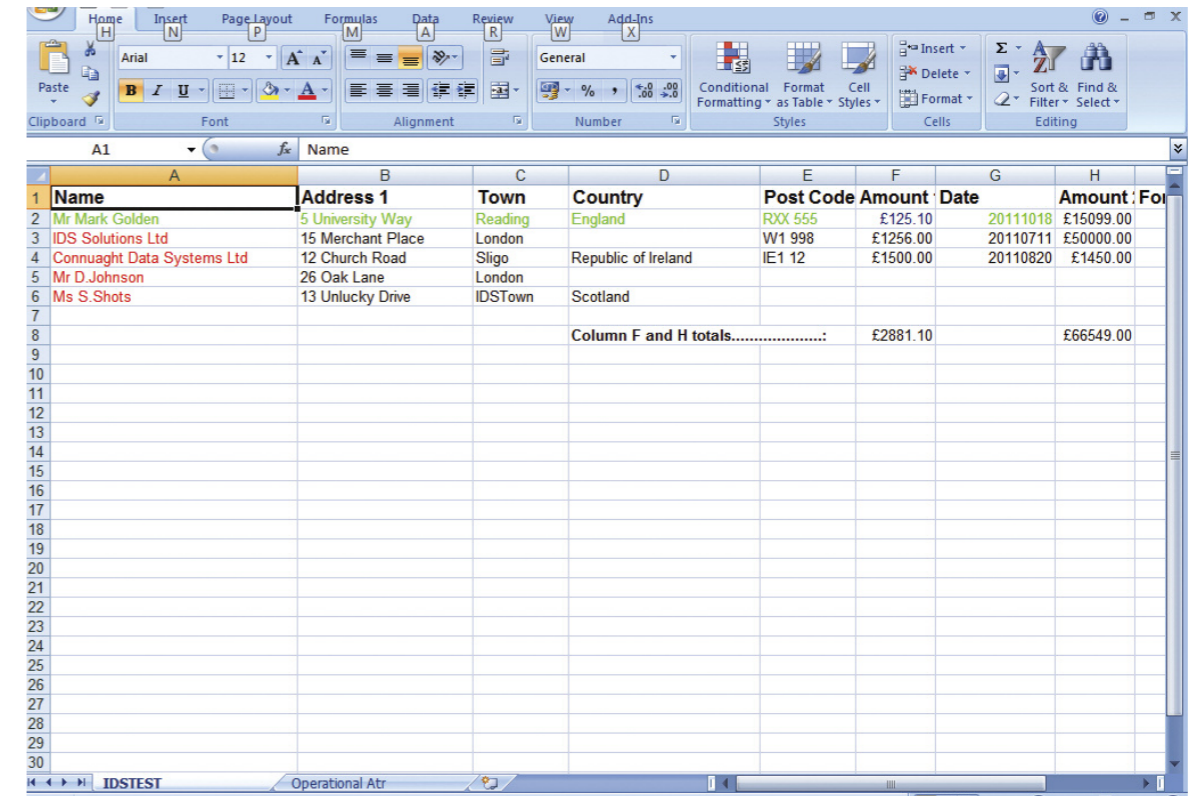
Here is a style called EC1 which has the edit code value of 1 which is the code you just created.

Using UPDDTA, SQL or any other utility you have update the records that should have the edit code applied to them.



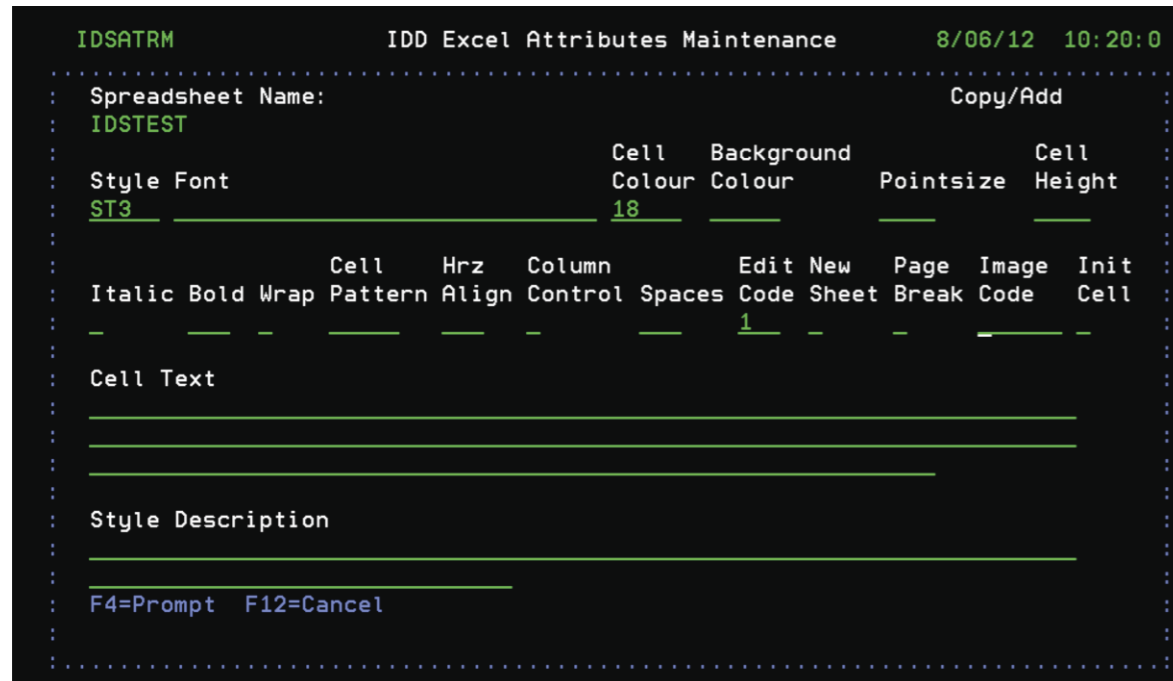
See that all fields that should have the style EC1 applied have been updated with that code.

Generate the spreadsheet again by using IEXL FILE(IDSTEST) SPN(IDSTEST) CPYDOC(Y) or F7 from the column heading maintenance screen.



See that all values in columns F and H now have 2 decimal places and start with a '£'. You may have noticed that the value £125.1 in row 1 column F did not have the style code EC1 placed before it in the file.

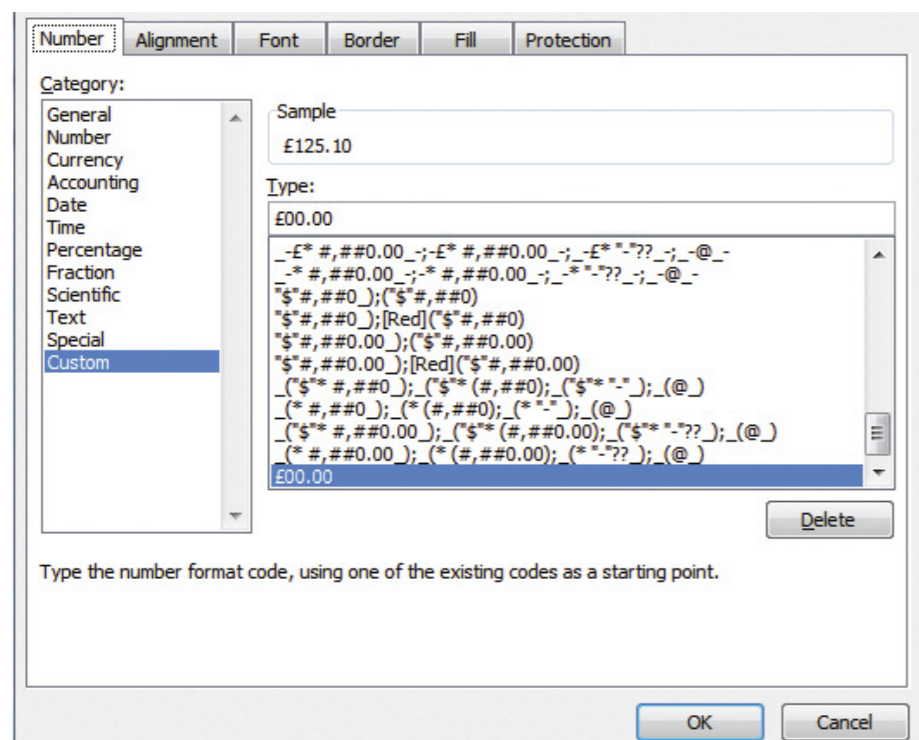
This field has a style code of ST3 being applied to so to add the edit code to this cell you would update the ST3 style with edit code one.



Style ST3 has been updated to apply the edit code 1.

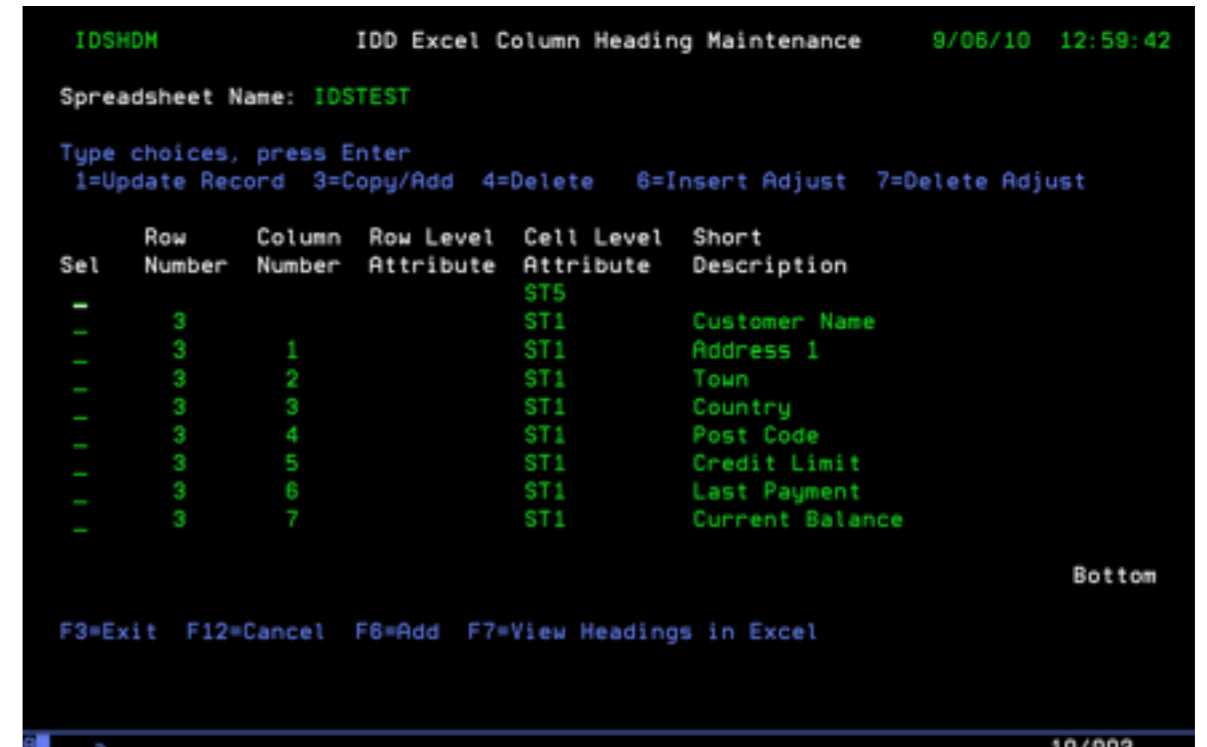
In the above example we used a program method (UPDDTA, SQL, etc) so that all fields have the correct style codes so that an edit code can be applied. This is for demonstration purposes only.

If you have a column that needs an edit code to be applied to all cells within that column you can use the style defaults within column controls. This allows all the edit codes to be applied by simply using the iEXL maintenance options. If you are unsure as to which edit code you would like applied you can view available edit codes by opening a spreadsheet, right click a cell and select format column.



Example 5 – Spreadsheet with Images

This example places a company logo at the top of the sheet. All the existing headings are moved down to line 3. A new blank heading is added.



The new heading entry has an attribute of ST5 inserted. The attribute ST5 has image code 1 linked to it.

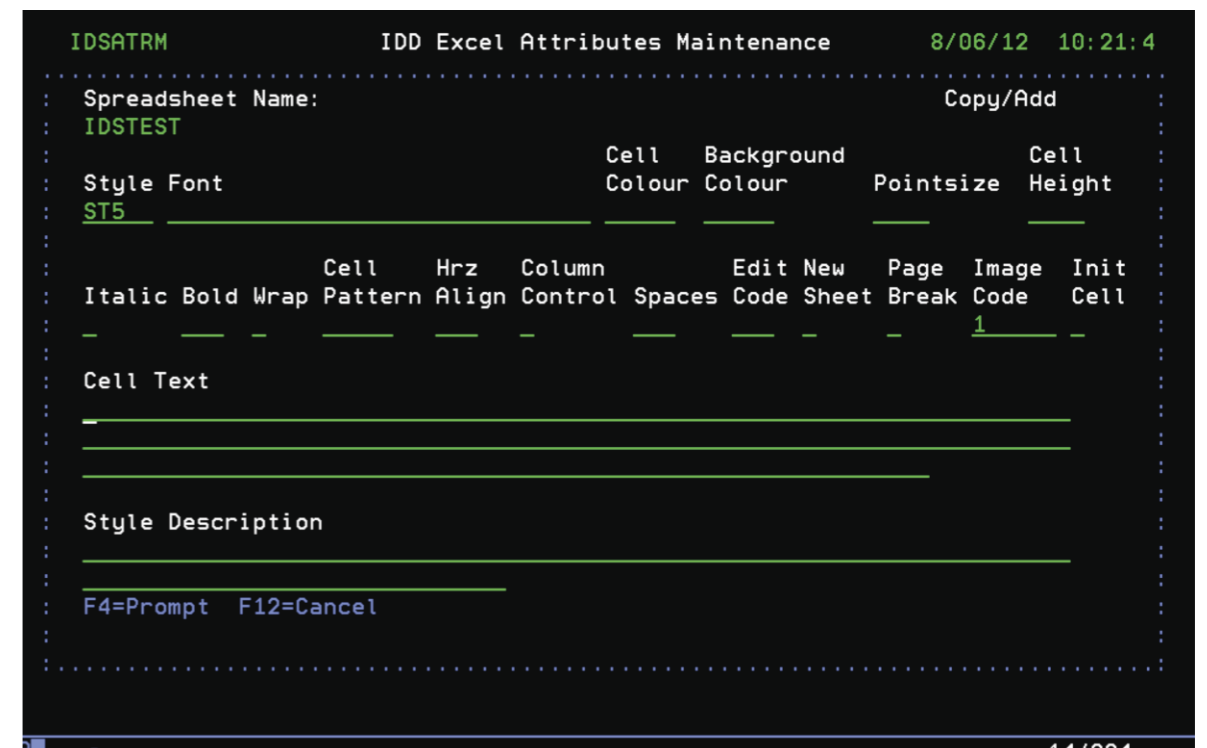


Image code 1 is linked to the spreadsheet.

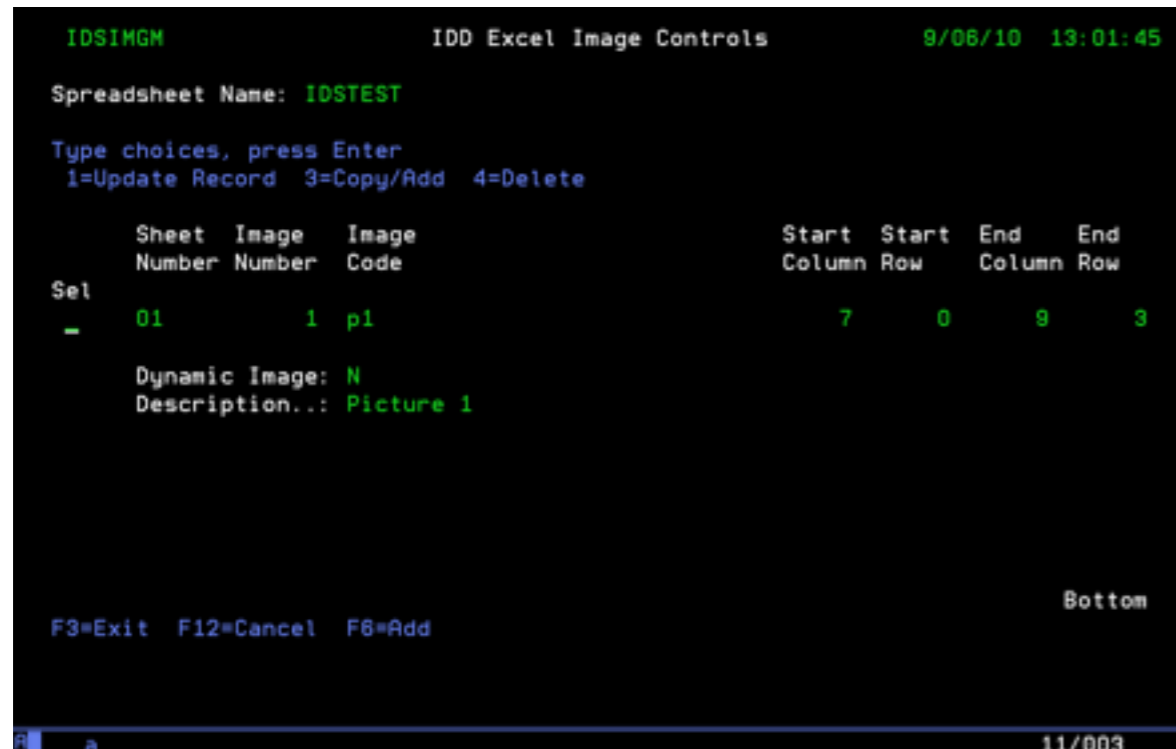
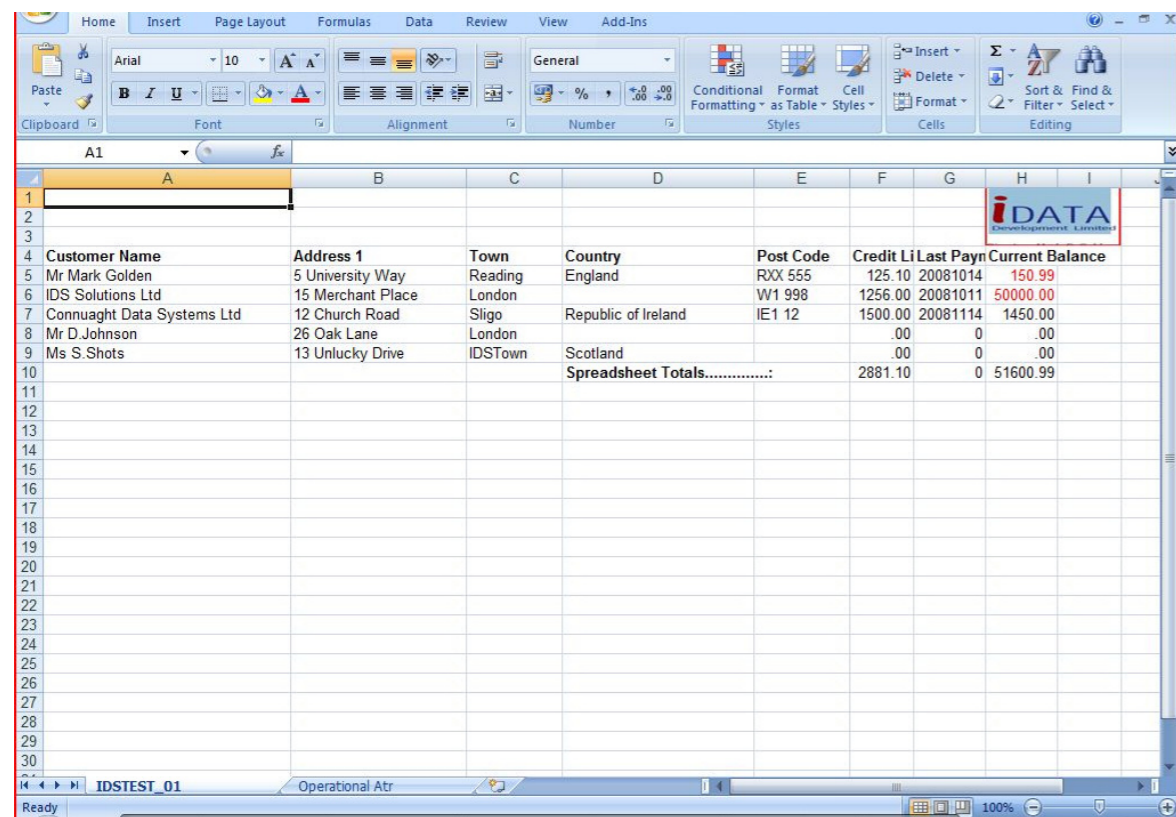


Image p1 is defined in the image catalogue as the iDATA company logo. This is then inserted into the sheet at the requested coordinates. Multiple images can be inserted into the spreadsheet.

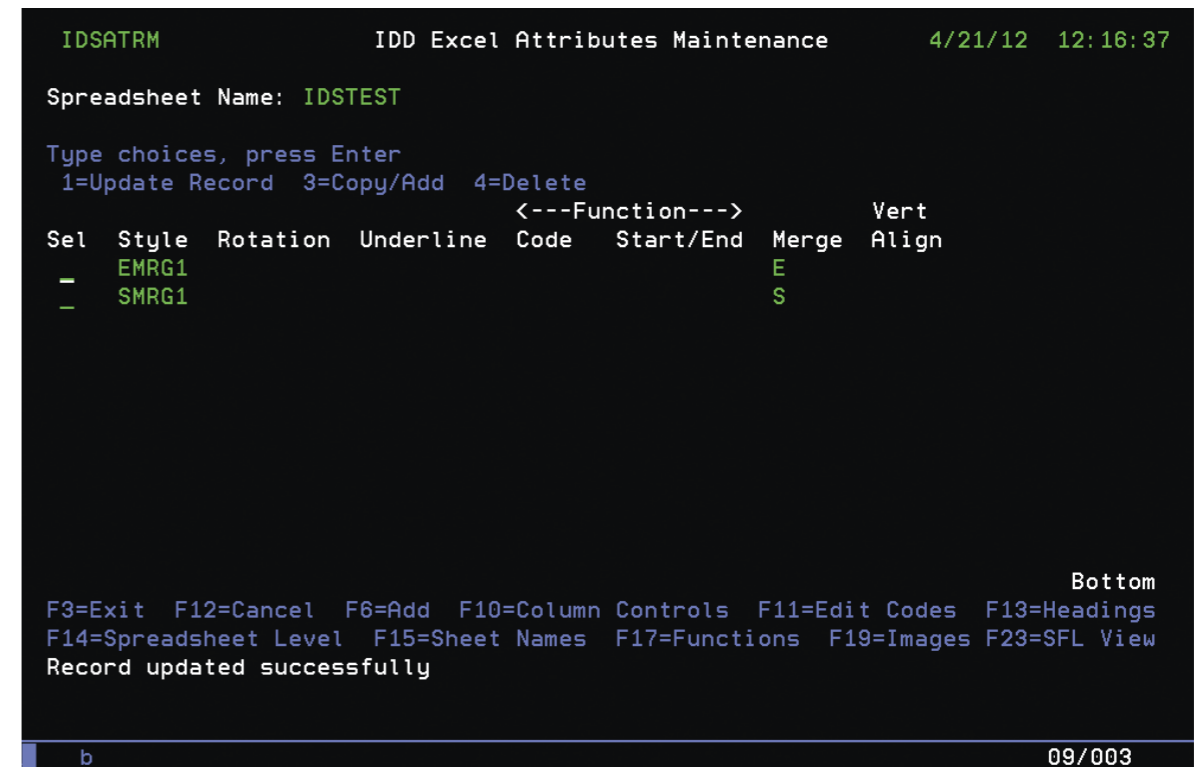


Example 6 – Spreadsheet with Merge cells

Merging cells is a programmable option. You will need to read example 2 'Spreadsheets with Attributes' before continuing this section.

The iEXL software will allow the merging of a range of cells. The merge rules within Excel specify that the value displayed within the merge region will be the top left hand corner cell value within the specified range. iEXL requires that a start and end cell be specified so the merge can be applied.

From the attribute maintenance screen (See previous examples) press F23 and create a start and end style for the merge.



The above codes show that the style EMRG1 has a merge code of 'E' which ends a merge area. SMRG1 has a merge code of 'S' which starts a merge area.

Generate the spreadsheet again by using IEXL FILE(IDSTEST) SPN(IDSTEST) CPYDOC(Y) or F7 from the column heading maintenance screen.

1	Name	Address 1	Town	Country	Post Code	Amount Date	Amount 2	Formula
2	Mr Mark Golden	5 University Way	Reading	England	RXX 555	125.1 20111018	15099	
3	IDS Solutions Ltd	15 Merchant Place	London		W1 998	1256 20110711	50000	
4	Connuaght Data Systems Ltd	12 Church Road	Sligo	Republic of Ireland	IE1 12	1500 20110820	1450	
5	Mr D.Johnson	26 Oak Lane	London					
6	Ms S.Shots	13 Unlucky Drive	IDSTown	Scotland		2881.1	6654.9	

In the above spreadsheet there are no merge areas requested.

Using UPDDTA, SQL or any other utility you have update the records that will contain the merge areas

```

WORK WITH DATA IN A FILE                               Mode . . . . : CHANGE
Format . . . . : RIDS                                   File . . . . : IDSTEST

*RECNR:          1                                     DSRPGR: ST2
DSNAMA:  SMRG1
DSNAM#:  Mr Mark Golden
DSADRA:
DSADR1:  5 University Way
DSAD2A:
DSADR2:  Reading
DSAD3A:
DSADR3:  England
DSPSTA:
DSABLA:
DSLPLYA:
DSCRDL:
DSPSTC:  RXX 555
DSABAL:  12510
DSLPLYM: 20111018
DSCRDL:  1509900

F3=Exit          F5=Refresh          F6=Select format
F9=Insert        F10=Entry           F11=Change

a                                                         06/011

```

SMRG1 (Start merge) has been added to the attribute field DSNAMA in record 1

```

WORK WITH DATA IN A FILE                               Mode . . . . : CHANGE
Format . . . . : RIDS                                   File . . . . : IDSTEST

*RECNR:          5                                     DSRPGR:
DSNAMA:  EMRG1
DSNAM#:  Ms S.Shots
DSADRA:
DSADR1:  13 Unlucky Drive
DSAD2A:
DSADR2:  IDSTown
DSAD3A:
DSADR3:  Scotland
DSPSTA:
DSABLA:
DSLPLYA:
DSCRDL:
DSPSTC:
DSABAL:
DSLPLYM:
DSCRDL:

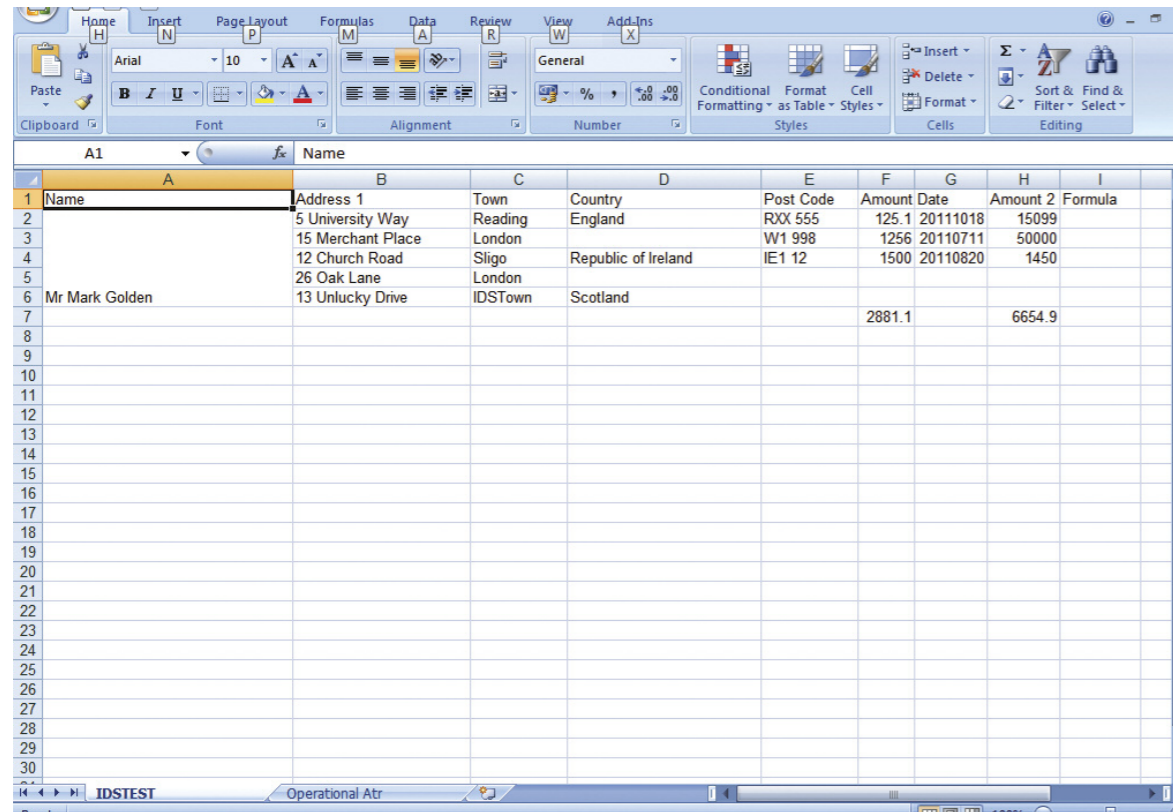
F3=Exit          F5=Refresh          F6=Select format
F9=Insert        F10=Entry           F11=Change

a                                                         08/011

```

EMRG1 (End merge) has been added to the attribute field DSNAMA in record 5.

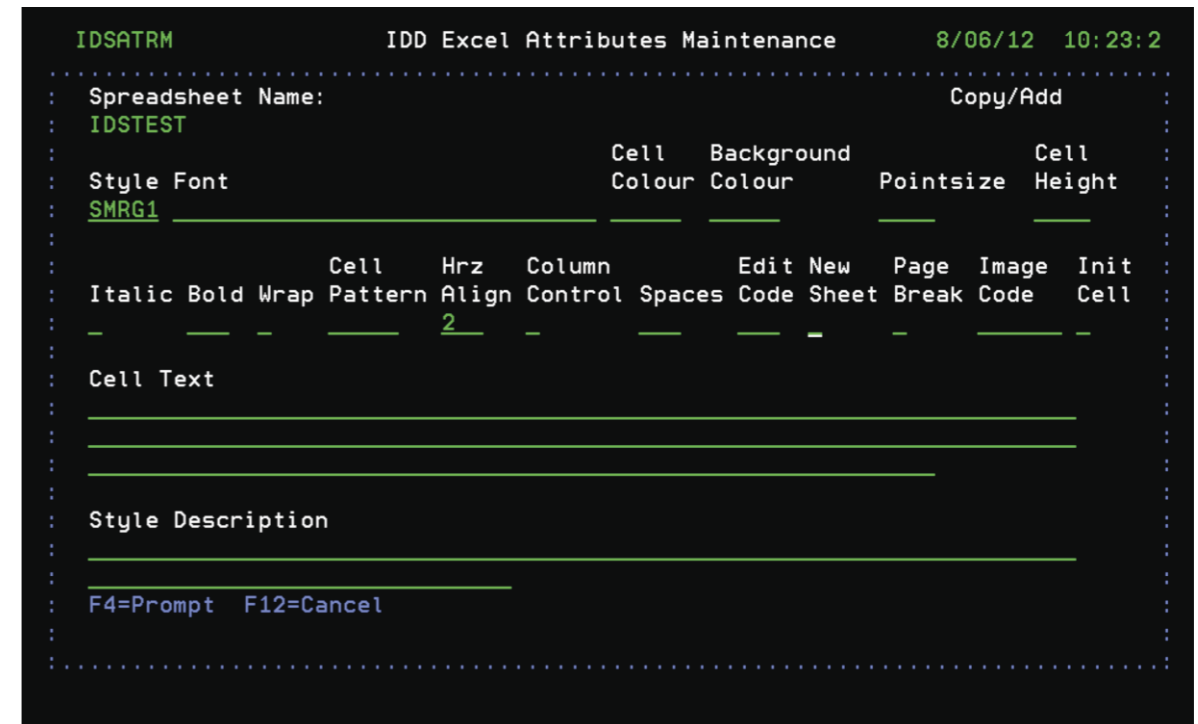
Generate the spreadsheet again by using IEXL FILE(IDSTEST) SPN(IDSTEST) CPYDOC(Y) or F7 from the column heading maintenance screen.



Note that the area, row 3 to 7 has been merged within column A.

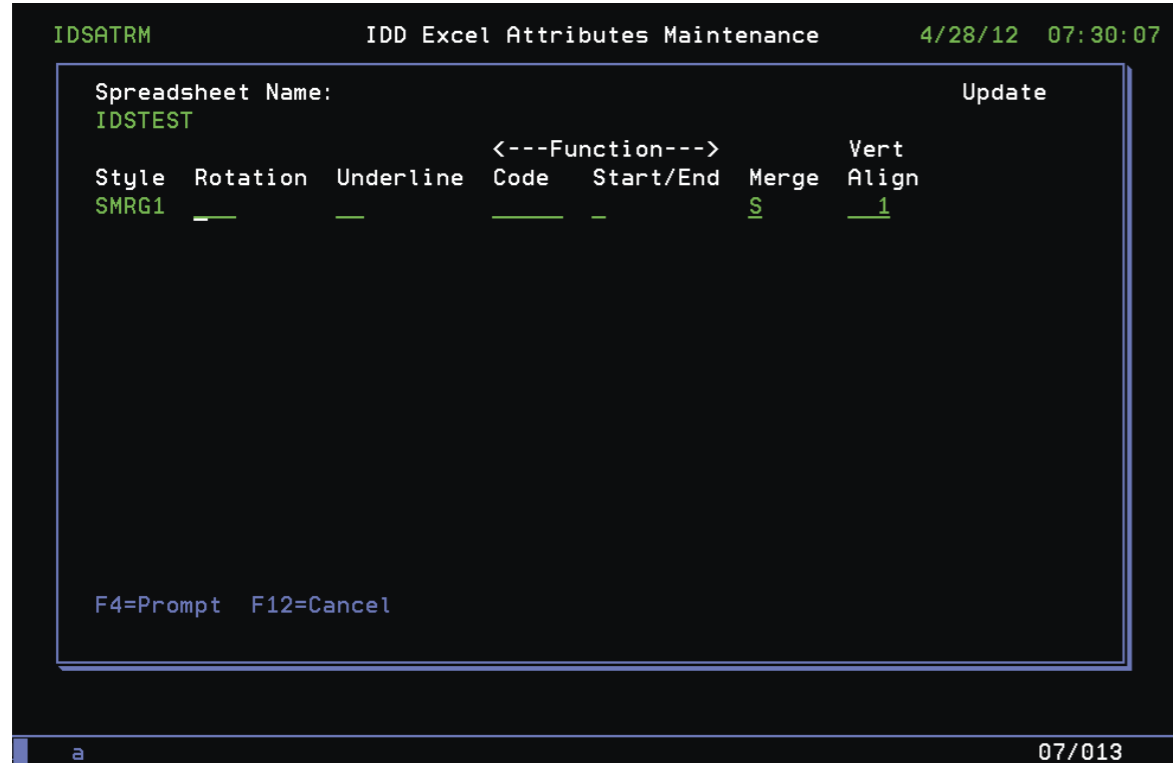
You can now align the text within the merged area. Attributes for the merge area should be applied to the style that defines the start area. In this case SMRG1 defines the start of the merge.

From the attribute maintenance screen select the style SMRG1 and apply a horizontal alignment code of 2. The value 2 tells the system to align the text to the center.

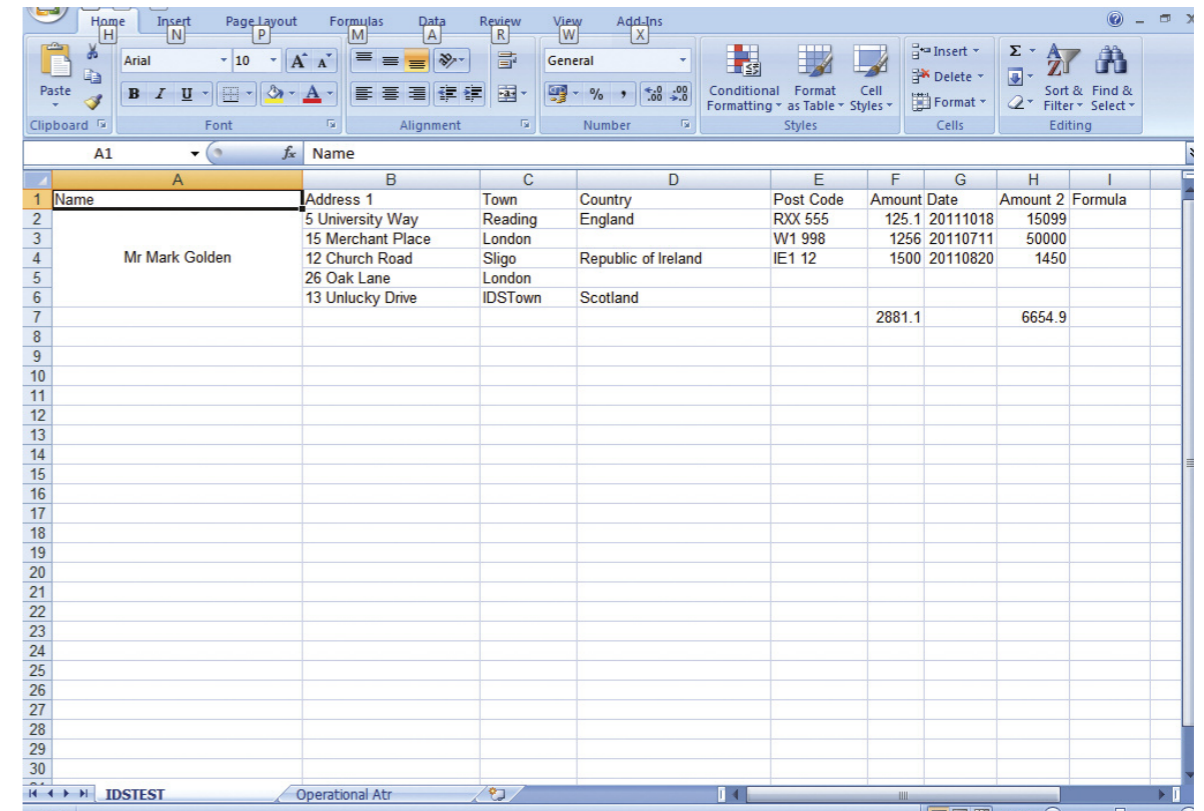


Press F23 to toggle the screen.

From the attribute maintenance screen select the style SMRG1 and apply a vertical alignment code of 1. The value 1 tells the system to align the text to the center.



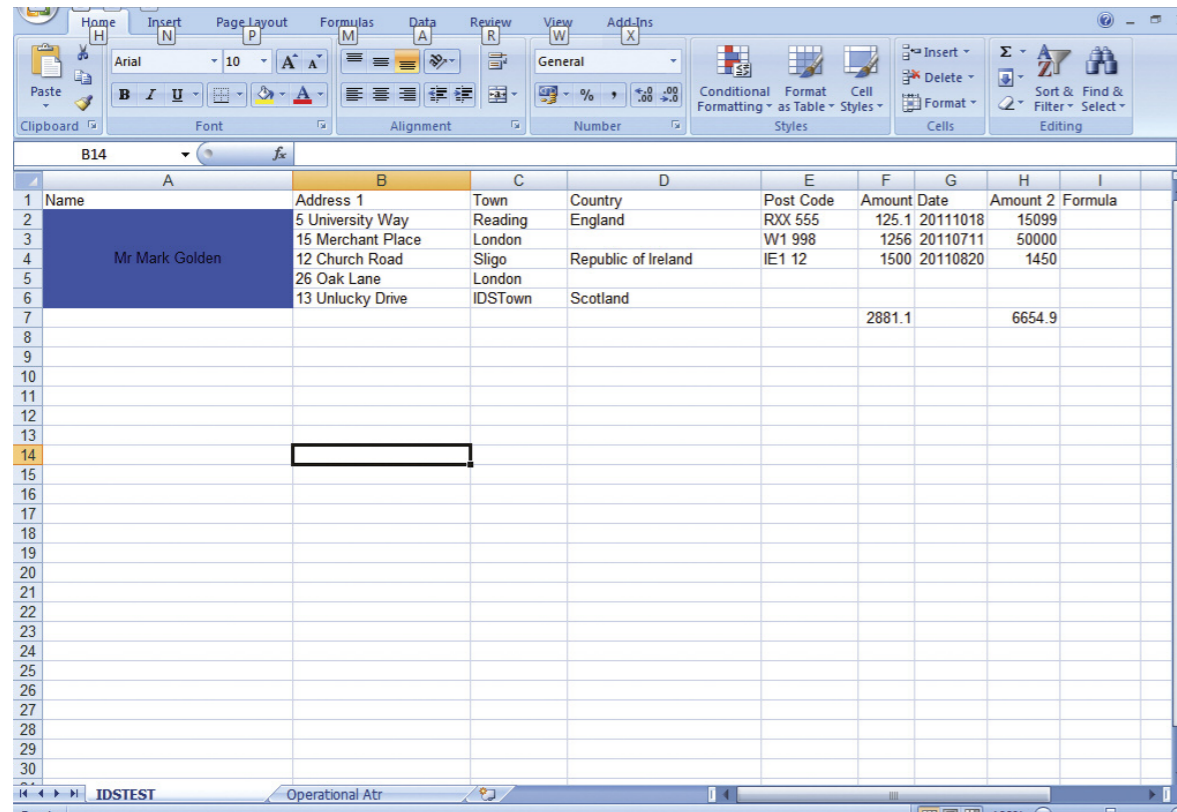
Generate the spreadsheet again by using IEXL FILE(IDSTEST) SPN(IDSTEST) CPYDOC(Y) or F7 from the column heading maintenance screen.



Note that the area, row 3 to 7 has been merged and the text centred within column A. You can also update the start style SMRG1 to have backgrounds, colours, etc.

From the attribute maintenance screen select the style SMRG1 and apply a background colour of 12 which is blue, F4 can be used to select another colour. When a background colour is requested the cell pattern value must also be selected.

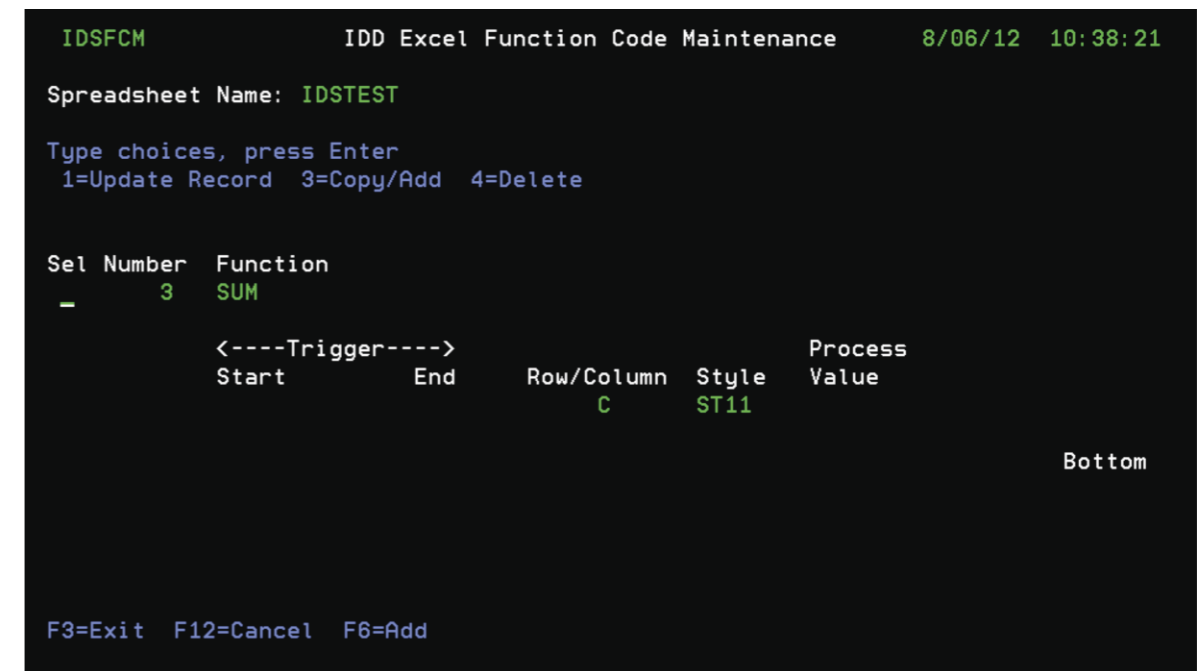
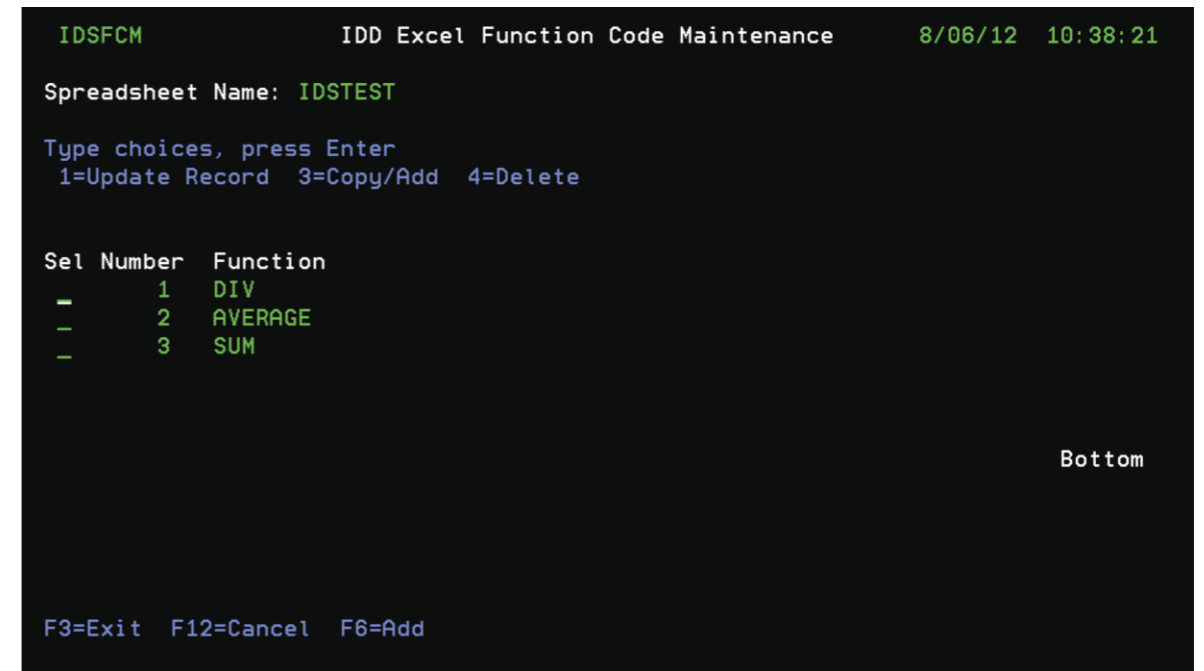
Generate the spreadsheet again by using IEXL FILE(IDSTEST) SPN(IDSTEST) CPYDOC(Y) or F7 from the column heading maintenance screen.



Example 7 – Spreadsheet with Functions

The first example show how to apply functions to spreadsheets with no programming required. You can use the menu system and screens to set default functions within a spreadsheet.

From the attribute maintenance screen (See previous examples) press F17 and create a function.



In the above examples we have a number of functions defined but we will be using number 3 for this example.

Number 3 is defined as a SUM function that is a 'C' column type and has a style of ST11.

Column type means that the function will work as a top to bottom function within a column in a spreadsheet. If the function were defined as an 'R' function as would work from left to right within the specified row.

The Style of 'ST11' tells the system to apply that style to the function cell when it is inserted into the spreadsheet.

So now we have function 3 defined we can apply it to the spreadsheet.

From the attribute maintenance screen press F10 and create a function.

```

IDSCWM      IDD Excel Column Controls Maintenance      4/26/12  19:13:58
Spreadsheet Name: IDSTEST
Type choices, press Enter
1=Update Record  3=Copy/Add  4=Delete  6=Insert Adjust  7=Delete Adjust

   Column  Min   Max   Auto   Init   Default  Default  Sort
Sel Number  Width Width Filter Column  Style   Function Seq  Hide
-         6                                     3

F3=Exit  F12=Cancel  F6=Add
Record updated successfully

Bottom

b                                     10/003

```

Press F6 to add an entry. In the above example you are telling the system that the default function for column number 6 is Function 3.

Generate the spreadsheet again by using IEXL FILE(IDSTEST) SPN(IDSTEST) CPYDOC(Y) or F7 from the column heading maintenance screen.

1	Name	Address 1	Town	Country	Post Code	Amount 1	Date	Amount 2	Formula
2	Mr Mark Golden	5 University Way	Reading	England	RXX 555	125.1	20111018	15099	
3	IDS Solutions Ltd	15 Merchant Place	London		W1 998	1256	20110711	50000	
4	Connought Data Systems Ltd	12 Church Road	Sligo	Republic of Ireland	IE1 12	1500	20110820	1450	
5	Mr D Johnson	26 Oak Lane	London						
6	Ms S.Shots	13 Unlucky Drive	IDSTown	Scotland					
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

You can see that the SUM function 3 has been inserted into column 6. The function will be placed one row after the last row in the spreadsheet.

The next example shows you how to insert functions at specific points or ranges within a spreadsheet. Working at this level becomes a programmable option. You will need to read example 2 'Spreadsheets with Attributes' before continuing this section.

Again we will be using function 3 but will be starting and stopping it for a specific range within a spreadsheet.

On the attribute maintenance screen press F23, then F6 and create the following entries.

```

IDSATRM          IDD Excel Attributes Maintenance      4/26/12  19:25:39
-----
Spreadsheet Name:                                     Update
IDSTEST
Style  Rotation  Underline  <---Function--->  Vert
ST99   ___       ___         3 S              ___
F4=Prompt  F12=Cancel
b                                                    07/013
  
```

This tells the system that style ST99 will 'S' start function code 3. Again ST99 is just an example and you can use any code you like.

Press F6 again to create the following

```

IDSATRM          IDD Excel Attributes Maintenance      4/26/12  19:27:23
-----
Spreadsheet Name:                                     Update
IDSTEST
Style  Rotation  Underline  <---Function--->  Vert
ST98   ___       ___         3 E              ___
F4=Prompt  F12=Cancel
b                                                    07/013
  
```

This tells the system that style ST98 will 'E' end function code 3. Again ST98 is just an example and you can use any code you like.

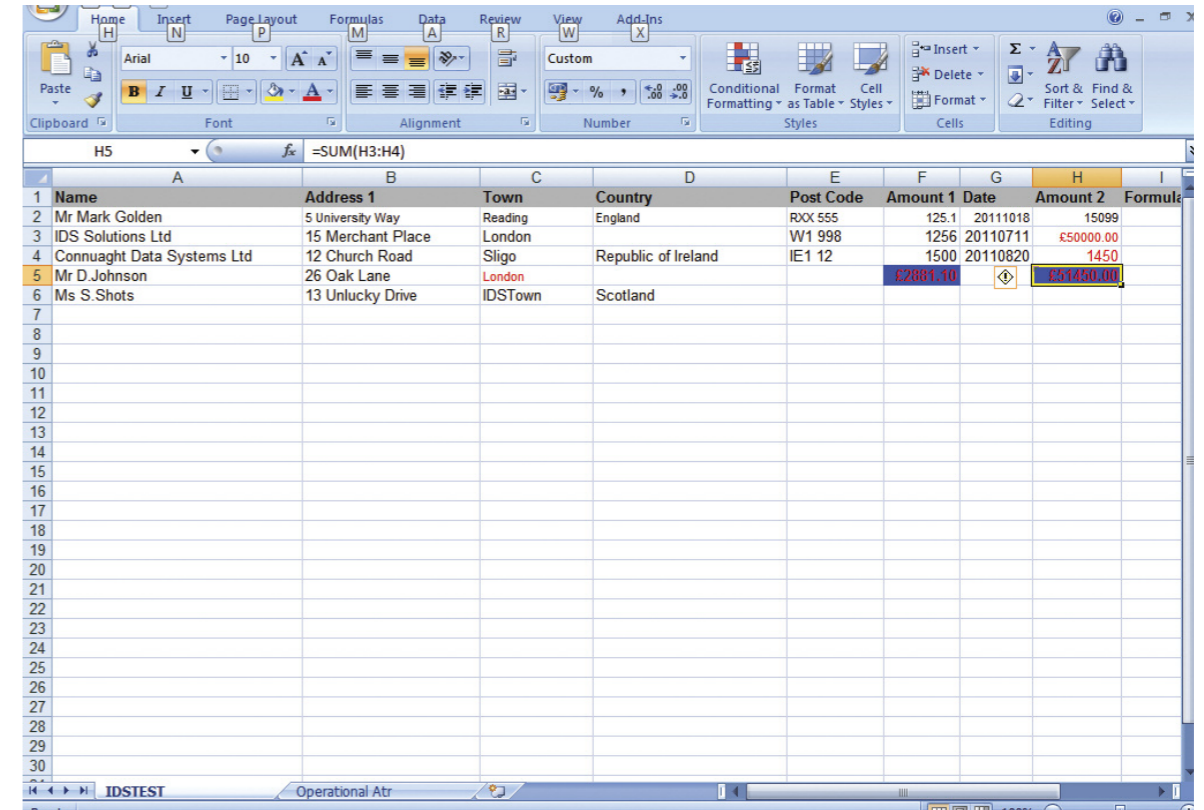
Now you have defined the start and end style for your function you need to insert them into your database file.

Using UPDDTA, SQL or any other utility you have update the records that will contain the functions.



In this example the start code of ST99 and the end code of ST98 have been inserted into the attribute field DSCRLA.

Generate the spreadsheet again by using IEXL FILE(IDSTEST) SPN(IDSTEST) CPYDOC(Y) or F7 from the column heading maintenance screen.



You can see that the SUM function 3 has been inserted into column 8. The function starts with the value of 50,000 and ends with 1,450 and does not include 15,099.

In the above example both start and end positions (Styles) were specified for the function.

If the function is defined as a column 'C' type and no start position is found the function will start at the beginning of the column and apply the function to where the end was found.

If the function is defined as a column 'C' type and no end position is found the function will end at the last row for that column.

If the function is defined as a row 'R' type and no start position is found then the function will start at the left most column in the row and apply the function to where the end function was found.

If the function is defined as a row 'R' type and no end position is found then the function will end at the right most column in the row and apply the function from where the start function was found.

Now that you have a start and end position defined the system will apply that function in one of two ways. If the function is a column 'C' function the result of the function will be applied one row after the function ends. If the function is a row 'R' function the result of the function will be applied one column to the right after the function ends.

You may however like to move the result to another cell in the spreadsheet. This can be done by placing the function.

On the attribute maintenance screen press F23, then F6 and create the following entries.

Style	Rotation	Underline	Code	Start/End	Merge	Vert Align
ST97			3	P		

This tells the system that style ST97 will 'P' place function code 3. Again ST97 is just an example and you can use any code you like.

Now you have defined the place function you need to place it into your database file.

Using UPDDTA, SQL or any other utility you have update the records that will contain the functions

```

Display Data
Data width . . . . . : 369
Shift to column . . . . .
Position to line . . . . .
.....14.....15.....16.....17.....18.....19.....20.....21.....22.....23.....24.....25.....26..
DSAD2A  DSADR2  DSADR3  DSADR3
Reading London Sligo London IDSTown
England
Republic of Ireland
Scotland
ST97
***** End of data *****
F3=Exit F12=Cancel F19=Left F20=Right F21=Split F22=Width 80
Bottom
03/032

```

In this example the place code of ST97 has been inserted into the attribute field DSAD2A.

Generate the spreadsheet again by using IEXL FILE(IDSTEST) SPN(IDSTEST) CPYDOC(Y) or F7 from the column heading maintenance screen.

Name	Address 1	Town	Country	Post Code	Amoun Date	Amount 2	Formula	
Mr Mark Golden	5 University Way	Reading	England	RXX 555	125.1 20111018	15099		
IDS Solutions Ltd	15 Merchant Place	London		W1 998	1256 20110711	€50000.00		
Connuaght Data Systems Ltd	12 Church Road	Sligo	Republic of Ireland	IE1 12	1500 20110820	1450		
Mr D Johnson	26 Oak Lane	London						
Ms S.Shots	13 Unlucky Drive	IDSTown	Scotland					
Total for column H:							51450.00	

You can see that the total 51450 still refers to the range =SUM(H3:H4) but has been moved to where the 'P' place style has been inserted into the database.

In the above example you have seen how to add functions/formula by adding attribute controls to your database file. There is however a second way in which functions/formula can be inserted into a spreadsheet.

This second way does not require the addition of attribute control fields but works by searching for data values within the spreadsheet. By setting fields to a specified value you can start and stop functions/formula ranges. Taking this approach allows for much more complex formula to be inserted into a spreadsheet.

On the function code maintenance screen press F6 to create a new formula.

```

IDSFCM                IDD Excel Function Code Maintenance      8/06/12  10:49:04
Spreadsheet Name:  IDSTEST

Spreadsheet Name:  IDSTEST                                     Copy/Add

Number Function
4  SUM (EROW*GROW)

<----Trigger----> Row/
Start      End    Column  Style  Process
123456    -----  C      -----  -

F4=Prompt  F12=Cancel

F3=Exit  F12=Cancel  F6=Add
  
```

What the above function means.

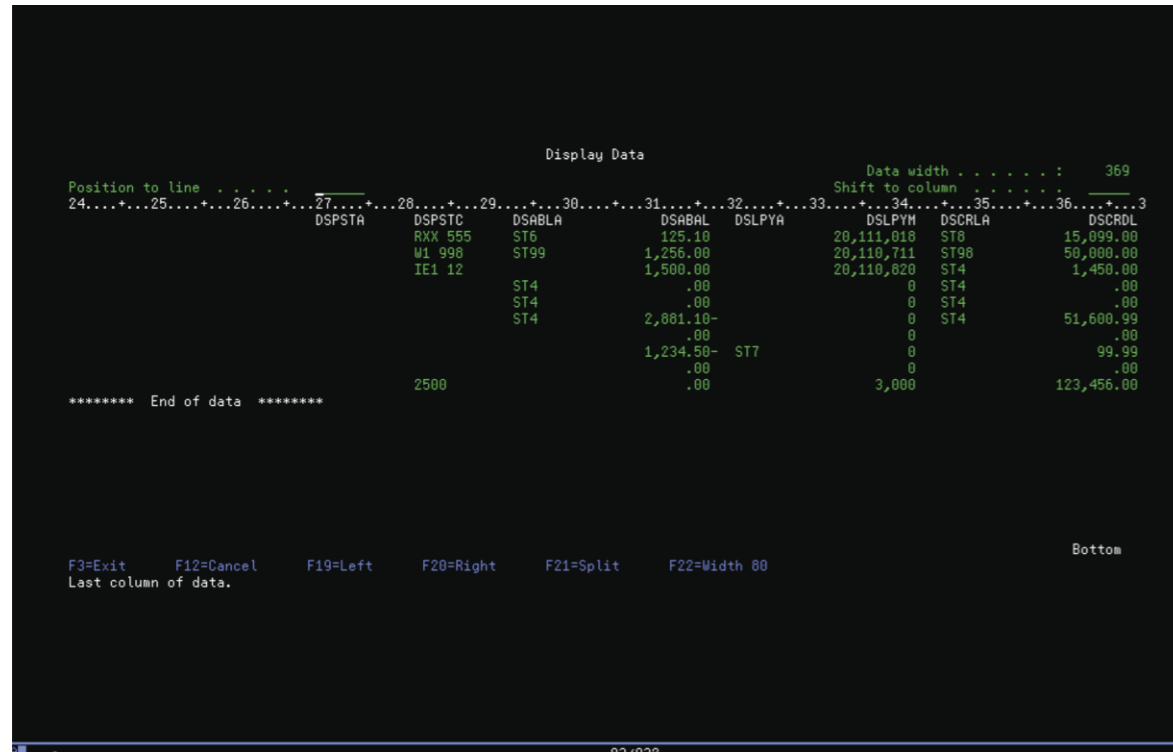
SUM(EROW*GROW)

This is a SUM function.

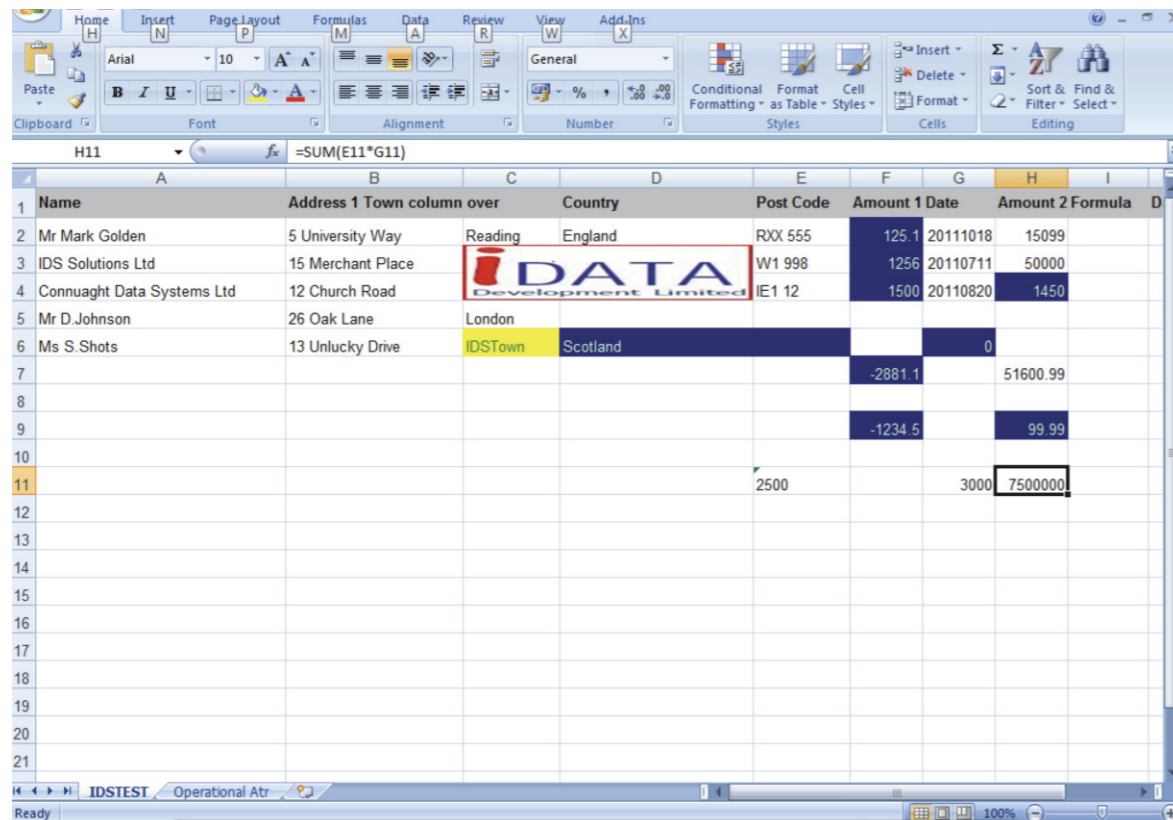
The function will SUM columns E and G

The system will replace the constant 'ROW' with the actual row number currently being created.

The addition of the function is 'Triggered' by finding the value 123456 in a field within the database. When the 'Trigger' of 123456 is found it is replaced with the formula.



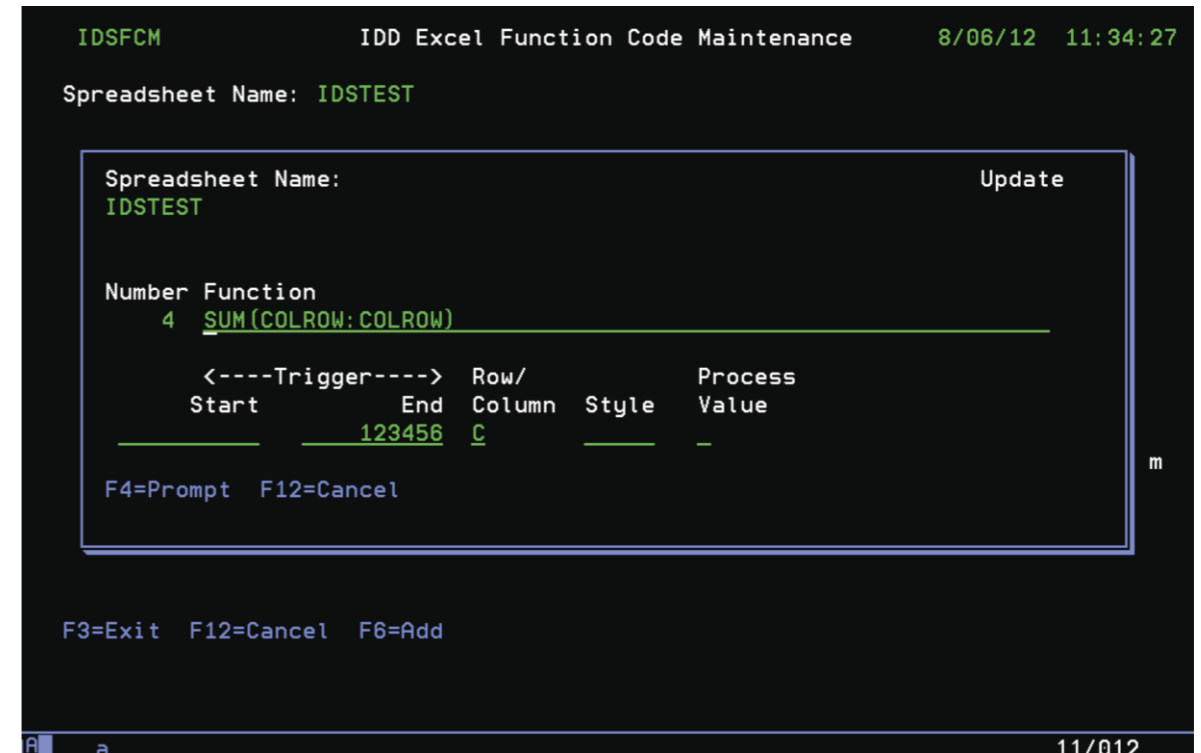
Field DSPSTC has been set to a value of 2500.
 Field DSLPYM has been set to a value of 3000.
 Field DSCRDL has been set to the trigger value of 123456.
 The resulting spreadsheet is.



Note that the value 123456 has been replaced with the function and the 'ROW' constants have been replaced with the actual row number.

The above example shows a row function but using the same principle a column formula can be created.

Create the following formula:



Note that the function now contains the constant 'COL'. When the trigger value of 123456 is found the 'COL' constant will be replaced with the column that is currently being processed.

The trigger value has been changed to the end position. This means that as no start trigger has been specified the system will start at the beginning of the column.

Example 8 – Multiple Files Per Workbook/Spreadsheet

iEXL allows you to specify up to 50 files and associated spreadsheet names to be placed within one spreadsheet. As each file is processed it will create a new sheet/tab within the spreadsheet.

If you run the following command changing the file and spreadsheet name to ones you have setup.

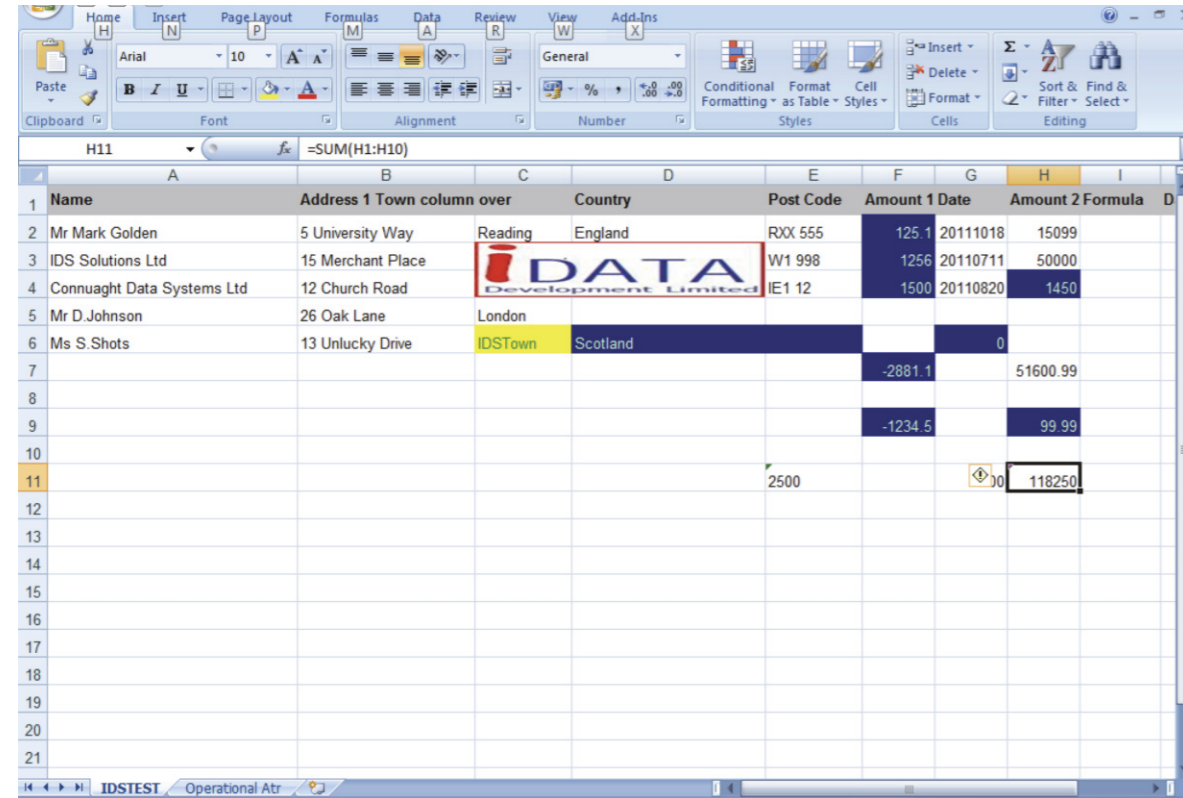
```

Display Command String

IEXL FILE(IDSTEST)
SPN(IDSTEST)
VFILE(Y)

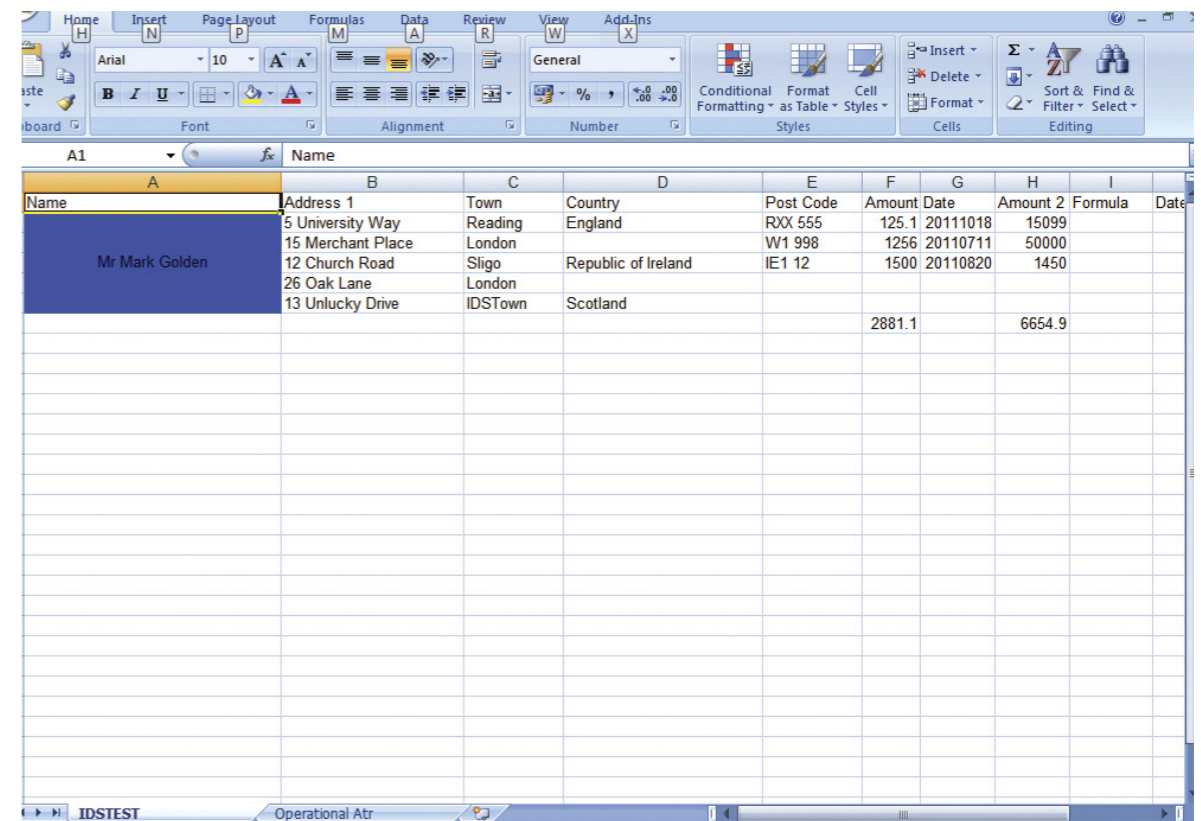
Press ENTER to continue.

F3=Exit F5=Refresh F12=Cancel F13=How to use this display F24=More keys
    
```



Note the function is now a column and not row function. The 'COL' and 'ROW' constants have been replaced with the actual cell coordinates. The function starts at row 1 as no start trigger was specified.

The result of the above command with one file specified is the following spreadsheet.



Now change the previous command to have two files with their associated spreadsheet settings.

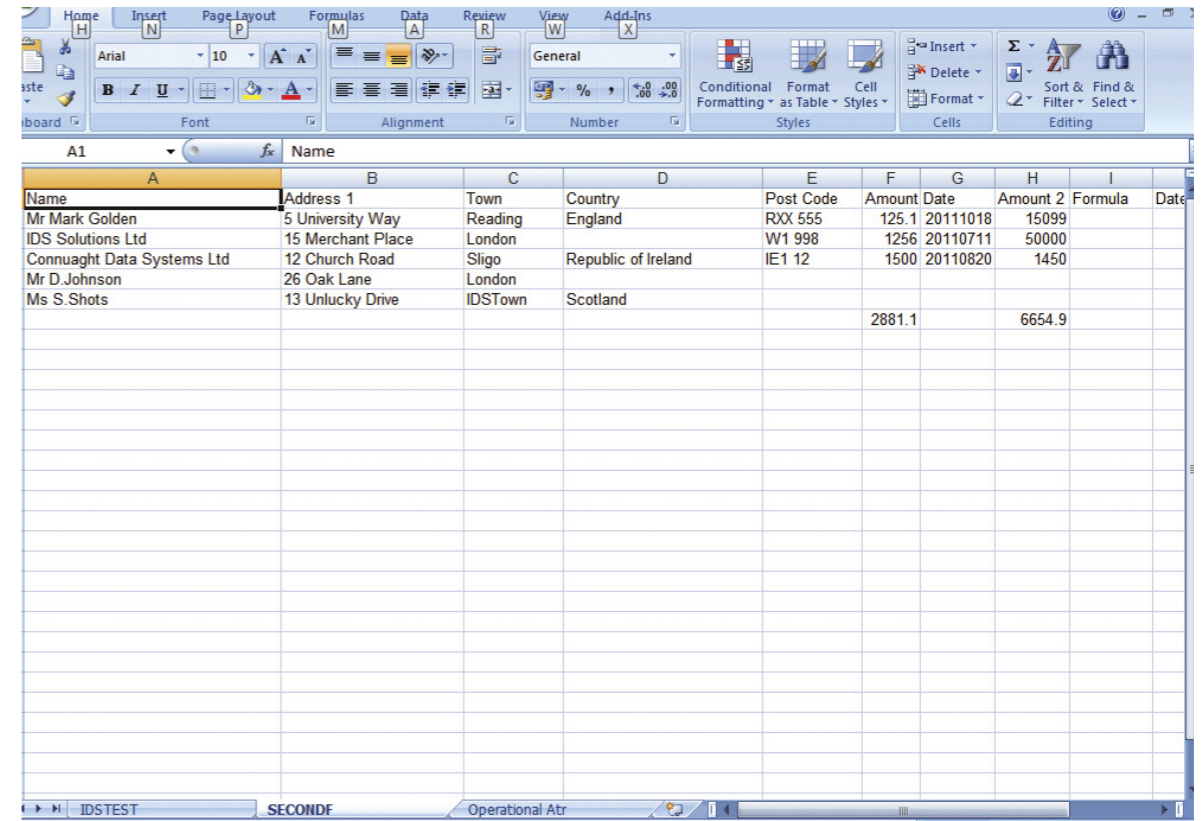
```

Display Command String

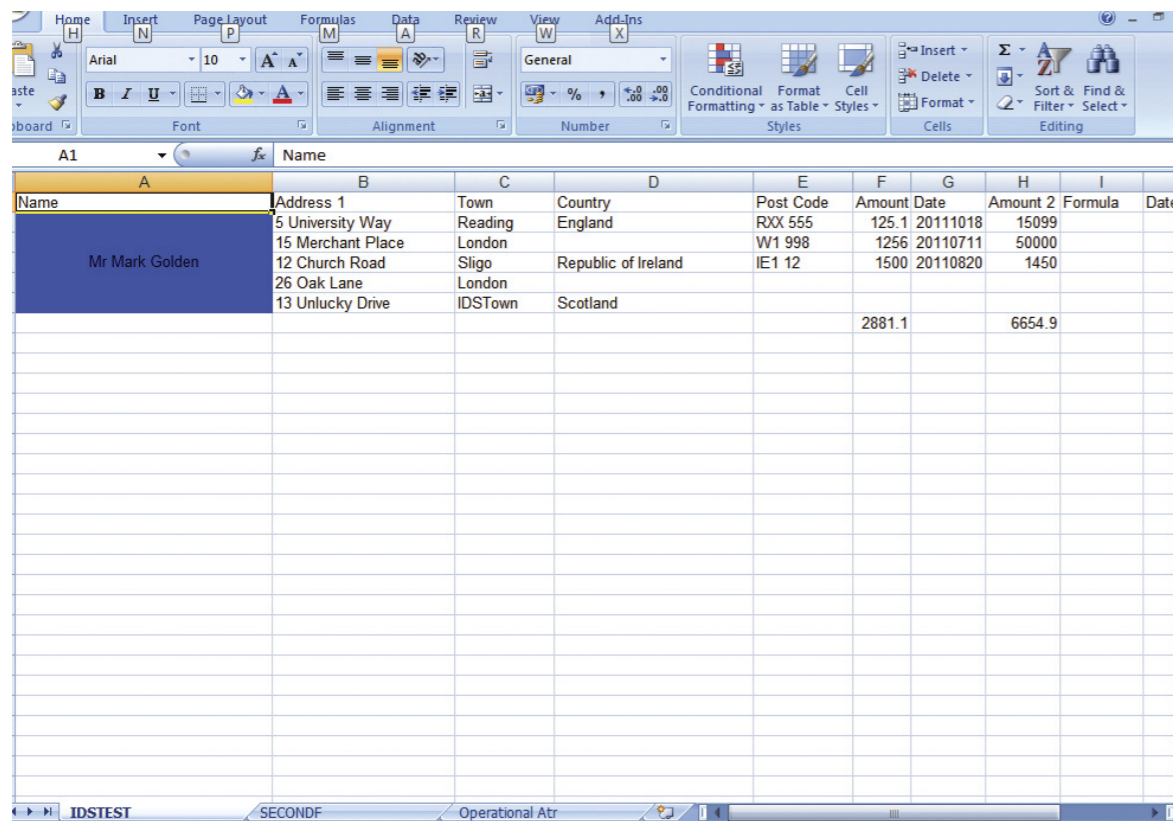
_IEXL FILE(IDSTEST ERL/SECONDF)
SPN(IDSTEST SECONDF)
VFILE(Y)

Press ENTER to continue.

F3=Exit  F5=Refresh  F12=Cancel  F13=How to use this display  F24=More keys
    
```



The result of the above command is the following spreadsheet.



The second sheet/tab is for file SECONDF.

Note the first sheet/tab is for the file IDSTEST.

Example 9 – Basic SQL

Set SQL to write to a work file.
Example of SQL Statement

```
SELECT qb@ocr, qb@cus, char(' ST1 ') as Excelatr ,qb@dlo
FROM f1111 WHERE qb@cus =
7907437
```

The third field in the view/definition has been named 'ExcelAtr' and given a value of ST1.
This field will be generated by the SQL statement.

As this point the field text for Excelatr is not set and the DSPFFD command which iEXL uses will retrieve blanks for the field text.

To set the field text to the one required by iEXL for attributes, issue the follow SQL statement.

Label on column F1111 (Excelatr TEXT IS 'Atr Excel Fld')

You can now setup all the iEXL attribute control files with the attribute code ST1.
The iEXL command can be run against the work file.

Example 10 – More Complex SQL

Create file definition

```
CREATE VIEW QTEMP/f1111tmp
(Order_Number, Customer, ExcelAtr, Loose_Price)
AS SELECT qb@ocr,qb@cus,
Case When qb@dlo < 25000 Then char('ST1')
When qb@dlo > 25000 Then char('ST2')
End,
decimal(qb@dlo/100,15,2) as qb@dlo
from F1111
Where qb@cus = 7907437
```

The third field in the view/definition has been named 'ExcelAtr'
Within the Select statement the rule has been set
where qb@dlo < 25000 then place 'ST1' in the third field.
where qb@dlo > 25000 then place 'ST2' in the third field.

The file F1111TMP in QTEMP will be created.

At this point the field text for Excelatr is not set and the DSPFFD command which iEXL uses command will retrieve blanks for the field text.

To set the field text to the one required by iEXL for attributes, issue the follow SQL statement.

Label on column qtemp/f1111tmp (Excelatr TEXT IS 'Atr Excel Fld')

You can now setup all the iEXL attribute control files with the attribute codes ST1 and ST2.
The iEXL command can be run against the work file.

Other Examples

Other examples of what you may like to achieve.

Product Number	Base Product	Art Status	Returns Code	Date	Price	Company	Description
1156AS1	1156	20	CD2	12/09/10	0.00'000		Description 1
1156	1156	32	CD2	12/02/07	0.00'000		Description 1
1156LD1	1156	32	CD2	12/02/07	0.00'000		Description 1
1156	1156	32	CD2	12/02/07	0.00'000		Description 1
1156AR2	1156	32	CD4	12/02/07	0.00'000		Description 2
1156	1156	32	CD4	12/02/07	0.00'000		Description 2
1156HB1	1156	32	CD4	12/02/07	0.00'000		Description 2
1156	1156	32	CD4	12/02/07	0.00'000		Description 2
1156HF1	1156	32	CD4	12/02/07	0.00'000		Description 2
1156	1156	32	CD4	12/02/07	0.00'000		Description 2
1156MA1	1156	32	CD4	12/02/07	0.00'000		Description 2
1156	1156	32	CD4	12/02/07	0.00'000		Description 2
AS1	185	32	CD1	05/05/08	6.03'000		Description 3
8200185	185	32	CD2	05/05/08	5.03'000		Description 4

Document No	Year	Type	Due Date	Dunning Level	S/C	Account	Days in Arrears	Amount	C/Code	Overdue Amount
90213282	2010	AA	27.05.10	2	B	123456	29	-13,106.00	EUR	210,647.25
90212425	2010	BB	28.05.10				28	55,055.00	EUR	
90213965	2010	CC	05.06.10				20	6,250.00	EUR	
90214349	2010	CC	11.06.10				14	5,000.00	EUR	
90214350	2010	DD	11.06.10				14	158,750.00	EUR	
90214352	2010	EE	11.06.10				14	-1,301.75	EUR	
90214713	2010	DD	17.06.10				8	-45.00	EUR	
90207692	2010	AA	31.05.10	1	B	12346	25	1,065.00	EUR	4,215.00
90209654	2010	AA	31.05.10				25	3,150.00	EUR	
90212359	2010	AA	30.06.10				-5	577.50	EUR	
90212691	2010	LK	30.06.10				-5	-21,241.20	EUR	
90212692	2010	LK	30.06.10				-5	-3,575.50	EUR	
90214182	2010	AA	31.07.10				-36	16,965.00	EUR	

As mentioned before in this document you can place multiple images/pictures within a spreadsheet.

Example Summary

If you wanted to e-mail any of the above examples set the iEXL parameter to 'Send E-mail' To 'Y'. Make sure that your distribution list has been set up or an 'E-mail to be sent To' address has been entered and run the command.

In the examples you were asked to create codes, ST1, ST2, ST3 and ST4. This is for example purposes only, once a code has been set up for a spreadsheet it can be used as many times as required. You do NOT need to create a different attribute for each cell or row.

In the examples you were asked to edit the file IDSTEST via a utility. This seems time intensive, however it is for demonstration purposes only. In a real production environment you would have RPG, COBOL, JAVA, SQL, QUERY etc doing this for you.

a

Appendix A

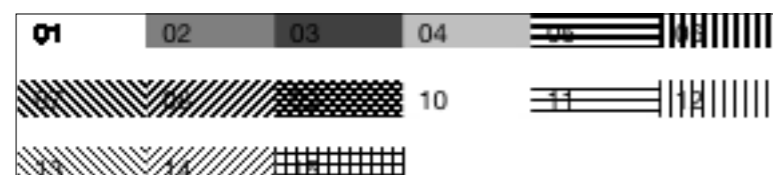
Use the number code to select the required colour

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18
19	20	21	22	23	24	25	26	27
28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45
46	47	48	49	50	51	52	53	54
55	56	57	58	59	60	61	62	63
64	65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80	81
82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99
100	101	102	103	104	105	106	107	108
109	110	111	112	113	114	115	116	117
118	119	120	121	122	123	124	125	126
127	128	129	130	131	132	133	134	135
136	137	138	139	140	141	142	143	144
145	146	147	148	149	150	151	152	153
154	155	156	157	158	159	160	161	162
163	164	165	166	167	168	169	170	171
172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189
190	191	192	193	194	195	196	197	198
199	200	201	202	203	204	205	206	207
208	209	210	211	212	213	214	215	216
217	218	219	220	221	222	223	224	225
226	227	228	229	230	231	232	233	234
235	236	237	238	239	240	241	242	243
244	245	246	247	248	249	250	251	252
253	254	255	256	257	258	259	260	261
262	263	264	265	266	267	268	269	270
271	272	273	274	275	276	277	278	279
280	281	282	283	284	285	286	287	288
289	290	291	292	293	294	295	296	297
298	299	300						

b

Appendix B

Use the number code to select the required pattern.



c

Appendix C

Use the number code to select the required pattern.
Use the number code to select the required alignment.

Action	Code
Center	2
Center selection	6
Fill	4
Justify	5
Left	1
Right	3

d

Appendix D

Use the number code to select the required pattern.
Use the number code to select the required image type.

Image Type	Code
EMF	2
WMF	3
PICT	4
JPEG	5
PNG	6
DIB	7

e

Appendix E

Underline Codes
Use the number code to select the required underline type.

Underline Type	Code
SS_SUPER	1
SS_SUB	2
U_SINGLE_ACCOUNTING	33
U_DOUBLE_ACCOUNTING	34

Create a directory within the IFS.

Example to create a directory called IDSEXL_EMailBodies within directory IDSEXL.

```

Create Directory (CRTDIR)

Type choices, press Enter.

Directory . . . . . > /IDSEXL/IDSEXL_EMailBodies'

Public authority for data . . . *INDIR      Name, *INDIR, *RWX, *RW...
Public authority for object . . *INDIR      *INDIR, *NONE, *ALL...
+ for more values
Auditing value for objects . . . *SYSVAL     *SYSVAL, *NONE, *USRPRF...
Scanning option for objects . . *PARENT     *PARENT, *YES, *NO, *CHGONLY
Restricted rename and unlink . . *NO         *NO, *YES

Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

```

To create a header file within this folder.

Create a source file member in any source file. Call it TESTBODY. Run the following command.

```

Display Command String

CPYTOIMPF FROMFILE(IDSEXL/QSOURCE TESTBODY)
          TOSTMF ('/IDSEXL/IDSEXL_EMailBodies/TestBody.Txt')
          STMFCODPAG(*PCASCII)
          RCDDL(*CRLF)
          DTAFMT(*FIXED)

Press ENTER to continue.

F3=Exit  F5=Refresh  F12=Cancel  F13=How to use this display  F24=More keys

```

From a command line enter

```
CD /
```

```
WRKLNK
```

Page down until the 'Object Link' IDSEXL is displayed.

Select option 5 against IDSEXL.

Page down until the 'Object Link' IDSEXL_EMailBodies is displayed.

```

Work with Object Links

Directory . . . . . : /IDSEXL/IDSEXL_EMailBodies

Type options, press Enter.
  2=Edit  3=Copy  4=Remove  5=Display  7=Rename  8=Display attributes
  11=Change current directory ...

Opt  Object link      Type  Attribute  Text
  1  TestBody.Txt      STMF

Bottom

Parameters or command
==>
F3=Exit  F4=Prompt  F5=Refresh  F9=Retrieve  F12=Cancel  F17=Position to
F22=Display entire field      F23=More options

```

You can now use option 2 to edit the file.

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