

# **SYSCTRL: A Control Account for Multi-Value Databases**

**Version 1.10**

**5 April 2009**



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# SYSCTRL: A Control Account for Multi-Value Databases

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## **1 License and Notice**

### **1.1 Licence**

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### **1.2 Notice**

This product includes software developed at RushFlat Consulting (<http://www.rushflat.co.nz/>).

This software contains code derived from the NOTEPAD demo program supplied with mvBASE from TigerLogic Corporation.

The FILE-DUMP, IMPORT, and DE3 programs contain code derived from programs developed at Meat & Wool New Zealand Economic Service.



## **2 Overview**

The SYSCTRL account provides a number of utilities for use in multi-value database environments. These utilities allow individual users to:

- set their own default screen sizes (two standard sizes provided)
- set their own default screen colours
- define their text editor of choice for editing multi-value items

Utilities are provided to:

- Edit multi-value items using the text editor nominated by the user
- Reformat Info/Access reports into Excel worksheets or web pages
- Swap between defined screen sizes
- Use a different screen size just for this session
- Change the foreground and background screen colours
- Export and import multi-value data to/from delimited files
- Simplify file creation
- Transfer accounts between multi-value systems

These choices are allowed across multiple database platforms and multiple terminal emulators.

One of the main purposes of this account is to allow multiple terminal emulators to exist on the same system, without major administrative problems for the System Administrator. The SYSCTRL account aims to identify the terminal emulator being used, and issue setup commands accordingly.

Note that the development of the SYSCTRL account has assumed that the client terminal is in a Windows environment. The multi-value host can be in a non-Windows environment (although this has only been tested with OpenQM on Linux), but most testing has been done in Windows environments.



### 3 Installation

The use of the SYSCTRL utilities requires an account on the host system named SYSCTRL

User settings are stored a file named SYSCTRL.SETTINGS. In the default installation, this file is contained within the SYSCTRL account, but could be moved to any location on the host system provided that a Q-pointer to the actual file is added to the SYSCTRL account VOC (Master dictionary).

#### 3.1 General

Installation follows a similar pattern on all platforms. The basic steps are as follows:

- create the SYSCTRL account on your system from the downloaded files
- compile and run the SET.FLAVOUR program
- edit the default settings
- run the SETUP.SYSCTRL program

These steps are outlined in greater detail below:

#### 3.2 mvBASE

Unzip the SysCtrlMV.zip file into a suitable folder on the mvBASE server. It is assumed here that this is C:\Temp, and the full path to the unzipped file is C:\Temp\SysCtrlMV.vtf.

Log to the SYSPROG account, and execute the following commands:

- T-SELECT n                    where n is an available logical tape unit
- SET-TAPEFILE C:\Temp\SYSCTRLMV.vtf
- T-ONLINE
- ACCOUNT-RESTORE SYSCTRL        (Account name on tape = SYSCTRL)
- T-REW
- T-DET

Upgrade the accounts to the current version of mvBASE:

- UPGRADE SYSCTRL

Answer 'N' to recompile the basic programs during the upgrade process.

Log to the SYSCTRL account, and generate the SYSCTRL programs in the correct flavour:

- LOGTO SYSCTRL
- BASIC BP \*
- CATALOG BP \*
- SET.FLAVOUR
- This command will provide you with a list of supported MV flavours. Type in MVBASE, and the programs will be generated, compiled and catalogued.

Update the SYSTEM and DEFAULT items to reflect local conditions:

- ED DICT SYSCTRL.SETTINGS SYSTEM
  - See Section 5.2 for details on settings within this item.



- ED SYSCTRL.SETTINGS DEFAULT
  - See Section 5.3 for details on settings within this item.

Activate the SYSCTRL programs in other accounts:

- SETUP.SYSCTRL
  - Enter the names of accounts to activate.

The activation process places a Q-pointer in the target account to the BP.SYSCTRL file, CATALOG's the programs into the Master Dictionary for the account, and writes a number of short PROC's into the MD to run the IA.REFORMAT program.

Put the INIT.USER program into the logon PROC for each account:

- ED SITE LOGON

```
LOGON
001 PQ
002 C
003 C Insert in this PROC any site specific commands to be executed each
004 C time a user logs onto any account on this system
005 C
008 H INIT.USER
009 P
etc
```

- or ED MD *accountname*

```
ACCOUNTNAME
001 PQ
002 H INIT.USER
003 P
etc
```

Finally, delete the virtual tape file out of the temporary folder.

As supplied, the SYSCTRL account does not have a password. You may wish to add a password to this account.

System privilege for the account must be at least SYS2. This is the system privilege setting as supplied. You may change this as necessary.

### 3.3 OpenQM

Unzip the SysCtrlQM.zip file into a suitable folder on the OpenQM server. This should create a folder structure below the target folder with a root of SYSCTRL.

Log to the QMSYS account and create a new account as follows:

- CREATE.ACCOUNT SYSCTRL path\SYSCTRL

where path is the path to your OpenQM accounts (e.g. D:\QM).

Delete this new account using Windows Explorer, and then copy the unzipped account into the same location as the accounts just deleted.





Update the account to make sure that the VOC entries are consistent with your version of OpenQM:

- LOGTO SYSCTRL
- UPDATE.ACCOUNT

Now, generate the SYSCTRL programs in the correct flavour:

- BASIC BP \*
- SET.FLAVOUR
- This command will provide you with a list of supported MV flavours. Type in OPENQM, and the programs will be generated, compiled and catalogued.

Update the SYSTEM and DEFAULT items to reflect local conditions:

- ED DICT SYSCTRL.SETTINGS SYSTEM
  - See Section 5.2 for details on settings within this item.
- ED SYSCTRL.SETTINGS DEFAULT
  - See Section 5.3 for details on settings within this item.

Activate the SYSCTRL programs in other accounts:

- SETUP.SYSCTRL
  - Enter the names of accounts to activate.

Minimal installation is required in OpenQM because the programs are globally catalogued. However, the activation process writes a number of VOC entries to run the IA.REFORMAT program in the nominated accounts.

Put the INIT.USER program into the LOGIN item for each account:

- ED VOC LOGIN  
  
LOGIN  
0001: PA  
0002: INIT.USER  
etc

Finally, delete the zip file and any temporary files used in the installation.

### 3.4 UniVerse

Unzip the SysCtrlUV.zip file into a suitable folder on the UniVerse server. This should create a folder structure below the target folder with a root of SYSCTRL.

Using UniAdmin, create a new account:

- SYSCTRL

The account flavour is not important. SYSCTRL has been tested with both IDEAL and PICK flavour accounts.



Delete the new account using Windows Explorer, and then copy the unzipped account into the same location as the account just deleted.

Update the accounts to make sure that the VOC entries are consistent with your version of UniVerse:

- LOGTO SYSCTRL
- UPDATE.ACCOUNT

Now, generate the SYSCTRL programs in the correct flavour:

- BASIC BP \*
- CATALOG BP \* LOCAL
- SET.FLAVOUR
- This command will provide you with a list of supported MV flavours. Type in UniVerse, and the programs will be generated, compiled and catalogued.

Update the SYSTEM and DEFAULT items to reflect local conditions:

- ED DICT SYSCTRL.SETTINGS SYSTEM
  - See Section 5.2 for details on settings within this item.
- ED SYSCTRL.SETTINGS DEFAULT
  - See Section 5.3 for details on settings within this item.

Activate the SYSCTRL programs in other accounts:

- SETUP.SYSCTRL
  - Enter the names of accounts to activate.

The activation process places a Q-pointer in the target account to the BP.SYSCTRL file, CATALOG's the programs into the VOC for the account, and writes a number of short paragraphs into the VOC to run the IA.REFORMAT program.

Put the INIT.USER program into the LOGIN item for each account:

- LOGTO *accountname*
- ED VOC LOGIN

```
LOGIN
0001: PA
0002: INIT.USER
etc
```

Finally, delete the zip file and any temporary files used in the installation.

## 3.5 Transferring Systems

### 3.5.1 General

If you transfer from one MV database to another, you do not need to download the version of SYSCTRL specific to your MV flavour. All versions of SYSCTRL contain all source code necessary for each of the supported flavours – all you need to do is activate the desired flavour.



The different download versions of Sysctrl are provided only to ease the installation process.

### **3.5.2 Conversion**

Load the SYSCTRL account onto your new system using the same load procedure used for your other accounts. Note, however, that you do not need to convert any of the basic programs (unless you are converting to an unsupported flavour).

Compile the SET.FLAVOUR program under the new environment and then run the program to create, compile, and catalog all the remaining programs. Finally, run the SETUP.SYSCTRL program to ensure the activation in other accounts is correct:

- LOGTO SYSCTRL
- BASIC BP \*
- CATALOG BP \* (LOCAL)
- SET.FLAVOUR
- SETUP.SYSCTRL

### **3.6 Updates**

Updates will be periodically posted to the Rushflat website. These will take the form of text files to be loaded into the appropriate SOURCE folders (mv files) on the system. These can then be assembled into the platform-specific source code by running the SET.FLAVOUR program.

Any other steps necessary to enable these updates will be detailed in the notes accompanying the updates.



## 4 Platforms and Terminal Emulators

### 4.1 Supported Platforms and Emulators

At this point, the following platforms are supported:

- mvBASE Windows
- OpenQM Windows or Linux
- UniVerse Windows

The following terminal emulators are supported on the above platforms:

- Accuterm (all platforms – using VT220, VT420, and VP A2 enhanced emulation)
- mvTerm (on mvBASE – using IBM PC emulation)

Emulations other than those listed have not been tested.

### 4.2 Reading and Writing Files on the Host O/S

This suite of utilities frequently read and write files from/to the host O/S. However, the location of these files depends on a number of factors. These are:

- which database is being used
- which terminal emulator is being used
- whether the system is networked or standalone
- the settings in the SYSCTRL.SETTINGS file.

Basic rules are:

- For mvBASE running mvTerm, files will be written to the client PC in the folder specified in the ClientTempDir setting
- For mvBASE running any other terminal emulator, files will be written to the machine running the mvBASE workstation in the folder specified in the ClientTempDir setting
- For OpenQM and UniVerse, files will be written to the server in the folder specified in the ServerTempDir setting
  - If the system is standalone, the client software can access the written file using the ServerTempDir setting
  - If the system is networked, then the client software can access the written file using the TempDirShareName setting

It is IMPORTANT that the client PC has appropriate (read, write, and execute) permissions for the shared temp directory on the server.



## 5 Control Files

### 5.1 Control File Conventions

A control file will contain one or more control items. Each control item is made up of lines (attributes) with the following general format:

identifier=settings e.g. colours=darkblue,yellow

Text is usually entered in lower case or mixed case. However, case is largely ignored within the programs.

No spaces are entered around the '=' symbol.

Multiple parameters are separated by a comma, without spaces

The order of identifiers in the control item is not important. However, if multiple parameters are associated with an identifier, then the order of those parameters IS important.

The control items may be modified by any multi-value editor.

Only one control file is used, named SYSCTRL.SETTINGS. However, data is stored in both the dictionary and data portions of the file. These settings are discussed further below:

### 5.2 System Settings

#### 5.2.1 Settings

System settings are contained in the dictionary of the SYSCTRL.SETTINGS file. It is placed here to keep it away from users who are free to modify items in the data portion of this file. All settings are contained in a single item named SYSTEM. This contains control items relevant to the overall system. In a UniVerse system, this may look like:

```
SYSTEM  
DICT SYSCTRL.SETTINGS SYSTEM  
0001 X  
0002 MvDB=UniVerse  
0003 Domain=  
0004 Terminal=Accuterm  
0005 Termtype=vt220  
0006 ServerTempDir=C:\Temp  
0007 TempDirShareName=V2000Temp  
0008 CopyPasteShortcut=2  
0009 KeyF2=LOGTO SALES^M  
0010 KeyF3=LOGTO MARKETING^M
```

Settings in this item should only be altered by the System Administrator.

Because this item is placed in the file dictionary, the first line should be an 'X' to ensure that this is ignored by the database.

Mvdb tells other programs which multi-value database is in use on this system.  
Available settings: mvBASE, OpenQM, UniVerse



Domain is used to build a full server name for use on a VPN. This can be omitted or left as null (as in the example above) if VPN access is not required.

Terminal tells other programs which terminal emulators are in use on this system. Available settings: mvTerm, Accuterm. Multiple terminals may be entered here – e.g. Terminal=mvTerm,Accuterm

Termttype is related to Terminal, and defines a terminal type to be used with the associated terminal emulator defined by Terminal – i.e. There should be a one-to-one relationship between Termttype and Terminal. Settings in this line will depend on the setup of the system. For mvBASE, the terminal type will match a terminal defined using the DEFINE-CURSOR utility in the SYSPROG account. For OpenQM and UniVerse, the terminal type will match a terminal defined in the terminfo database.

For example:

<b>mvBASE</b>	<b>OpenQM</b>
Terminal=mvTerm,Accuterm	Terminal=Accuterm
Termttype=I,J	Termttype=vt420-at

ServerTempDir defines a folder on the Server for use as temporary work area. As written, the OpenQM programs can operate in either a Windows or a Linux environment. However, both mvBASE and UniVerse assume a Windows server, and will need changes for Unix/Linux/AIX.

Note: This folder **MUST** be shared on the network so that client workstations can access it. Client workstations must have read, write, and execute permissions.

TempDirShareName is the share name of the ServerTempDir. Client workstations use this information to link to files in the temporary work folder by using a name of [\\ServerName\ShareName\FileName](#).

The remaining items are specific to AccuTerm, and are ignored by mvTerm. Their purpose is to ensure that the terminal setup is consistent across all terminals in the system. All of these items are optional.

CopyPasteShortcut defines the type shortcut copy and paste keys for the terminal. Available values are 0 for no copy/paste keys; 1 for Ctrl-Del/Ctrl-Ins; and 2 for Ctrl-C/Ctrl-V. These are the values as defined in the AccuTerm Programmers Reference manual.

KeyXXX defines the programmable keys on the keyboard. Values for XXX include:

- F1 to F12
- BKSP
- TAB
- DEL
- INS
- HOME
- END
- PGUP
- PGDN
- LEFT
- RIGHT
- UP



DOWN  
ESC  
ENTER  
KPDENTER

The function key names (but not the editing keys) may be further modified by:

SHIFT  
CTRL  
ALT

although not all combinations of keys are valid – see the AccuTerm Programmers Reference manual for more details.

Use ^M to enter a carriage return at the end of the key setting.

Key settings may be entered into both the SYSTEM item and the individual users control items. If the same key is specified in both items then the SYSTEM control item setting takes precedence.

### 5.2.2 Comments

As the environment is currently written, each terminal emulator can only be associated with one terminal type. Therefore, in the control item shown above, any mvTerm sessions will be associated with terminal type 'I', and any Accuterm sessions will be associated with terminal type 'J', even though both of these terminal emulators are capable of multiple terminal emulations.

It is recommended that each terminal emulator on the system has its own terminal type definition. Therefore, on an mvBASE system, mvTerm and Accuterm should not share the terminal type 'I' definition, even though both can emulate the IBM PC. This is because the emulation is achieved in different ways (particularly setting colours) and each should have its own terminal definition so that the capabilities are accurately rendered.

#### ***mvBASE***

MvTerm (the mvBASE terminal emulator) has two emulation modes – IBM PC and ADDS Viewpoint. According to normal mvBASE terminal handling, these correspond to terminal types I and V respectively.

If the Termttype setting for mvTerm is either 'I' or 'V', then the INIT.USER and INIT.TERM programs will ensure that mvTerm is set to the normal matching emulation. However, if you are using non-standard terminal definitions (e.g. an IBM PC definition set as terminal type 'J'), then you will need to find some other way to ensure that the emulation set in the terminal emulator itself (IBM PC) matches the TERM setting in mvBASE (J).<sup>1</sup>

In all cases, the programs will set the TERM setting in mvBASE, even if they cannot ascertain the emulation to be used within mvTerm.

---

<sup>1</sup> You could simply modify the program source code to do this. Currently, the program checks for a termttype of either I or V (as the standard settings for IBM PC and Adds Viewpoint respectively). This check could be removed to allow any termttype (A-Z) to be set.



## 5.3 User Settings

User settings are contained in the data portion of the SYSCTRL.SETTINGS file. This file will contain one or more items per user.

### 5.3.1 The USER item

The standard item has an ID of the Windows logon name. The following shows a typical item:

```
BRIAN
001 Colours=darkblue,yellow
002 NormCols=100
003 NormRows=30
004 ExtCols=132
005 ExtRows=35
006 ScrMode=Extended
007 De3Editor=c:\progra~1\pspade~1\pspad.exe
008 ClientTempDir=C:\Temp
```

This items sets the standard colours to be yellow text on a darkblue background; defines a “normal” screen of size 100 columns by 30 rows, and an extended screen of 132 columns by 35 rows; defines the screen to use to be the extended screen; defines a path to a Windows editor to be used to edit multi-value items; and defines a path to temporary work directory on the client PC.

A key concept here is the use of “standard” and “extended” screens. The idea is to have two screens permanently defined, allowing quick changing between them. The programs in the SYSCTRL account ensure that the terminal emulator settings and the multi-value environment settings are changed in tandem with each other, thus easing the hassle of changing screen size.

Available settings are:

Colours	Defines the “normal” background and foreground colours (in that order). See the documentation for the SET.COLOUR program in Section 6.4 for information on the available colours.
NormCols	Defines the number of columns in the “standard” screen.
NormRows	Defines the number of rows in the “standard” screen.
ExtCols	Defines the number of columns in the “extended” screen.
ExtRows	Defines the number of rows in the “extended” screen.
ScrMode	Defines which screen to use. Must be either Normal, or Extended.
De3Editor	Defines a path to a Windows editor.
ClientTempDir	Defines a path to work folder on the client PC.

The user control item may also contain function key settings as defined in Section 5.2 above.

With the exception of the De3Editor identifier, most of these identifiers are self explanatory.

The De3Editor setting defines a Windows editor for use in editing multi-value items. This is invoked from within the multi-value item using the verb DE3:

```
DE3
DE3 dospathname
DE3 mv-filename mv-item-id
DE3 DICT mv-filename mv-item-id
```





See Section 6.6 for more details on the DE3 command.

### 5.3.2 The 'DEFAULT' item

The SYSCTRL.SETTINGS file also contains an item named DEFAULT. As its name suggests, this item defines the default settings used for users.

When a user logs into the system, the INIT.USER program reads both the individual user's control item and the default control item from the SYSCTRL.SETTINGS file.

- If this is the first time that user has logged in to the system, then a new user item is created using the settings contained in the default item.
- If the default item contains a new identifier, then that identifier and its associated setting is copied across to the user item. This ensures that new control identifiers are propagated across users of the system without any further intervention by the System Administrator or users.

Identifiers contained within the default item are the same as those detailed above for the user control item. Future versions of the SYSCTRL account could contain more identifiers and settings.

### 5.3.3 Other Items in the 'SYSCTRL.SETTINGS' File

If the IA.REFORMAT program is used, then the SYSCTRL.SETTINGS file will contain a control item named *USER.IA* (e.g. BRIAN.IA) for this program for every user that uses the program. Once again, the idea is for users to be able to customise the environment to their own tastes.

Further details of these control items are given in Section 6.9.

### 5.3.4 Considerations Regarding Screen Sizes

#### *mvBASE and mvTerm*

Care should be taken with mvBASE/mvTerm to ensure that:

- The terminal definitions in use allow the row/column counts specified by these control items.
- The row/column counts do not exceed the mvTerm maximums.
- The font selected allows the chosen row/column counts to be fully displayed.

If the terminal definition does not allow the specified row/column count to be displayed, then display either will not occur, or will not occur in the correct position. To check the screen sizes allowed by the terminal definitions, run the DEFINE-CURSOR utility in the SYSPROG account. Use option 2 to modify the terminal definitions, and check line 2 for the current settings for screen size.

mvTerm has maximum display settings of 132 columns by 75 rows. If settings are entered beyond these values, then the SYSCTRL programs will adjust the values to these maximums.

A particular problem occurs when the font size selected is too large to display the nominated area within the Windows display area. In this case, mvTerm's behaviour is to reduce the mvTerm row/column count to the maximum that the current font size will allow. This has the major problem that the page



width/depth settings as defined by the TERM statement in mvBASE will NOT MATCH the adjusted display area in mvTerm.

The only solution for this is to test the font size that you are using, and make sure that it will allow full display of your nominated screen sizes.

### ***mvBASE and Accuterm***

Accuterm provides a little more flexibility than mvTerm because Accuterm will scale the font sizes so that the nominated page size will fit on the screen. This means the third problem identified above for mvTerm will not occur with Accuterm. However, users of Accuterm must still be aware of the following problems:

- Terminal definitions in use must allow the row/column counts specified by the control items.
- The row/column counts should not exceed the Accuterm maximums.

Accuterm<sup>2</sup> has maximum display capabilities of 240 columns by 240 rows. If settings are entered beyond these values, then the SYSCTRL programs will adjust the values to these maximums.

Terminal definitions in use by mvBASE must allow the terminal sizes specified. To check the screen sizes allowed by the terminal definitions, run the DEFINE-CURSOR utility in the SYSPROG account. Use option 2 to modify the terminal definitions, and check line 2 for the current settings for screen size.

---

2 These screen sizes are allowable for version 5.3c – earlier versions allowed only 160 columns by 60 rows. If you are using an earlier version, then you should either upgrade, or change the program to source code to disallow screen sizes beyond 160 x 60.



## 6 Programs

### 6.1 Overview

The SYSCTRL account comes with a number of System Control programs, System Utilities, and associated subroutines. These are:

#### *System Control Programs*

INIT.USER	A program to be run at logon
INIT.TERM	A program to be used to reset the terminal emulator
SET.COLOUR	A program to set the “normal” display colours in the terminal emulator

#### *System Utilities*

C.F	A file creation program
DE3	A program to enable a Windows editor to edit multi-value items
DISPLAY.COMMON	A program to display key variables in the named common
FILE-DUMP	A program to dump the contents of a multi-value file to a DOS file
IA.REFORMAT	A program to reformat an Info/Access report to a GUI format (Excel, HTML, or RPV reports)
IMPORT	A program to import the contents of a DOS file into a multi-value file
SY.ACCOUNT.DUMP	A program to dump the contents of an account into a DOS file
SY.ACCOUNT.LOAD	A program to load the contents of an account dump file into a new account
VERSION	A program to check the version numbers of the SYSCTRL programs

#### *Subroutines*

SY.CHECK.TERMINAL	Subroutine for use with INIT.USER
SY.CONV.COLOUR.AT.MVB	Converts an Accuterm colour number to an mvBASE code number for use in an @(xx) code
SY.CREATE.FILE	Subroutine to create files – used by C.F
SY.GET.AT.COLOUR.NUM	Converts a colour name to an Accuterm colour number
SY.GET.SETTING	Extracts the setting associated with a specified identifier from a set of control data
SY.IA.ANALYSE.STATEMENT	Used by the IA.REFORMAT program
SY.MAKE.HTML	Converts a passed dynamic array to an HTML page
SY.READ.FROM.DOS	Reads data from a DOS file
SY.SET.COLOUR	Applies the validated colour settings to the terminal emulator
SY.SET.KEYS	Sets the keyboard function keys and editing keys to the values specified in the control items
SY.SET.SETTING	Updates an existing identifier with a new setting, or adds a new identifier/setting pair, to a set of control data
SY.WRITE.TO.DOS	Writes data to a DOS file

#### *Functions*

SY.DATATYPE	Returns the datatype of a passed variable
SY.EXCELDATE	Converts a PICK date to an Excel date
SY.GET.SERVER.NAME	Returns the name of the multi-value server



Further details of the programs and subroutines are given below:

## 6.2 INIT.USER

The use of the SysCtrl programs and utilities REQUIRES that the the INIT.USER program be run at user login. This program initialises environment settings. This program carries out the following actions:

- Creates a Q-pointer to the control file if none exist
- Opens the control file
- Creates a SYSTEM control item if none exists
- Synchronises user settings with default user settings
- Identifies the terminal emulator in use
- Sets the terminal to the screen size and emulation defined in the control files
- Executes the SET.COLOUR program
- Sets up function key and editing key definitions as specified in the control items

The program should be called at each account login. In mvBASE, this can be done by placing the call to INIT.USER in the SITE LOGON proc. In OpenQM and UniVerse, the call should be in each account LOGIN item.

The calling format for the program is simply:           INIT.USER

## 6.3 INIT.TERM

The INIT.TERM program has two purposes. These are:

- Resetting the terminal for those occasions when a set of control characters has unexpectedly changed the settings.
- Switching between the normal and extended screen sizes

The calling format for the program is:

```
INIT.TERM  
INIT.TERM [scrmode [cols,rows] ]
```

The first format resets the terminal size and emulation to the values currently defined. This setting is contained in a named common that was initialised by the INIT.USER login program, and will have been maintained by subsequent calls to the INIT.TERM program.

The second format allows the user to change between the normal and extended screens defined in the control items, or to specify a new setting for one of those screens for this session (i.e. not a permanent change).

Scrmode is one of: Normal, Extended, or Default. These may be shortened to just the first three characters.

Cols,Rows are the new screen size settings to apply to the specified Scrmode.

For example:

```
INIT.USER ext  
INIT.USER ext 160,50
```



If the screen is being resized using column and row settings, both settings must be present.

## 6.4 SET.COLOUR

### 6.4.1 Overview

SET.COLOUR is used to set the “normal” colour of the screen. It should not be used to set the colour of only part of the screen – use of the SET.COLOUR program affects all of the screen.

Why is this program necessary? Computer terminals initially did not support colour. Text could be highlighted through bolding, underlining, and reverse video. As colour was applied, it was applied in the same manner as earlier text highlighting in that it applied only to the printed characters and their immediate background spaces – a different background colour could not be applied to the whole screen.

The PC monitor emulation is an exception to this type of colour handling. On a PC monitor, a change in the background colour was applied to all new lines on the screen. Therefore, clearing the screen after changing the background colour would apply the new background colour to the whole screen.

The SET.COLOUR program is intended to bring PC style background colour changing to other terminal emulations.

The calling format for the program is:

```
SET.COLOUR
SET.COLOUR background-colour [ , ] foreground-colour
SET.COLOUR colour-number
```

The first format sets the default colours as specified in the user’s control item in the SYSCTRL.SETTINGS file.

In the second format, the user specifies the colours to apply by name. The colours may be separated by either a comma or by a space.

Two alternative sets of colour names are available. These are:

<b>Accuterm</b>	<b>Alternative</b>	<b>Colour Number</b>
Black	Lo-Black	0
Darkblue	Lo-Blue	1
Darkgreen	Lo-Green	2
Turquoise	Lo-Cyan	3
Darkred	Lo-Red	4
Purple	Lo-Purple	5
Olive	Lo-Yellow	6
Lightgrey	Lo-White	7
Darkgrey	Hi-Black	8
Blue	Hi-Blue	9
Green	Hi-Green	10
Cyan	Hi-Cyan	11
Red	Hi-Red	12
Magenta	Hi-Purple	13
Yellow	Hi-Yellow	14
White	Hi-White	15



Some name variations are possible: “Grey” may also be spelt “Gray”; where names are prefixed by “light” or “dark”, then the colour may include a single space in the name e.g. “dark red”.

Examples:

```
SET.COLOUR dark blue,white
SET.COLOUR hi-green hi-yellow
SET.COLOUR olive hi-white
```

The third format takes a single number as a parameter. This number must be in the range of 0 to 255, and is calculated as follows:

- Get the colour numbers of the desired colours from the table above.
- Calculate the colour number as: background x 16 + foreground

On this basis, the three examples above could have been expressed as:

```
SET.COLOUR 31
SET.COLOUR 174
SET.COLOUR 111
```

If you are using Accuterm, then these colours can be previewed by choosing Tools | Settings | Colours, and then clicking on the Change button beside the Normal colour.

### 6.4.2 Program Restrictions

The SET.COLOUR program has some restrictions built in.

- If colours are specified by name, then two colours must be specified. You cannot simply change the background colour by only specifying one colour, or change the foreground by specifying a comma as a placeholder for the background colour.
- The foreground and background colours cannot be the same.

### 6.4.3 Colour Notes

Different terminal emulators have different colour capabilities and use different colour palettes. This means that sometimes colours may be different from what you expect.

Some issues found with colours include:

- mvTerm appears to have only a single “white” colour, with both Hi-White and Lo-White being presented as the same colour. While the program checks that foreground and background colours are different, it does allow a Hi-White Lo-White combination to go through. In mvTerm, this creates a white on white display, whereas in Accuterm, it creates a white on light grey display.
- mvTerm also reverses the “blacks” relative to Accuterm. In Accuterm, “true black” is displayed using the “black” colour, while brighter version of “black” generates dark grey. In mvTerm, “true black” is generated by high intensity black, while low intensity black generates a medium grey (see the COLOR program in the DEMO account). The SET.COLOUR



program actually swaps the black colours for mvTerm so that the palette more closely resembles that of Accuterm.

## 6.5 C.F

C.F provides a simple method of file creation for UniVerse and mvBASE. While the command also works with OpenQM, it does not offer any real advantage over the standard CREATE.FILE command in that environment.

The calling format depends on the environment:

**mvBASE** C.F *filename* [d:dictitems] [n:fileitems] [s:itemsize]  
**OpenQM/UniVerse** C.F *filename* [filetype] [s:itemsize]

where dictitems = number of dictionary items  
fileitems = number of data file items  
itemsize = average size of data items  
filetype = 'HASHED' or 'DIRECTORY'

In OpenQM and UniVerse, C.F creates dynamic files which require less file sizing information. The itemsize parameter is used to set the block size of the file. If this parameter is omitted, the block size will default to 1 KB. Example usage:

C.F AFILE Will create a file using the default block size  
C.F BFILE 300 Will create a file with 4K blocks  
C.F CFILE DIRECTORY Will create a directory file

mvBASE creates static hashed files which require full file sizing information. C.F simplifies this by calculating the necessary modulus from the information you provide. Example usage:

C.F AFILE Will create a file sized as 1,1 Not recommended  
C.F BFILE d:50 n:2000 s:200 Will create a file sized around 3,261

Dictionary items are assumed to be 50 bytes. Therefore, in the above example, the dictionary will be 50 items times 50 bytes = 2,500 bytes. As this is greater than 1 frame (2 KB), the dictionary will be sized to the next prime number (3).

The data portion is calculated to be 2,000 items times 200 bytes times 1.3 (allowing for file expansion and non-uniform hashing) = 520,000 bytes or 260 frames. This will then be converted to the next highest prime number.

## 6.6 DE3

### 6.6.1 Overview

The DE3 program calls a Windows text editor to edit a multi-value item. In essence, it is an enhanced version of the NOTEPAD programs found in the DEMO account of mvBASE or in the Atwin\Samples\PickBP folder of Accuterm.

The actual editor to be used by the program is defined in the SYSCTRL.SETTINGS file. This means that each user can use their own preferred editor without affecting other users. A default system wide editor can be defined in the DEFAULT item of the SYSCTRL.SETTINGS file.



Usage is as follows:

```
DE3
DE3 dopathname                eg    DE3 C:\Temp\Test.txt
DE3 [DICT] filename item-id    eg    DE3 BP TEST
```

The first format simply calls the text editor, which will open with a blank text document. This text document cannot be saved back into an MV file – but it could be saved back into a directory file used by an MV environment (such as the BP file under OpenQM).

The second format opens a file within the client O/S.

The third format allows editing of an item within an MV file. This item could either be within a “proper” MV file (including a dictionary), or be an item within a directory file.

Note that the behaviour of the MV environment differs according to which calling format is used. Under both of the first two calling methods, control returns to the command prompt immediately after the windows editor has been started.

Under the third calling method, if the item being edited is within an MV file, then control will not return to the command prompt until such time as the item has been filed. If the item being edited is within a directory file in a local multi-value environment, then control will return to the command prompt as soon as the editor has been started.

The DE3 program may use either the ServerTempDir or the ClientTempDir setting in the SYSCTRL.SETTINGS file, depending on the database flavour, the format of the program call, and whether the system is part of a network or standalone. Items may be written into this directory while they are being edited. Such files will have a default extension of ‘.mvp’ in an mvBASE environment, ‘.qmb’ in an OpenQM environment, or ‘.uvb’ in an OpenQM environment. If the file being edited is named TC, then a file extension of ‘.ia’ will be applied. These temporary files are deleted at the conclusion of editing.

By associating these file extensions with syntax control files in your editor of choice, syntax highlighting and code completion features can be added to your multi-value environment.

### 6.6.2 Windows Editors

Any Windows text editor should be able to be used by the DE3 program. Simply put the full path to the program in the DE3Editor setting in the SYSCTRL.SETTINGS file. For example:

```
De3Editor=c:\progra~1\pspade~1\pspad.exe
De3Editor="C:\Program files\PSPad editor\PSPad.exe"
```

Both of these lines nominate the PSPad editor as the editor to be used by the DE3 command. If your pathname contains embedded spaces, be sure to enclose the pathname in quotes.

Both the above lines specify the full path to the Windows executable. Note that if you are using Accuterm, this is not required – as long as the editor is fully registered with Windows, the name of the executable should be sufficient. However, if you are using mvTerm, then the full path name is required.





Any Windows editor (including Notepad) can be run using the DE3 command. Recommended editors include:

Crimson Editor	<a href="http://www.crimsoneditor.com">www.crimsoneditor.com</a>
PSPad	<a href="http://www.pspad.com">www.pspad.com</a>

Both of these editors are free, and can be extensively customised. Both provide syntax highlighting of keywords, and PSPad has autocompletion and text difference features as well.

## 6.7 DISPLAY.COMMON

The DISPLAY.COMMON program shows the contents of the main elements of the SYSCTRLCOMMON named common. It then asks if you wish to see all of the system and user settings.

This can only be run from the SYSCTRL account.

```

display.common
Sysctrl Common variables:
  SysCtrl.MvDB = OPENQM
  SysCtrl.ServerName = BSS
  SysCtrl.ClientName = BSS
  SysCtrl.Domain =
  SysCtrl.Terminal = ACCUTERM
  SysCtrl.TermType = VT420-AT
  SysCtrl.ScrMode = Normal
  SysCtrl.ServerTempDir = C:\Temp\
  SysCtrl.TempDirShareName = Temp
  SysCtrl.ClientTempDir = C:\Temp\

Show all system settings?Y
X
MvDB=OpenQM
Terminal=Accuterm
Termtyp=vpa2-at
TermXY=SafeX
ServerTempDir=C:\Temp\
TempDirShareName=Temp
CopyPasteShortcut=2
KeyF2=LOGTO ECONDATA^M
KeyF3=LOGTO TIME-SERIES^M

Show all user settings?Y
Colours=darkblue,yellow
NormCols=132
NormRows=35
ExtCols=160
ExtRows=40
ScrMode=Normal
De3Editor=C:\Progra~1\PSPade~1\PSPad.exe
ClientTempDir=C:\Temp

```

## 6.8 FILE-DUMP and IMPORT

FILE-DUMP writes a simple text file of the contents of a multi-value file to the host operating system. IMPORT reverses this process.



### 6.8.1 FILE-DUMP

File-dump is called as follows:

```
[select-list processing]
FILE-DUMP [DICT | dictname,]filename [COL-HDR-SUPP | COL.HDR.SUP]
```

For example:

```
FILE-DUMP XRATES
269 record(s) selected to list 0
Item count: 269
File 'XRATES' dumped to 'C:\Temp\XRATES0.xls'
```

The location of the dumped file will depend on a number of factors. See Section 4.2 for more information on these factors. However, in all cases, the location is shown by the output from the command.

If the output file already exists on disk, the program will prompt you for permission to overwrite the file. If you say no, then the number at the end of the filename is incremented and another check for an existing file is made. This continues until the filename does not already exist, you answer 'Y' to overwrite the file, or you answer 'X' to exit without writing the file.

The contents of the dumped file look like:

```
XRATES
198501      610   4707  4154  5772  11949      14900
198502      613   4487  4078  6272  11555      14800
198503      618   4522  4036  6499  11680      14900
198504      615   4553  3659  6906  11440      14000
198505      607   4526  3687  6909  11444      14300
```

This is a tab-delimited file. Multi-values are dumped out as is – i.e. there is no processing of the value marks or sub-value marks to any other character. Likewise, no output conversions are applied – data appears in internal format.

If the file dictionary has a numeric sequence of dictionary items, then those dictionary headings will be placed into the dumped file.

The COL.HDR.SUP option is shown with two spellings. Use the spelling appropriate to your multi-value flavour. This option suppresses the inclusion of dictionary headings.

From version 1.1.1 onwards, FILE-DUMP can be used to dump dictionaries, or to dump files that use a shared dictionary:

```
FILE-DUMP DICT XRATES
FILE-DUMP SALES,ARCHIVE
```

You can use FILE-DUMP and IMPORT to transfer files between systems – even between different multi-value systems (eg mvBASE to UniVerse). When doing this, either ensure that you edit the dumped data file before importing to remove any column headings, or use the COL.HDR.SUP option when dumping the file.



## 6.8.2 IMPORT

The IMPORT program imports a delimited DOS text file into a multi-value environment. The file may be either TAB or comma delimited. The program is called as follows:

```
IMPORT [[path]srcfilename [[DICT | dictname,]destfilename]] [TAB | COMMA]
```

If a source filename is not specified in the program call, then the program will prompt you for a name.

### IMPORT

Import a DOS text file into OPENQM  
Import file should be in C:\Temp\ folder  
or enter full path of file to import

Filename to import:

The folder specified in this prompt will depend on a number of factors. See Section 4.2 for more information.

Similarly, if no destination file is specified, then the program will prompt for it. See example 1 on the next page.

The order of the source and destination files on the command line is important – the first file is assumed to be the source file while the second is assumed to be the destination file.

The following rules are used in the import processing:

- Text fields may be surrounded by double quotes. These double quotes will not form part of the data that is written to the pick attribute. Also, these fields may contain commas that will end up in the pick attribute.
- If a text field is surrounded by double quotes, then there should be no intervening spaces between the closing double quote and the field Delimiter.
- The first field in the record is the pick ID. No checks are carried out to ensure the ID is unique.
- The destination file is not cleared before new data is imported. Any existing items with the same ID as one being imported will be overwritten.
- Blank lines in the source file will be ignored.
- Records with a null ID will be ignored.

The program attempts to determine the delimiter by counting the TAB characters and commas. The character with more occurrences is assumed to be the delimiter.

In some cases (where commas are embedded in quoted text strings), the program will get the delimiter character wrong. In this case, you should specify the delimiter character in the program call:

```
IMPORT srcfilename TAB
```

You should process the source text file so that:

- the file contains only the lines that you wish to import (i.e. remove headings)



- it does not contain any commas or decimal places in numeric fields
- zeroes are removed unless you want to store these in the multi-value database.

Take care also with the code page used for generation of the source text file. For example, OpenOffice Calc exports double-quote marks as ASCII values 147 and 148 using the default 'Western Europe (Windows-1252/WinLatin 1)' code page. When these characters are imported into OpenQM (and probably UniVerse also), they are not displayed although they are still present in the data. This may make it appear that the import has not worked correctly.

Example 1:

**CLEAR.FILE DATA XRATES  
IMPORT C:\TEMP\XRATES0.XLS**

Name of Pick file: XRATES  
Delimiter = Tab  
Converting data: 269

Data converted to Pick format

Example 2:

**FILE-DUMP IRATES COL.HDR.SUP**  
269 record(s) selected to list 0  
Item count: 269  
File 'IRATES' dumped to 'C:\Temp\IRATES0.xls'

**CLEAR.FILE DATA IRATES  
IMPORT IRATES0.XLS IRATES**

Delimiter = Tab  
Converting data: 269

Data converted to Pick format

In example 1, the source filename was specified with a full path. The import program prompted for the multi-value file name to load the data into, and displayed the character assumed to be the delimiter. Finally, the progress of the import is displayed.

Note that even though the import filename was specified with an XLS extension, it was in fact a text file. Import cannot process anything other than text files, and will produce uncertain results if tried.

Example 2 shows the IMPORT program being used with the output from the FILE-DUMP program. No path was specified for the source file, so the program assumed the file was in the default temp directory (see Section 4.2). The command also specified the destination file for the imported data.

## 6.9 IA.REFORMAT

### 6.9.1 Overview

IA.REFORMAT takes the output from an Info/Access, QMQuery, or Retrieve report, and reformats it into an Excel spreadsheet, a Web page, or an RPV report.



RPV reports provide a way of generating a Windows GUI report from an ASCII text file. As multi-value databases can generate text files easily, this is one way to create a Windows report from a multi-value database. RPV reports software is available from [www.rpvsoftware.com](http://www.rpvsoftware.com).

RPV reports is now fully commercial software. However, you can still find the free edition on the web. Search for “rpv22freng.exe”.

IA.REFORMAT was originally written for use with RPV reports, and was subsequently updated to output for Excel or for a web browser. In both of these cases, the output is actually in HTML. However, the Excel coding has some additional Microsoft specific coding to improve the rendition in Excel.

The idea behind IA.REFORMAT is for the user to utilise their skills in multi-value reporting to output a report direct to a formatted Windows report without any further intervention. All that is required is to change the verb.

LIST becomes:	RPV	output to RPV reports
	SPREAD	output to spreadsheet
	HTML	output to web browser

SORT becomes	SPRV	output to RPV reports
	SSPREAD	output to spreadsheet
	SHTML	output to web browser

On this basis, you can generate a Windows report simply by typing:

```
SSPREAD SALES WITH YEAR EQ "2008" BY MONTHNO BREAK-ON MONTH "'VL'"
TOTAL AMOUNT GRAND-TOTAL "2008'U'" HEADING "Sales summary for 2008'L'"
ID-SUPP DET-SUPP
```

Screenshots of an example report are shown below:

The basic report is shown in mvTerm (coming from mvBASE) using the following command:

```
SORT WOOL.SUMMARY BY WREG BY COUNTRY BREAK-ON START.END.I "'UV'"
BREAK-ON WREGION.I "'UV'" COUNTRY TOTAL 10 TOTAL 11 TOTAL 12 TOTAL 13
TOTAL 33 TOTAL 13% GRAND-TOTAL "Rubbish'U'" HEADING "Wool Exports From
New Zealand'L'Calendar Year: 2004'L'" FOOTING "T-S Tc WoolStats.6-2'LD'"
ID-SUPP
```



Country	Greasy \$000	Scoured \$000	Slupe \$000	Total \$000	Total \$000 Last yr	% Chg.
Mauritius		644		644	511	26.1
Morocco		598		598	98	512.8
South Africa	129	1,176		1,305	2,483	-47.4
<b>Africa</b>	<b>129</b>	<b>2,418</b>		<b>2,547</b>	<b>3,091</b>	<b>-17.6</b>
Panama		124		124		
<b>Caribbean</b>		<b>124</b>		<b>124</b>		
Austria			604	54,770	46,488	17.8
Belgium	8,830	46,136		6,343	5,360	18.3
Denmark		6,343		727	939	-22.5
Finland	1,437	727		234	3,039	-59.7
France	15,188	24,618		9,469	10,132	-6.5
Germany		9,469			426	
Greece			63	75,943	78,179	-2.9
Ireland	39,272	36,687		1,160	2,286	-49.3
Italy		1,160		1,689	1,613	4.7
Netherlands		1,689		2,086	3,240	-35.6
Portugal	71	2,014		293	360	-18.4
Spain		293		743	100,312	
Sweden			1,837	102,893	103,287	-0.4
United Kingdom						
<b>European Union</b>	<b>64,742</b>	<b>230,737</b>	<b>2,739</b>	<b>298,219</b>	<b>297,821</b>	<b>0.1</b>

In Excel, this appears as:

Country	Greasy \$000	Scoured \$000	Slupe \$000	Total \$000	Total \$000 Last yr	% Chg \$000
Mauritius		644		644	511	26.1
Morocco		598		598	98	512.8
South Africa	129	1,176		1,305	2,483	-47.4
<b>Africa</b>	<b>129</b>	<b>2,418</b>		<b>2,547</b>	<b>3,091</b>	<b>-17.6</b>
Panama		124		124		
<b>Caribbean</b>		<b>124</b>		<b>124</b>		
Austria			604	54,770	46,488	17.8
Belgium	8,030	46,136		6,343	5,360	18.3
Denmark		6,343		727	939	-22.5
Finland	1,437	727		234	3,039	-59.7
France	15,188	24,618		9,469	10,132	-6.5
Germany		9,469			426	
Greece			63	75,943	78,179	-2.9
Ireland	39,272	36,687		1,160	2,286	-49.3
Italy		1,160		1,689	1,613	4.7
Netherlands		1,689		2,086	3,240	-35.6
Portugal	71	2,014		293	360	-18.4
Spain		293		743	100,312	
Sweden			1,837	102,893	103,287	-0.4
United Kingdom						
<b>European Union</b>	<b>64,742</b>	<b>230,737</b>	<b>2,739</b>	<b>298,219</b>	<b>297,821</b>	<b>0.1</b>

This uses a command of:

```
SSPREAD WOOL.SUMMARY BY WREG BY COUNTRY BREAK-ON START.END.I ""UV""
BREAK-ON WREGION.I ""UV"" COUNTRY TOTAL 10 TOTAL 11 TOTAL 12 TOTAL 13
TOTAL 33 TOTAL 13% GRAND-TOTAL "Rubbish'U" HEADING "Wool Exports From
New Zealand'L'Calendar Year: 2004'L" FOOTING "T-S Tc WoolStats.6-2'LD""
ID-SUPP
```

Output to OpenOffice is also allowed:



Country	Greasy \$0.00	Scoured \$0.00	Slupe \$0.00	Total \$0.00	Total \$0.00	% Chg \$0.00
					Last yr	
Mauritius		644		644	511	26.1
Morocco		598		598	98	512.8
South Africa	129	1,176		1,305	2,483	-47.4
<b>Africa</b>	<b>129</b>	<b>2,418</b>		<b>2,547</b>	<b>3,091</b>	<b>-17.6</b>
Panama		124		124		
<b>Caribbean</b>		<b>124</b>		<b>124</b>		
Austria						
Belgium	6,030	46,136	604	54,770	46,488	17.8
Denmark		6,343		6,343	5,360	18.3
Finland		727		727	939	-22.5
France	1,437	1,368	234	3,039	7,534	-59.7
Germany	15,188	24,618		39,806	37,977	4.8
Greece		9,469		9,469	10,132	-6.5
Ireland					426	
Italy	39,272	36,607	63	75,943	78,179	-2.9
Netherlands		1,160		1,160	2,286	-49.3
Portugal		1,689		1,689	1,613	4.7
Spain	71	2,014		2,086	3,240	-35.6
Sweden		293		293	360	-18.4
United Kingdom	743	100,312	1,837	102,893	103,287	-0.4
<b>European Union</b>	<b>64,742</b>	<b>230,737</b>	<b>2,739</b>	<b>298,219</b>	<b>297,821</b>	<b>0.1</b>
Czech Republic	1,769			1,769	10,544	-83.2

The command used for this is identical to that used for Excel. However, a switch in the configuration file changes the html code that is generated.

In a web browser, the report appears as:

Country	Greasy \$000	Scoured \$000	Slupe \$000	Total \$000	Total \$000	% Chg \$000
					Last yr	
Mauritius		644		644	511	26.1
Morocco		598		598	98	512.8
South Africa	129	1,176		1,305	2,483	-47.4
<b>Africa</b>	<b>129</b>	<b>2,418</b>		<b>2,547</b>	<b>3,091</b>	<b>-17.6</b>
Panama		124		124		
<b>Caribbean</b>		<b>124</b>		<b>124</b>		
Austria						
Belgium	6,030	46,136	604	54,770	46,488	17.8
Denmark		6,343		6,343	5,360	18.3
Finland		727		727	939	-22.5
France	1,437	1,368	234	3,039	7,534	-59.7
Germany	15,188	24,618		39,806	37,977	4.8
Greece		9,469		9,469	10,132	-6.5
Ireland					426	
Italy	39,272	36,607	63	75,943	78,179	-2.9
Netherlands		1,160		1,160	2,286	-49.3
Portugal		1,689		1,689	1,613	4.7
Spain	71	2,014		2,086	3,240	-35.6
Sweden		293		293	360	-18.4
United Kingdom	743	100,312	1,837	102,893	103,287	-0.4
<b>European Union</b>	<b>64,742</b>	<b>230,737</b>	<b>2,739</b>	<b>298,219</b>	<b>297,821</b>	<b>0.1</b>
Czech Republic	1,769			1,769	10,544	-83.2
Estonia		1,491		1,491	631	136.4
Hungary		511		511	1,059	-51.7
Latvia		785		785	854	-8.0

This uses a command of:

```
SHTML WOOL.SUMMARY BY WREG BY COUNTRY BREAK-ON START.END.I ""UV""
BREAK-ON WREGION.I ""UV"" COUNTRY TOTAL 10 TOTAL 11 TOTAL 12
TOTAL 13 TOTAL 33 TOTAL 13% GRAND-TOTAL "Rubbish"U"
HEADING "Wool Exports From New Zealand'L'Calendar Year: 2004'L"
FOOTING "T-S Tc WoolStats.6-2'LD" ID-SUPP
```



Finally, in RPV Reports, the report appears as follows:

Country	Greasy \$000	Scoured \$000	Slip \$000	Total \$000	Total \$000 Last yr	% Chg \$000
Mauritius		644		644	511	26.1
Morocco		598		598	98	512.8
South Africa	129	1,176		1,305	2,483	-47.4
<b>Africa</b>	<b>129</b>	<b>2,418</b>		<b>2,547</b>	<b>3,091</b>	<b>-17.6</b>
Panama		124		124		
<b>Caribbean</b>		<b>124</b>		<b>124</b>		
Austria		46,136	604	54,770	46,488	17.8
Belgium	8,030	6,343		14,373	9,360	16.3
Denmark		727		727	939	-22.5
Finland		1,437	234	3,039	7,534	-59.7
France	15,188	24,618		39,806	37,977	4.8
Germany		9,469		9,469	10,132	-6.5
Greece					426	
Ireland	39,272	36,607	83	75,943	78,179	-2.9
Italy		1,160		1,160	2,280	-49.3
Netherlands		1,689		1,689	1,813	4.7
Portugal	71	2,914		2,986	3,240	-35.6
Spain		293		293	360	-18.4
Sweden	743	100,312	1,837	102,893	103,287	-0.4
United Kingdom						
<b>European Union</b>	<b>64,742</b>	<b>230,737</b>	<b>2,739</b>	<b>298,219</b>	<b>297,821</b>	<b>0.1</b>
Czech Republic	1,769			1,769	10,544	-83.2
Estonia		1,491		1,491	631	136.4
Hungary		511		511	1,059	-51.7
Latvia		785		785	854	-8.0
Lithuania		764		764	1,029	-25.7
Poland		2,441		2,441	2,550	-4.3
Romania		98		98	272	-64.2

The command used here was:

```
SRPV WOOL.SUMMARY BY WREG BY COUNTRY BREAK-ON START.END.I ""UV""
BREAK-ON WREGION.I ""UV"" COUNTRY TOTAL 10 TOTAL 11 TOTAL 12 TOTAL 13
TOTAL 33 TOTAL 13% GRAND-TOTAL "Rubbish'U" HEADING "Wool Exports From
New Zealand'L'Calendar Year: 2004'L" FOOTING "T-S Tc WoolStats.6-2'LD"
ID-SUPP
```

Overall, the only change made in these reports was to change the verb used to generate the report.

### 6.9.2 Installation

IA.REFORMAT is installed with the SYSCTRL account. Usually, the only thing that needs to be done is to run SETUP.SYSCTRL to load the MD/VOC entries into each account to run the program.

If these MD/VOC entries are missing, you can enter them manually. There should be an entry for each of the verbs you wish to use (SPREAD, SSPREAD, HTML, SHTML, RPV, SRPV). Their format is:

<b>mvBASE</b>	<b>OpenQM</b>	<b>UniVerse</b>
PQX	PQ	PA
H IA.REFORMAT	H IA.REFORMAT	IA.REFORMAT
P	P	

### 6.9.3 Configuration

IA.REFORMAT uses a configuration item contained in the SYSCTRL.SETTINGS file. This item has a name of *username.IA*.





This item is created automatically when you run the program, or you can force the overwrite of any existing item with the default settings by typing:

```
SSPREAD -CONFIG
```

Now type:     SORT SYSCTRL.SETTINGS

You should see the control item in the listing. You can edit this item with any multi-value editor. If you are using OpenQM or UniVerse, then you can edit the item directly from the O/S as the SYSCTRL.SETTINGS file has been created as a directory file. A typical configuration item is shown below:

```
# Configuration file for program IA.REFORMAT

# Client computer configuration
PathProgRPV=C:\Progra~1\RPV\Rpv.exe
PathProgSpread=START
PathProgBrowser=START
SpreadsheetProgram=Excel
WindowsFontDPI=96

# Report sizes
MaxRows=3000
MaxWidth=350
PaperSize=A4

# Report options
TopMargin=1
BottomMargin=1
LeftMargin=1
RightMargin=1
BackgroundColour=gainsboro
FontNameHdg=Arial
FontNameTot=Arial
FontNameDet=Arial
FontSizeBase=4
FontSizeHdg=12
FontSizeTot=10
FontSizeDet=10
FontBoldHdg=Y
FontBoldTot=Y
FontBoldDet=N
FontItalHdg=N
FontItalTot=N
FontItalDet=N

# Templates
TemplateExcel=excel2003.xls
TemplateOOO=html-3.2.html
TemplateWeb=xhtml-1.0-strict.html

# Miscellaneous options
RPVDeleteAfter=Y
MinColWidth=11
```

Lines starting with a '#' are comment lines. Blank lines are ignored.



Most configuration options will be fine left at their default values. However, check the setting for WindowsFontDPI – an incorrect value for this setting will lead to either insufficient or excessive whitespace on the final report.

Configuration options are:

PathProgRPV	This is the path to the RPV viewer program.
PathProgSpread	This is the path to the spreadsheet program. The default value for this is START meaning that Windows will automatically start the program associated with the '.xls' file extension.
PathProgBrowser	This is the path to your web browser. Once again, the default value for this is START.
SpreadsheetProgram	This is an internal switch to control the type of html created by the program. Possible values for this switch are EXCEL (if you are using Excel) or OOO (if you are using Open Office).
WindowsFontDPI	Standard windows fonts are set at 96 dpi. Large fonts are set at 120 dpi. To check the setting on your computer, start the 'Display' applet from the Control Panel, click on the 'Settings' tab, and then click on 'Advanced'. Use the value shown in the 'DPI setting'.
MaxRows	This defines the maximum length of the Info/Access report the program will accept. The program slows dramatically in mvBASE as this value increases. Other platforms seem less affected. Default value = 3000
MaxWidth	This is the maximum width of the Info/Access report. The TERM setting in mvBASE restricts this to a maximum of 350. Default = 350
PaperSize	This is the papersize setting used in both RPV reports and Excel reports. Possible values for this are: A4 Letter Executive Legal B5 Env10 or DL. If you are printing on a different size paper using Excel, you will need to manually change the PAPERSIZEINDEX variable in the 'Initialisation' section of the program (or change the papersize using 'File -> Page Setup' in Excel after you have generated the report). RPV does not handle other paper sizes.
TopMargin	Top margin of the page in <u>centimetres</u> . Used in RPV and Excel reports. Default = 1
BottomMargin	Bottom margin of the page in <u>centimetres</u> . Used in RPV and Excel reports. Default = 1
LeftMargin	Left margin of the page in <u>centimetres</u> . Used in RPV and Excel reports. Default = 1



RightMargin	Right margin of the page in <u>centimetres</u> . Used in RPV and Excel reports. Default = 1
BackgroundColour	Colour used as background for the Info/Access column headings. This should be a web colour. Default = gainsboro
FontNameHdg	Font used for printing the first line of the Heading. Default = Arial
FontNameTot	Font used for printing the second line of the Heading and Total lines. Default = Arial
FontNameDet	Font used for detail lines, and the third and subsequent lines of the Heading. Default = Arial
FontSizeBase	Base font size for web browsers. Font sizes for headings are keyed off this. Possible values 1..7. Default = 4
FontSizeHdg	Heading font size in points. Default = 12
FontSizeTot	Total line font size in points. Default = 10
FontSizeDet	Detail line font size in points. Default = 10
FontBoldHdg	Flag to make heading font bold. Default = Y
FontBoldTot	Flag to make total lines bold. Default = Y
FontBoldDet	Flag to make detail lines bold. Default = N
FontItalHdg	Flag to make heading font italic. Default = N
FontItalTot	Flag to make total lines italic. Default = N
FontItalDet	Flag to make detail lines italic. Default = N
TemplateExcel	The template used to generate Excel spreadsheets. Default = excel2003.xls
TemplateOOO	The template used to generate OpenOffice Calc spreadsheets. Default = html-3.2.html
TemplateWeb	The template used to generate web pages. Default = xhtml-1.0-strict.html
RPVDeleteAfter	Flag for the RPV viewer to delete the text file when exiting from the viewer. This saves manually deleting these files periodically. Default = Y
MinColWidth	This is the minimum column width that will be generated in pixels. This is a workaround for a bug in Open Office whereby html spreadsheets



will be incorrectly rendered if it encounters a column of 10 pixels or less. Default = 11

#### 6.9.4 Usage

In general, IA.REFORMAT can be used wherever you would normally use a LIST or SORT.

##### *Select lists*

Select lists are supported. That is, you can do:

```
SSELECT SALES WITH YEAR EQ "2007" BY MONTHNO
```

```
SPREAD SALES BREAK-ON MONTH "'VL'" TOTAL AMOUNT GRAND-TOTAL "2007'U'"  
HEADING "Sales summary for 2007'L'" ID-SUPP DET-SUPP
```

Note that use of select lists causes the creation of a temporary file, with selected item-id's being copied to this file. This file is sized at 307 frames in mvBASE and UniVerse. If you select a large number of items, this file has potential to become grossly overflowed.

Note also that if you break the program while it is running, this temporary file will not be cleaned up. In this case, you will need to manually delete these temporary files. These have filenames of: IAnnnnnnnn where n is a number.

##### *Headings and Footings*

Headings and footings may not come out as per a normal report. In particular, the use of the 'B' option in headings and footings in conjunction with a BREAK-ON clause is not supported.

Alternative formatting is also allowed for in headings and footings. This creates "zones" within the header/footer using the exclamation mark (!). Use this as follows:

```
HEADING "Left text!Middle text!Right text'L'Left text!Middle text!Right text"  
HEADING "!Middle text'L'!Right text"
```

#### 6.9.5 Templates

IA.REFORMAT has been re-written to use templates. This allows you to readily change the styles used in creating web pages or spreadsheets.

The templates are contained in the SYSCTRL.TEMPLATES folder in the SYSCTRL account. The IA.REFORMAT program will automatically create a Q-pointer to this file if it does not exist, allowing the templates to be edited from any account.

Substitutable tokens within the templates are surrounded by '%%' marks – e.g.:

```
%%fontfamilyhdg%%  
%%fontfamilydet%%
```

The values for these tokens are taken from the configuration file outlined earlier. Alternatively, you could hard-code any changes you wish to make into these templates.



If you wish to add further tokens, then you should also modify the SY.MAKE.HTML subroutine to handle the new tokens.

### 6.9.5 Limitations

This program has not been written to handle the BY-EXP keyword. It may work, but it hasn't been tested.

Beware the effect of font sizes in Windows. If your report has excessive white space and/or font sizes are too small, check the value of the WindowsFontDPI setting in the configuration file. See the Configuration section above for more information on this variable.

This program does not actually try to duplicate the query processor - it only “scrapes” the output from the query from the screen and attempts to put the scraped data into columns. This may lead to differences in output from what was intended in the query.

Beware the effect of “overflowed” columns. If the column widths you define in the file dictionary are too narrow, the query processor will overlap the data on output. This is more common on TOTAL lines than normal detail lines. Where data overlaps like this, you will not be certain as to the actual value of the overlapped data. As this program simply reformats what is shown on the screen, this program automatically inherits the problem of an overlapped data display. Check your report on screen using the SORT verb before using SSPREAD to make sure you don't have this problem.

The “overflowed” column issue is a particular problem in UniVerse. In normal query processing, the width of the column display is the greater of the width specified in the dictionary and the width of the column heading. However, when IA.REFORMAT executes the query, it does so using using the COL.HDR.SUP modifier. In UniVerse, this means that the output column width will be as specified in the dictionary – whereas in mvBASE, the output column width is still the greater of the dictionary width and the column heading width. Therefore, reports that appear fine under normal query processing may be incorrect using IA.REFORMAT because the dictionary column widths are too narrow for the displayed data. These columns are usually obvious because UniVerse wraps the excess data onto the next line – which is replicated in the output from IA.REFORMAT.

The program may slow down significantly as report size increases. The program displays its progress as it moves through the captured output, processing it into columns. Use this counter to determine the maximum size of report providing acceptable performance on your hardware. Use the MaxRows variable in the configuration file to allow users to abort the program if the report size is too large.

Spreadsheets created for Open Office are not as well formatted as those for Excel. This is partly due to use of XML within the Excel coding but not for Open Office, and partly due to the way that Open Office opens the spreadsheet. Using the default opening of the spreadsheet, Open Office ignores the column width settings. However, if you open the spreadsheet using the File | Open command and select the html filter from within the spreadsheet file types, then the spreadsheet will be correctly formatted. NOTE: Make sure that you set the SpreadsheetProgram variable within the configuration file to OOO.



## 6.10 SY.ACCOUNT.DUMP and SY.ACCOUNT.LOAD

These are a pair of utilities that allow you to transfer an account to a new name, or to a new system.

### 6.10.1 SY.ACCOUNT.DUMP

SY.ACCOUNT.DUMP creates two (or more) text files at the operating system level. One file contains the file descriptions, while the other(s) contains the account data.

You should be in the account that you wish to dump before running the program. The calling format is:

```
SY.ACCOUNT.DUMP
```

The program displays progress as files are dumped:

#### SY.ACCOUNT.DUMP

```
Dump QMINTR0 account to disk...
```

```
Processing dict BP
Processing data BP
Processing dict BP.BS
Processing data BP.BS
Processing dict CUSTOMERS
Processing data CUSTOMERS
Processing dict CUSTOMERS.NDX
Processing data CUSTOMERS.NDX
Processing dict FX.DAILY
Processing data FX.DAILY
Processing dict FX.MONTHLY
Processing data FX.MONTHLY
Processing dict INVOICES
Processing data INVOICES
Processing dict IRATES
Processing data IRATES
Processing dict QUERIES
Processing data QUERIES
Processing dict SLISTS
Processing data SLISTS
Processing data VOC
Processing dict XRATES
Processing data XRATES
```

```
23 files in QMINTR0 dumped to C:\Temp\QMINTR0.001
```

```
Files descriptions dumped to C:\Temp\QMINTR0.txt
```

The text file that is created describes the files in the account. This descriptive data is then used by SY.ACCOUNT.LOAD to recreate the files in a new account/environment. The text file that was created in the dump above is shown below:



```

Account=QMINTRO
Saved=01 Apr 2009 at 08:34am
MvDB=OPENQM
hostos=Windows
eol delim=CRLF
datafiles=001
dictdata BP dictcnt=1 dictsize=18 datacnt=3 datasize=578 datatype=directory
dictdata BP.BS dictcnt=1 dictsize=21 datacnt=0 datasize=0 datatype=directory
dictdata CUSTOMERS dictcnt=3 dictsize=91 datacnt=10 datasize=67 datatype=dynamic
dictdata CUSTOMERS.NDX dictcnt=3 dictsize=83 datacnt=1 datasize=20 datatype=dynamic
dictdata FX.DAILY dictcnt=15 dictsize=492 datacnt=1065 datasize=32222 datatype=dynamic
dictdata FX.MONTHLY dictcnt=16 dictsize=517 datacnt=35 datasize=1839 datatype=dynamic
dictdata INVOICES dictcnt=8 dictsize=277 datacnt=3 datasize=116 datatype=dynamic
dictdata IRATES dictcnt=17 dictsize=685 datacnt=269 datasize=10442 datatype=dynamic
dictdata QUERIES dictcnt=1 dictsize=23 datacnt=1 datasize=160 datatype=directory
dictdata SLISTS dictcnt=1 dictsize=22 datacnt=1 datasize=29 datatype=dynamic
dataonly VOC datacnt=663 datasize=16097 datatype=dynamic
dictdata XRATES dictcnt=25 dictsize=1516 datacnt=269 datasize=9407 datatype=dynamic

```

SY.ACCOUNT.DUMP skips over a number of files. These include:

- OpenQM: Files starting with '\$' or ending with '.OUT'
- UniVerse: Files starting with '&' or 'I\_' or ending with '.O'

Further, it selectively saves or modifies dictionary items as follows:

- mvBASE
  - Only 'A', 'S', 'I', or 'X' type dictionary items are saved.
  - 'D' type items are not saved, but the data portion represented by the 'D' item is saved.
  - Object code in the dictionary is not saved.
- OpenQM and UniVerse
  - All dictionary items are saved
  - 'I' and 'C' type items are truncated after the 8<sup>th</sup> attribute to remove any compiled code.

The principle behind this is that object code is not portable across systems. Therefore, SY.ACCOUNT.DUMP does not save object code, whether that is in the dictionaries, or in separate output files.

**Note:** This means that if you only have an application in object code form, this application will not be saved by SY.ACCOUNT.DUMP.

### 6.10.2 SY.ACCOUNT.LOAD

SY.ACCOUNT.LOAD loads the output from SY.ACCOUNT.DUMP into a new account. This account may be either on the same system, or in a totally different system. You should be able to transfer accounts between different multi-value platforms.

The calling format is:

```
SY.ACCOUNT.LOAD [path]filename [CLEAR | OVERWRITE]
```

filename refers to the name of the file created by SY.ACCOUNT.DUMP.  
The file extension may be omitted.

If path is not specified, then the SYSCTRL temp directory is assumed.



If the files already exist in the account, then CLEAR will clear all files in the description file before the data load commences. If OVERWRITE is specified, then existing items will be overwritten. If neither CLEAR nor OVERWRITE is specified, then existing items will not be overwritten.

**Note:** Accounts should be set up to use the SYSCTRL utilities BEFORE attempting to use SY.ACCOUNT.LOAD. Likewise, once you have logged to the new account, make sure that you run INIT.USER to initialise the SYSCTRL named common. Setting up the account for the AccuTerm host programs is desirable but not essential for the use of SY.ACCOUNT.LOAD.

Example usage is shown below:

**SY.ACCOUNT.LOAD QMINTRO**

Load data files into QMTEST

Creating file: BP

Creating file: BP.BS

Creating file: CUSTOMERS

Creating file: CUSTOMERS.NDX

Creating file: FX.DAILY

Creating file: FX.MONTHLY

Creating file: INVOICES

Creating file: IRATES

Creating file: QUERIES

Creating file: SLISTS

Creating file: XRATES

Processing data from C:\Temp\QMINTRO.001

Loading DICT,BP Item exists: @ID in DICT,BP

Loading BP

Loading DICT,BP.BS Item exists: @ID in DICT,BP.BS

Loading DICT,CUSTOMERS Item exists: @ID in DICT,CUSTOMERS

Loading CUSTOMERS

Loading DICT,CUSTOMERS.NDX Item exists: @ID in DICT,CUSTOMERS.NDX

Loading CUSTOMERS.NDX

Loading DICT,FX.DAILY Item exists: @ID in DICT,FX.DAILY

Loading FX.DAILY

Loading DICT,FX.MONTHLY Item exists: @ID in DICT,FX.MONTHLY

Loading FX.MONTHLY

Loading DICT,INVOICES Item exists: @ID in DICT,INVOICES

Loading INVOICES

Loading DICT,IRATES Item exists: @ID in DICT,IRATES

Loading IRATES

Loading DICT,QUERIES Item exists: @ID in DICT,QUERIES

Loading QUERIES

Loading DICT,SLISTS Item exists: @ID in DICT,SLISTS

Loading SLISTS

Loading VOC Item exists: SUIBP in VOC,VOC

Item exists: LISTPH in VOC,VOC





Item exists: LISTFR in VOC,VOC  
 Item exists: LISTF in VOC,VOC  
 Item exists: LISTV in VOC,VOC  
 Item exists: FTBP in VOC,VOC  
 Item exists: LISTR in VOC,VOC  
 Item exists: MD in VOC,VOC  
 Item exists: GUIBP.OUT in VOC,VOC  
 Item exists: QM.ACCOUNTS in VOC,VOC  
 Item exists: SYCTRL.SETTINGS in VOC,VOC  
 Item exists: LISTFL in VOC,VOC  
 Item exists: LISTQ in VOC,VOC  
 Item exists: SUIBP.OUT in VOC,VOC  
 Item exists: LISTK in VOC,VOC  
 Item exists: LISTS in VOC,VOC  
 Item exists: EDIT.LIST in VOC,VOC  
 Item exists: \$RELEASE in VOC,VOC  
 Item exists: FTBP.OUT in VOC,VOC  
 Item exists: LISTM in VOC,VOC  
 Item exists: LISTPA in VOC,VOC  
 Item exists: WHERE in VOC,VOC  
 Item exists: LISTPQ in VOC,VOC  
 Item exists: OBJBP in VOC,VOC  
 Item exists: OBJBP.OUT in VOC,VOC  
 Item exists: ACCUTERMCTRL in VOC,VOC  
 Item exists: GUIBP in VOC,VOC  
 Item exists: \$COMMAND.STACK in VOC,VOC

Loading DICT,XRATES Item exists: @ID in DICT,XRATES

SY.ACCOUNT.LOAD only loads the following item types into the VOC or MD: 'PA', 'PH', 'PQ', 'Q', and 'X'. If the system is OpenQM or UniVerse, then 'R' and 'S' type items will also be loaded.

## 6.11 VERSION

The VERSION program is catalogued only in the SYCTRL account and is used to check the version numbers and dates of the SYCTRL programs.

### VERSION

Version numbers of Sysctrl programs

Files in: BP	Version	Date
DISPLAY.COMMON	1.0.1	04 Aug 2008
REMOVE.SYCTRL	1.0.0	15 Dec 2008
SET.FLAVOUR	1.0.5	01 May 2008
SETUP.SYCTRL	1.1.1	15 Dec 2008
VERSION	1.0.2	31 Mar 2009

Files in: BP.SYCTRL	Version	Date
C.F	1.0.1	28 Mar 2009
DE3	1.1.1	13 Mar 2009
FILE-DUMP	1.1.1	06 May 2008
IA.REFORMAT	1.4.2	15 Jul 2008
IMPORT	1.1.2	28 Apr 2008
INIT.TERM	1.1.2	28 Mar 2009
INIT.USER	1.1.2	15 Mar 2009
SET.COLOUR	1.1.0	07 Jan 2008
SY.ACCOUNT.DUMP	1.0.1	29 Mar 2009
SY.ACCOUNT.LOAD	1.0.1	29 Mar 2009



SY.CHECK.TERMINAL	1.0.0	31 Jul 2008
SY.CONV.COLOUR.AT.MVB	1.0.0	09 May 2006
SY.CREATE.FILE	1.0.1	28 Mar 2009
SY.DATATYPE	1.0.0	08 Mar 2007
SY.EXCELDATE	1.0.0	08 Mar 2007
SY.GET.AT.COLOUR.NUM	1.0.1	12 Feb 2007
SY.GET.SETTING	1.0.0	20 Mar 2006
SY.IA.ANALYSE.STATEMENT	1.0.0	15 Jul 2008
SY.MAKE.HTML	1.0.1	15 Jul 2008
SY.READ.FROM.DOS	1.0.1	03 May 2008
SY.SET.COLOUR	1.1.0	07 Jan 2008
SY.SET.KEYS	1.1.1	09 Aug 2008
SY.SET.SETTING	1.0.0	20 Feb 2006
SY.WRITE.TO.DOS	1.0.5	03 May 2008
Files in: BPF.SYSCTRL	Version	Date
SY.DATATYPE	1.0.0	08 Mar 2007
SY.EXCELDATE	1.0.0	08 Mar 2007
SY.GET.SERVER.NAME	1.0.0	28 Mar 2008



## Appendix: Technical Notes

### SYSCTRLCOMMON

Variables are passed between the SYSCTRL programs using a named common. This is shown below:

```
COMMON /SYSCTRLCOMMON/ SysCtrl.MvDB,  
                        SysCtrl.ServerName,  
                        SysCtrl.ClientName,  
                        SysCtrl.Domain,  
                        SysCtrl.Terminal,  
                        SysCtrl.TermType,  
                        SysCtrl.ScrMode,  
                        SysCtrl.ServerTempDir,  
                        SysCtrl.TempDirShareName,  
                        SysCtrl.ClientTempDir,  
                        SysCtrl.SystemData,  
                        SysCtrl.UserData
```

This common is initialised by the INIT.USER program at logon. The contents of the common are shown below:

```
Sysctrl Common variables:  
SysCtrl.MvDB = UNIVERSE  
SysCtrl.ServerName = V2000  
SysCtrl.ClientName = BSS  
SysCtrl.Domain =  
SysCtrl.Terminal = ACCUTERM  
SysCtrl.TermType = VT220  
SysCtrl.ScrMode = NORMAL  
SysCtrl.ServerTempDir = C:\Temp\  
SysCtrl.TempDirShareName = V2000Temp  
SysCtrl.ClientTempDir = C:\Temp\  

```

Particular points to note about the format of these elements in the common:

The MvDB, Terminal, and ScrMode properties are all stored in upper case.

The ServerTempDir and ClientTempDir paths are terminated in a '\ ' character.

The final two items in this common (not shown in the contents listing) are the entire contents of the SYSTEM item, and the entire contents of the user item. This means that other programs do not need to re-read these items as they are already available via the named common.

To use the named common, the following two INCLUDE's should be placed in the program source code:

```
$INCLUDE BP.SYSCTRL SYSCTRLCOMMON.H  
$INCLUDE BP.SYSCTRL CHECKCOMMON.H
```

The first INCLUDE is the common definition as shown above. The second include makes a quick check to ensure that the common has been initialised (i.e. that INIT.USER has been run).



## Getting and Setting Control Data

Once the SysCtrl common block has been included in a program, its variables can be accessed (or changed) in the usual way:

```
CRT SysCtrl.TermType
```

However, not all of the control information is stored in one of the SysCtrl property variables. For example, the standard colours have not been included in the common block. However, the last two elements of the common block (SysCtrl.SystemData and SysCtrl.UserData) will contain these other settings.

The SysCtrl account contains two subroutines to access and update these settings. The following example shows how to extract the colours setting from the control data:

```
Identifier = 'Colours'  
CALL SR.GET.SETTING(SysCtrl.UserData, Identifier, Colours, Found)  
Colours = OCONV(Colours, 'MCU')
```

The first element passed to the subroutine is the entire control variable. This could be either the system control variable or the user control variable. The example shows the user control variable being passed.

The second element is the setting identifier. This is a string variable, which is case insensitive.

The third element is the return variable. If the identifier is not found, this will return as an empty string.

The fourth element is boolean variable indicating whether the setting was found.

NOTE: Just because a setting is found does not mean the return variable contains any data! For example, the system control variable shown on Page 8 of this document shows that the DOMAIN setting exists in the control item but has no value. In this case, the SR.GET.SETTING subroutine will return Found as true, but the return variable will be an empty string.

Updating the control variables uses a similar procedure to getting control data:

```
Identifier = 'Colours'  
Colours = 'Darkblue,White'  
CALL SR.SET.SETTING(SysCtrl.UserData, Identifier, Colours, Found)
```

If the identifier exists in the control item, Found will return as True. If the identifier does not exist in the control item, the identifier=setting string will be added to the control item and Found will return as False.

NOTE: This update of the system settings will only affect the copy of the system settings held in the SysCtrl common block. To make these changes permanent, you will need to write the updated user settings to the SYSCTRL.SETTINGS file (or the dictionary of the file for system settings).



## **Version History**

### **Version 1.10**

Program IA.REFORMAT broken into smaller modules.  
Output from IA.REFORMAT now based on templates stored in SYSCTRL.TEMPLATES.  
Subroutines renamed to use 'SY' prefix rather than 'SR'.  
Functions in UVF.SYSCTRL folder moved to folder BPF.SYSCTRL.  
Addition of C.F, SY.ACCOUNT.DUMP, and SY.ACCOUNT.LOAD programs.  
Addition of SY.CREATE.FILE subroutine.

### **Version 1.02**

Most programs updated to work with the GPL version of OpenQM on Linux as the mv host, and AccuTerm on Windows as the client  
Path testing updated in INIT.USER  
FILE-DUMP and IMPORT updated to handle mv files using shared dictionaries

### **Version 1.01**

Bug fix in DE3 editor for mvBASE – would not create a new item  
Destination file allowed as an optional argument for the IMPORT program  
Improved handling of large items in IMPORT program  
FILE-DUMP and IMPORT updated to handle file dictionaries  
Changes to screen sizes for current session added to INIT.TERM program

### **Version 1.00**

Initial release



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