U2 SystemBuilder Extensible Architecture

Issue Replication System

Tech Note SBXA-8205

Contents

What is the Issue Replication System and why do we have it?

The Issue Replication System is a SystemBuilder application designed to assist in replicating and packaging issues. They can then be passed quickly through the life cycle of an issue with increased ease and a minimum opportunity for misunderstanding and mistakes.

Issue Life Cycle

- Issue Reported (Internal or External)
    - Replication case created by support engineer or customer
- Issue qualified by ATS
    - Replication case validated
    - Assigned to Engineer
    - Planned Release and Priority are set
- Engineer Resolves Issue
    - Engineer reviews issue details and replication case
    - Engineer codes appropriate resolution
- Engineer assigns case to QA and changes status to “Checked In”
- A build is created and the status is changed to “Resolved”
- QA group test resolution against replication case and close the case.

Why do we need a system for replicating test cases?

- It saves time
- It reduces the risk of misunderstanding at each step of the issue life cycle
- In the past, one resource covered several steps in the issue life cycle
    - With new QA resources this will change
- It provides us with the building blocks for an automated test suite in the future

Who can use the Issue Replication System and why should they use it?

Anyone can use the system. This includes support engineers and customers.

Support engineers must provide an electronic replication case whenever it is possible to do so. Otherwise, the issue may be returned to them, asking for the replication case.

There are cases where it is not possible to provide an electronic test case.

Example: GUI Buttons do not appear in /PD.I process when run on a PC using Windows 7

In cases such as this, the Rocket Track issues must contain clear STEP by STEP instructions on how to reproduce the issue. However, if it is possible to create a replication case, one must be created.

What Versions will the Issue Replication System run against?

You can install and use the Issue Replication System on most versions of SB+ or SB/XA.
The key is that you regenerate expressions when you load the system and whenever you load a revision control for a test case.

Development is done on the latest version of SB/XA.
Version 1.0.5 of the Issue Replication System was generated from SB/XA 6.1.3

Does it matter what user interface I am using; Character, GUI, or XUI?

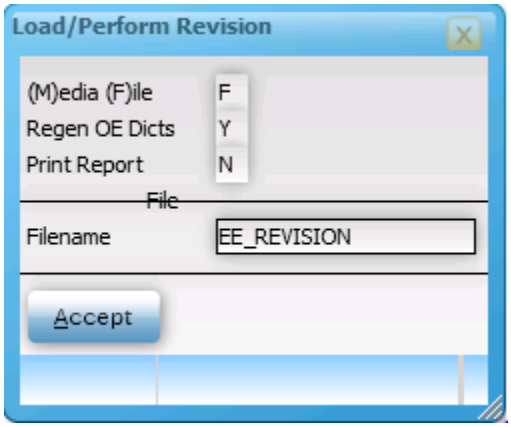
No, SB/XA applications can be run in any of the three user interfaces and the functions of the Issue Replication System will work in each of them.

How do I set up the Issue Replication System on a machine?

The Issue Replication System is provided as an SB/XA revision control for each platform.

Turn on LONGNAMES before loading the revision control.

1. Create the System Id EE in a new or existing SB Account.
2. Create a pointer to the directory containing the unzipped/uncompressed revision control files.
3. Load the revision control through the SB/XA process /REV.LOAD



In the above example, the file pointer created in step 2 is EE_REVISION. The revision will be loaded from EE_REVISION. You should answer 'Y' to **Regen OE Dicts**.

1. Log off and then log back on to refresh the main menu and the Issue Replication System will be ready to use.

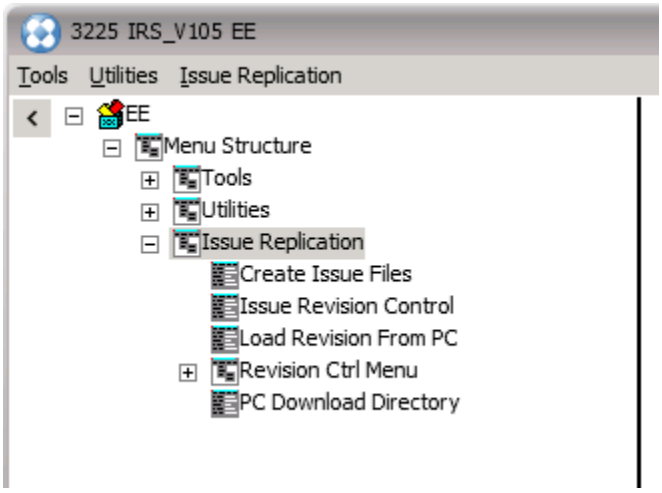
Using the Issue Replication System

The system provides three main functions:

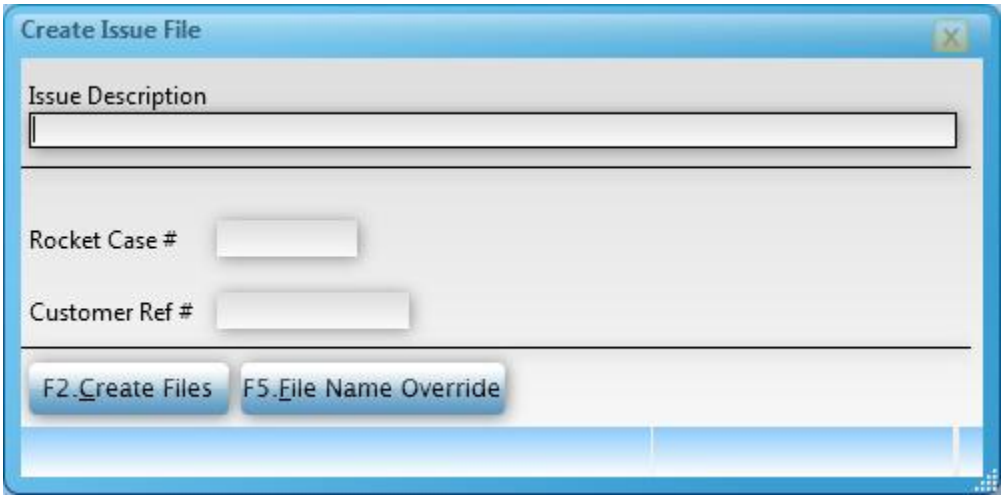
1. Creates a file with field definitions to assist in creating a test case.
2. Generates a revision control using the starting process for the test case.
3. Downloads the revision control file to your PC so that you can zip it up and attach it to the RocketTrack case.

The Issue Replication menu provides access to the main revision control menu and an option to change the default download directory used when transferring a revision control to your PC.

Issue Replication Menu



Create Issue Files



Issue Description

Enter a brief summary of the issue, preferably the one used in the RT Issue Description.

Rocket Case

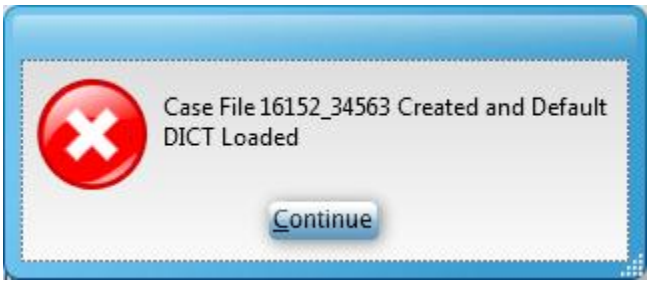
Enter the case number provided by Rocket for this issue, this will usually be in the format SBXA-nnnn.

Customer Ref

Enter either the case number provided by the customer, or the Rocket Case number as above.

Create Files (F2)

A message similar to the one below displays:



The current date and time are concatenated to generate the name used to create the following:

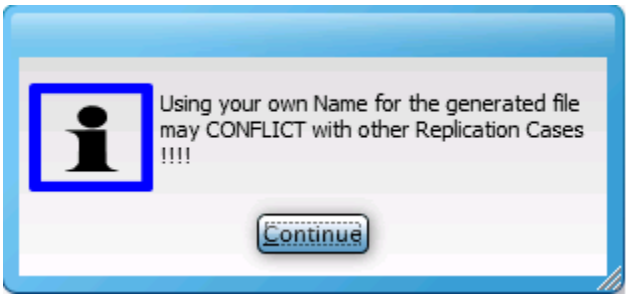
- A local File with default fields to help in creating a test case.
  File Name [Internal Date: _ : Internal Time] or [File Name Override]

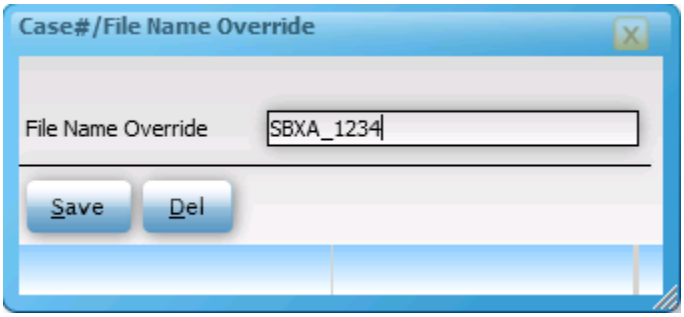
- A Directory type file under the local directory 'ECASE_REV_FILE'.
  This file will be used to store revision control information

File Name 'REV_' : [Internal Date: _ : Internal Time] or [File Name Override]
Eg. REV_E12911 will result in the following directory ECASE_REV_FILE\REV_E12911

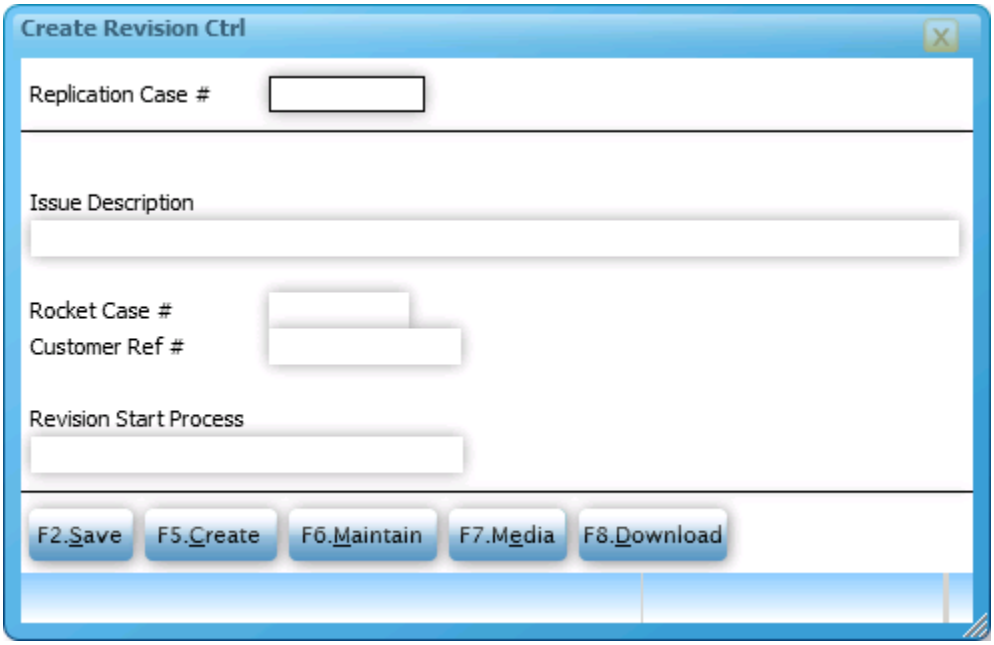
File Name Override (F5)

Use this option if you want to name the local file manually rather than accept the default generated key. Ensure that the file name chosen is unique. This will prevent conflicts with other replication cases.
A warning displays:





Issue Revision Control



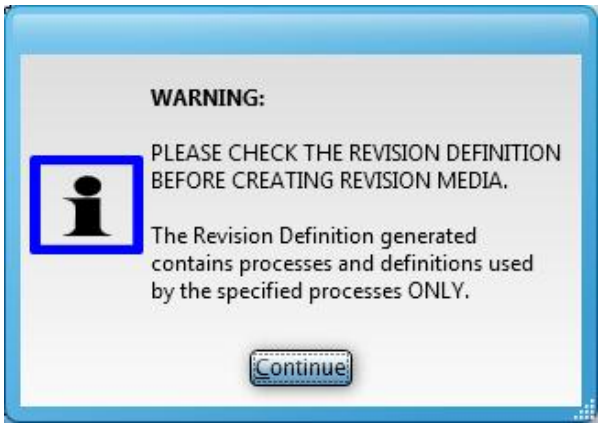
When the test case and all of the required elements have been created, the next step is to create a revision control so that the test case can be easily ported to other systems.

1. Enter the Replication Case # and populates the first three input fields.
2. Enter the Revision Start Process used to initiate the test case and save the record.
3. Reopen the Replication Case # and choose from the following options:

Save (F2) Updates the revision control record in the ECASE_CTRL file with the start process for the test case.

Create (F5) Generates a Revision Definition by exploding the start process and including all of the definitions required to run the test case.

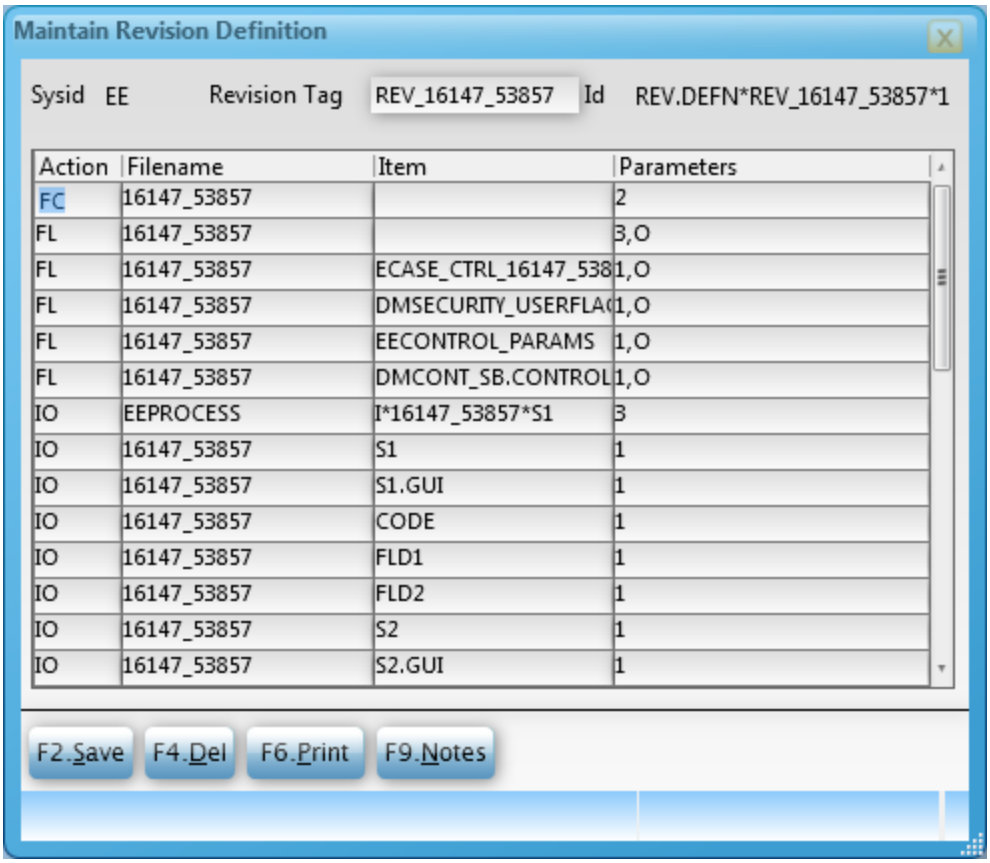
The generated Revision Definition is stored in the EEDEFN file with the key 'REV_':Replication Case #



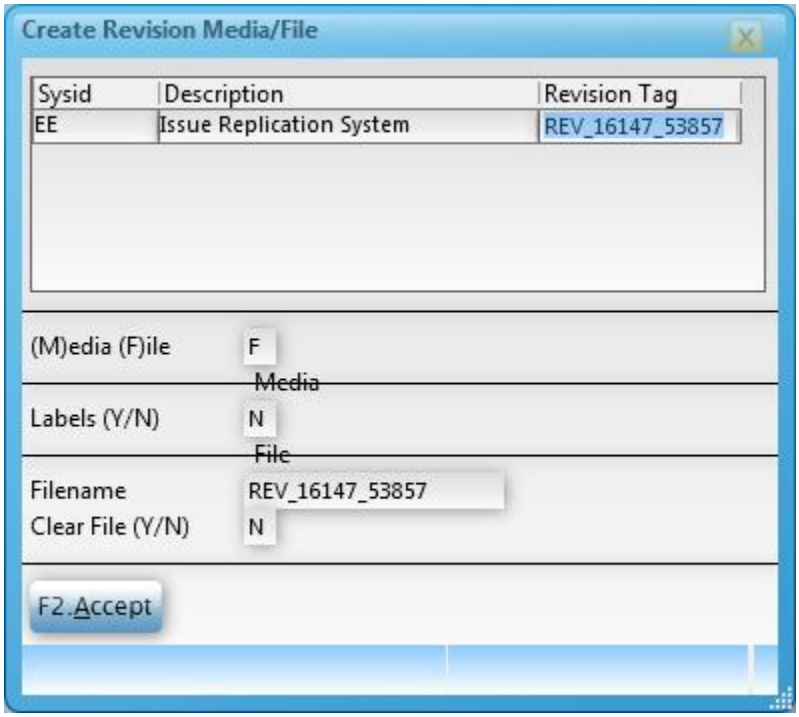
The following adjustments are made to the default SB generated definition:

- Any Dictionary item that does not exist is removed from the Revision Definition. This particularly relates to .TXT records for screens that are included in the Revision control but do not actually exist. If you need a .TXT record to be included, you must add it back to the Revision Definition manually.
- A File Create (FC) is included for any file that loads DICT items.
- A File Load (FL) is included for any file that loads DICT items.
- The following menu definitions are restricted from inclusion to protect menus when another person loads the revision definition:
  MAINMENU, MAINTMENU, REPORTMENU, INQUIRYMENU, TRANMENU, UPDATEMENU

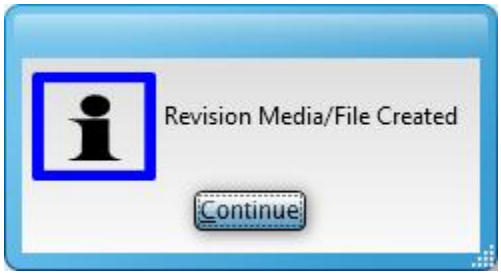
Maintain (F6) Opens the **Maintain Revision Definition** screen to make manual adjustments to the revision definition for this test case.


Maintain Revision Definition
Sysid EE
Revision Tag REV_16147_53857
Id REV.DEFN*REV_16147_53857*1
Action Filename Item Parameters
FC 16147_53857 2
FL 16147_53857 3,O
FL 16147_53857 ECASE_CTRL_16147_538 1,O
FL 16147_53857 DMSECURITY_USERFLA 1,O
FL 16147_53857 EECONTROL_PARAMS 1,O
FL 16147_53857 DMCONT_SB.CONTROL 1,O
IO EEPROCESS I*16147_53857*S1 3
IO 16147_53857 S1 1
IO 16147_53857 S1.GUI 1
IO 16147_53857 CODE 1
IO 16147_53857 FLD1 1
IO 16147_53857 FLD2 1
IO 16147_53857 S2 1
IO 16147_53857 S2.GUI 1
F2.Save
F4.Del
F6.Print
F9.Notes

Media (F7) Opens the **Create Revision Media/File** screen. All fields are automatically populated.



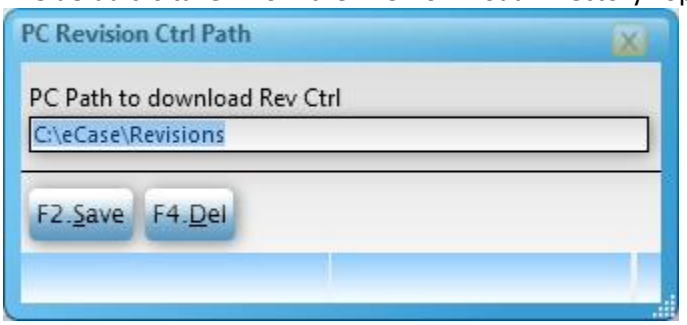
Accept this screen to process the revision definition and populate the generated directory type file for this test case.



Download (F8)

Downloads the revision control file to a folder on your PC so that it can be zipped and attached to the RocketTrack issue.

1. Enter the location on your PC where the revision control files should be placed.
   The default is taken from the "PC Download Directory" option on the Issue Replication Menu.



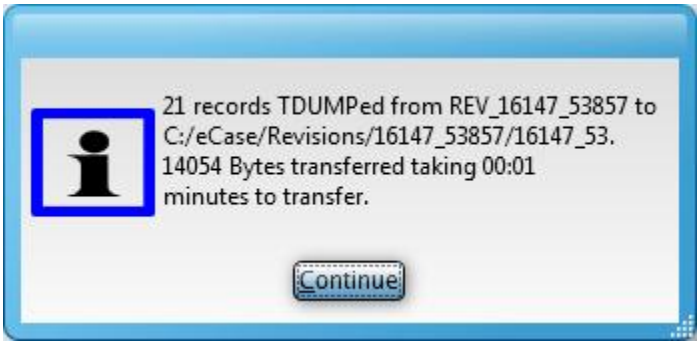
2. Enter the path where you would like the revision control files to be downloaded.

   Select F3 to display a Windows directory search window.

   Select F2 to start the download.

3. A message containing the full path to the download directory displays. This path will contain one additional element from the one entered for the download process and will end with a directory named [Internal Date: _ : Internal Time] or [File Name Override].

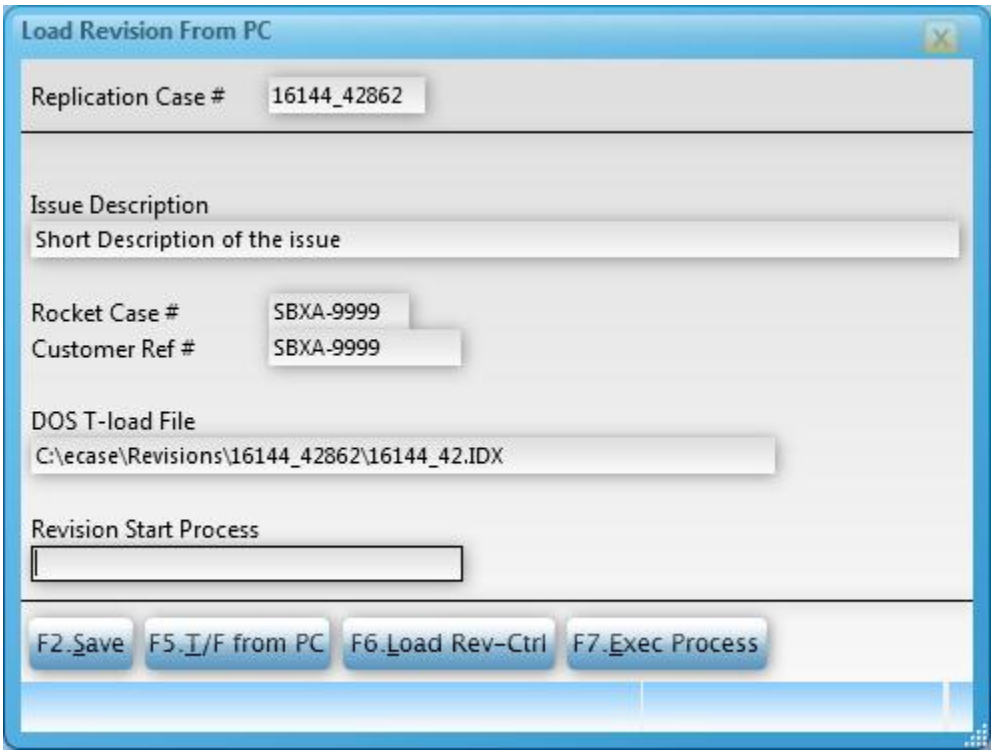
The filenames will be truncated to just 8 characters.



Load Revision from PC

Select this option on the target system for this test case, to perform the following functions:

- Transfer the revision control file from the PC.
- Install processes and definitions contained within the revision control file.
- Execute the test case if the Revision Start Process is provided.



Replication Case

Enter the reference for the RocketTrack case.

Issue Description

Enter a brief description of what the issue is – this should tie in with the RT Issues short description.

Rocket Case

Enter the case number provided by Rocket for this case, this will usually be in the format SBXA-nnnn.

Customer Ref

Enter either the case number provided by the customer, or the Rocket Case number as shown above.

Revision Start Process

Enter the process which launches the test case if you want to be able to run the test case from this screen.

T/F from PC (F5)

Performs DOS.TLOAD to load the revision control file into a file on the server.

The name of the file the revision control is loaded into is:

'REV_': [Internal Date: _ : Internal Time] or [File Name Override]

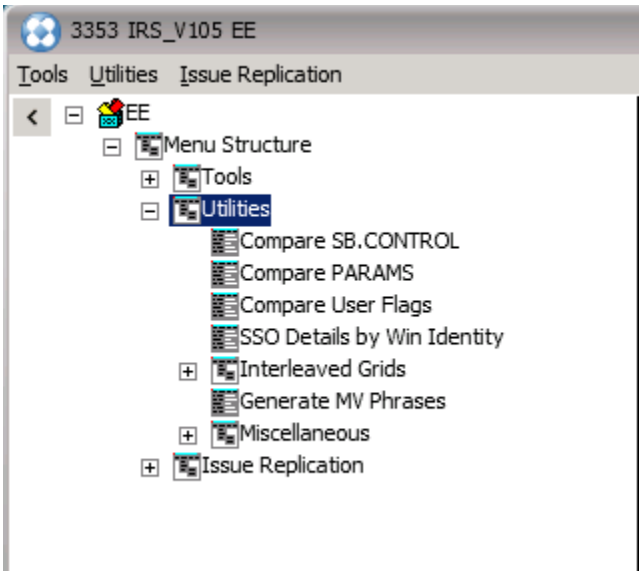
Load Rev-Ctrl (F6)

Performs the revision. Processes and definitions are installed from the revision control file into the target account.

Exec Process (F7)

Executes the test case if the Revision Start Process has been provided.

Utilities Menu

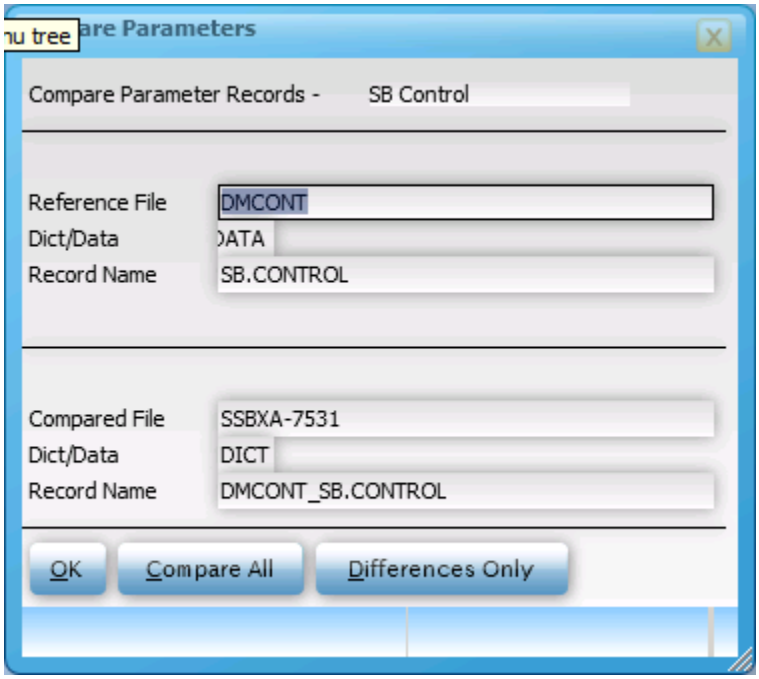


The Utilities menu contains utilities to help SB developers when implementing SB/XA and reporting issues to Rocket Support.

The first three options make comparisons of system settings between the test case source and target machines. Identifying differences between the two may prove helpful in identifying the source of an issue.

Compare SB.CONTROL

Many behaviors of SB+ are preferences stored in the SB.CONTROL records. The parameters are set to standard default values when the product is shipped. The system administrator can change the value of most parameters by entering information in the **SB+ Control Parameters screen.** (Admin > SB+ Setup > SB+ Control Parameters).



Reference File / Record

You can use this screen to compare any two SB.CONTROL records stored in whatever file you choose. However, there are update processes that will only function if the Reference File / Record points to the actual SB Control record for the system (DMCONT, SB.CONTROL).

Compared File / Record

The compared file is the file loaded from elsewhere, i.e. the name of the revision control file, and is either the default DATE:TIME or the case id, i.e. SBXA-nnnn. The item will normally be in the DICT and the record name will be DMCONT_SB.CONTROL.

Compare All (F5)

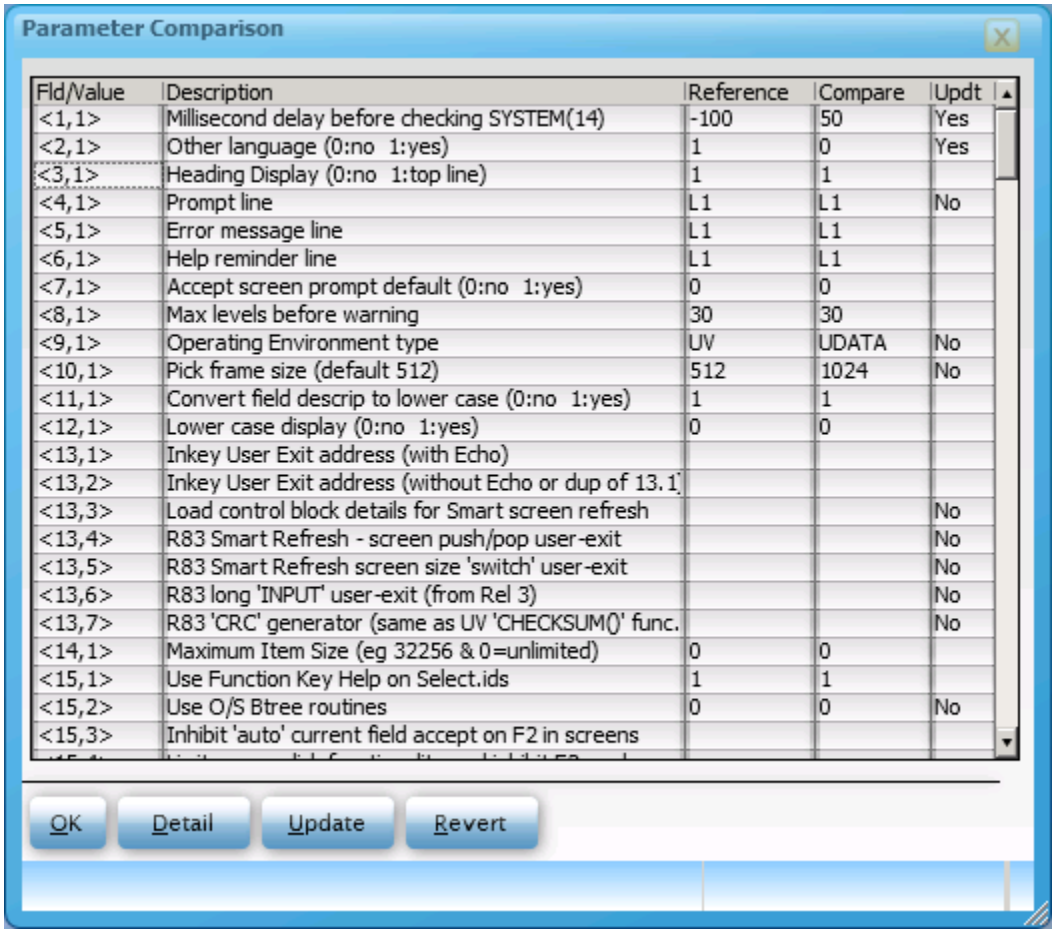
Lists every value in each record, side by side. From here, you can select **Detail (F5)** to display the same information on a larger screen, which is useful when pathnames/filenames cannot be displayed due to width restrictions on the **Compare All** screen.

Difference Only (F6)

Values that are the same in both files are not displayed, making it easier to see the differences. Detail, Update, and Revert are available here also.

Comparing parameters

When you select the **Compare All (F5)** option, it option lists every value in each record, side by side. From here you can select **Detail (F5)** to display the same information on a larger screen. This is useful when pathnames/filenames cannot be displayed due to width restrictions on the **Compare All** screen.



Updt column

The Updt column enables updates of the Reference record from the Compare record.

Simply enter a "**Y**" for the rows that you want updated.

Certain fields will display an error and revert back to No. These are fields that can cause significant damage to the current system if changed.

Update (F6)

This option performs the following tasks when fields are marked for update:

- Checks that the user is in the ROOT group. If they are not, then it exits.
- Confirms twice that the user really wants to complete the update.
- Reads in the Reference file that contain the current system parameters in use by the Issue Replication System.
- Reads in the Comparison file parameters that are imported from another system.
- Checks that a safe copy of the current parameters (EECONTROL ROCKET_DMCONT_SB.CONTROL) exists. If not, it makes a copy from the version currently in use.
- Checks EECONTROL DMCONT_SB.CONTROL_ORIGINAL exists. If not, then the process will exit and tell the user this item needs to be created before updating.
- Checks that the current parameters in use are the same as those in DMCONT_SB.CONTROL_ORIGINAL. If they are not, then it will display the attributes that are different and exit.
- Checks for differences between the reference and comparison items, and updates the current parameters in use with those that were imported.

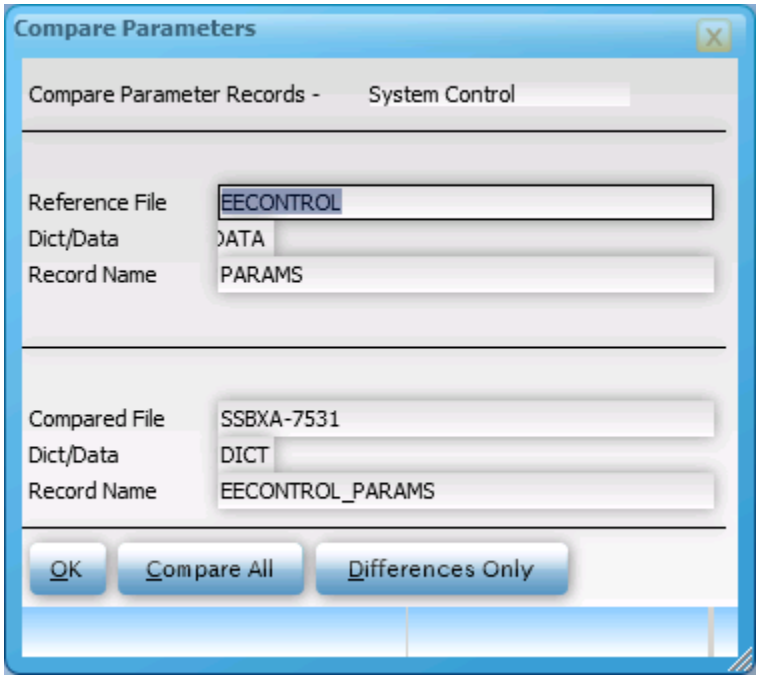
Revert (F7)

The Revert process should be run to restore the previous parameters in use by the Issue Replication System, which is currently stored in EECONTROL DMCONT_SB.CONTROL_ORIGINAL.

If differences are found between the current and original parameters, then the process will warn the user that someone else may be making changes currently and check that they want to continue. If the user confirms that they do want to continue, then the current parameters will be reverted to those stored in DMCONT_SB.CONTROL_ORIGINAL and details of the user and the date will be written to the audit item EECONTROL REVERT.LOG.

Compare PARAMS

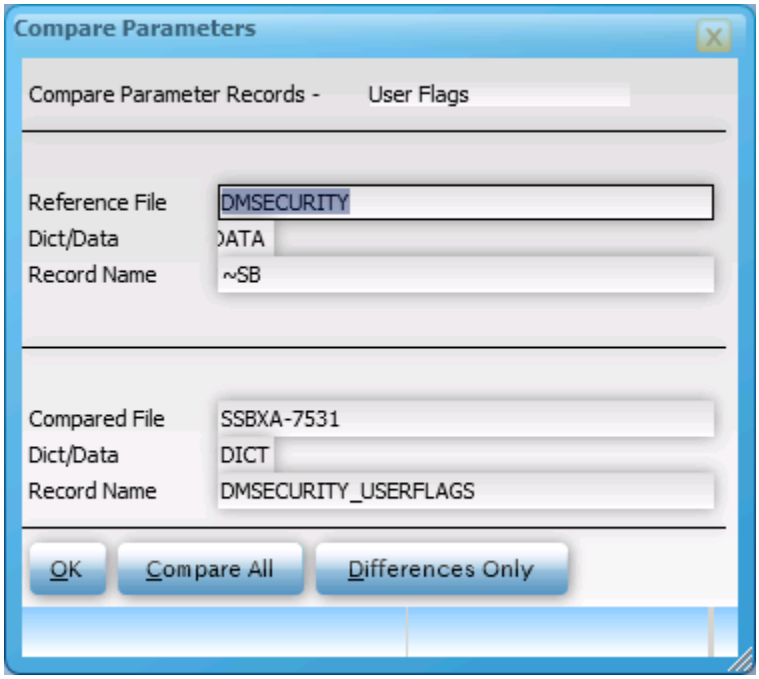
This option compares the System Control Record parameters specific to the system where the test case was created. The System Control Record is maintained in **Tools > Other Tools / Utilities > House Keeping > System Control Record**.



Enter the Reference File / Record Name for your current system and the Compared File / Record Name for the System Control Record in your imported revision control file. See Compare SB.CONTROL for comparison functions.

Compare User Flags

This option compares user flags specific to the user who created the test case. User flags are maintained in **Security > User Security Setup**.

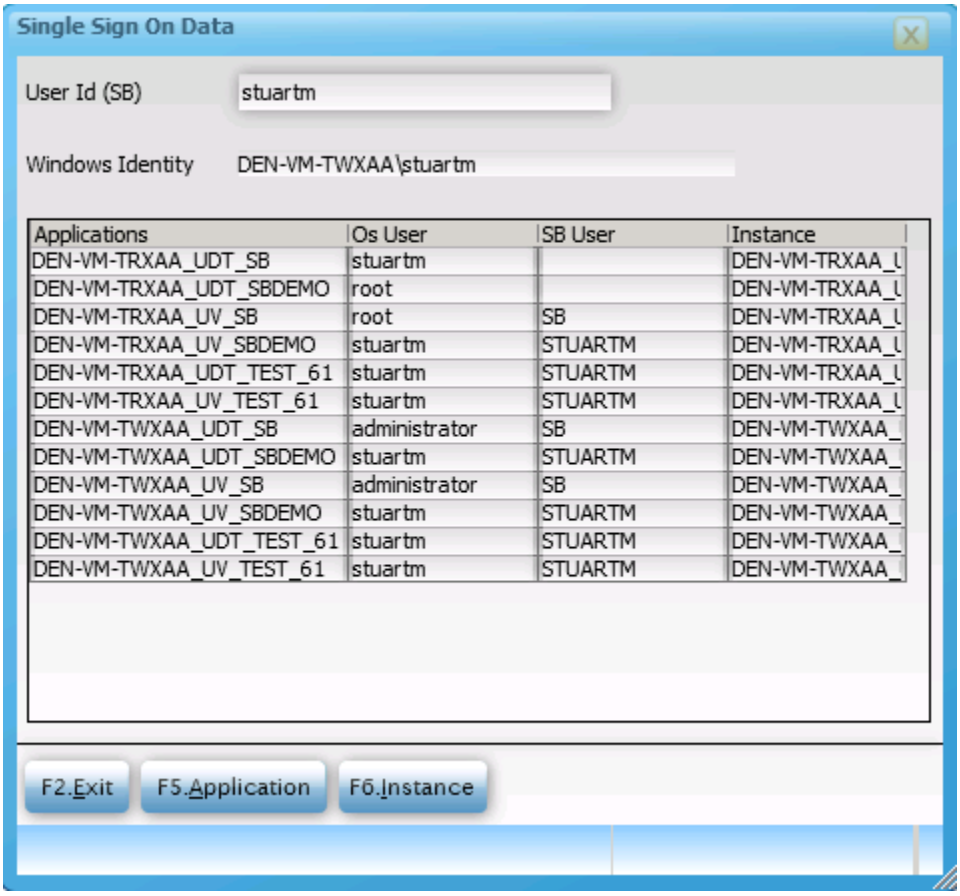


Enter the Reference File / Record Name for the user on the current system who will perform the test case and the Compared File / Record Name for the user flags in your imported revision control file.

The function keys perform as they do for SB.CONTROL and PARAMS except that the Update and Revert processes cannot be run here. If they are selected, then an error message to this effect will be displayed.

SSO Details by Win Identity

This utility displays Single Sign-on information for a specific SB user.



User Id F3 to select an SB user.

Windows Identity The windows logon in use, display only. This is derived from the Single Sign-on information stored in the user's DMSECURITY record.

Applications List of Applications defined for this sser. This isderived from the Single Sign-On information stored in the user's DMSECURITY record.

Application (F5)

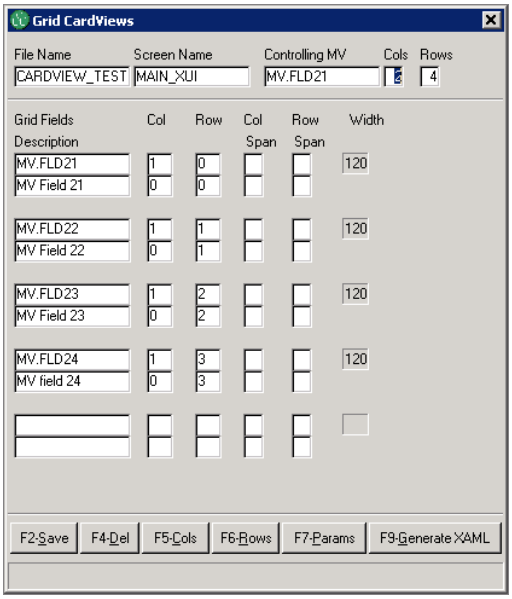
Drills down into the Application Setup screen for the selected application.

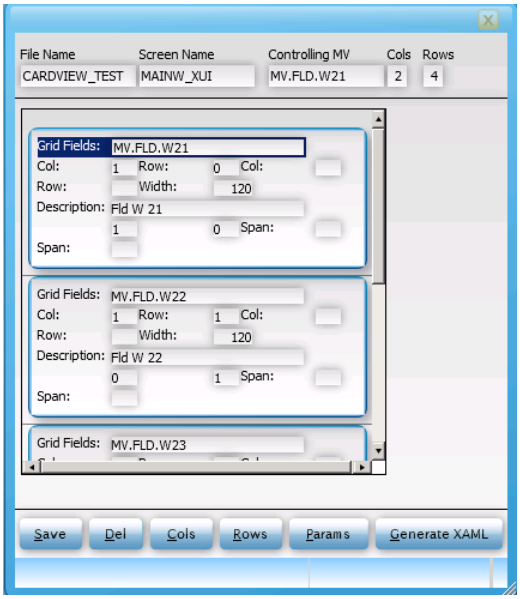
Instance (F6)

Drills Down in to the SBInstance Setup screen for the selected application.

Interleaved Grids Menu

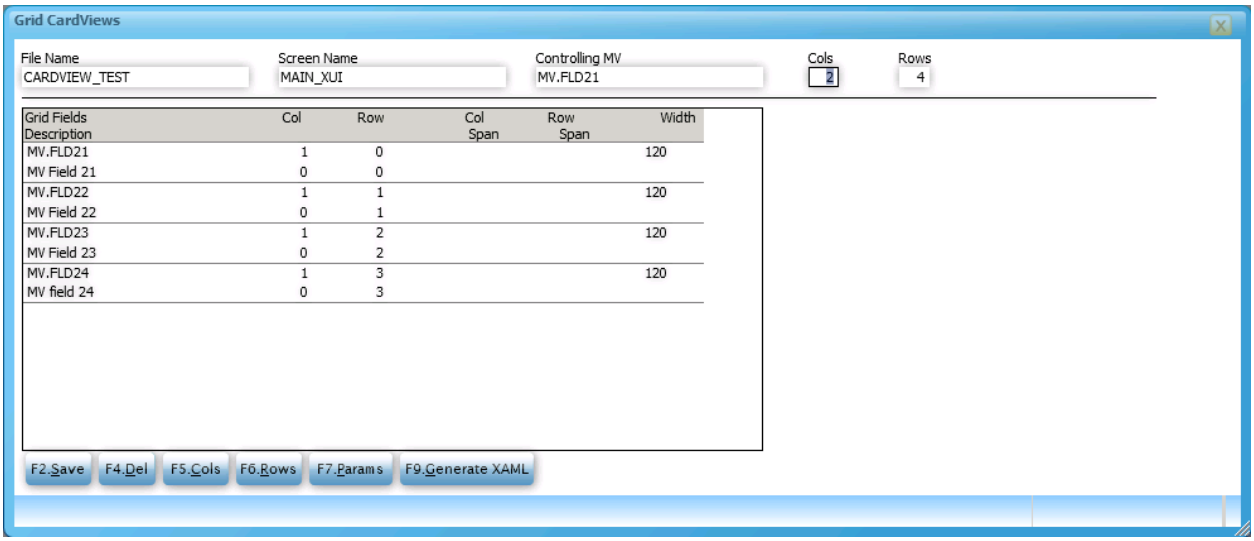
Examples of an Interleaved Grid:



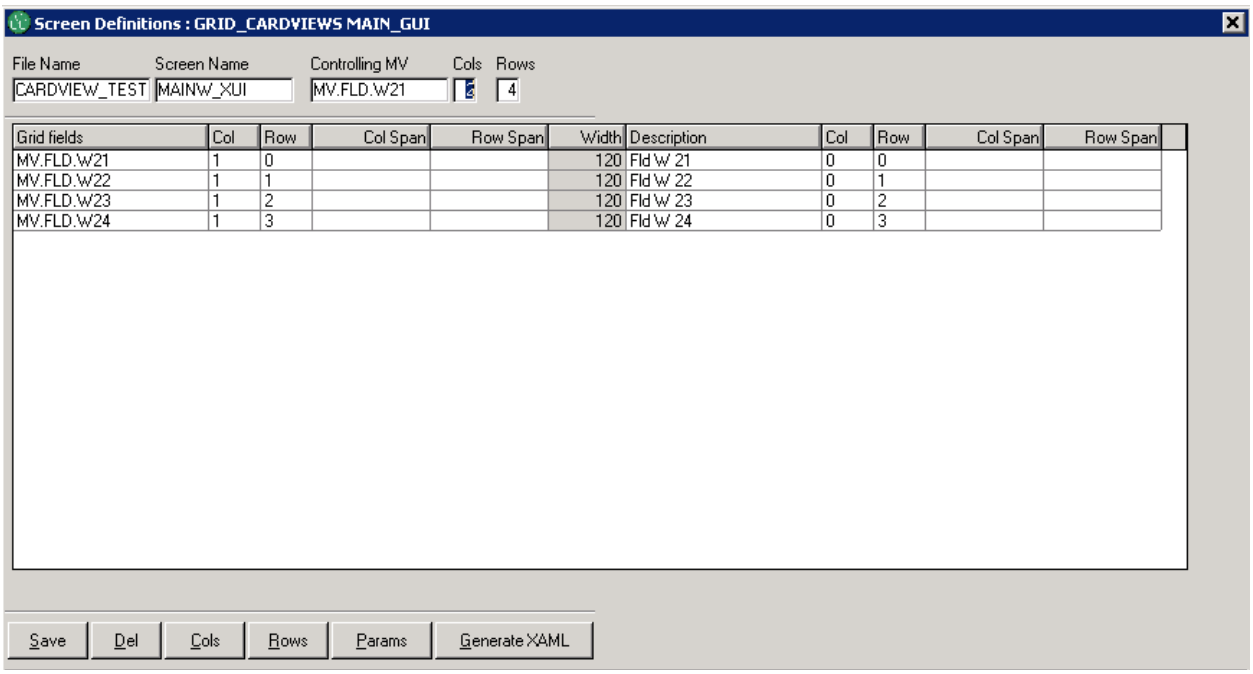


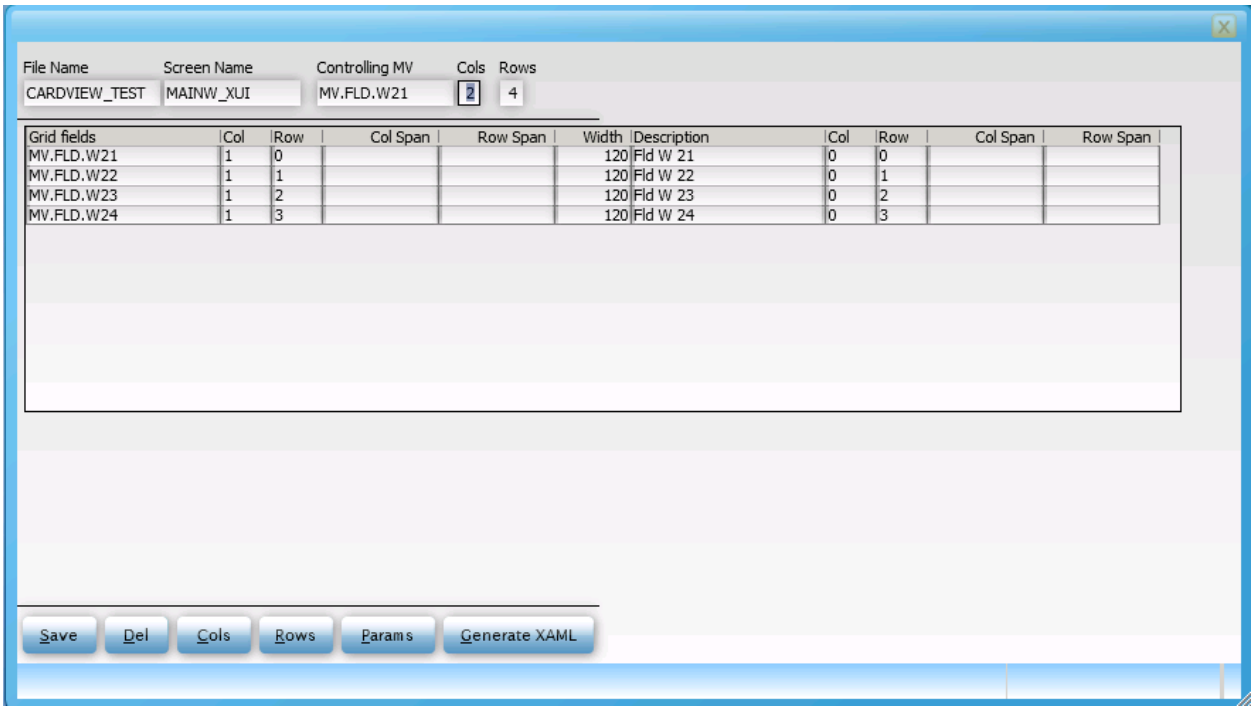
By default, this will convert to a Card View containing a wrap panel, which simply displays each field in order, wrapping as required.

One alternative is to convert the screen to XUI from the character definition resulting in the screen display below.



You can also redesign your GUI form to use a grid. This results in a more accurate conversion to XUI, but requires the form to be much wider, as shown below:

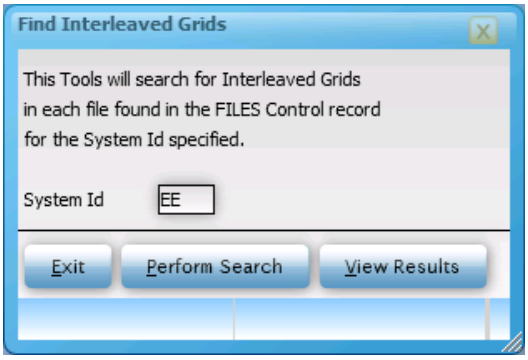




A third option is to create your own XAML style to define your CardView to appear as you would like.

Whichever approach you decide to take, the first step is to identify the screens that require additional work. These are usually screens that contain interleaved grids.

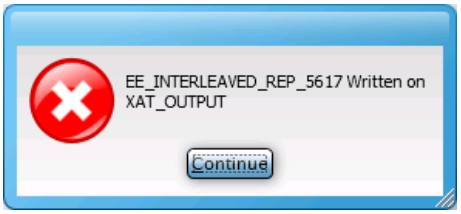
Locate Interleaved Grids



A tool designed to search for and display any Interleaved Grids can be found in the xxFILES Control record for the specified system ID. This can be used to determine the grids that span multiple lines with dependent multivalues, and that may need additional work before they can be used in XUI.

Perform Search (F5)

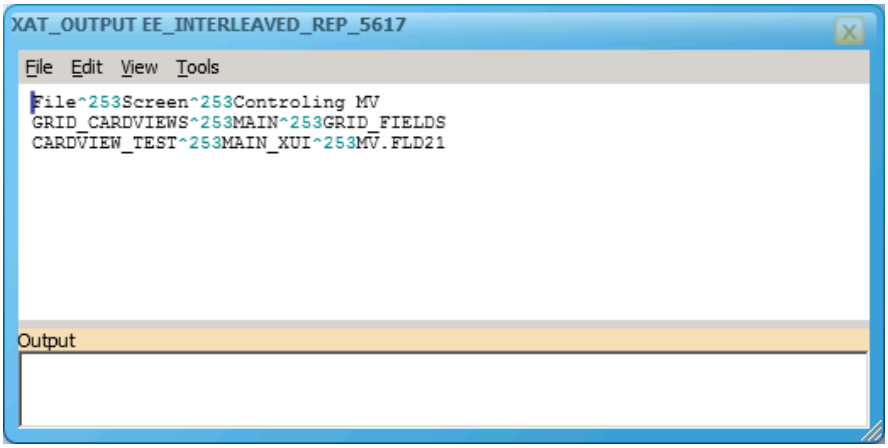
Enter the system ID and hit F5 and you will get the following message stating that the record ID has been written to XAT_OUTPUT:



The record can easily be imported into an Excel spread sheet using value marks to delimit the columns.

View Results (F6)

Displays the contents of the record that has been written by the search process. This will be in the format File/Screen/Controlling MV.

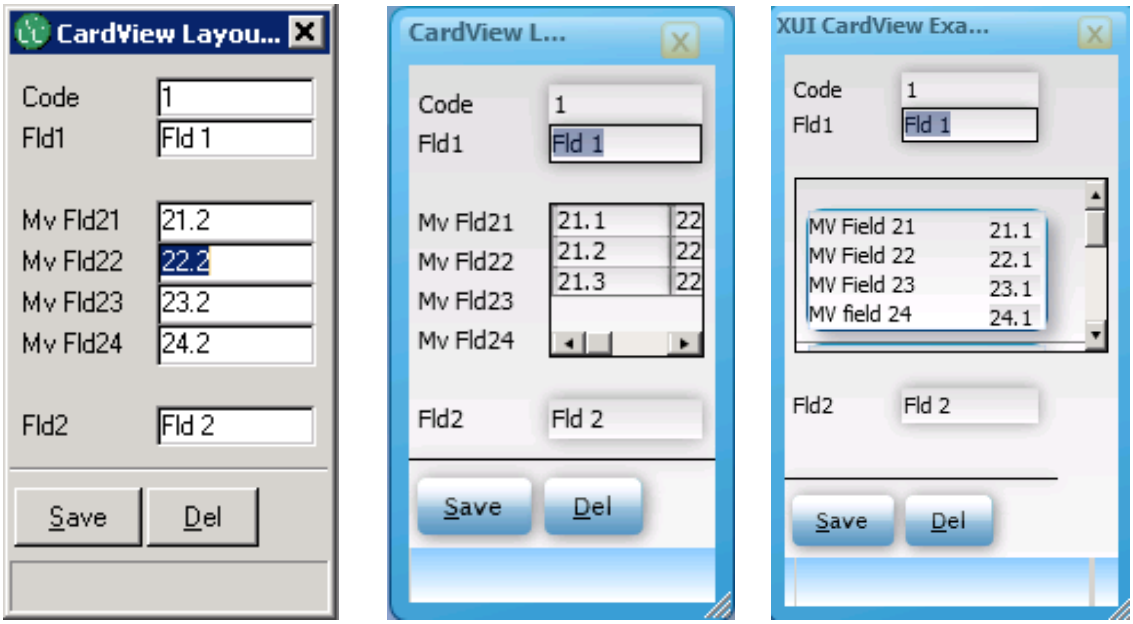


Generate CardView Style

This tool generates a XAML CardView Style based on multivalue tables in existing forms, combined with values you enter in this screen.

Before we describe this tool, let's take a look at an example:

GUI Form **XUI Grid** **XUI Card View**



MV Fld 21 is the controlling MV, and MV Fld 22-24 are dependent fields.

GUI Form

The GUI form does not use a grid. It has the fields arranged on separate lines that display the next MV set of data when you press Enter on MV Fld24.

XUI Grid

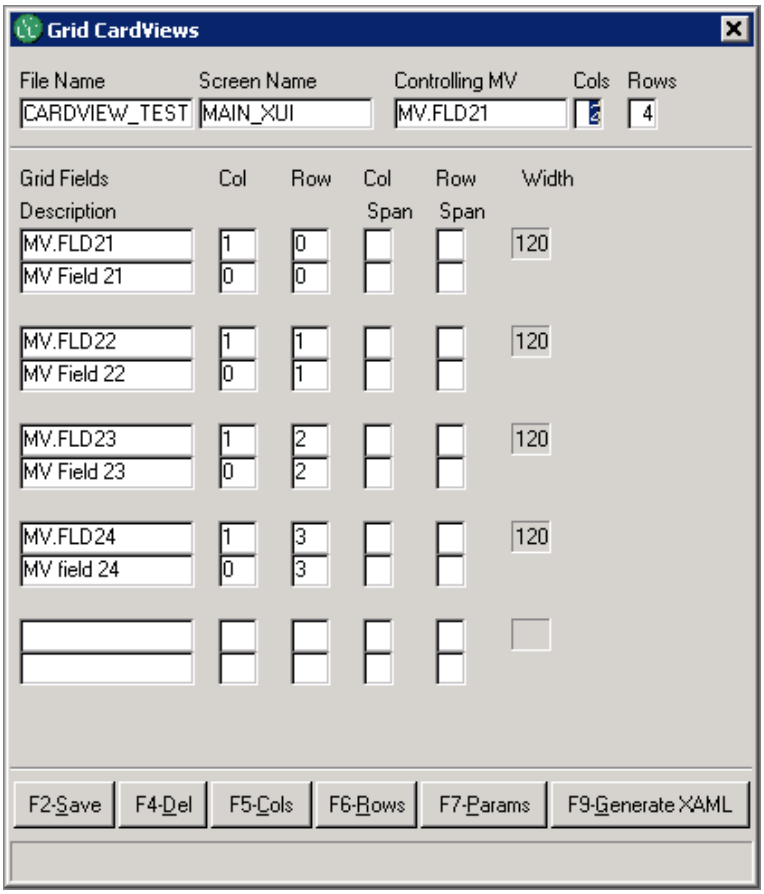
By default, this appears in XUI as a grid without column headings. The labels still appear beside the grid but do not line up with the data. Notice that the grid has a horizontal scroll bar that allows you to scroll across from field to field.

XUI Card View

The XAML Style creates a CardView that is closer in appearance to the non-grid behaviour in the GUI form.

Before using this option to generate a XAML Style, it is important to make a XUI copy of the form you will be working on. This is important as you will need to remove labels for the MV fields in the form painter and define them using the tool below.

The basic premise of this tool is that you are defining a grid to be used for the Card View



File Name

Enter the name of the file containing the form you want to work with.

Screen Name

Enter the name of the screen containing the MV table you want to style. Remember that you need to work with a copy of the form.

Controlling MV

Enter the same of the Controlling MV field for the MV table you want to style. The Grid Fields will be populated once this field is completed.

Cols

Define the number of columns will you need for your cardview layout grid.

Rows

Define the number of rows will you need for your cardview layout grid.

Grid Fields

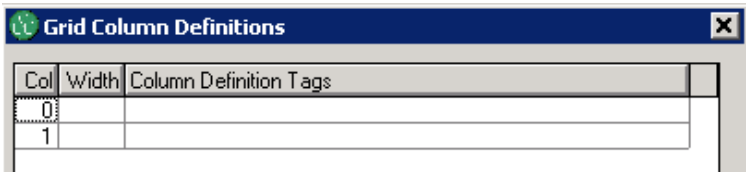
The first row of fields defines where the Input or Display field is placed in the Grid:

Col	Enter the Grid Column for this field (Numbering begins at 0)
Row	Enter the Row the field will be placed in (Numbering begins at 0)
Col Span	The number of columns to span
Row Span	The number of rows to Span

Description

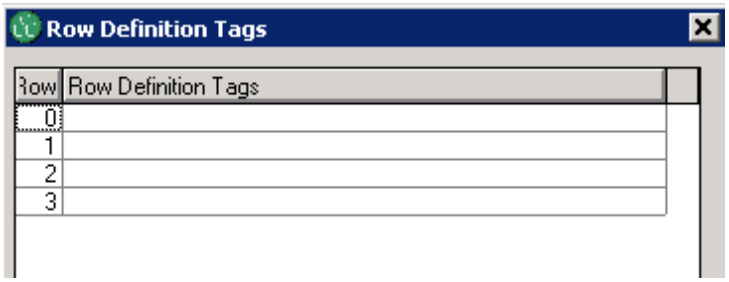
The first cell defines a description to display. The second cell defines where the description displays.

Cols (F5)



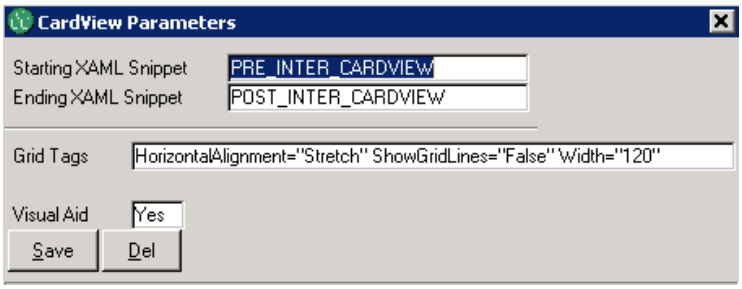
Enter the width and any other additional XAML tags to be included in the grid column definitions.

Rows (F6)



Enter any additional XAML tags to be included in the grid row definitions.

Params (F7)



The XAML for the grid you are generating is wrapped in additional pre-defined XAML code to complete the style definition. The snippets identified here are shipped with the Issue Replication System and can be copied or modified to suit your specific needs.

Starting XAML Snippet

Identifier for the XAML code used to start the Card View Styles.

Ending XAML Snippet

Identifier for the XAML code used to end the Card View Styles.

Grid Tags

Enter any XAML tags you want to apply to the layout grid definition.
You MUST enter a width!

Visual Aid

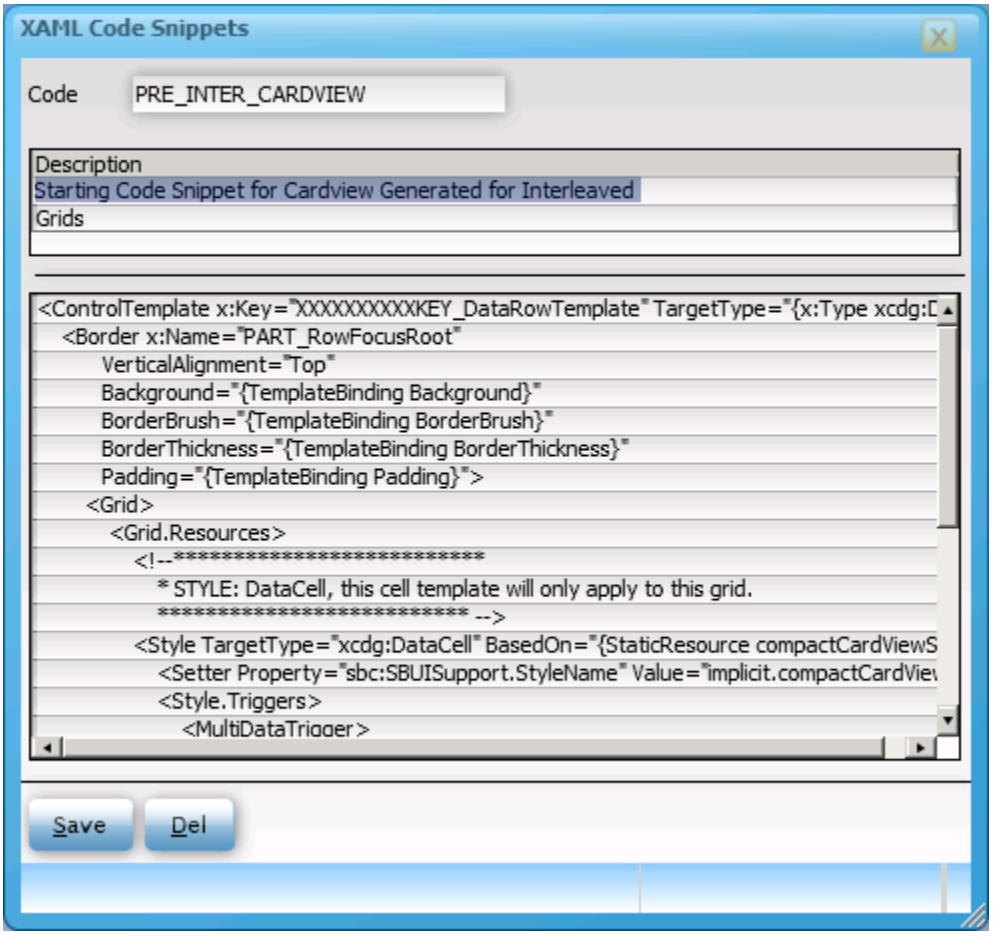
Enter 'Y' to include an additional, alternatively colored row as a visual aid when designing the CardView layout.

Generate XAML (F9)

Selecting this option will build your XAML code and write it to the file XAML_XAT_OUTPUT with the Id Filename_Screen_ControllingMV_CardViewStyle.

This file can then be copied to xxTHEMES and added to a XAML theme. It will then be available to you to add to the Controlling Multivalue Field definition on the screen definition.

XAML Code Snippets



Select available code snippets, copy, and amend them here.

The string “XXXXXXXXXXKEY” will be replaced when the code snippet is used to form part of a specific style for a Card View.

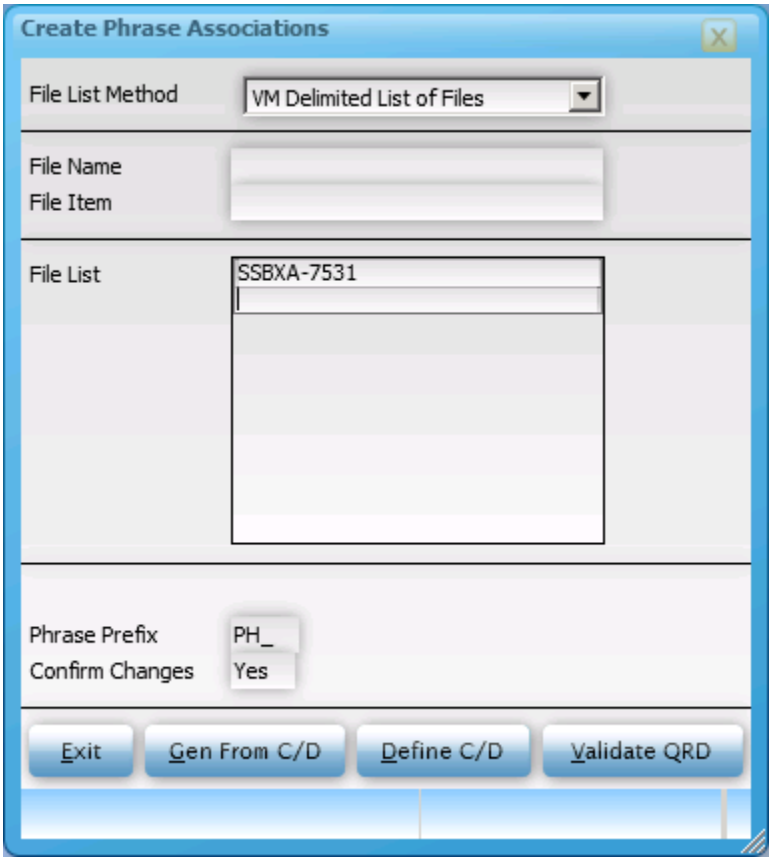
XUI CardView Example

This option displays an example of an interleaved grid that has had a Card View style generated using these tools.

Generate MV Phrases

This tool is provided to assist in the creation of MultiValue Phrase Associations. There are two reasons that you might need to do this when you have previously not had to:

- If you want to use U2 DataVu your dictionaries must be updated with Phrase Associations
    - This applies to both UniVerse and UniData (UniVerse has generally not had this requirement in the past)
- If you previously used Smart Query instead of Query Report Definitions on UniData
    - Smart Query is not supported in the XUI clients. All the functionality has been added to QRD
    - Query Report Definitions require Phrase Associations



This main screen is is used to define a list of files to process using one of the following methods:

- VM Delimited List of Files
    - Enter the list of files to be processed
- The xxCONTROL Files Record
    - All files defined in xxCONTROL, FILES will be processed
- Item in File (AM Delimited)
    - Enter the file and item containing the list of files

Phrase Prefix

Phrase Associations are generated using the Controlling MV field name combined with the value entered here.

Confirm Changes

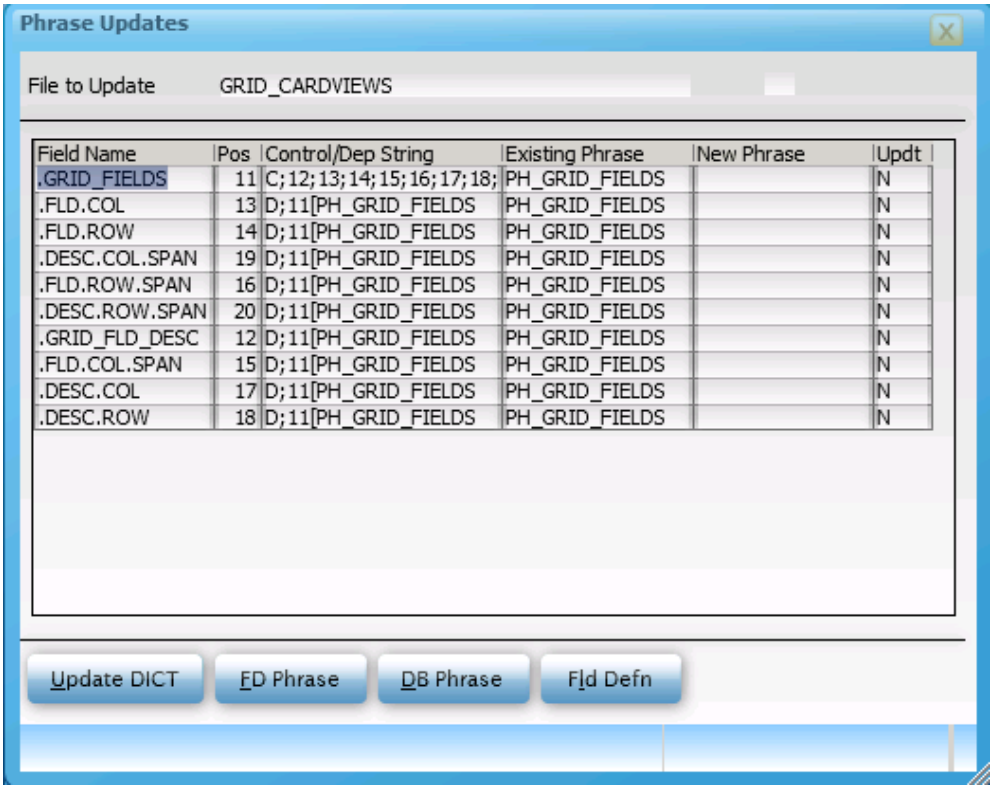
When you press F5, the system will either automatically generate MV Phrases without prompting for confirmation or it will display a screen for you to confirm that you want to make the changes suggested.

Gen From C/D (F5)

This process automatically goes through each of the files specified above and

- Selects any Controlling Multivalue fields from screen definitions
- Checks if they have a phrase already defined
- Builds a list of the fields, their dependent fields, existing and proposed phrase associations
- If you select 'Y' to "Confirm Changes", it gives you the option to update each one with the new phrase

For each update specified the SB Dict, the UniData / UniVerse Dict and the Phrase record is written with the changes specified, as shown:



Update DICT

Updates rows with a New Phrase and Updt set to Y, and create phrase items.

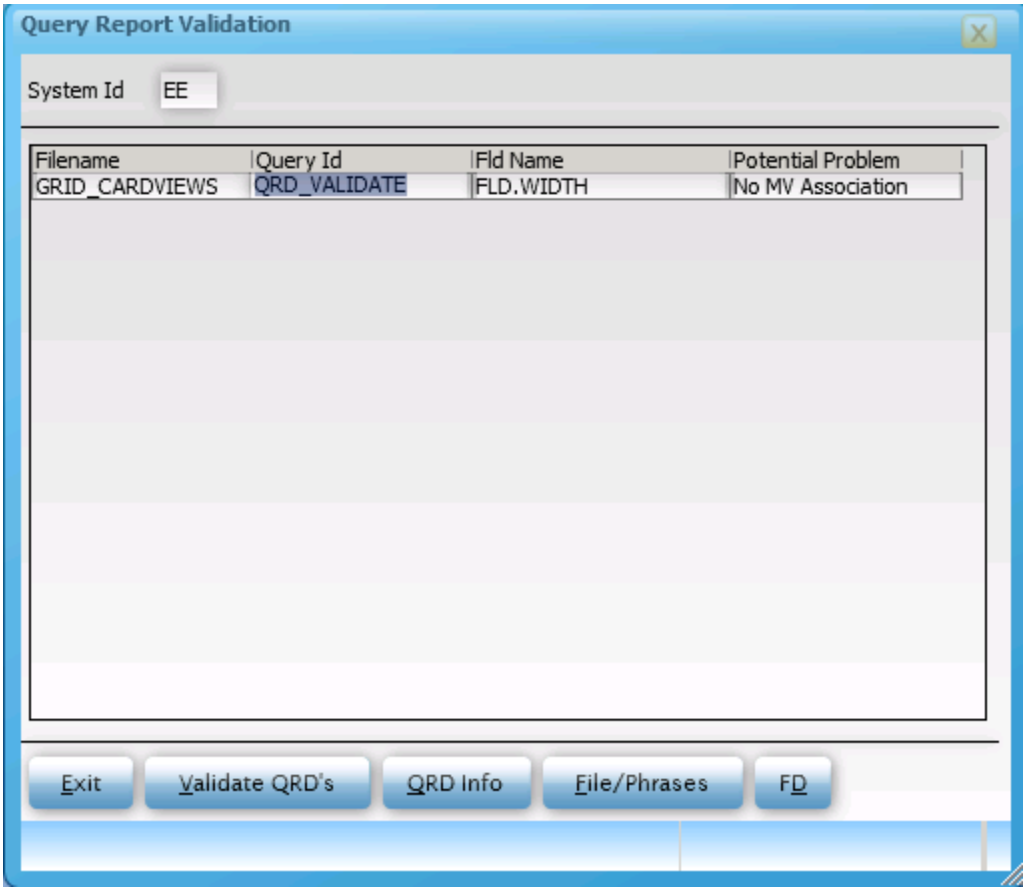
FD Phrase
Invokes the Phrase Definition tool in SB.

DB Phrase
Displays the contents of an existing Phrase Association item.

Field Defn
Invokes the Field Definition tool for the selected field name.

Define C/D (F6)
This option calls the **Phrase Updates** screen and allows you to manually specify the phrase associations to be updated. It does not use any of the file lists defined on the main screen.

Validate QRD (F7)
This option calls the **Query Report Validation** screen, which allows you to validate that all MV fields used in Query Report Definition, for a specified System Id, have the required MV phrase association.

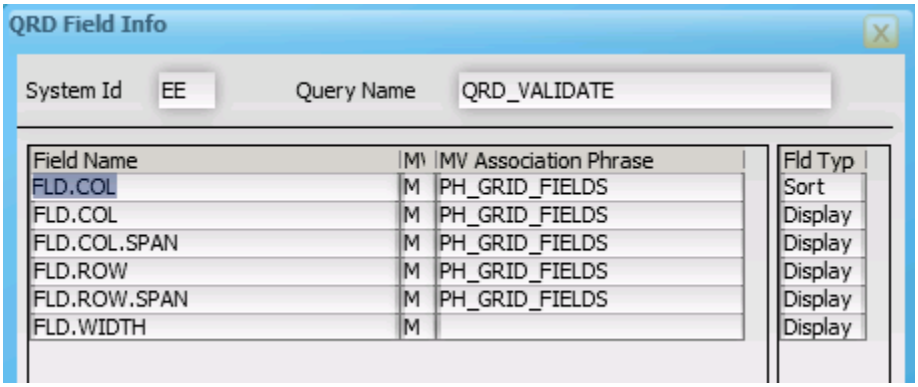


Validate QRD

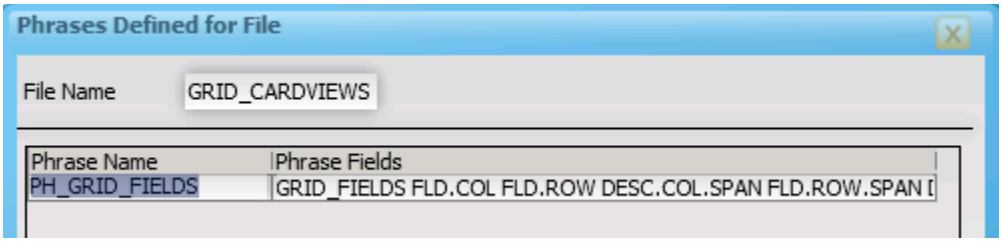
Writes the information shown on the screen to the file XAT_OUTPUT with the key *SystemId:"*|QRD|VALIDATION".

QRD Info

Displays Phrase association information about the MV fields used in the Query Report.



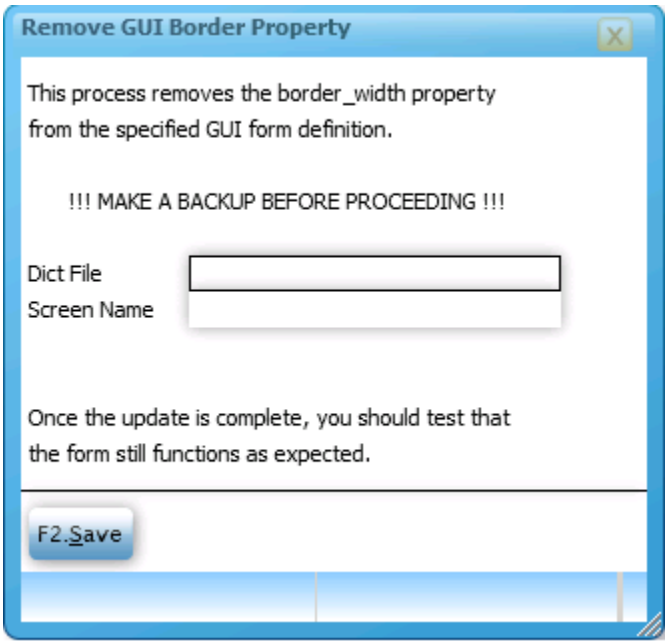
File Phrases



Calls a screen that displays Phrase association information for a file and allows you to edit the phrase associations.

Miscellaneous Items

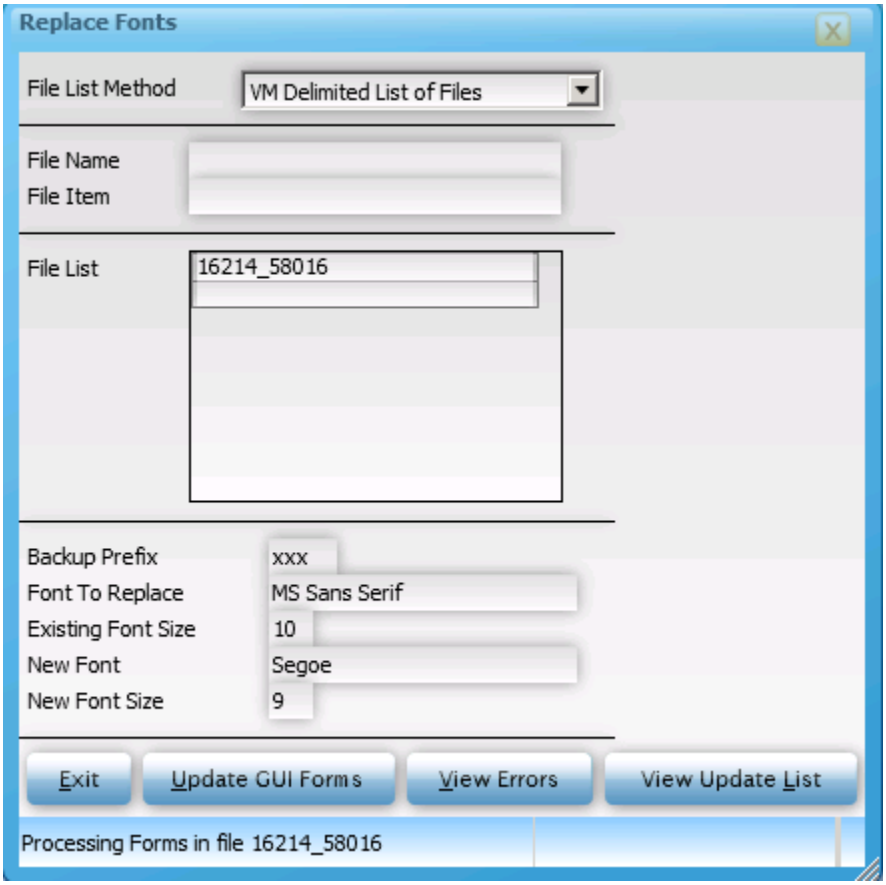
Remove border_width property



This option removes the **border_width** property from the specified form.

Use this tool if you have specified a GUI border_width, as it will not be interpreted in the same manner in XUI and causes the two forms to display differently.

Change GUI Fonts

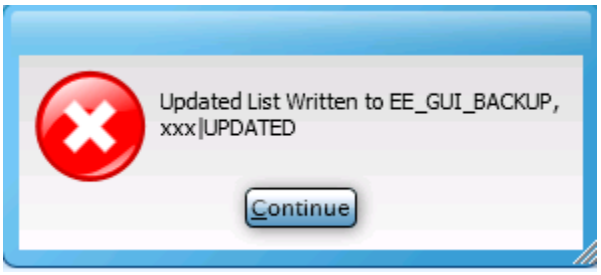


This option performs a mass update to change the font and font size within forms.

The reason for this tool is that in Windows 7, Microsoft automatically changes the font MS Sans Serif to a different font and this causes display and data entry issues in GUI grids.

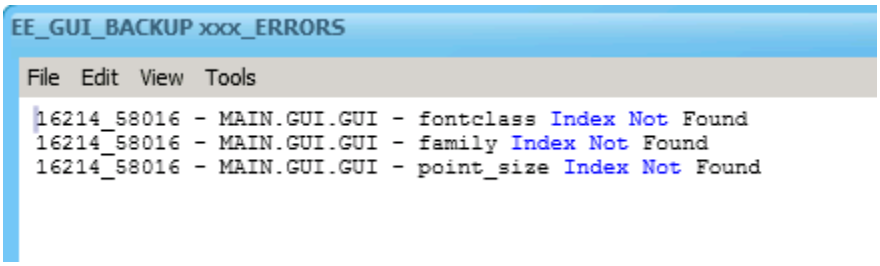
Update GUI Forms

Selecting this option performs the update of the fonts and font sizes entered.
A list of forms updated is written to the file XX_GUI_BACKUP as shown below.
A backup of each GUI form updated is stored in the same file.



View Errors

This option displays a list of errors encountered during the mass update process.



View Update List

This option displays the list of forms updated.

Appendix - DEFAULT.FILE – Field Definitions

Field Name	Description	Pos.Sub	Type	Len
CODE	Code	0	A	10
FLD1	Fld1	1	A	10
FLD2	Fld2	2	A	10
FLD3	Fld3	3	A	10
FLD4	Fld4	4	A	10
FLD5	Fld5	5	A	10
FLD6.MCT	Fld6 Mct	6	A	10
FLD7.NUM	Fld7 Numeric	7	N	10
FLD8.DATE	Fld8 Date	8	D	8
FLD9.MON	Fld9 Monetary	9	M	10
FLD10.DATE	Fld10 Date	10	D	10
MV.FLD21	Mv Fld21	21.M	A	10
MV.FLD22	Mv Fld22	22.M	A	10
MV.FLD23	Mv Fld23	23.M	A	10
MV.FLD24	Mv Fld24	24.M	A	10
MV.FLD25	Mv Fld25	25.M	A	10
MV.FLD26.MCT	MV Fld26 Mct	26.M	A	10
MV.FLD27.NUM	MV Fld27 Numeric	27.M	N	10
MV.FLD28.DATE	MV Fld28 Date	28.M	D	8
MV.FLD29.MON	MV Fld29 Monetary	29.M	M	10
MV.FLD30.DATE	MV Fld30 Date	30.M	D	10
FLD.W1	Fld1 W1	W1	A	10
FLD.W2	Fld W2	W2	A	10
FLD.W3	Fld W3	W3	A	10
FLD.W4	Fld W4	W4	A	10
FLD.W5	Fld W5	W5	A	10
FLD.W6.MCT	Fld W6 Mct	W6	A	10
FLD.W7.NUM	Fld W7 Numeric	W7	N	10
FLD.W8.DATE	Fld W8 Date	W8	D	8
FLD.W9.MON	Fld W9 Monetary	W9	M	10
FLD.W10.DATE	Fld W10 Date	W10	D	10
MV.FLD.W21	Mv Fld W21	W21.M	A	10
MV.FLD.W22	Mv Fld W22	W22.M	A	10
MV.FLD.W23	Mv Fld W23	W23.M	A	10
MV.FLD.W24	Mv Fld W24	W24.M	A	10
MV.FLD.W25	Mv Fld W25	W25.M	A	10
MV.FLD.W26.MCT	MV Fld W26 Mct	W26.M	A	10
MV.FLD.W27.NUM	MV Fld W27 Numeric	W27.M	N	10
MV.FLD.W28.DATE	MV Fld W28 Date	W28.M	D	8
MV.FLD.W29.MON	MV Fld W29 Monetary	W29.M	M	10

MV.FLD.W30.DATE	MV Fld W30 Date	W30.M	D	10

File: ECASE_CTRL

Field Name	Description	Pos.Sub	Type	Len
CODE	Code	0	A	10
ECASE_DESC	Issue Description	1	A	75
REV_PROCESS	Revision Start Process	2	A	35

File: EECONTROL
Item: PC_REV_PATH
Purpose: Stores the default location whererevision control files will be downloaded to on your PCThis can be changed at runtime when you actually download the revision control.