

# EspControl

## User Manual





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## 1. Introduction

### 1.1 Purpose

EspControl has been designed to assist the system administrator in the migration, documentation and backup of Natural Objects and SCL's between environments on a LUW platform.

Correct usage of the change control system, EspControl, will ensure that any given module/SCL is only updated by one developer at a time. Depending on the ISR profile and/or security definitions, restrictions may exist or be defined to enable specific users to migrate ISR's to and from master environment.

### 1.2 Pre-Requisites

- Depending on the SHELL environment elected, you will have to enable "rsh", "remsh" or "ssh" commands on each of the server(s).
- Before the EspControl product is installed ensure that basic remote-copy commands can be executed. Refer to the installation documentation for examples of remote shell commands.

### 1.3 Product Overview

EspControl provides the following functionality:

- Migration of Natural Objects – GDA, PDA, LDA, MAP, COPYCODE, TEXT, HELPROUTINE, CLASS, ADAPTER (AJAX), SUBROUTINE, SUBPROGRAM, PROGRAM
- If EspBatch is installed in each environment, then SCL's may also be migrated from one environment to the next. All available functions that allow SCL's will have an option for SCL's Multiple backups of Source, Object Code and SCL's per environment as defined by the system administrator
- Initial Backup of ALL objects at install or upgrade time before any migration takes place
- Transfer across physical machines and multiple Natural environments.
- Return transfer for specified objects in the ISR across physical machines and multiple natural environments
- Profiles per ISR where each profile is a subset of the Master Control Variables
- Variable DEVELOPMENT environments where the Initial Environment of a profile path need not necessarily be the actual Development environment. Due to this fact, the DEVELOPMENT, unless true DEVELOPMENT, will be referred to as the INITIAL Environment in the rest of this manual.
- A PATH CHOICE which allows the user to decide on the first migration step of an ISR whether to DOWNLOAD from the MASTER or to miss this step and start directly with the UPLOAD from the Initial Environment or an UPLOAD ONLY option.
- Dependency selection will allow an object and all its dependents to be selected, if source exists in the environment



- Automatic restore capability
- Back out and restore on migrated objects/SCL's
- Updating of the Natural buffer pool
- Source allowed or only Object code per environment
- Where SOURCE is ALLOWED a further option is available to REMOVE the source and object after a successful migration to the next environment.
- STOW or CAT per environment or NONE per environment, where only the source is copied and the object is neither STOWed or CATalogued but only SAVED
- Optional Backup per environment, if No backup selected, no Restore will be done on back-out.
- Objects can be moved from one library to a different library in each environment, where the library may be specified on either the Profile or linked to the individual object when linked to an ISR. An SCL however will always use the same SCL User in each environment.
- Optional Restore during a migration, where the ISR is stopped, if in error, or continues with other objects if no restore required, creating an Error report for the user to use, to manually fix objects in error.
- User or Group security per Profile
- ISR Security where only the "owner" may approve the ISR and link objects.
- A copy facility where a COMPLETED ISR can be copied to a NEW ISR and the original links will be copied if the object is available.
- The COMMENT that is added to the end of an object during migration may be turned on or off.
- Migrate User can be linked where all migration transactions are handled by this user irrespective of the environment being migrated to. For SCL migration this migration user is not used.
- Source can be unloaded via the SYSOBJH function per environment creating a LUW file for further distribution or manual upload.
- System Error Messages (SYSERR) can be transferred from one environment to the other, where the error messages have been set up in the SYSERR Natural function.
- An Audit Report option may be turned on and off, and if on, an audit report will be printed at the end of each migration move. This audit report is per ISR, but if turned on, will produce an audit report for all ISR's, until turned off again.
- An Audit History option where a full audit per selected start and end dates and environments will be produced, either via a report to the print queue or a .csv file. This audit reflects the following events – Create, Approve, User, Transfer, Return, Restore. This is available for both objects and SCL's.



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## Master Setup

On installation the System Administrator will specify the Natural environments (these environments can reside on different physical machines) and define one as the master environment. The master environment must be the current Production environment. This environment should be captured as the **LAST** environment in your system. However, it is possible to have more than one Production Environment specified if different fusers reside on the same physical machine or the same fuser, but different application setups. It is therefore possible to have multiple environments for each physical machine. Short paths are also available, meaning that only two environments need be selected in a profile.

Dynamic allocation of EspControl functions and security at function level determine who has access to specific functions, with more specific security options that may be set up on different transaction types.

During installation the System Administrator will be requested to specify whether EspBatch is running or not. If Yes is specified, then SCL migration will be available and will work in the same manner as Object migration.

An APPENDIX A at the end of the manual will detail the screen differences when migrating SCL's, and will explain the manner in which SCL's are to be migrated and the process to do so.

The EspControl System consists of 5 sub-menus:

- ISR Control and Profiles
- ISR Transfer ISR
- ISR Maintenance.
- Display ISR Information
- ISR Return and Restore





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## Operational overview

An initial backup routine may be executed if required, where the user selects the applicable environments. This backup routine is only run when installing the product (this initial backup MUST run at install time) or an upgrade of the software is being done (initial backup is optional). Since the backups are taken when moving “from” an environment and not backed up before moving “to” an environment, an initial backup will ensure that there will be a backup available if a problem occurs when an object is migrated for the very first time.

An ISR can either be registered by a User or a member of the development team. The ISR contains information about the requested development/enhancement which includes: current date, date required, title and a detail description. The ISR is linked to a particular profile which details the path and migration rules for all objects linked to this ISR. Once an ISR has been captured it must be approved by the responsible person, assigned to a developer and time estimation must be included.

Once an ISR has been approved the required objects can be linked to the ISR for transfer from the master environment, which may differ from one ISR to the next, and depending on whether the ISR must start from the Master or different environments due to different profiles set up. As soon as an object has been linked to an ISR it is no longer available for selection by any other ISR. Once a new ISR has been approved, the linked objects of a completed ISR may be copied to this new ISR, which allows an automated link and not a manual one via the user. This does not mean the object is “locked” and no developers can edit it. Therefore, developers should check if an object is already linked before working on it.

When transferring objects between environments the EspControl system will make a backup (if the backup configuration is set on), of the object AFTER the transfer takes place from a non-production environment and will backup an object BEFORE the migration to the Production (Master) environment. Therefore the DOWNLOAD move from Production will neither backup Production or the environment it is being moved to. Once moving in an UPLOAD direction the backup will be made of the environment being moved FROM. When the environment being moved TO, is the MASTER Environment, the object will be backed up in the FROM as well as the TO environment. After an object has been transferred it is compiled in the new environment (if the compile configuration is set on) and removed from the Natural buffer pool, if the compilation fails the object will be restored, if the Restore Indicator is set to YES and the Backup indicator is set to YES. The object will only be compiled if the profile specifies such. If the transfer is from the Master environment to the Development environment, then the ISR will NOT be restored if the compile fails, but an error report will be produced for the user to investigate. A version number is allocated to each ISR and with each backup in each different environment the same version number will be used throughout.

If the object is new and being moved to the Master, no backup will be taken as obviously the object never existed in the Master Environment. If the Restore Indicator is set to No and the backup fails when moving



from an environment or to the Master, the ISR will NOT abort and restore, but a window will be displayed at the end of the transfer with the option of a report being created which will detail the objects not backed up. All backup parameters are written to the History file and may be viewed in function CC095. In the History of the backup cycle, the object, the library and the environment will be recorded as well as whether a backup is taken or not. If a backup fails due to permissions (and the restore indicator is set to no) and the user wishes to redo the last transfer, the objects may be returned to the previous environment (see below) and then re-transferred to create a correct backup.

The SCL backup cycle differs to the object backup cycle, in that the SCL backup is ALWAYS done before the Import of an SCL to the next environment in the ISR being migrated.

Specified objects in an ISR may be returned to the previous environment (objects selected by user and not entire ISR) for further development. Once complete, the normal transfer of objects may be selected and these same specified objects will be returned to the original environment (before the return), with the new changes.

Users may decide whether or not a Backup should be taken in the migration process. If YES, the ISR continues as normal. If NO, the objects will not be backed up and consequently, if one fails, the object will not be restored.

A standard library per environment per ISR may be set up and this library will be used in the entire migration process via the Profiles function. A library may also be specified per individual object for the migration path. The library setup order will be as follows 1. Input Library per object in Linking function, 2. ISR Library in Profile and then 3. Actual scanned Library per Object. If the Initial Environment is TRUE Development, neither the object nor ISR library may be used, as the object must be transferred using the scanned in Natural Library. If the Initial Environment is NOT True Development, then any of the Library options may be used.

SCL's do not have the ability to change the SCL User across environments. The SCL User will always be the scanned in SCL User that shows in the Inventory list.

Users may request Source NOT to be migrated to the next environment, in this instance only the object code will be migrated to the next environment. If Source is No in Development or the Initial Environment, it will be transferred from the Master, allow the user to make changes and then deleted after a successful migration to the next environment, with only the object code being moved. SCL's will not use this option.

Users may request the Source and Object to be REMOVED after a successful migration to the next environment. This will leave NO source or object in the "environment from" and will have to be DOWNLOADED again before any migration may take place. In this scenario the object will be "tested for



existence" when moving to the MOVE SOURCE environment and if there, the user may either, reject this object, overwrite in the next environment or STOP the entire ISR. The rejection will only be for the ONE move and will re-test when the ISR is again moved up the line. If the ISR is STOPPED, it will be put in hold, and must first be reset via CC075 before it will be allowed to continue. The rules for testing for existence are if the source code is to be REMOVED from either the TO or FROM environment, but only if the Master control variable is marked as N or M n CC001. SCL's will not use this option.

Users may select to use a "short-path" ISR, which means that the Initial Environment may not be the first environment (Development) selected in the profile. In this scenario, the Initial Environment Index must be marked as to what the first required path of a profile should be. The "Master Environment" of a short-path may also not be the TRUE Master and the ISR will complete once the "Master" has been transferred to.

A "PATH CHOICE" has been catered for, whereby the user may decide whether an UPLOAD, either optional or forced, or DOWNLOAD, must occur in the first step of a transfer. Once the ISR is in the migration process, the path choice may not be amended, and if necessary the RETURN option must be used to re-download the object.

A Migration User has been catered for, whereby all migration routines will use this user-id to do the copying, moving, stowing or compiling, restoring and backup functions. The creation of temporary work files and initial "ssh" etc setup will use the actual user-id and so the user running the ISR will need correct authorisation and remote shell command setup. SCL's should not use a migrate user.

Users may decide NOT to have the default comment with the ISR number added to the object. If the COMMENT = N, then this will not happen. A comment may only be added to Development or a profile with an Initial Environment, other than Development, but where this environment is on the local server.

Functionality is provided whereby an ISR may be "Approved for Upload", depending on the profile, whereby the ISR must first be "Approved" before it can be transferred to the next environment. Each environment may or may not require Approval, depending on how the profile was set up. This function would typically be assigned to either the project leader or user.

Additional objects can be linked to or removed from the ISR at any stage. If an object is removed, the user will be asked whether a restore or not is required. If a restore is selected then all changes will be backed out, if not selected the object will be left as is in the environments already migrated to. An object can be transferred from one ISR to another as long as it is in the "Development" stage i.e. status of 01

The EspControl System provides numerous enquiry screens where the status of an ISR can be monitored. An audit trail of the ISR is updated throughout the EspControl System to track the progress of the ISR. An



audit record per object is provided whereby all changes to the object can be traced back to individual ISR's and their related profiles. History of the path followed per object is available as well. The History function reflects ALL moves, errors and restores, and is to be used for investigation in the event of a failed migration or return. A log file of all shell commands and scripts run during a migration is available in an external LUW file, with the key always being the ISR number. Typically, if there is an error in the ISR, the log file may be interrogated to view the actual commands being used and try and manually recreate the error.

The EspControl System will provide PATH VALIDATION at the start of each migration process. This Path Validation will scan through all the linked objects in the correct status for the current migration step and validate all the LUW Directories necessary for Backups, Compiles and any other Natural utility required for the successful migration to the next environment. This path validation will also check that the linked object actually exists in the specific Natural Library for migration. If the PATH VALIDATION fails, the necessary error paths will be written to the History function, for the user to check and correct and then redo the migration step. An error report will also be available to be printed if required by the user. The path validation, tests for all objects before failing and will produce an error list of all the failed objects. If an ISR fails during the Path Validation step, it will remain in HOLD and must be reset via the reset in hold function before continuing. This is done so that the user can investigate the error before any more work is done on that particular ISR. There is a code VALIDATH that can be set to No which will then bypass the path validation except when migrating to Production. However, in selecting this option the System Administrator must ensure that all directories/paths in each environment specified in CC001 have been created. The Path Validation routine will automatically create a missing directory during the routine. Skipping the path validation will make the ISR run faster but will then fail if the paths do not exist. It is therefore preferable only to switch this off after the initial backup routine, which will then create all directories if necessary, during the path validation.

During installation a temporary directory for trace files is created in \$ESPCCTMP (this is set up as \$CRONUS/espcctmp initially). This directory is used for all trace files in case of errors or script problems. If no errors occur, then these files are deleted after every migration. If a migration fails, and the logfile, that is created per ISR in the shell script directory (see CC001 for further explanation) is not enough for finding the error, please refer to the trace files in the temporary directory.

See examples of these files below:

```
-rw-rw-r-- 1 gm712 sag 345 Sep 10 18:28 remcheck.log.NOMAP.NSM
-rw-rw-r-- 1 gm712 sag 342 Sep 10 18:28 remcheck.log.TST3.NSP
-rw-rw-r-- 1 gm712 sag 616 Sep 10 18:25 remcomp.log.TST3.NSP
-rw-rw-r-- 1 gm712 sag 225645 Sep 10 18:26 scldet.7
-rw-rw-r-- 1 gm712 sag 33 Sep 10 18:26 sclout.7
-rw-rw-r-- 1 gm712 sag 302 Sep 10 18:26 sclout.7.error
```

SCL's are copied via Natural routines and not via scripts, as specified for objects above. If any failure occurs during SCL migration, please refer to ISR History function (CC095) to get exact detail of error. The actual SCL detail and errors per SCL is carried across environments in text files, and these will be



---

available, if code COMPDEBUG is set to Y, by viewing the \$ESPCCTMP directory for files with the ISR Number included. The log file in the shell script path will also show the commands used and can be investigated if an error occurs.



## 2. Menu Overview And Function Selection

Once a user logs on, the EspControl main menu will be displayed with a list of sub-menu's. These sub-menu's will each display a subset of functions that the user has access to. The following information is displayed on the main menu screen.

```

CRONUS01
MAP902      *** Cronus Consulting - DEV *** v7.3.1      14:43:10.8
MAM902      - CC : EspControl - Change Control System (I.S.R) 2023/09/17
                                         UDB: 31

CC500      + ISR Control and Profiles
CC501      + ISR Transfer
CC502      + ISR Maintenance
CC503      + Display ISR Information
CC504      + ISR Return and Restore

PID.....: 2433453      *** End of Data ***      O/S: GM712
Printer.: PRT01      NSC: GM712
Function:  Data:      ESP: MENUADM
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
          Uexit Quit      PgDn SetPr      Logof
  
```

### Main Menu

```

CRONUS01
MAP902      *** Cronus Consulting - DEV *** v7.3.1      14:43:51.6
MAM902      - CC500 : ISR Control and Profiles -      2023/09/17
                                         UDB: 31

CC001      Maintain ISR Control Variables
CC002      Maintain ISR Profiles
CC010      ISR Code Maintenance
CC025      ISR Profile Enquiry
CC300      Scan Program Source-code (Initial Scan ONLY)
CC330      Scan SCL's for Transfer (Initial Scan ONLY)
CC350      Run Initial Backup Routine

PID.....: 2433453      *** End of Data ***      O/S: GM712
Printer.: PRT01      NSC: GM712
Function:  Data:      ESP: MENUADM
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
          Uexit Quit      PgDn SetPr      Logof
  
```

### Sub Menu CC500

Function / Menu selection can be done as follows:

- All menu and function selections are cursor sensitive and can be selected by positioning the cursor on the line containing the desired menu or function and then pressing <ENTER>.



- Typing the menu or function name in the function selection area. Parameters required by the function can be typed in the data area, which will be passed to the function.
- The full function for e.g. CC100 may be typed in, or only 100 if required. If only 100 is typed in, the sub-menu that the user is busy with (in this case CC) will be used to complete the function and navigate to the correct function

All sub-menus have specific functions and work alike. See below the rest of the sub-menu's and their related functions. The functions and sub-menus can be allocated in full, or only a portion thereof, to each user or group, to enable further function security in the system. This is done in the MENU ADMINISTRATION section.

```

CRONUS01
MAP902      *** Cronus Consulting - DEV *** v7.3.1      14:46:02.2
MAM902      - CC501 : ISR Transfer -                    2023/09/17
                                                    UDB: 31

CC030      ISR Request Capture
CC035      ISR Request and Approval
CC040      IT Request Maintenance
CC050      Select Objects for Transfer
CC054      Copy to an ISR
CC100      Transfer ISR between Environments
CC105      Transfer with Skip of Environment
CC250      Select Objects for Archiving

PID.....: 2433453      *** End of Data ***      O/S: GM712
Printer.: PRT01          NSC: GM712
Function: [ ] Data:      ESP: MENUADM
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
          Uexit Quit          PgDn SetPr          Logof
  
```

### Sub Menu CC501



```

CRONUS01
MAP902      *** Cronus Consulting - DEV *** v7.3.1      14:46:33.1
MAM902      - CC502 : ISR Maintenance -                2023/09/17
                                                    UDB: 31

CC051      Transfer an ISR
CC060      ISR Upload Approval for Transfer
CC070      Mark an ISR as Completed
CC075      Remove an ISR from HOLD
CC076      Remove an ISR from SYSOBJH Error
CC077      Remove an ISR from System Message Error

PID.....: 2433453      *** End of Data ***      O/S: GM712
Printer.: PRT01      NSC: GM712
Function:  Data:      ESP: MENUADM
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
        Uexit Quit      PgDn SetPr      Logof

```

#### Sub Menu CC502

```

CRONUS01
MAP902      *** Cronus Consulting - DEV *** v7.3.1      14:46:56.7
MAM902      - CC503 : Display ISR Information -          2023/09/17
                                                    UDB: 31

CC080      Display ISR Status
CC085      Display Object Dependants
CC088      Display Object History
CC090      Display Objects Linked to an ISR
CC093      Display X-REF History
CC095      Display ISR History
CC097      Display Object Status
CC099      ISR Status Summary

PID.....: 2433453      *** End of Data ***      O/S: GM712
Printer.: PRT01      NSC: GM712
Function:  Data:      ESP: MENUADM
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
        Uexit Quit      PgDn SetPr      Logof

```

#### Sub Menu CC503





```
CRONUS01
MAP902      *** Cronus Consulting - DEV *** v7.3.1      14:47:16.8
MAM902      - CC504 : ISR Return and Restore -          2023/09/17
                                                    UDB: 31

CC053      Mark Objects for Return to Previous Environment
CC061      ISR Return Approval for Transfer
CC102      Return Transfer ISR to Previous Environment
CC110      Restore ISR to Initial Profile Environment
CC115      Restore Object(s) to Initial Profile Environment
CC200      Restore Objects Versions to ANY Env per ISR

PID.....: 2433453      *** End of Data ***      O/S: GM712
Printer.: PRT01      NSC: GM712
Function: ☐ Data: _____      ESP: MENUADM
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
          Uexit Quit          PgDn SetPr          Logof
```

#### Sub Menu CC504



## 3.1 ISR Control And Profile Function Overview (CC500)

### 3.1.1 CC001 – Maintain Control Variables

This function is used to define the EspControl control variables for the Master Profile Record. This is used as a default to create various migration Profiles in CC002. These variables are used during the execution of the migration process and are defined in two groups: a) **Global** variables – these are set once and are applicable for all environments defined in EspControl. b) **Local** variables – definitions for each of the Natural environments that forms part of the EspControl environment. Information regarding the Natural program environments, libraries, host destinations and paths are defined and maintained under the local variable set-up. An environment entry should be defined for each of the Natural program environments that are required to be migrated to. If objects need to be moved to another section of the same environment for e.g. copied from one library to a common library for all applications in the same environment, then this must be set up as a separate entry as well (therefore there may be two entries for Development for example) and then manipulated in the Profile section

```

CRONUS01
*** Cronus Consulting - DEV ***                                09/12 16:31
CCP001                                                         GM712
CCM00101      Maintain ISR Control Variables

Number of Environments...: 3
Remote Shell Command....: ssh (ssh, rsh or remsh)
Initial Scan Library....: ESPDEMO
Create Logfile.....: Y
Master Environment Index: 3
Max Backup Versions.....: 15
** MASTER PROFILE RECORD **
'CCA001'

Select Environment Machine Name DB File Buffer Pool Natparm
1 Development CRONUS01: 22 31 NATDBP NATD
2 Test CRONUS01: 22 32 NATTBP NATT
3 Production CRONUS01: 22 33 NATPBP NATP
4
5
6
7
8
9
10

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Add Quit Shell PgDn

```

### ISR Control Variables

This is the default EspControl record (the Master profile) where the number of environments in total, are specified and their related Path data (see next screen image). The following function (CC002) allows the setting up of a profile whose environment path may differ, but the Path data behind each environment is taken from this Master Profile record. An environment, once set up, may never be deleted, if it is no longer required, it must just not be linked to any new Profiles that have been set up. This is because of History and Restore functions.



---

**The following global control variables should be defined:**

<b>Number of Environments</b>	:	The total number of Natural environments needed for migration. This will be set up automatically once all individual environments have been captured.
<b>Remote Shell-Command</b>	:	The remote access command protocol to use for transfers between environments. (ssh, rsh or remsh).
<b>Initial Scan Library</b>	:	Default in CC050 and other enquiries reflecting the Object Inventory.
<b>Create Logfile</b>	:	Enable logfile (for error checking this must be set to Y).
<b>Master Env Index</b>	:	The Master Environment (TRUE PRODUCTION). This will default to your last environment.
<b>Max Backup Versions</b>	:	The maximum number of Backups to be taken in each Environment when transferring objects. This version number is the same for each environment move.

The **LOGFILE** should always be marked with Y, as it gives the user command detail and return code detail for all commands issued via EspControl throughout the migration, path validation, SYSOBJH and SYSERR loads, return, backup or restore processes. The log file is ALWAYS found in the first environment specified in CC001 (even if the migration is for e.g. to Production) and is situated in the Shell Script Path directory as indicated in the below screen and then appended with /logs. Should any move through EspControl fail, these log files may be interrogated in LUW file created. Each ISR has its own log file in the shell script path/logs directory with the naming convention ISRnnnnnnnn.LOG where n is the ISR number. Each EspControl routine adds to the log file of an ISR and this is never over-written.



### Local control variables for each environment:

```

CRONUS01
*** Cronus Consulting - DEV ***                                09/12 16:31
CCM00102                Maintain ISR Control Variables          GM712

Environment .....: 01
Environment Name...: Development_____
Local Indicator....: Y
Machine Name.....: CRONUS01:_____
Fuser DBID.....: _22
Fuser File Nr.....: _31
Fuser Path.....: /opt/softwareag/Natural/fuser_natd_____
Fuser Backup Path..: /opt/softwareag/Natural/fuser_natdbck/.BCK_____
Source Staging Area: /opt/softwareag/Natural/fuser_natdbck/.SSA_____
Nat BufferPool Name: NATDBP_____
Natparm Module Name: NATD_____
Natural Nucleus....: natural_____
Allow Source Ind...: Y
Shell Script Path..: /opt/softwareag/cronus/ccont_eco_____
QA Required Ind....: N

                                Clear all fields? No_ (YES or NO)

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
      Add   Quit   Shell   PgDn

```

### Control Variables per Environment

The following control variables should be defined:

<b>Environment</b>	: Environment Number (System allocated)
<b>Environment Name</b>	: Environment Name – Description
<b>Local Indicator</b>	: Local indicator to server where EspControl is running
<b>Machine Name</b>	: Machine name/Host-name or IP address
<b>Fuser DBID</b>	: Fuser DBID as defined in NATPARM
<b>Fuser File Number</b>	: Fuser FILE NR as defined in NATPARM
<b>Fuser Path</b>	: Complete path to fuser where source and object exist
<b>Fuser Backup Path</b>	: Complete path to backup fuser
<b>Source Staging Area</b>	: Area used by EspControl to stage the source-code for Allow-Source = N. Even if Allow Source is not N, a copy is moved here so that this variable may be changed in future.
<b>Nat buffer Pool Name</b>	: Natural Bufferpool name for this environment
<b>Natparm Module Name</b>	: Natparm that is used to access this environment
<b>Natural Nucleus Name</b>	: Natural nucleus name (must be in default path)
<b>Allow Source Indicator</b>	: Indicates if source code should be allowed or Moved (used for default as this is specified in the Profile)
<b>Shell Script Path</b>	: The complete path to ESP scripts, log files and transfer (ccont) See below for Development default



---

**QA Required Indicator** : Indicates an approval step is required before copy to an Environment.  
This is a default only as specified per separate ISR Profile.

The shell script path for Development when CC001 is first set up after install, will default to the \$CRONUS/ccont\_eco directory, which is where all the EspControl scripts are installed from. This directory should keep this same name for Development and this entire directory must be copied to all environments. If the environments are on the same server, then this directory must be copied with a new name, for example, adding the environment name as a suffix \$CRONUS/ccont\_eco\_dev2. If all environments are NOT on the same servers this name may remain the same. However, for ease of use it is better to include the environment name as a suffix, even if the environments are on different servers. Remember to update these directory names correctly in CC001 for each environment as set up in the install.

The Allow source Indicator and the QA Required indicator are only defaults in the Master CC001 Control record and can be changed in each Profile defined (CC002) depending on requirements. **The Allow-source indicator on the Control record (CC001) determines if OBJECT TESTING occurs between environments and if dependents are allowed.**

**Caution:** If Natural security is installed, the access to the Natural application system should be defined with **AUTO=ON**

The ISR code, SAMESTAGE, determines if the Staging Area Path may be the same in any of the environments. **Caution:** Remember that if this staging area is allowed to be the same and environments exist in the same fuser, the objects with the same object name and library will be over-written. See CC010.

When creating control variables, a **MASTER PROFILE** is automatically created, using the entered local variables and defaults, and this can be enquired on in the ISR PROFILE function (CC002). This Master Profile may not be used to link to ISR's and migrate objects. This profile cannot be modified but may be enquired on. This default profile is named **MASTER**. The MASTER PROFILE is re-created every time a change is made to CC001.

**Caution:** Any natural library **startup** programs should be limited to start **only** if \*DEVICE is **not** set to "BATCH". This causes background tasks in EspControl to **fail**. If **startup** programs are used the default **natural nucleus** command should be change to "**natural batch**" in function CC001. As long as Batch Execution is NOT marked with 'Y' in Natural Security, if Natural Security is being used.



```
...
Nat BufferPool Name: NATDBP
Natparm Module Name: NATD
Natural Nucleus....: natural batch
...
```

### Example where the “natural” command is changed to use “batch mode”

The program **ESPERRTA** is used to **reset** the standard/default **\*ERROR-TA** error handling programs for the migration session. This program should exist in library **SYSTEM** in all environments. As part of every migration, it is automatically included in the PATH VALIDATION routine and the ISR will abort if it does not exist in any particular environment in Library SYSTEM.

During the install either the “ssh” or “rsh”, depending on the chosen shell, must be authenticated and to test if this is correct, press PF5 from CC001 on the header screen. PF5 may only be tested (when setting CC001 up for the first time), when all variables are entered correctly for the header screen. It is useful to test this before entering any environment variables, as specified below, as if this does not work, then the validation for the paths entered per environment will not work, and return an invalid path, even if the path is valid. Remember that this authentication **MUST** be done across all servers.

```
gm712@CRONUS01:/opt/softwareag/cronus/espctmp

CCP001          *** Cronus Consulting - DEV ***          09/12 16:43
CCM00101        Maintain ISR Control Variables          GM712

Number of Environments...: 3
Remote Shell Command....: ssh (ssh, rsh or remsh)
Initial Scan Library....: ESPDEMO
Create Logfile.....: Y
Master Environment Index: 3
Max Backup Versions.....: 15

Select Environment      Mac
1  Development          CRO
2  Test                 CRO
3  Production           CRO
4
5
6
7
8
9
10

Insert Step      : 03
Copy From       : 02
New Environment  : UAT

Environment
will be created using
above Step No

PF1 to Exit

RECORD **
r Pool Natparm
P NATD
P NATT
P NATP

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
      Add   Quit   Shell   PgDn
```

### PF2 – Add or Insert Environment



Once CC001 has an environment and the user has exited CC001 and saved the data, any future updating to this function will require the use of PF2. PF2 allows the **insertion** or **addition** of an environment, as seen in the above example. The user may copy all control variables from a specific environment to the newly inserted one. The user must then change the details to the new environment's variables. Please note, until all variables have been amended and SAVED, this new environment will not be added. Use PF1 to exit without completing insert. This "insert" may be done at any time, even after profiles (CC002) have been set up. This function will insert or add a "nil" path to all profiles already created, with a PATH-REQUIRED of NO. New profiles via CC002 may now be set up to use this new environment.





```

gm712@CRONUS01:/opt/softwareag/cronus/espctmp
Open ISR exists, CAN only change USERID or GRP or Delete
CCP002          *** Cronus Consulting - DEV ***          09/12 16:57
CCM00201        Maintain ISR Profiles                    GM712

Number of Environments...: 3
Initial Scan Library....: ESPDEMO_
Master Environment Index: 3
Restore (Y) or (N).....: Y
Migrate User (optional)..: ESPCNTRL
SCL Type (Y) or (N).....: N
Allow
Select Path Environment Source Y/N Y/N G Grp Library (C)at Y/N
1 - Y Development Y N N GM712 S Y
2 - Y Test Y N N S Y
3 - Y Production Y Y N ESPDEMO_ S Y
4 - - - - - - - - - - -
5 - - - - - - - - - - -
6 - - - - - - - - - - -
7 - - - - - - - - - - -
8 - - - - - - - - - - -
9 - - - - - - - - - - -
10 - - - - - - - - - - -
G-Mark with Y for Group
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit PgDn

```

## Modification of Open ISR

**The following rules apply:**

- Path cannot be marked as ‘Y’ for any environments greater than the Master Environment Index specified in the profile being worked on.
- The Master Environment index is the main control where the path of the selected ISR will be **started for the download** of existing objects and will in turn complete an ISR cycle.
- The **first** Environment of the Master Profile on the Control Record CC001 (but not necessarily the user profile) is always the “Development” Environment where all new objects must be created and be scanned in CC050, with the exception of multiple Development environments that may exist on the same local server. Whenever objects are migrated to the “development” environment they will always be downloaded using the library of the object in the Inventory list (CC050). Different libraries may be selected per environment (in CC050 or Library in CC002), with the exception of Development. All new objects will start their migration path from this Development environment. If more than one environment exists in the “Development Area”, an object may be scanned in to this environment as well, by entering the Environment Index in CC050, as long as these “Development environments” have different library names but exist in the “Development” fuser. Having more than one Development area defined in CC001, requires the use of different libraries to avoid code being overwritten.
- Environment number 01 in CC001 is referred to as the True Development environment, but may be left out of a path profile. If the Development environment is to be ignored, then the **INITIAL ENVIRONMENT INDEX** must be marked with the environment number that will form the first



environment in the transfer of the objects. This scenario is only normally used for Emergency type profiles. A normal profile will always include the Development environment.

- If the Initial Env Index is not 1, then all paths less than this environment number **MUST** be marked with an '**N**'.
- **PATH** must be '**Y**' or '**N**' and must be '**Y**' for Initial Environment and Master Index Environment marked on that specific profile.
- **ALLOW SOURCE** must be '**Y**' or '**N**' or '**M**' however it must be '**N**' if the Path is set to '**N**'. If Allow-Source = '**N**', only the object code will be migrated. If ALLOW-SOURCE = '**N**', then the staging area defined in the Master Profile is used for keeping the source. If Allow source is set to **M**, then both the source and object will be migrated to the next environment and then deleted from the "From Environment". If ALLOW-SOURCE of either the FROM or TO environment is set to **M**, a further "object" check will be applicable. However, this check will only come on if this indicator has been marked as such on CC001 as well. Therefore if only a specific profile is marked with '**M**', then this check will not be done. This check will inform the user if the object already exists in the TO environment. The user will then have a choice to overwrite the object in the TO environment or **REJECT** the object from being migrated to the TO environment, or alternatively, **STOP** the ISR from continuing until the user has sorted out the problem. If stopped then when necessary, **RESET** the ISR from **HOLD** and continue with the **TRANSFER**. The Staging Area is always used in the background when migrating objects or restoring source of an object, even if source is allowed. This is to allow the user the option of changing profiles from Allow-source of **YES** to **NO**, as there will always be a last version of the source residing in the staging area. Therefore, if source is ever restored, the source is sent to both the normal fuser and the staging area in order to keep objects in synch.
- **TEXT and COPYCODE** - If text or copy-code is to be migrated, if the ISR has an Allow-Source of **NO**, because a text or copy-code only has source, the source will be migrated. If a restore is needed, the same rule will be applicable, restoring object only for object types other than text or copy-code, and source for text and copy-code.
- **UPLOAD APPROVAL** must be '**Y**' or '**N**'. However, it must be '**N**' if Path is set to '**N**'. If '**Y**' is chosen then a user will be required to approve the upload TO that particular environment before migration will be allowed. This indicator will not be used when moving Down from the Master, but if the ISR is used for Upload only, it will request approval for the first migration move, if marked with a **Y**.
- **USERID** must be a valid User (and not a group). The field need only be entered if security is required around the actual migration function (CC100). If left blank, the transaction security will be used. i.e. if CC100 allocated to a user's menu, the function will be allowed, but if a user-id has been added to an environment on a profile, then this will be a further check and only the allocated environment user to migrate FROM the environment. An error will be displayed if a user-id has been allocated and another user attempts the migration. Note, if a user must have security to be the only user to move TO for



example, Production, then the user-id must be allocated to the environment BEFORE production, as the check works in the FROM environment.

- **GROUP** must be a valid Group (and not a user). The Group security works the same way as explained in the USERID section directly above. However, the user attempting the migration must be part of the Group linked to the environment. Note, both the **USERID** and **GROUP** are entered in the same column, but if it is a group that has been entered, mark **column G with a Y**. Only the userid and group column may be amended when an open ISR exists against the modified profile.
- **STOW/CAT** must be '**S**' for stowing or a '**C**' for catalog or '**N**' for NONE meaning a move only. The STOW option will ensure that both the SAVE and OBJECT dates are updated. The CATALOG option will only update the object date and the SAVE date will remain. The 'True Production' Environment is set at '**S**' or '**C**' and cannot be changed to an '**N**', unless the code NOSTOW (CC010) has been set to a '**Y**'. It must be noted that if objects have to be restored, both the SAVE and OBJECT date will reflect the restore date, unless function **CC200** is used as this **ONLY** restores source and must be manually Stow'ed. The NONE option will transfer the code and do a SAVE only. This will update the save date and will reflect NO dates for the object code or any object code itself. If the object is moved to an environment, where the source and object already exists, this old object code will be removed via an UNCATALOG, so that only source remains. Using the restore function, these same parameters will be used when restoring source or object.
- **BACKUP** must be '**Y**' or '**N**'. The 'True Development' Environment is set to '**Y**' and cannot be amended. If Backup is marked as '**Y**' migration will proceed as normal, if marked as '**N**', no backup of the object will be done and consequently no RESTORE will be done if a problem occurs and objects must be restored, or if the Restore functions are selected from the menu. Backup must be '**N**' if the Path is set at '**N**'.

The backup function follows the following path depending on the profile linked to the migrated ISR –

1. If the Master Environment is not TRUE PRODUCTION, a backup of the object is taken as it is downloaded to the initial environment of the profile.
2. If the Master Environment IS equal to true production, a backup is NOT taken when the object is downloaded to the initial environment.
3. A backup is NOT taken of the object in the environment being migrated TO.
4. Once the object has been maintained by the user, or a new object has been developed and a migration is now in progress, a backup is taken of the object in FROM environment as it is being migrated to the next environment.
5. If the ISR is being migrated to the Master environment: a). if the Master is NOT True Production, NO backup is taken of the object in the TO environment as this has already been done when downloading occurred, or b). if the Master IS True Production, then a backup is taken of the object in the TO environment before migration occurs and over-writes the object. In scenario b) both a FROM and TO backup will take place.



6. An “F” for From and “T” for To will be displayed on the screen for the user to view if a from or to backup is being processed when migrating via CC100. This is also viewable in the History function (CC095).
  7. During a migration, if any backup is unsuccessful and the restore indicator is set to N, then an **E** for Error will be displayed under the backup column of the migration screen, but will NOT ABORT the ISR migration. At the end of the migration process a non-backup error report will be sent to the printer for the user to view. If the backup is not successful, then the object may be returned via CC102, the backup error fixed, and then retransferred via CC100 for a backup to be made. This sequence of non-backups can also be viewed in the ISR History enquiry (CC095).
- **RESTORE IND** must be ‘Y’ or ‘N’. If ‘Y’ and if any object in the migration has a problem, the migration will stop and the entire ISR will be restored depending on the Backup Indicator and restored to the version that was backed up as specified above. If ‘N’ and any object in the migration has a problem, it will be bypassed and the other objects in that ISR will carry on with the migration. At the end of the migration, the user can request an Error report to be printed, which will reflect all error objects. This sequence of error events can also be viewed in the ISR History enquiry (CC095). During a migration, if any object is unsuccessful, then an **E** for Error will be displayed under the backup, copy or compile column of the migration screen in CC100, depending on what section is in error. If an ISR is restored and no backup yet exists for the object being restored, the object will be restored to the previous backup version of that object i.e. the last backup taken in the last migration of that object, no matter the ISR number. If a backup in that ISR does exist, this backup will be used. View the History function if a restore takes place to see which backup version was used.
  - **ISR LIBRARY** – This ISR library will replace the library of the object in the CC050 when migrating to an environment. However, the ISR Library is not allowed for the ‘Development’ Environment, as the scanning of the source code determines the library for ‘Development’. From the second Environment onwards, this ISR Library can be different to the scanned library of the source code, and this ISR Library will be used in the move from one environment to the next. If a copy of the source code is required in ‘Development’ in another library to the scanned one, use PF1 in transaction CC050 to do a duplicate copy to another library. In this way, a different library to the scanned one can be used in ‘Development’. This ISR LIBRARY will however, be overridden by the Object Library that can be specified in transaction CC050 per object per environment. The ISR Library should be used when the entire ISR should be migrated to a specific library and the Object Library should be used when objects in an ISR must be migrated to a different library to the scanned ones. This Library must be valid and the function will return an error message if an invalid library is entered. If left blank, the migration will use the default “scanned” library.
  - **“GENERIC” ISR LIBRARY** – an ISR LIBRARY may be specified as GENERIC instead of the actual library in the environment. This GENERIC library is controlled by the site and needs to have coding added to the user exit, **ISNUX100**, that exists in library ESPSOFT. The instructions for this coding reside



in ISNUNIX100 itself. The Generic library should be used if the library name differs from one environment to the next or perhaps from one object to the next or from one developer to the next. The coding added to the user exit must specify the rules to which the library name will be changed automatically, and in this manner will become the "ISR LIBRARY" through all migration routines. If the GENERIC library is not to be used, leave ISNUNIX100 as it is. ISNUNIX100 coding may be used in conjunction with the codes under CODE SYSTEM in CC010.

**NOTE:** When setting up the coding in ISNUNIX100, the field #TEMP-LIB must always be populated and the following statement is mandatory, once it has been populated –

**MOVE #TEMP-LIB TO #TRANSLATE-LIB(#XX)**

- **SRC UNL – SOURCE UNLOAD** – This indicator is to be set if the user requires the migrating source to be unloaded as a SYSOBJH file at the end of a successful migration to a particular environment. If Unload is required mark with 'Y' else mark with 'N'. If ALLOW-SOURCE = 'N' in any environment other than Development, the unload of the source will not be allowed. Due to the fact that Development always has source even if ALLOW-SOURCE = N, until a successful migration to the next environment, it is allowed here. The SYSOBJ function to unload the source is called once all objects have been successfully migrated or if NO RESTORE is required and the SRC UNL Indicator has been marked with a 'Y'. For e.g., if environment 1 is marked, then the source will be unloaded from env 1 after it has been moved to env 2 etc. As the migration stops at the Master Environment, the SYSOBJH function will be called twice, once for the Master and once for the From environment.
- **PATH CHOICE** – The user may decide on whether to UPLOAD, DOWNLOAD or UPLOAD ONLY during the initial migration step. PATH CHOICE set to Y will allow the user the choice of an UPLOAD or DOWNLOAD, a PATH CHOICE set to U will force the user into an UPLOAD migration only, with no choice, while PATH CHOICE set to N will default to the normal migration process. i.e. N = during the first migration step the objects linked in the ISR will automatically be downloaded from the MASTER to the INITIAL environment, once the code has been amended in the INITIAL environment, the migration will once again move up the line in an UPLOAD movement. Y = during the first migration step the user will be requested to enter a 'U' for Upload or 'D' for download. If D is selected, the default process as set up in PATH CHOICE = N will be followed. If U is selected, the objects linked in the ISR will NOT be brought down from the MASTER environment, but will move directly from the INITIAL environment. Please note, that if U is selected, the code must be available in the initial environment for movement, else the ISR will abend. If the object is NEW, it will automatically have a choice of U set, as there will be nothing in the MASTER to download. If a profile needs to be SUSPENDED, then enter a path choice of an 'S'. This will allow no further use of the profile, but it will be available for history purposes (restores via CC200 or enquiries).
- **IMPORTANT NOTE referring to path choice** – if U is selected, and the object is therefore NOT brought down from the MASTER, there will be no backup of this object in the initial environment and if a restore is needed, it will be restored from the previous backup version of that particular object.



- **COMMENT** – This indicator must be set to 'Y' or 'N'. If set to Y a comment will be added to the end of the actual source of a migrated object, referring to the ISR number and date of migration. If set to 'N', a comment will be NOT added. Comment of 'Y' is only allowed for Development Environments and if a compile option is selected, where Development Environments refer to any environment that resides on the True Development Server.
- **MIGRATE USER** – This user will be used in the migration of objects to and from environments, irrespective of who is signed on when the migration takes place. All copies, backups, restores and compiles will be carried out by this userid. The Userid or Group Allowed will continue to be validated even if a Migrate User has been entered. This Userid or Group Allowed is a security based option, ensuring that only specified users are allowed migration. A MIGRATE USER does not prevent a user from migration, but ensures that only the migrate user will be used in the actual transaction of migration. This MIGRATE USER must be a valid user and must be authenticated, else the migration will not be successful. See below for example of authentication. Note, however, that the Userid doing the migration must still be authenticated for remote shell commands, as it will be used in the creating of temporary work files during a migration process.

Authentication as follows:

**Secure Shell Authentication When using a Migration User-id**

- The LUW ssh security definitions located in the **~migration-user-id-home/.ssh/authorized\_keys** file, should be duplicated to all users required to execute function CC100.
- The LUW administrator should facilitate this access.
- The administrator can use the following command to validate the access:  
From your user-id on O/S level execute:  
`ssh <your-server> -l <migration user-id> ls -l`

Example:

**ssh cronus-dev -l sag ls -l**

If the User-id has not been authenticated, then a window will be displayed during a migration using function CC100, and this window will cause the user to "hang" and the migration will not continue. See function CC100 for further explanation. See screen print below. To test this, before taking a migration function, use PF5 in CC001 signed on as the required user.



```
gm712@CRONUS01:~  
CCP100          *** Cronus Consulting - DEV ***          09/14 08:47  
CCM10001        Transfer ISR between Environments        GM712  
  
                Remote Access Verification                  
[█]             Verifying remote access -please wait...  
Pl             If this screen is visable for more than 30  
                seconds. Validate remote authentication to host:  
                Server: CRONUS01 User id: gm712  
(U)p          Please terminate this session manually!!  
  
Direct Command: _____  
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---  
Quit
```

### Authentication Window in CC100





### 3.1.3 CC010 – ISR Code Maintenance

This function is used to maintain codes that are specific to the run environment of all EspControl processes and should be administered by the person responsible for setting up and maintaining the system run environment.

#### ISR CODE TYPES:

Code Type	Description
ADHOCL	Default <b>ADHOC,E,99,99</b> where 1 <sup>st</sup> code is Natural Library/SCL User to be used for Adhoc moves via CC200 (example ADHOC library). The 2nd code can be <b>E,Y or N</b> . If <b>N</b> then Adhoc module moves cannot be run via CC200. If <b>Y</b> then Adhoc module moves are allowed by any user who has access to CC200. If <b>E</b> , then the USERID must be added to RESTOREPRD and only this list of users is able to do Adhoc module moves. 3rd code must be the Production Environment number as seen on CC001 and the 4th code must be the Development environment number as seen on CC001.
APPLIC	SCL Users allowed in EspControl. If only default <b>SCLUSER</b> is loaded, then this code is not used. Else load applicable <b>SCL USER's</b> which are available for use in EspControl.
APPROVE	ISR Approval users. If only default <b>APPUSER</b> is loaded, then this code is not used. Else load <b>USERID's</b> who can approve ISR's via CC060. If user is not on this list, cannot execute CC060.
AUDITRPT	<b>Y</b> (audit report for CC100 will be sent to the printer) or <b>N</b> where no report is required.
CALLBACK	List of Callback users who can run Emergency ISR's. If only default <b>CALUSER</b> is loaded, then this code is not used. Else load <b>USERID's</b> who are able to run Emergency ISR's.
COMPDEBUG	<b>Y</b> will not delete temporary log files during a CC100 migration, <b>N</b> all temporary logs will be deleted after each CC100. Not to be set on permanently, only to use if the reason for an error cannot be determined.
COMPLETE	<b>Y</b> to automatically complete the ISR after a CC100 move, when entering on the window after a successful move to Production. <b>N</b> to allow the user to complete via CC070.
DEFAULTPRF	Set with a default <b>PROFILE</b> that will be pulled in for each ISR creation in CC030/CC035, or <b>NONE</b> for no default profile. This profile must be an existing profile and will be used for all ISR creations. This can however be overridden in CC030.
EMERGENCY	<b>Natural Library</b> to be used for Emergency ISR's and Emergency move via CC200.
ENVIRON	Contains the next number to be used as a pre-numbered Environment and not the environment number on the Control Variable definitions (used in background of EspControl). Cannot be amended.
ESPBATCH	Contains a Y or N and if set to Y, SCL transfer will be allowed, if set to N SCL transfer will not be available.
INITBACK	Contains a <b>Y or N</b> and if set to <b>Y</b> the initial backup routine may be run and normal migration may not, and if set to <b>N</b> normal migration may continue and the initial backup may not.
ISRNO	Contains the next ISR no to be allocated when an ISR is created via CC030.
ISR'STATUS	Provides a list of possible status's that will be applicable to an ISR.
ISRTYPE	Provides a list of possible ISR types. ISRTYPE is used to group an ISR according to the type of development. NAT, OLD and UBK are system defined types and cannot be amended.
NOSTOW	<b>Y</b> allows a profile choice where modules are NOT stowed in Production. <b>N</b> forces a profile choice of stow for Production.
PRFCALL	<b>Prefix</b> of Emergency names to be used if CALLBACK is used e.g. <b>EMERG</b>





RESTOREPRD	List of Users who can restore to Production via CC200. If only default <b>PRDUSER</b> is loaded, then this code is not used. Else load <b>USERID's</b> who can select the Production restore via CC200.
RETAPP	<b>Y</b> to require Approval via CC061 to return ISR's via CC102. <b>N</b> to allow immediate use of CC102 without approval.
RULES	<b>CALLBACK</b> = <b>Y</b> (Use CALLBACK user list) or <b>N</b> (do not use CALLBACK list). <b>EMERGENCY</b> = <b>Y</b> (Include rules for Emergency moves) or <b>N</b> (do not check any Emergency profiles/ISR's for specific rules). <b>POPCC35</b> = <b>Y</b> (Pre-population of ISR Description and hours in CC035) or <b>N</b> (Ignore pre-population). <b>RESTOREPRD</b> = <b>Y</b> (Use RESTOREPRD user list) or <b>N</b> (do not use RESTOREPRD list).
SAMEAPPROV	<b>Y</b> for allowing the user who creates the ISR to also approve/migrate the ISR. <b>N</b> requires that the creator of the ISR cannot also run and approve it. If set to <b>S</b> and any amendments are made to the ISR, then CC100 checks the date and time of the last approval and if not greater than the save date and time, it requires further approval via CC060.
SAMESTAGE	Contains a <b>Y</b> or <b>N</b> and if set to <b>Y</b> , staging area may be duplicated across environments, and if <b>N</b> , then different staging areas must be set up. SAMESTAGE should not be set to <b>Y</b> unless all environments are on different servers.
SCLADHOC	<b>CODES</b> – default <b>E,99,99</b> where 1st code can be <b>E,Y</b> or <b>N</b> . If <b>N</b> then SCL Adhoc moves cannot be run via CC200. If <b>Y</b> then SCL Adhoc moves are allowed by any user who has access to CC200. If <b>E</b> , then the <b>USERID</b> must be added to SCLADHOC and only this list of users is able to do SCL Adhoc moves. <b>ADHUSER</b> is the default template user but not used in CC200. 2 <sup>nd</sup> code must be the <b>Production Environment</b> number as seen on CC001 and the 3 <sup>rd</sup> code must be the <b>Development environment</b> number as seen on CC001.
SECURITY	Contains an <b>A</b> , <b>N</b> or <b>Y</b> and refers to the ISR Security indicator in CC030/CC035, if code = <b>A</b> , indicator may be marked with <b>Y</b> or <b>N</b> , if code = <b>N</b> , the indicator may ONLY be marked with <b>N</b> , and if <b>Y</b> , the default will be <b>N</b> when creating the ISR, but may be amended by the user to <b>Y</b> if necessary.
STORECC	Library names added here will be allowed to be used in the scan function in CC050 option PF2, without doing an actual check to see if the source exists. This will only create the entry in the Inventory List using the current module type for the object that already exists in the Inventory List. These will typically be call-out libraries. CC050 option PF5 will also validate the STORECC list of libraries whereby the module will be scanned in from the actual library but will be created using the STORECC.
SUPERUSR	Enter the <b>USERID</b> for the user who in emergency situations may amend ISR profiles that have open ISR's linked. In normal circumstances, only the USERID or GROUP may be altered if open ISR's exist. Enter <b>NONE</b> when this function is not required.
SYSTEM	Provides a list of defined systems within the development environment. The SYSTEM variable may also be loaded with "codes" which can be used to control the GENERIC library set up if <b>GENERIC</b> is used in any profiles. In this manner a GENERIC library may be set up per ISR as SYSTEM is linked to each ISR. For example, this could be used if multiple Developer libraries are used. See <b>ISNUX100</b> for how to set up if SYSTEM is to be used to control GENERIC libraries. System <b>ACC</b> is the default system and just refers to Access and will not be used in any generic coding.
VALIDPATH	<b>Y</b> will validate the fuser paths/objects at the start of an ISR. <b>N</b> will skip the validation for any non-production ISR's. When moving to the Production environment the paths are always validated. This option of <b>N</b> , will speed up the time it takes to migrate an ISR. However, all paths used including the backup/staging areas for all Natural libraries need to have already been created.
XREFNO	Contains a <b>Y</b> or <b>N</b> and if set to <b>Y</b> will force user to enter a XREF No when creating an ISR, and if <b>N</b> , then XREF is optional. This number is normally a site-specific number and there is a user-exit available to validate this number if required, ISNUX030. This



routine may be amended per site and exists in library ESPSOFT. Instructions will be found in ISNUNIX030 itself.

```
gm712@CRONUS01:~
ISP010          *** Cronus Consulting - DEV ***          09/14 09:31
ISM010          ISR Code Maintenance                    GM712

*Code Type.....: _____ (Only Code Values may be Amended)

  ADHOCL      ADHOC Library
  APPLIC      App SCLUSER security
  APPROVE     ISR Approval Users
  AUDITRPT    Audit Report
  CALLBACK    Callback Users
  COMPDEBUG   Compile Debug
  COMPLETE    Auto Complete ISR
  DEFAULTPRF  Default Profile
  EMERGENCY   EMERGENCY Library
  ENVIRON     Environment No

Reposition: █

Dire
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
```

#### ISR Code Types as specified in table above

```
gm712@CRONUS01:~
ISP010          *** Cronus Consulting - DEV ***          09/14 09:31
ISM010          ISR Code Maintenance                    GM712

*Code Type.....: _____ (Only Code Values may be Amended)

  ESPBATCH    EspBatch Running
  INITBACK    INITIAL Backup
  ISRNO       New ISR Number
  ISRSTATUS   ISR Status
  ISRTYPE     ISR Type
  NOSTOW      No Stow in Prod
  PRFCALL     Callout Profiles
  RESTOREPRD  Prod Restore Users
  RETAPP      ISR Return Approval
  RULES       RULES

Reposition: █

Dire
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
```

#### More ISR Code Types as specified in table above



```

gm712@CRONUS01:~
ISP010          *** Cronus Consulting - DEV ***          09/14 09:31
ISM010          ISR Code Maintenance                    GM712

*Code Type.....: _____ (Only Code Values may be Amended)

  SAMEAPPROV  Same Approver
  SAMESTAGE   Same Staging Area
  SCLADHOC    SCL ADHOC Users
  SECURITY    ISR Security Default
  STORECC     Add Module to CC
  SUPERUSER   CC Super User
  SYSTEM      System Prefix
  VALIDPATH   Validate ISR Paths
  XREFNO      XREF Number

Reposition: █

Dire
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

More ISR Code Types as specified in table above

```

gm712@CRONUS01:~
ISP010          09/14 09:31
ISM010          GM712

*Code Type...  Available Options
                -----
                █ A  Add a Code Value
                - C  Change a Code Value
                - D  Delete a Code Value
                - E  Enquire on a Code

  ADHOCCL
  APPLIC
  APPROVE
  AUDITRPT
  CALLBACK
  COMPDEBUG
  COMPLETE
  DEFAULTPRF  Default Profile
  EMERGENCY   EMERGENCY Library
  ENVIRON     Environment No

Reposition: _____

Dire
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

Available options for Selected Code Type for e.g. CALLBACK



```

gm712@CRONUS01:~
ISP010
ISM010

*Code Type..
  ADHOCL
  APPLIC
  APPROVE
  AUDITRPT
  CALLBACK
  COMPDEBUG
  COMPLETE
  DEFAULTPRF Default Profile
  EMERGENCY EMERGENCY Library
  ENVIRON Environment No

Reposition:

Dire
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Quit

Available Options
-----
  C Change a Code Value
  E Enquire on a Code

s may be Amended)
-----

```

### Example of a different subset of options for a specific Code Type for e.g. COMPDEBUG

**ISR CODES** are predefined and may not be added to or deleted, only CODE VALUES associated with these code types may be amended and their functional options are determined by what type of ISR Code is being selected. Therefore, only specific codes may be amended or code values added to. By selecting the required code, the help function will assist the user in reflecting what options are allowed, either Add, Change, Enquire or Delete. See two examples above of different code types having different option selections.

Example 1: CALLBACK – new users may be added or deleted for this code, so this ISR code may have many code values, in this case “userid”.

Example 2: COMPDEBUG – code value may only be amended to either a Y or N, no additions allowed.

### Special Notes:

- COMPDEBUG – when any migration (transfer, return or restore) is executed, the objects get compiled, stow'ed or saved, depending on the profile indicators. These compile-type routines generate scripts across servers. If this indicator is marked as 'N', these scripts will not be removed at the end of a migration. If marked with 'Y', these scripts will remain for debugging purposes. It is a good idea to leave this indicator as an 'N', until a problem occurs that requires compile debugging. This can then be turned on, and the ISR rerun.
- AUDITRPT – if set to Y, after each successful migration, irrespective of the environment from or to, an audit report (resembling all details on CC100 window) will be automatically sent to the print



queue. This will detail all successes, as well as all errors and error codes. See CC100 for sample screens.

- ISRTYPE – In order to archive an object, the ISRTYPE must be selected as OLD. Use function CC250 and not CC050 and CC100 with ISR's that have the ISR'STATUS set to OLD. If an ISR is created with type OLD, normal migration will not be possible via CC100 and an error will be returned. In the same manner CC250 will return an error if the type is NOT specified as OLD. In order to run an initial backup, the ISRTYPE must be selected as UBK, this will be run via CC350 and as explained above, an error will be returned if CC100 or CC250 is run with this type and vice versa.

If SCL transfer is available, the ISRTYPE must be selected as SCL. This will differentiate between normal ISR's and SCL ISR's and will execute the correct routine from each function selected.

- ESPBATCH – during installation select "Y" if EspBatch is running in environment or 'N' if not. If ESPBATCH = 'Y', SCL selection, copy, transfer, profiles, return and display functions will be available.



### 3.1.4 CC025 – ISR Profile Enquiry

This function is used to enquire on Profiles and depending on the profile path, the status codes will be reflected. It must be noted that each ISR may contain a different path, therefore more than one ISR may contain the same status, but this status will reflect a different environment. All enquiries show the status dynamically with the correct environment path per code. The function is for clarification purposes.

```
gm712@CRONUS01:~  
ISP025          *** Cronus Consulting - DEV ***          09/14 10:33  
ISM025          ISR Profile Enquiry                     GM712  
  
*Option.....: E  
*Profile.....: MASTER_  
*Code Value....: 03_  
  
-----  
Description....: Uploaded to Production_  
                  Uploaded to Production_  
  
Direct Command █  
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---  
Quit
```

### ISR Profile Enquiry

Therefore, status 03 as in the example above means Uploaded to Production, but another profile that only has 2 environments in its path will reflect status 02 as being Uploaded to Production. When checking an ISR status, always refer to the profile to get full clarity. The status will refer to the environment number as selected in a specific profile, and not the environment number set out on the Master in CC001.



### 3.1.5 CC300 – Scan Program Source-code

This function is used to populate the EspControl object inventory and update the “new-object” indicator to “old” on all the objects being scanned in. The function should **only** be executed during the installation procedure of EspControl – or when duplicate copies are made of production libraries on development and the user wants the object to be scanned in as OLD. All objects scanned will be recorded as existing objects in all the environments, which means that the ISR transfer flow will **start** from the Master Index environment to the Initial Environment specified on the profile. If more than one Development environment is specified, this is controlled by the environment number being scanned in from (as reflected below). This means that an object does not have to exist in ALL Development Environments, but at least one, and will be controlled by the profile.

```

gm712@CRONUS01:~
Program source-code scanned !!!
CCP300          *** Cronus Consulting - DEV ***          10:36:01.1
CCM300          Scan Program Source-code (Initial Scan ONLY) 2022/09/14
                                                         GM712

Enter library name...: YOURLIB_
Start program.....: DEMO0000
End program.....: DEMOZZZZ
Scan environment....: 01 - Development

Enter * in library name to scan ALL libraries in chosen environment

Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Quit

```

#### Initial Source Scan

If the Master source-code environment is on a remote system you would have to set the DBID on the EspControl DDMs to reference the Development ESP Database before you execute CC300 – that is, if Entire Net-Work is available – if not **Please contact us to discuss the best options to do the initial source code scan.**

If SCL migration is available, SCL's are not scanned in via CC300, but via a new function CC330. See Appendix A function CC330 at the end of the manual, for detail explanation of how to scan in SCL's.



All types of Objects (e.g. Programs, Maps, Text etc.) may be scanned and will be updated in the Object Inventory with the correct Object Type as they exist in the fuser. A range of programs may be entered and all objects in between, will be scanned in, for example DEMO0000 thru DEMOZZZZ. If the entire library is required enter only \* and \* in both the start and end program parameters.

**If a new object is developed and needs to be part of the Inventory List, this CC300 function must NOT be used, but the new object must be scanned in via PF6, function CC050 as explained below in the manual.**

### **3.1.6 CC330 – Scan SCL's for Transfer**

This function is used to scan in SCL's in the same manner as objects are scanned in via CC300. See Appendix A for full explanation of CC330.





### 3.1.7 CC350 – Run Initial Backup Routine

This function is used to run an initial backup of all objects in a choice of environments, so that a formal EspControl Backup will exist before a new install or an upgrade. As the backup cycle (see CC100 as explained below in the manual), takes the backup when moving FROM an environment, if a problem occurs the very first time an object is migrated, there will be no initial backup. This routine will create such a backup. **Please note, an Initial Backup is highly recommended, as if not run and an ISR aborts which contains an object which is being moved for the first time, no restore will be done and a manual restore will have to be done. This could cause a problem if the ISR aborts while being migrated to the production environment or the user ran a migration on an ISR that has a profile of UPLOAD.**

CC350 runs in the same manner as CC100, it must be executed once for each environment needed to be backed up. While CC350 is in the process of running or has not yet completed the backup for all selected environments, the normal migration of objects via CC100 will NOT be allowed and CC100 will issue an error message if run.

```
gm712@CRONUS01:~  
CCP350          *** Cronus Consulting - DEV ***      09/14 11:02  
CCM35001        Run Initial Backup Routine          GM712  
  
ISR Title: INITIAL BACKUP  
  
Please Supply the Backup ISR number : 14_____  
To take Back Up in Production  
Press <ENTER> to Continue - PF3 to Abort  
  
No Initial Backup Required for SCL's  
  
Direct Command: █  
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---  
Quit
```

#### Run Initial Backup Routine

The initial backup routine has specific steps that must be completed in a specific order, before the above CC350 may commence running. Some of these steps will include transactions explained further in the manual.

**STEP 1:**

- CC002 - Create a profile, ensuring that you have 'BACK' as part of your profile name e.g. BACK01, BACK02 etc
- This profile must have all paths linked that you want to have backed up. E.g. if you want Dev, Test and Prod to be backed up, then PATH = Y for all of the environments. If only Dev and Test, then only mark PATH = Y for these two.
- The profile must have ALLOW-SOURCE = Y and BACKUP = Y. All other indicators may remain as the default as they are ignored.
- Ensure that the ISR-LIBRARY is correctly set up, as this library will determine what library is to be backed up, if specified. If not specified, the library that the object was scanned in with will be used for all environments being backed up. The OBJECT LIBRARY is not used in the initial backup and cannot be set via CC050.
- GENERIC ISR Libraries may also be selected (see CC002 for GENERIC explanation)
- With a BACK\* profile, the library for the initial environment (i.e. True Development) may be amended (this is disallowed with all other profiles). By amending the ISR LIBRARY in Backup profile, a different backup may be run for each library in each environment (a different ISR number), if required.

```

gm712@CRONUS01:~
CCP002          *** Cronus Consulting - DEV ***          09/14 10:42
CCM00201        Maintain ISR Profiles                    GM712

Number of Environments...: 3          Profile.....: BACKUP01
Initial Scan Library....: ESPDEMO_    Profile Description...: INITIAL BACKUP
Master Environment Index: 3          Initial Env Index.....: 1
Restore (Y) or (N).....: Y          Path Choice (Y/N/U/S/C): N
Migrate User (optional)..:           Comment (Y) or (N)....: Y (N)one
SCL Type (Y) or (N).....: N          Allow A-A SrcUnl User/ (S) tow Back
Select Path Environment Source Y/N Y/N G Grp Library (C) at Y/N
1 - Y Development Y Y N - - S Y
2 - Y Test Y Y N - - S Y
3 - Y Production Y Y N - - S Y
4 - - - - - - - - - - - - - - -
5 - - - - - - - - - - - - - - -
6 - - - - - - - - - - - - - - -
7 - - - - - - - - - - - - - - -
8 - - - - - - - - - - - - - - -
9 - - - - - - - - - - - - - - -
10 - - - - - - - - - - - - - - -
G-Mark with Y for Group
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit PgDn

```

**CC002 Step 1: Create BACKUP profile**

**STEP 2:**

- CC010 – Check ISR-CODE INITBACK and it will be set to Y after an install, but will still be N if an upgrade has been done (Y is the default from the install program that is run initially). If you do not want to run an initial backup, then set this to N and EspControl will not allow you to run CC350. If it is set to N and you want to run an initial backup after an upgrade, set to Y. Once CC350 is complete, EspControl will automatically set INITBACK to N. If you wish to run another initial backup, you can manually amend the code to Y and redo CC350.

```

gm712@CRONUS01:~
ISP010          *** Cronus Consulting - DEV ***          09/14 10:43
ISM010          ISR Code Maintenance                    GM712

*Code Type.....: INITBACK__          (Only Code Values may be Amended)
*Option.....: C
*Code Value.....: Y_____

-----
Description.....: Initial Backup must be set to Y or N_____

Direct Command █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
  
```

**CC010 Step 2: Set INITBACK code**

**STEP 3:**

- CC035 - Create an ISR with automatic approval and choose ISR type UBK as your ISR type. Link your "BACK01" profile to this ISR.
- The ISR will automatically link the objects when running via CC350 and will run as a normal ISR does – it creates history, displays objects etc. and completes as a normal ISR, after running once for each environment specified in the BACKUP profile, but only does a backup of the module, no actual copying occurs.

```

gm712@CRONUS01:~
ISP035          *** Cronus Consulting - DEV ***          09/14 10:59
ISM035          ISR Request and Approval                 GM712
Option: C
ISR No: 14      92 - Approved by IT
-----
Originator.....: GM712                                Date Requested: 20220914 (YYYYMMDD)
Telephone Ext...:                                     Date Required.: 20220914 (YYYYMMDD)
ISR Title.....:  INITIAL BACKUP                        Profile.....:  BACKUP01
Xref Number....:  MANUAL                                ISR Security..:  N
Approved.....:  A (A)pproved (R)ejected                ISR Type.....:  UBK
Estimated Hours:  1.00                                Est Comp Date.: 20220914
System.....:    ACC Access Control
Audit User.....:
Description of Request                                     Page: 1 of 6
INITIAL BACKUP
-----
Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit          PgUp   PgDn

```

**CC035 Step 3: Create and Approve the ISR****STEP 4:**

- CC350 – Run the initial backup function, various validation checks will be done and only if all these checks are clean will the routine commence.
- Run CC350 for as many times as number of environments linked in the backup profile. CC350 will execute one backup per environment at a time.
- Only UBK ISR's created and linked to BACK\* profiles will be allowed. The backup routine MAY NEVER be run when any objects are linked to other ISR's. It must run as a stand-alone routine, with all objects being open for backup. This will also be validated.
- ISR Code INITBACK (CC010) must be a Y.
- No Objects are linked physically in CC350, as in a normal ISR (See CC050 as explained below in the manual). The CC350 routine does this for you, depending on the ISR library captured in the BACK\* profiles.



- The objects being backed up will reflect on the screen and also the status of the backup. Y for backup correctly and N for no backup if an error has occurred. CC350 will never halt if the objects do not exist or could not be backed up correctly. A report will be sent to the spooler at the end of the routine for any objects that were not correctly backed up. These may also be viewed in the history transaction CC095 (explained below in the manual).
- CC350 will also do a path validation of the backup paths used in the running of CC350. If these backup paths do not yet exist, they will be automatically.

```
gm712@CRONUS01:~  
Initial Backup Routine cannot run - Objects already Linked  
CCP350          *** Cronus Consulting - DEV ***          09/14 11:02  
CCM35001        Run Initial Backup Routine              GM712  
  
Please Supply the Backup ISR number : 14 _____  
  
No Initial Backup Required for SCL's  
  
Direct Command: █  
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---  
Quit
```

#### CC350 Step 4: Validation check for Linked Objects - Error



```

gm712@CRONUS01:~
CCP350                      Run Initial Backup Routine          09/14 11:05
CCM35002                    Taking Backup From Test             GM712
  To      ISR NO: 14 - INITIAL BACKUP
Library  Object  Backup  Back Lib  Resp
ESPDEMO  TST3    Y      ESPDEMO
ESPDEMO  ZGL1    Y      ESPDEMO
ESPDEMO
ESPDEMO
ESPDEMO
ESPDEMO
ESPDEMO
ESPDEMO
ESPDEMO
ESPDEMO
ESPDEMO  ZGL4    Y      ESPDEMO
ESPDEMO  ZGL5    Y      ESPDEMO
ESPDEMO  ZGL6    Y      ESPDEMO
ESPDEMO  ZGL7    Y      ESPDEMO
ESPDEMO  ZGL8    Y      ESPDEMO
ESPDEMO  ZGL9    Y      ESPDEMO
ESPDEMO  ZGLERR5 Y      ESPDEMO
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Quit
  
```

#### CC350 Step 4: Detail screen reflecting objects being backup up

#### STEP 5:

- CC070 - Once CC350 has been run for all linked environments, the ISR will complete via CC070 in the same manner as a normal migration routine (see CC070 as explained below in the manual).
- All the objects will be un-linked, the completion flag for the ISR set on and the INITBACK code set to N. Continue with EspControl.
- These backups will then be used as a “previous backup”, if your ISR abends on a specific object and it is the first time the object is being migrated.
- CC200 can be used to restore from the initial backups as well, if required.

**NOTE: New Objects are not included in the Initial Backup. At install time all objects would already be existing objects and if the initial backup is run again at upgrade time or whenever requested, NEW OBJECTS do not need a backup as they only exist in Development and will create the first backup once being moved from Development. The New Object Indicator seen in CC050, as explained below in the manual, will determine this.**



```

gm712@CRONUS01:~
CCP350                      Run Initial Backup Routine          09/14 11:02
CCM35002                     Taking Backup From Production      GM712

  To      ISR NO: 14 - INITIAL BACKUP
Library  Object  Backup  Back Lib  Resp
ESPDEMO  TST3    N      ESPDEMO
ESPDEMO  ZGL1    Y      ESPDEMO
ESPDEMO
ESPDEMO
ESPDEMO
ESPDEMO
ESPDEMO
ESPDEMO
ESPDEMO
ESPDEMO
ESPDEMO  ZGL4    Y      ESPDEMO
ESPDEMO  ZGL5    Y      ESPDEMO
ESPDEMO  ZGL6    Y      ESPDEMO
ESPDEMO  ZGL7    Y      ESPDEMO
ESPDEMO  ZGL8    Y      ESPDEMO
ESPDEMO  ZGL9    Y      ESPDEMO
ESPDEMO  ZGLERR5 Y      ESPDEMO
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Quit

```

#### CC350 Step 5: Completion screen for each environment

```

gm712@CRONUS01:~
<ENTER> to complete ISR
ISP070          *** Cronus Consulting - DEV ***          09/14 11:06
ISM07001        Mark an ISR as Completed                GM712

  ISR Number: 14
  ISR Status: 99 - Completed

-----
Profile:      BACKUP01  INITIAL BACKUP
-----
** If Manual Complete and objects should not be restored, Mark with N **
Restore.....: N (Y/N/P - Yes/No/Previous ISR)
-----

Actual Work Hours: 1.00
Completion Date.: 20220914

Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Quit

```

#### CC070 Step 5: Final completion after all linked environments have been backed up



```
gm712@CRONUS01:~  
Job number 1108598: N.20220914.gm712.01 on form type NOPRINT START ^  
....5....10....15....20....25....30....35....40....45....50....55....60....65....70....75....  
2022/09/14      List of Objects with INCOMPLETE Initial BACKUPS - >  
11:03:59.8      http://www.cronus.co.za  
  
Backup Environment : Production  
  
      Object      Env      Object      Env  
      Name      No      Name      No  
      -----      ---      -----      ---  
  
ESPDEMO TST3          3      EMERGENCZGL1          3  
EMERGENCNOMAP          3      EMERGENCZGL4          3  
EMERGENCZGL2          3      EMERGENCZGL14          3  
ESPDEMO DEMO01          3  
  
These Objects were not backed up in the Backup Routine (CC350)  
  
Determine why no backup was taken, if necessary take manual backup OR  
Create another UBK ISR and rerun entire CC350, amend ISR Code INITBACK to 'Y>
```

### Initial Backup Error Report





## 3.2 ISR Transfer Function Overview (CC501)

### 3.2.1 CC030 – ISR Request Capture

This function is used to capture and maintain an ISR (Information Service Request). The ISR detail should be completed either by the business analyst responsible for the request or by the developer on behalf of the originator of the service request.

#### Function Options:

- A** - Add ISR
- C** - Change ISR
- E** - Enquire on a ISR

```

gm712@CRONUS01:~
ISP030          *** Cronus Consulting - DEV ***          09/14 11:45
ISM030          ISR Request Capture                      GM712
Option: C
ISR No: 15      90 - New ISR Generated
-----
Originator..... GM712                                Date Requested: 20220914 (YYYYMMDD)
Telephone Ext.:                                     Date Required.: 20220914 (YYYYMMDD)
ISR Title..... MANUAL DEMONSTRATION                  Profile..... PRD2DEV_
Xref Number...: 9001                                ISR Security..: N
System.....: ACC Access Control
Audit User.....:
-----
Description of Request                                Page: 1 of 6
Test the CC migration routine
Manual Demo
█
-----
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit                                PgUp  PgDn

```

#### ISR Capture

When adding a new ISR (Option **A**) the system will automatically generate the next ISR number using the ISRNO Code Type found in CC010. This number is used internally by EspControl and referenced throughout the application. If the Comment Indicator is switched on, then EspControl automatically inserts a reference at the end of the source object during the migration between environments. The ISR Number, ISR Title and Dev Team Member (from CC040) fields are inserted as the comment line. Option “**C**” is used to maintain the ISR detail. Access to the ISR detail is restricted as soon as the ISR is approved.

#### The following information must be entered for an ISR:

- Originator - Set to the User-ID of the person capturing the ISR
- Date Requested - The date that the ISR was requested.



- 
- Telephone Ext. - The telephone number or extension of the person that initiated the ISR. Optional.
  - Date Required - The date when the ISR should be completed.
  - ISR Title - A brief description of the ISR.
  - Profile - This must be a valid Profile (enter for help on Profile names).
  - Description - A detailed description of all requirements pertaining to the request. The description is a scrollable area – PF7 and PF8 can be used to page backwards or forwards.
  - XREF Number - The Project Number or Ticket Number used by the client to link the ISR to their own Project Control system. If the ISR CODE XREFNO is set on, then this x-ref is mandatory. This number can be verified by the client in coding inserted in the user exit ISNUX030, and then if not valid an error will be returned. If this is not required, leave ISNUX030 as it is.
  - ISR Security - Must be Y or N. If “Y”, then security is switched on and only the originator may approve (CC040), link objects (CC050) and transfer objects (CC100). If set to N, no user-id restrictions, but menu restrictions will be used. The ISR Code SECURITY can be set to determine defaults (see CC010 as explained above in manual).
  - System - Enter for help on System Code, enter system affected by ISR. The System may also be used to assist with the creation of GENERIC libraries (see CC010 for code SYSTEM and ISNUX100 for updating of these GENERIC libraries). In this manner a different GENERIC library may be set up for each ISR.
  - Audit User - Audit user will be automatically updated by the user creating the ISR.



The ISR will be migrated using the path and all the data captured on the Profile (see CC002) linked to this ISR. Therefore, every ISR set-up could be linked to a different profile and will follow its own path using its own set of indicators to determine Source, Restore, Backup, Stow/Cat and User-id functionality. The ISR No will be used through the entire EspControl system, linking objects, restore capabilities, history enquiries, status summaries and migration routines together.

Only ISR Status – 90, 91, 92 (created, approved and new) will allow specific detail to be amended, once the ISR is in migration status, only certain detail may be amended, depending on the status. The long description, XREF number and ISR Security may still be amended via CC030, once a migration move has taken place and the status does not conform to the ones specified above, but ONLY by the originator of the ISR or the approver of CC040. Any other user will be disallowed from amending these. Use CC040 to amend the long description if required by the approver. Once the ISR has been completed, NO detail amendments will be allowed by any user, originator or not.

```

gm712@CRONUS01:~
ISR has Security and User is not Owner, Cannot Link Objects
ISP050          *** Cronus Consulting - DEV ***          09/14 12:38
ISM050          Select Objects for Transfer              HP712

ISR....: 14_____ Status:
Profile:      Desc :
Lib Dep Library Object Mode Object Type Current ISR Stat New Saved By Date

L=Lib
Restart at Library:      Object:      No of Objects:
Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Dupl      Quit

```

**Example of the error message in function CC050, if SECURITY in CC030 is YES**



### 3.2.2 CC035 – ISR Request and Approval

This function is used to capture and maintain an ISR (Information Service Request) and do the approval at the same time. It is a combination of both CC030 and CC040. The process, rules and validation of this function will be the same as explained in CC030 and CC040. If CC035 is used to create the ISR then there is no need for approval via CC040. The only time CC040 will be used, is to link an SCL ISR to the created ISR. This is explained in CC040 below.

#### Function Options:

- A** - Add ISR
- C** - Change ISR
- E** - Enquire on a ISR

```

gm712@CRONUS01:~
ISR security must be (Y)es or (N)o
ISP035          *** Cronus Consulting - DEV ***          09/29 06:16
ISM035          ISR Request and Approval                  GM712
Option: C
ISR No: 33      90 - New ISR Generated
-----
Originator.....: GM712                                Date Requested: 20220929 (YYYYMMDD)
Telephone Ext...:                                     Date Required.: 20220929 (YYYYMMDD)
ISR Title.....: NEW ISR COMBINE                        Profile.....: PRD2DEV_
Xref Number....: APPROVAL                               ISR Security..: N
Approved.....: A (A)pproved (R)ejected                 ISR Type.....: NAT
Estimated Hours: 1.00                                  Est Comp Date.: 20220929
System.....: ACC Access Control
Audit User.....:
Description of Request                                     Page: 1 of 6
NEW ISR COMBINATION TEST WHEN CREATING.
-----
Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit          PgUp   PgDn

```

#### ISR Capture and Approval



### 3.2.3 CC040 – Approve ISR Request

This function is used to capture all IT related information that pertains to an ISR. This function is also used to approve or reject an ISR before any migration occurs. If rejected, the ISR will not be allowed for any further linking of objects or migrating of objects. It will be in the EspControl system for History purposes only as a request not allowed.

Function Options:

- C - Change an ISR or
- E - Enquire on an ISR

```

gm712@CRONUS01:~
Estimated Man Hours must be Entered
ISP040          *** Cronus Consulting - DEV ***          09/14 12:38
ISM040          IT Request Maintenance                  GM712

Option: C
Isr No: 15          91 - Captured by Originator

-----
Profile:  PRD2DEV          Description:  PROD TO DEV
Approved:  A (A)pproved (R)ejected          Date Received by IT....: 20220914
Date Request Registered: 20220914          System.....: ACC
Estimated Comp Date....: 20220914          Development Team Member: GM712
Estimated Work Hours....: 1                ISR Type.....: NAT
Audit User Id.....: GM712                ISR Security.....: N
Link SCL ISR.....:
Description of Change / Other Enhancements  Page: 1 of 6
Test the CC migration routine
Manual Demo

Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit                PgUp  PgDn
  
```

### ISR Approval

If the ISR SECURITY field has been marked with a "Y" in CC030, then only the user who created the ISR in CC030 may approve this request.

- The following data, that is not populated from CC030, must be entered for an ISR:
- Approved - Approve / Reject the ISR (Y or N)
- Date Received by IT - Set to System Date
- Date Request Registered - Date that ISR was requested
- Estimated Comp Date - Date by which request will be completed
- Development Team Member - Developer assigned to the request
- Estimated Manhours - Time required completing the ISR



- 
- ISR Type
    - Type of request – selected from the code ISRTYPE  
**Always select OLD for Archiving.**  
**Always select UBK for Initial Backup.**
  - Description
    - May be added to or amended here, once blocking of CC030 detail has occurred



### 3.2.4 CC050 – Link Objects to an ISR

The function is used to select all objects that form part of the requested ISR.

```

gm712@CRONUS01:~
ISP050          *** Cronus Consulting - DEV ***          09/14 12:42
ISM050          Select Objects for Transfer              GM712

ISR.....: 15          Status: 00 - Object Selection in Progress
Profile: PRD2DEV      Desc : PROD TO DEV

Lib Dep Library Object Mode Object Type Current ISR Stat New Saved By Date
X  -  - ESPDEMO DEMO01 R Program          15  99      Y GM712 20220914
-  -  - ESPDEMO DEMO02 R Program          Y GM712 20220914
-  -  - ESPDEMO DEMO03 R Program          Y GM712 20220914
-  -  - ESPDEMO DEMO04 R Program          Y GM712 20220914
-  -  - ESPDEMO DEMO05 R Program          Y GM712 20220914
-  -  - ESPDEMO DEMO07 R Program          Y GM712 20220914
X  -  - ESPDEMO DEMO08 R Program          15   1  Y GM712 20220914
X  -  - ESPDEMO DEMO09 R Program          15   1  Y GM712 20220914
-  -  - ESPDEMO DEMO10 R Program          Y GM712 20220914
-  -  - ESPDEMO DEMO11 R Program          Y GM712 20220914
-  -  - ESPDEMO DEMO12 R Program          Y GM712 20220914
-  -  - ESPDEMO DEMO13 R Program          Y GM712 20220914

L=Lib          ** Start of Data **
Restart at Library:  Object:          No of Objects: 3
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Dupl AddCC QUIT Error ScanD Scan          PgDn          Curr

```

#### Object Selection for Transfer

Once the ISR No has been entered a list of all objects will be displayed that can be linked to the ISR. If an object is currently linked to another ISR it will still be displayed but will **not** be available for selection.

Objects can now be linked by entering a 'X' next to the object in the New Column. The number of objects that are currently linked to the ISR will be updated at the bottom right of the screen during object selection. By marking the **Dependents** column for a given object all dependents for the selected object will be marked automatically (EG. If the Object contains a FETCH and a CALLNAT, both objects will be selected and form part of the ISR). However, if these dependents are already linked to another ISR, they will be ignored.

**Please note:** Dependents are not available for LDAs, PDAs and GDAs. The Dependents function is only available if SOURCE exists in the scanned Development environment and has not been moved out via Allow-source = N or = M. In this case, the user must mark the dependents manually to become part of an ISR.

**PF10** acts as a toggle key to display all objects or just the objects linked to the current ISR.

Once an object has been selected the Current ISR column will be updated to reflect that the object is now linked to the current ISR. The Status displayed under the Status column will indicate in which environment the object currently is. The status of an object will constantly be updated as transfers take place across the defined environments. Depending on the profile per ISR, each status could reflect a different environment.



For example, 01 could reflect DEVELOPMENT on one ISR and Test on another ISR if the second ISR was linked to a short-path profile (from Test to PROD only).

When an object is selected the status will be updated to one of the following values:

- 99 - The object is currently in the master environment and will be downloaded to Initial Environment (Existing Object) or Upload only as specified by the profile
- 01 - New Object (Does not require download from master environment as new objects are created in development)

If the ISR status is greater than 01, it indicates that the object was previously selected and the ISR has already been transferred. This does not prohibit the linking of additional objects to the ISR.

If an object is deselected from the ISR, a choice is given to select a restore of the object or not. If NO RESTORE is selected (mark with N), the object is unlinked, the object status is reset, but the object itself will remain where it is in the migration path of the chosen ISR. e.g. if the object had been moved from Dev to Test and then deselected with no restore, the object will remain as is, in both Dev and Test. If RESTORE is selected (mark with Y for Restore from current backup version or P to restore from Previous backup version), the object is unlinked, the object status is reset and the object is restored using the backup version selected above to all the environments processed in the migration path of the chosen ISR. For Restore = Y, the backup version used will be the one from the current ISR or if no backup exists, the previous version backed up in the previous ISR. For Restore = P, the previous version will always be used irrespective if a current backup exists or not. Once an object has been removed from the ISR it will be available for selection by other ISR's. If the indicator ALLOW-SOURCE has been set to 'N', the object (compiled) code will be restored to all affected environments, but the source will only be restored to the initial environment of the profile linked to the ISR. This will allow the user to work on the object source again before being re-linked to another ISR. Source is always restored to the Staging Area in all environments, irrespective of the ALLOW-SOURCE indicator. If the indicator ALLOW-SOURCE has been set to 'M', then the source and object will be restored back to the environments. The restoring window will reflect as in function CC110 in this document.



```

gm712@CRONUS01:~
*** Cronus Consulting - DEV ***
09/14 13:18
ISM050 Select Objects for Transfer GM712

ISR....: 15 Status: 01 - Downloaded to Development
Profile: PRD2DEV Desc : PROD TO DEV

Lib Dep Librar
- - - ESPDEMO
- - - ESPDEMO LIBRARY: ESPDEMO
- - - ESPDEMO OBJECT.: DEMO01
- - - ESPDEMO
- - - ESPDEMO ARE YOU SURE YOU WANT TO REMOVE THIS OBJECT
- - - ESPDEMO
- - - ESPDEMO Enter (Y)ES or (N)O : Y
X - - - ESPDEMO M712 20220914
X - - - ESPDEMO M712 20220914
- - - ESPDEMO
- - - ESPDEMO Restore unlinked Object : Y
- - - ESPDEMO
- - - ESPDEMO M712 20220914
- - - ESPDEMO M712 20220914
- - - ESPDEMO (Y)ES OR (N)O OR (P)rev M712 20220914
- - - ESPDEMO M712 20220914

L=Lib
Restart at Library: Object: No of Objects: 3
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Dupl AddCC Quit Error ScanD Scan PgDn Curr

```

## Unlinking of Objects with Restore options

The scan function (**PF6 Scan**) is used to scan NEW objects in from a specific Natural library and will add this object to the EspControl inventory, to be available for further selection. The function key **PF6** is used to initiate the scan of source code library and scan environment specified, and to update the EspControl inventory with objects added. When scanning via PF6, the object must exist in the environment requested, so that the object type and mode may be picked up. If the object does not exist, it will NOT be added to the Inventory List.

Please note that the **initial scan (CC300)** is still required to build inventory (only for OLD and existing Objects) and using the PF6 option will add or update objects. If an object changes its mode, or object type etc, for example from REPORT to STRUCT, then PF6 must be used to update the mode in the Inventory List. Failure to do this, will result in the ISR aborting as the compile will not work. Using PF6 on an old object will not affect the NEW OBJECT indicator, using PF6 on a new object will update the new object indicator with Y. However, using CC300 on a NEW object WILL affect the new object indicator and the object will be updated into the inventory list incorrectly. If this has been done in error, use PF6 and mark the RENEW indicator with a Y. This will again update the object to NEW.

PF6 may be used with a range of objects using “\*” as the range indicator, but if the Renew Indicator is marked with a Y, no range is allowed and the start and end object must be the same. If the START and END object are the same, only the START object needs to be entered.



```

gm712@CRONUS01:~
ISP050          *** Cronus Consulting - DEV ***          09/14 12:42
ISM050          Select Objects for Transfer              GM712

ISR....: 15          Status: 00 - Object Selection in Progress
Profile: PRD2DEV     Desc : PROD TO DEV

Lib Dep Librar   Scanning Objects
- - - - -
- - - - - ESPDEMO   Enter Library and Object Range to be Scanned
- - - - - ESPDEMO   or PF3 to Exit
- - - - - ESPDEMO   Library : ESPDEMO
- - - - - ESPDEMO   Range : DEMO02 DEMO04 (*) for ALL
- - - - - ESPDEMO   Env No : 1
- - - - - ESPDEMO   ReNEW Existing Obj : N
- - - - - ESPDEMO
- - - - - ESPDEMO   DEMO13   R   Program   Y   GM712   20220914
- - - - - ESPDEMO   DEMO14   R   Program   Y   GM712   20220914
- - - - - ESPDEMO   NOMAP    S   Map       ESPCNTRL 20220914
- - - - - ESPDEMO   TST2    R   Program   ESPCNTRL 20220912

L=Lib          ** Start of Data **
Restart at Library:      Object:      No of Objects:
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Dupl AddCC QUIT Error ScanD Scan PgDn Curr

```

## PF6 – Scan Source Code for New Objects

### PF6

Enter the starting from and ending at range **or** \* to scan the complete library. Scanning a **complete** library might take **some time**, depending on the number of new objects in the Natural Library – a selection can be entered for a specific range of objects. The library name is validated, but the objects are not, the scanning of these objects will add them to the Object Inventory if they exist or ignore them if they do not. The “Env No” that must be entered is defaulted to TRUE DEVELOPMENT, but may be amended by the user if more than one development environment exists. If an environment is chosen that does not exist on the development machine or does not match the Library entered, the scanning will not work! The Library that is scanned in for each of the development environments becomes the default library of that object. These objects will all be scanned in and the Object Inventory updated with the NEW OBJECT indicator set to Yes if the object is new. If an old object is re-scanned it will re-update the Object Type and Mode, but will not set the New Object indicator on.

**NOTE** – If the Allow-source = M option is set on Development and an object is scanned for example, to change the object type or mode and the object does not exist, then no updating will take place. This will also be the case for PF1, the duplicating of objects, see section below. Therefore, these objects **MUST** be present in this environment when they are being scanned or duplicated.



```

gm712@CRONUS01:~
ISP050          *** Cronus Consulting - DEV ***          09/19 08:35
ISM050          Select Objects for Transfer              GM712

ISR.....: 17          Status: 01 - Downloaded to Development
Profile: PRD2DEV      Desc : PROD TO DEV

Lib Dep Librar   Scanning Objects
X  -  -  ESPDEMO   M712 20220914
-  -  -  ESPDEMO   M712 20220914
-  -  -  ESPDEMO   M712 20220914
-  -  -  ESPDEMO   SPCNTRL 20220914
-  -  -  ESPDEMO   M712 20220914
-  -  -  ESPDEMO   M712 20220914
-  -  -  ESPDEMO   M712 20220914
-  -  -  ESPDEMO   M712 20220914
-  -  -  ESPDEMO   DEMO13 R Program Y GM712 20220914
-  -  -  ESPDEMO   DEMO14 R Program Y GM712 20220914
-  -  -  ESPDEMO   NOMAP S Map ESPCNTRL 20220914
-  -  -  ESPDEMO   TST2 R Program ESPCNTRL 20220912

L=Lib          ** Start of Data **
Restart at Library:      Object:      No of Objects: 1
Direct Command: 
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Dupl AddCC QUIT Error ScanD Scan PgDn Curr
  
```

## PF6 – ReNEW Existing Object Indicator set to Y

### Changing Library Names

```

gm712@CRONUS01:~
ISP050          *** Cronus Consulting - DEV ***          09/19 08:35
ISM050          Select Objects for Transfer              GM712

ISR.....: 17          Status: 01 - Downloaded to Development
Profile: PRD2DEV      Desc : PROD TO DEV

Display Library   Display Object   To Library   Environment
ESPDEMO          DEMO04          ESPDEMO_    Development
TEST             ESPDEMO_    Test
ESPDEMO_         ESPDEMO_    Production
Retur            PgUp PgDn
  
```

### Library Selection per Object

By marking the **LIB** column with an 'L', a window will be reflected (see above) and if required to be different from the default, another migration library may be entered. The library from the "TRUE DEVELOPMENT" Environment(s) may **never** change from what was scanned in via **PF6** or the initial setup scan **CC300**.



This True Development is environment 01 in CC001 and not the first environment, in for instance, a short-path profile. If the same object-name exists in different libraries in Development, it may be scanned in again via PF6, so that two entries exist in the Inventory. If the client uses different development libraries for each developer, this may be overcome, by creating a DUMMY first environment on CC001 that is never marked as a Y in any profile path. Then scan the objects in using the Production library and use GENERIC in the profile to “change” the library name for each developer as required.

However, migration from the “True Development” library to any **other** library in the objects migration path **is** possible. This library list will be cleared once the ISR is complete and the next time an object is linked to an ISR, a new set of libraries may be selected. The path of the selected objects via the profile and selected libraries linked to these environments will be stored in History and may be viewed on function **CC095** or function **CC088**. If ‘L’ is entered, the library names (if already there or if an ISR Library has been set up in the profile), are displayed, but may be amended accordingly.

This is optional and if no libraries are selected the scanned library will be used for an entire migration path, with the exception of when an ISR Library has been set up in the profile linked to the specific ISR. Therefore, the migration path of an object, with regards to the linked libraries will be as follows:

1. No external libraries added, no ISR Library set up in profile linked to ISR, use OBJECT LIBRARY in Inventory List (scanned) across all environments.
2. No external libraries added, but GENERIC ISR Library exists, use GENERIC user-exit ISNUNIX100 to determine library.
3. No external libraries added, but ISR Library exists (not GENERIC), use ISR library then Object Library from Inventory List
4. External Libraries added, override both ISR Library and Object Library
5. Restores – use the library that was migrated at the time of the ISR (history kept of this)

**The above Library path is always followed during Migration, Return or Restore.**



## Duplicating Objects

```

gm712@CRONUS01:~
ISP050          *** Cronus Consulting - DEV ***          09/19 08:55
ISM050          Select Objects for Transfer              GM712

ISR....: 17      Status: 01 - Downloaded to Development
Profile: PRD2DEV Desc : PROD TO DEV

Lib Dep Librar Duplicate Scan
X - - ESPDEMO
- - - ESPDEMO Enter Library and Object to be Scanned
- - - ESPDEMO or PF3 to Exit
- - - ESPDEMO From Library : ESPDEMO To Library : EMERGENC
- - - ESPDEMO Object : DEMO14 New Obj Y/N : Y
- - - ESPDEMO Env No : 1_
- - - ESPDEMO
- - - ESPDEMO
- - - ESPDEMO DEMO12 R Program Y GM712 20220914
- - - ESPDEMO DEMO13 R Program Y GM712 20220914
- - - ESPDEMO DEMO14 R Program Y GM712 20220914
- - - ESPDEMO NOMAP S Map ESPCNTRL 20220914
- - - ESPDEMO TST2 R Program ESPCNTRL 20220912

L=Lib          ** Start of Data **
Restart at Library: Object: No of Objects: 1
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Dupl AddCC Quit Error ScanD Scan PgDn Curr
  
```

### PF1 – Duplicate Scan

This function (**PF1 Duplicate Scan**) is used to create a copy of a selected object, from the EspControl inventory in another library in any Development environment and again update the EspControl inventory with the new object name and library. This new object may now be linked to an ISR and be migrated accordingly.

The function key **PF1** is used to initiate the scan, and in turn will copy the source code of the entered **Object** and **From Library**, to the **To Library**. PF1 only copies SOURCE and the object must be manually compiled by the user.

The **New Obj** can be marked as a “Y” or “N” depending on the user requirements. If the original copied object is a new object, then this will be overridden and treated as a new object as well.

**“N”** – Copied object will be created as OLD, amend Libraries in column ‘L’ if necessary. However, when linked to an ISR, the migration will attempt to move this object down from Production first. If this is not required, use a Profile with a Path Choice.

In this manner, ISR's may run in tandem with an object, as long as one ISR is one environment ahead of the other.

## PF4: Setting up Migration of System Error Messages

```
gm712@CRONUS01::~
```

```
ISP050          *** Cronus Consulting - DEV ***           09/19 10:21
ISM050          Select Objects for Transfer              GM712
```

```
ISR.....: 18                Status: 00 - Object Selection in Progress
Profile: PRD2DEV            Desc : PROD TO DEV
```

```
Lib Dep      Error Message Selection
```

No	Lib	Library From	Error No From	Error No To	Status
1		ESPDEMO_	9000	9001	20220914
2					20220919
3					20220914
4					20220914
5					20220914
6					20220914
7					20220914
8					20220914
9					20220914
10					20220914

```
L=Lib
Resta
```

```
Direct Command:
```

```
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
```

```
Exit Upd PgDn
```

EspControl  
ECO



---

## System Error Messages

User defined SYSERR messages, may be migrated along with the objects in an ISR. Error messages can be added to the ISR using PF4 in CC050. A window will be displayed as reflected in the figure above. If no objects are currently being linked, set up a dummy program in the environments where the system error messages are being migrated to, for e.g. SYSERRP and then this program may always be used to transfer error messages without impacting on other objects and ISR's.

Multiple libraries may be specified, with varying range of error numbers. These error numbers should be reflected as a FROM or TO number. If only one error is required, then the FROM and TO error numbers will be the same.

The Libraries that the error messages are being transferred to are specified per ENVIRONMENT.

LIB:	If Libraries that error messages are being migrated to, do not differ from the LIBRARY FROM, then this field need not be used, as the LIBRARY TO will be automatically populated with the same Library as the LIBRARY FROM. If the libraries are to differ, user must enter 'L' in this column.
LIBRARY FROM:	Library System Error Messages are being moved from. This must be a valid library in the Initial Environment.
ERROR NO FROM:	The Starting error number in the range specified.
ERROR NO TO:	The Ending error number in the range specified. The TO ERROR NO cannot be less than the FROM ERROR NO
LIBRARY TO:	The TO LIBRARY specified must be a valid library in the migrated to environment and ALL environments must have a specified LIBRARY TO, as the system error messages will be migrated along with the objects in the same PATH as the linked objects to the specified ISR.

**If the linked objects are OLD objects the original error messages will be migrated from the MASTER Environment to the Initial Environment at the start of the ISR. These may then be amended in the Initial Environment and may be transferred again accordingly.** Alternatively, only add the system error messages via PF4 once all objects are in the Initial Environment (Status 01).

To save the captured Error Numbers, press 'Y' for SAVE or N for Quit without save. Once saved, these error messages will be migrated when function CC100 is executed for the specified ISR to which this Error Selection has been linked. PF5 will also save changes.

```
gm712@CRONUS01::~
*** Cronus Consulting - DEV ***                                09/19 10:22
Select Objects for Transfer                                     GM712

ISR.....: 15          Status: 01 - Downloaded to Development
Profile: PRD2DEV      Desc : PROD TO DEV

Lib Dep Error Message Selection Date
X - - Library From Error Range Library To Environment 20220914
- - - ESPDEMO 9000 - 9001 ESPDEMO_ Development 20220914
- - - EMERGENC Test 20220919
- - - ESPDEMO_ Production 20220914
- - - 20220914
X - - 20220914
X - - 20220914
- - - 20220914
- - - 20220914
- - - 20220914
- - - 20220914
L=Lib Resta Direct Command: 
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
```

**'L' in Lib column, specify Environment Libraries for SYSERR**

```

gm712@CRONUS01:~
CCP100          Transfer ISR between Environments          09/19 11:44
CCM10002        From Test To Production                  GM712
  To          ISR NO: 18 - SYSTEM ERROR MESS             NAT
Library  Object  Backup  Back Lib  Copy  Restore  Compile  Err  Line  Resp
-----
EspControl SYSERR Information
[Redacted]
      SYSERR Procedure Executed:

      Transfer command executed successfully. Report is in
      /opt/softwareag/cronus/ccont_prd/transfer/18.syserr.load.rep

      Press <Enter> to Continue

ESPDEMO  ZGL1      T      F  ESPDEMO  Y  3      N      S  3
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Quit

```

## SYSERR confirmation

**ISR SECURITY** – If the ISR Security of the current ISR has been marked with Y, then CC050 may only be used by the same user who created the ISR. This is irrespective of the function security and whether you have the CC050 function allocated to you or not. Even if it is allocated, if ISR Security is on, then any





user other than the creator will receive the error (as specified in figure below) that they are not the owner and cannot continue with CC050.

```

gm712@CRONUS01:~
ISR has Security and User is not Owner, Cannot Link Objects
ISP050          *** Cronus Consulting - DEV ***          09/19 12:01
ISM050          Select Objects for Transfer              HP712

ISR.....: 17_____ Status:
Profile:      Desc :
Lib Dep Library Object Mode Object Type Current ISR Stat New Saved By Date

L=Lib
Restart at Library:      Object:      No of Objects:
Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Dupl Quit
  
```

### Error if ISR has Security and user for CC050 is not Owner

### Add Emergency Modules to EspControl

```

gm712@CRONUS01:~
ISP050          *** Cronus Consulting - DEV ***          09/19 12:38
ISM050          Select Objects for Transfer              GM712

ISR.....: 17_____ Status: 02 - Uploaded to Test
Profile: PRD2DEV Desc : PROD TO DEV
Lib Dep Library Object Mode Object Type Current ISR Stat New Saved By Date
X - - EMERGEN          Add to CC - - - - - SPCNTRL 20220919
- - - EMERGEN          Enter Library and Object to be Loaded 20190108
- - - EMERGEN          or PF3 to Exit M712 20220912
- - - EMERGEN          Load Library : EMERGENC 20220322
- - - EMERGEN          Object : DEMO05 20220526
- - - EMERGEN          20220526
- - - EMERGEN          20220526
- - - ESPDEMO DEMO01 R Program 15 1 ESPCNTRL 20220914
- - - ESPDEMO DEMO02 R Program Y GM712 20220914
- - - ESPDEMO DEMO03 R Program Y GM712 20220914
X - - ESPDEMO DEMO04 R Program 17 2 Y ESPCNTRL 20220919
- - - ESPDEMO DEMO05 R Program Y GM712 20220914

L=Lib
Restart at Library:      Object:      No of Objects: 2
Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Dupl AddCC Quit Error ScanD Scan PgDn Curr
  
```

### PF2 – Add modules to EspControl



This function (**PF2 Add CC**) is used to add modules to the EspControl inventory in CC050, to be used in a migration move, but with a different library name, in Emergency or Call-Out situations. This function will load the module with the input library name and input object name (as seen above) to the Inventory List for linking and migrating. This function would be used in the case of a call-out where the developer is not allowed in the actual Production Library – he will add the module name to EspControl, using the call-out library and then move the code from the actual Production Library to the call-out library, work on the module and then return it to the actual Production Library. In this manner modules added via PF2 could only move in a Production to Production profile from one library to the other.

The validation rules for PF2 are as follows:

- The library entered is validated against the code STORECC in CC010, where all libraries to be used in this function are specified. Failure to load the library name against the STORECC code will return an error when using PF2.
- The module entered must already exist in the Inventory List on CC050 and the object mode and type will be picked up from this already existing entry.
- Once a module has been added to the EspControl inventory list to a call-out library, if used in a call-out situation again, it need not be re-added as the entry will remain for further use.
- The module loaded via PF2 is not scanned and checked for valid source, but the object information is obtained from the current entry in the Inventory List.

### Add Emergency Modules to EspControl

```
gm712@CRONUS01:~
ISP050          *** Cronus Consulting - DEV ***          09/19 12:40
ISM050          Select Objects for Transfer             GM712

ISR....: 17      Status: 02 - Uploaded to Test
Profile: PRD2DEV Desc : PROD TO DEV

Lib Dep Librar Scanning DevLibs
X  -  -  EMERGEN
-  -  -  EMERGEN Enter Scan Library, Object to be Scanned
-  -  -  EMERGEN or PF3 to Exit
-  -  -  EMERGEN Library : ESPDEMO_
-  -  -  EMERGEN Range : DEMO05 (*) for ALL
-  -  -  EMERGEN Env No : 01
-  -  -  EMERGEN
-  -  -  ESPDEMO Store Lib : ESPDEMO1
-  -  -  ESPDEMO
-  -  -  ESPDEMO DEMO03 R Program Y GM712 20220914
X  -  -  ESPDEMO DEMO04 R Program 17 2 Y ESPCNTRL 20220919
-  -  -  ESPDEMO DEMO05 R Program Y GM712 20220914

L=Lib          ** Start of Data **
Restart at Library: Object: No of Objects: 2
Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Dupl AddCC Quit Error ScanD Scan PgDn Curr
```

### PF5 – Scanning Modules in Development libraries adding to another library



This function (**PF5 – Scan Devlibs**) is a combination of PF6 and PF1 scanning functions, whereby the module is scanned in the Environment number entered (a Development Environment), all object information is obtained from the scan, but the module is stored in the EspControl Inventory using the Store Library as reflected in the figure above. The difference to PF1 is that it does not make a duplicate copy of the code in the Store Library.

The validation rules for PF5 are as follows:

- The Library entered will be used for the actual scan and must exist in a Development environment.
- The module range will be used for the scan and these modules must exist. No entries will be created if the modules do not exist (if this is what is required – use PF2).
- The Store Lib will be validated against the STORECC code in CC010 and must have a valid entry in STORECC for PF5 to work, else an error will be returned.
- The scanned in objects will be created in the Inventory List, but under the Store Library and NOT the scanned in Library.



### 3.2.5 CC054 – Copy an ISR

This function is used to copy the links of a completed ISR to a new object, instead of manually linking the objects via CC050 one by one.

```

gm712@CRONUS01:~
ISP054          *** Cronus Consulting - DEV ***          09/19 13:25
ISM054          Copy to an ISR          GM712
From ISR...: 19          Status: 99 - Completed
Copy to ISR: 20          Status: 92 - Approved by IT
          *** OBJECTS ALREADY LINKED WILL NOT BE COPIED TO ISR ***
          Library      Obj Name      Obj Type      Current ISR      Saved By      Date
          ESPDEMO      DEMO02      Program      GM712            GM712          20220914
          ESPDEMO      DEMO03      Program      GM712            GM712          20220914

          *** End of Data ***
Restart at Library: █ Object:          No of Objects: 2
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
          Quit Copy
  
```

#### Copy an ISR and link objects to a New ISR

The 'COPY FROM' ISR must be a completed ISR. The 'COPY TO' ISR must be a new ISR that has been created via CC030/CC035 with a linked profile and then, if required, approved via CC040. The new 'COPY TO' ISR must not have had any migrations or objects linked, else the copy will not be allowed.

The objects that were linked to the Copy From ISR will be displayed on the screen, including the Current ISR No, if any. If any objects are already linked to another open ISR, they will be displayed for the user to see, but will NOT be copied to the new ISR.

**Press PF4** for the linking of the available objects to the new ISR.



```

gm712@CRONUS01:~
ISP054          *** Cronus Consulting - DEV ***          09/19 13:25
ISM054          Copy to an ISR          GM712
From ISR...: 19          Status: 99 - Completed
Copy to ISR: 20          Status: 92 - Approved by IT
*** OBJECTS ALREADY LINKED WILL NOT BE COPIED TO ISR ***
  Library      Obj Name      Obj Type      Current ISR      Saved By      Date
  ESPDEMO
  ESPDEMO      █
All Objects have been Copied if Available
Press <ENTER> to Continue

*** End of Data ***
Restart at Library:      Object:      No of Objects: 2
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit Copy
  
```

#### PF4 Confirmation of Copied Objects to new ISR

Once PF4 has been pressed and the objects have been copied to the new ISR, the transaction is complete. To view or de-select any of these objects, the user must once again go and use function CC050. Once in CC050 objects may be removed and others may be added. CC054 is a linking tool only and has no other function.



### 3.2.6 CC100 – Transfer an ISR between Environments

The function is used to **transfer** all **objects** linked to an ISR between the defined environments. Any user that has access to this function can transfer an ISR, Additional security is controlled with **CC060 – Upload Approval** per environment for the ISR and **USERID** or **GROUP** linked to the profile in **CC002**. If entered, only that user will be allowed to migrate to the specified environment. If ISR SECURITY is set on in CC030, only the originator may transfer objects.

According to the current status of an ISR and the profile linked to it, the system will determine to which environment objects must be transferred. Those already in Development (New Objects) will not be transferred until all other objects have been transferred to Development from the Master Environment of that profile if the profile specifies a download move.

A screenshot of a terminal window titled "gm712@CRONUS01:~". The terminal displays the following text:

```
CCP100          *** Cronus Consulting - DEV ***          09/14 12:53
CCM10001        Transfer ISR between Environments        GM712

                ISR Title: MANUAL DEMONSTRATION

                Please Supply the ISR Number: 15_____

                Download from Production to Development

                Press <ENTER> to Continue - PF3 to Abort

Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
```

#### Migration Transfer of ISR

If Upload Approval is required by the specified profile, it must first be APPROVED in CC060 before the migration will be allowed. However, the migration WILL always be DISALLOWED if the Return Approval indicator has been set on. This will ensure that an ISR cannot be both Transferred and Returned at the same time. If Return is no longer required and objects have been marked for return, use PF5 to reset objects in function CC053.

Once the user has pressed enter to continue, the ISR will be put through the PATH VALIDATION routine, if the VALIDPATH code is set to Y (Yes) in CC010. This routine will validate all LUW directories/paths required (fuser, source staging, backup paths set up in the Control Variable section CC001), as well as



testing the existence of objects in the FROM environment to ensure unnecessary ISR failures and consequent restores. If the Path Validation fails, the ISR will be put on HOLD for investigation and once the paths or objects are in the correct state, the user may reset the ISR via CC075 and redo function CC100. The Path Validation for the existence of Objects in the From environment is completed in full, and then if any error objects exist, the ISR will fail. The user will be able to print an error report if required or the user may enquire on all error objects in the ISR History transaction (CC095). The TO environment LUW paths (as specified in CC001) are also checked and if they do not exist, they will be created in LUW via the path validation routine. If this is the case, the path validation routine will run longer than usual. ESPERRTA is also checked for existence in library SYSTEM in both the From and To environments and will return an error and the ISR will fail if ESPERRTA does not exist in the required environments.

If "SOURCE MOVE" as part of the linked profile, and the master control profile in CC001 has been marked with N or M, then the existence of objects will be checked. Since the environment is one where there should be no source, if source does exist it will create a problem and will require user intervention. See below in manual for further re-explanation.

#### **NON-COMPILE in Initial Environment during DOWNLOAD from Master**

When transferring objects from the Master Environment to the Initial Environment e.g. Prod to Dev and the object does not compile, the ISR is not stopped with an automatic restore. The ISR will continue and store all Error Compile Objects in the ISR History. This ISR History transaction (CC095) will allow the user the opportunity of checking out the details of the non-compiles. The Object that does not compile in the Initial Environment is transferred as source only and the user will have to manually compile these objects in this environment before continuing with the ISR. The user will also be able to print a non-compile error report, if required.

Please note, this non-compile ONLY exists in the Initial Environment specified in the linked profile, when DOWNLOADED and when the object is again migrated in a UPLOAD transfer, a COMPILE by the user will be necessary for the successful migration to the next environment. If the RESTORE-IND indicator is set to 'N', which implies no restores if errors occur, this option will override the above changes as the ISR is not restored in any event due to compile errors when downloading.

#### **NON-COMPILE Error Report**

If the RESTORE-IND = 'Y' and the above condition occurs, then the user has a choice to print out an Error Report reflecting all objects in Compile Error. The user will be requested to input a "Y" if a report is required and "N" if it is not. If YES, the report will be sent to the relevant print queue.



```

gm712@CRONUS01:~
Job number 1239177: N.20220914.gm712.01 on form type NOPRINT START ^
....5....10....15....20....25....30....35....40....45....50....55....60....65....70....75....
2022/09/14 Transfer ISR Compile Error Report - ISR No - >
14:02:12.6 http://www.cronus.co.za

Environment From: Production
Environment To: Development

Program User Date Time Error Descri>
Id Id
-----
CCP100 GM712 20220914 14:01:43 From Environment Production to Development >
GM712 20220914 14:01:43 ESPDEMO DEMO01 - Compile Error - Error No 0>

Before continuing, Compile Above Programs in Error in Development
Only SOURCE has been transferred, no object code exists

If the above is not done, the next UPLOAD for this ISR will Abend

```

### ISR Compile Error Report

#### **NON-COMPILE during UPLOAD from Initial Environment**

All objects are automatically re-compiled in the Initial Environment, except if the STOW/CAT indicator is marked a N (none) in the linked profile, before being transferred to the next environment during an UPLOAD phase. The marking of NONE in the initial environment will also only move the code in a DOWNLOAD movement from the Master to the Initial environment with a SAVE function only. This means that the NON-COMPILE Error report and routine will not be part of a transfer, as the compile step will be by-passed. If NONE is selected, then it is up to the user to ensure that the source is stowed in the Initial Environment, as if it is not and an error does exist, the source will not stow in the next environment causing the ISR to be restored if the restore indicator is set to Yes.





```
gm712@CRONUS01:~  
Download or Upload must be entered - D or U  
CCP100          *** Cronus Consulting - DEV ***          09/14 12:53  
CCM10001        Transfer ISR between Environments        GM712  
  
Please Supply the ISR Number: 15 _____  
  
(U)pload OR (D)ownload :   D  
  
Direct Command: █  
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---  
Quit
```

### Download or Upload Window

If the PATH CHOICE of the linked profile is set to YES, then the user will be given the choice of whether the initial movement of the ISR should be a DOWNLOAD or an UPLOAD, as shown above. This choice will only be given at the start of a transfer i.e. the very first time a specific ISR is being transferred

If D for DOWNLOAD is taken, the object will be downloaded from the MASTER environment to the Initial environment, as is the normal case for the transferring of objects in an ISR with a path choice of No.

If U for UPLOAD is taken, the movement down from the MASTER environment is skipped and the object will be moved directly up from the INITIAL environment. The objects MUST therefore already exist in this environment, as if they do not the PATH ALIDATION routine will abort and the ISR will be stopped.

If the PATH CHOICE of the linked profile is set to U (Upload), then the user will NOT be given the choice of whether the initial movement of the ISR should be a DOWNLOAD or an UPLOAD, but the ISR will be forced in an UPLOAD movement. With this profile, the object will NEVER be downloaded from the MASTER.

If the objects linked in the ISR are NEW OBJECTS, there will be no window displayed, even if the PATH CHOICE is set to Y/U, as the objects MUST be moved up the line.



## Path Validation

```

gm712@CRONUS01:~
Executing ...
CCP100          Transfer ISR between Environments      09/14 13:30
CCM10002
  To      ISR NO: 15 - MANUAL DEMONSTRATION      GM712
Library  Object  Backup  Back Lib  Copy  Restore  Compile  Err  Line  Resp
NAT

Path Validation for Objects in ISR 15
ISR will be Rejected in HOLD if any errors occur
Please wait while VALIDATION takes place

Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Quit

```

## Path Validation

If the code VALIDPATH in CC010 is set to N (No), then the path validation is skipped.

The PATH VALIDATION as seen above will be executed if set to Yes, to check that all objects being migrated exist and that all backup, staging areas, libraries and fuser paths are also valid. In this manner, most of the errors of an ISR will be handled and the ISR will not fail in the middle of the migration causing the entire ISR to be backed out. A permissions error will not be determined in this validation as this will only be found out, when the migration function tries to update a path. If the path validation fails, a window will be displayed as seen below, and the user will be able to go and correct all the errors. The history function (CC095) may be viewed to get the path error and also error objects that do not exist. A report of all error objects, if Y is entered by the user, will be sent to the print queue. The ISR is also put on hold, so no further migration will take place until the problem has been solved. The ISR must be removed from hold (CC075) before being migrated again. Remember, this path validation will also automatically check for program ESPERRTA in library SYSTEM.



```

gm712@CRONUS01:~
CCP100          Transfer ISR between Environments          09/14 13:32
CCM10002          GM712
  To      ISR NO: 15 - MANUAL DEMONSTRATION
Library  Object  Backup  Back Lib  Copy  Restore  Compile  Err  Line  Resp

```

Error Objects Exist - See REPORT for list or CC095

Enter 'Y' to Print Y

Press <Enter> to Continue

```

Direct Command: 
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

### Path Validation Error Window

```

gm712@CRONUS01:~
Job number 1186529: N.20220914.gm712.01 on form type NOPRINT START
....5....10...15...20...25...30...35...40...45...50...55...60...65...70...75....
2022/09/14      List of Objects with INCORRECT PATH - ISR No - >
13:33:34.9      http://www.cronus.co.za

Path Validation Environment : Production      On Server : CRONUS01
Library  Object  Env      Library  Object  Env
-----  -
ESPDEMO  DEMO01    3

These Objects were not found in the FUSER for the Environment
FUSER PATH /opt/softwareag/Natural/fuser_natp
Directory for SRC

Determine why, reset ISR from Hold (CC075) and rerun
Either ensure correct path or unlink Object from CC050

----- END OF REPORT -----

```

### List of Objects with Incorrect Path



```
gm712@CRONUS01:~  
CCP100          Transfer ISR between Environments          09/14 13:32  
CCM10002        GM712  
  To      ISR NO: 15 - MANUAL DEMONSTRATION  
Library Object Backup Back Lib Copy Restore Compile Err Line Resp  
NAT  
[ ] PATH VALIDATION failed - ISR Aborted and in Hold  
    Check Report or History (CC095) for path errors  
    PRESS <ENTER> TO CONTINUE  
Direct Command: _____  
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---  
Quit
```

#### Final Confirmation window for Errors in Path Validation

#### Testing the Existence of Objects in a MOVE SOURCE environment

If the Allow-Source option of the “from” or the “to” environment = M (including on CC001 as this is the controlling indicator for this check), which is REMOVE SOURCE once the migration to the next environment is successful, the existence of these objects is tested. If they exist in the “to” environment, then a window as reflected below will be displayed and the user must decide on one of the following options reflected below the example screen. However, this test will be omitted, even if allow-source is marked as ‘M’ if the Allow-Source indicator in CC001 (master control variables) is marked as a ‘Y’ or ‘N’. In this manner, a site may bypass this check if necessary.



```

gm712@CRONUS01:/opt/softwareag/cronus/ccont_eco/transfer
CCP100          Transfer ISR between Environments          09/20 11:07
CCM10002
  To      ISR NO: 23 - MOVE TEST          GM712
Library  Object  Backup  Back Lib  Copy  Restore  Compile  Err  Line  Resp
  NAT

Migrating to: Test
Object: ESPDEMO DEMO11 already exists
Enter Only 'O'= Override, 'R'= Reject or 'S'= Stop O
Press <Enter> to Continue

Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

### Test Existence of OBJECTS window

The user has 3 choices:

1. **Overwrite the Object** – Copy the linked object to the next environment and overwrite the code that currently resides in the next environment.
2. **Reject the Object** – Ignore the object in this section of the migration transfer and write a record to the History function (CC095) stating that the object has been “Linked but not Copied”
3. **STOP the entire ISR** – This will return the user to the menu with the ISR being placed in HOLD. Once the user has decided on what to do, the ISR must be removed from hold via CC075 and then it can again be transferred via function CC100.

The above options are for one movement of an ISR and on the next movement, the objects will be re-tested, including the rejected ones. If these rejected objects are no longer required to be part of the ISR, they must be unlinked via function CC050, before CC100 can be rerun for the specified ISR.

When compiling objects in the initial environment (if the STOW/CAT indicator ne N (none), the objects will be compiled in the necessary correct order of Natural object types.



```

gm712@CRONUS01:~
Executing ...
CCP100          Transfer ISR between Environments          09/14 13:36
CCM10002        From Development To Test                  GM712
To      ISR NO: 15 - MANUAL DEMONSTRATION                NAT
Library Object Backup Back Lib Copy Restore Compile Err Line Resp
ESPDEMO DEMO01      F ESPDEMO      Y 3      N      S 3
ESPDEMO DEMO08      F ESPDEMO      Y 3      N      S 3
ESPDEMO DEMO09
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Quit

```

### Current Migration Details of ISR

The following attributes are displayed for each object transferred:

- To Library - Library that Object is being migrated TO. This will be either the current library that the object is in, or the To-Library selected in CC050 library option where the object is being migrated to or the ISR Library updated in the Profile record or the GENERIC library rule from ISNUNIX100.
- Object - Name of Object
- Backup - "T" indicates that a backup copy was taken in the TO environment  
"F" indicates that a backup copy was taken in the FROM environment  
"N" indicates that NO backup was taken,  
"E" indicates there is an error with the Backup and a report will be sent to Printer Queue at end of ISR of all objects not backed up if No restore option taken or view CC095  
See function CC002 for the backup cycle of the migration.  
The duration will be reflected in between the two backup indicators.
- Back Lib - Backup Lib is the Lib of the Object being backed up in the FROM env.
- Copy - "Y" indicates that the object was copied and the duration.  
"E" indicates there is an error with the Copy (and report will be printed on if restore indicator is No)
- Restore - "N" indicates that the download operation was completed successfully.  
"Y" indicates that the object was restored to the backup version, depending on if one exists for the current ISR, or the previous backed up



- version. If the restore indicator is NO, then N will mean that no restore will be done if any object is in error
- Compile - "S" indicates that the object was compiled with a STOW, "C" indicates that the object was CATalogued, and "N" indicates that the object was moved and SAVED only and the duration of the compile time depending on STOW-CAT indicator set on profile.  
"E" indicates there is an error with the Compile (and report will be printed only if restore indicator is No or the move is to the Initial Environment).
  - Nat Error - Contains the Natural error and line number if a compile error occurred
  - Response - Response Codes 11 and 20 and Blank indicates successful completion, else all other response codes indicate a problem.

Once an ISR is complete, without any errors, a transfer confirmation window will be displayed.

If any error should occur during the transfer process, and the backup and restore indicators are set to Yes, all objects that form part of the ISR will be restored to either the prior backup version or the current version if the backup has already been taken in this ISR. If the restore indicators are set to No, the ISR will continue with an error report printed at the end of the transfer. **If the user requires a restore of the previous ISR and not of the current version, this may be done during a migration process via function CC200 to any environment and the library of choice.**

If RESTORE INDICATOR = Yes, then if any error should occur during the transfer process, all objects that form part of the ISR will be restored as specified above to the environment it is being moved from.

If RESTORE INDICATOR = No, then an object in error will reflect "E" in the correct column and the ISR migration will be continued with the other objects. NO restore of the error objects will be done, but a RESTORE ERROR report will be sent to the print queue if required and requested by the user at the end of the current migration function. If not printed, these errors may also be viewed in the History enquiry (CC095).



```
gm712@CRONUS01:~  
CCP100          Transfer ISR between Environments      09/14 13:08  
CCM10002        From Production To Development        GM712  
  To      ISR NO: 15 - MANUAL DEMONSTRATION           NAT  
Library  Object  Backup  Back Lib  Copy  Restore  Compile  Err Line  Resp  
  
[ ]  
Downloaded from Production to Development  
Press <Enter> to Continue  
  
ESPDEMO DEMO01      N      Y 3 N      S 1  
Direct Command: _____  
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---  
Quit
```

### Transfer Confirmation without any errors

See example windows below for transfer confirmation with no restore, error with an ISR, or error with NO restore, but restore printout. The Restore window is the same for all restore functions and a sample of this window may be viewed in the explanation of CC110 in this document. If there is no backup of the object at all, whether via the current ISR or a previous version, no restore of this object will be done and a sample of this window may also be viewed in CC110.





```

gm712@CRONUS01:~
CCP100          Transfer ISR between Environments          09/14 13:47
CCM10002        From Development To Test                  GM712
  To      ISR NO: 15 - MANUAL DEMONSTRATION                NAT
Library  Object  Backup  Back Lib  Copy  Restore  Compile  Err  Line  Resp

```

```

Compile Error: Objects Restored if Backup= Complete
All Objects Restored if Backup Indicators correct
Press <Enter> to Continue

```

```

ESPDEMO DEMO01      F ESPDEMO  Y  3    Y      S  3
ESPDEMO DEMO08      F ESPDEMO  Y  3    Y      S  3
ESPDEMO DEMO09      F ESPDEMO  Y  3    Y 14    S  3  0082 0020
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Quit

```

### Transfer ISR with ERROR

```

gm712@CRONUS01:~
CCP100          Transfer ISR between Environments          09/29 07:45
CCM10002        From Development To Test                  GM712
  To      ISR NO: 33 - NEW ISR COMBINE                      NAT
Library  Object  Backup  Back Lib  Copy  Restore  Compile  Err  Line  Resp

```

```

Uploaded from Development to Test

Print Restore Error Report          Y
Press <Enter> to Continue

```

```

EMERGENC ZGL13      F EMERGENC  Y  4    N      E  4  0623 0010
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Quit

```

### ISR in Error with No Restore

These objects are given the same ISR STATUS as successful objects and therefore these errors must be fixed manually, as the next time that CC100 is run, it will assume that these objects are correct in the same environment as all other successful objects in the migration. If not needed, unlink via CC050.



```

gm712@CRONUS01:~
Job number 1278070: N.20Undefined key sequence - ignoredRINT START^
.....30...35...40...45...50...55...60...65...70...75...80...85...90...95...100..
Transfer ISR Error Report - ISR No - 33 Page: >
http://www.cronus.co.za

tion

Time Error Description >
----->
29 07:46:06 From Environment Development to Test >
29 07:46:06 EMERGENCZGL13 - Compile Error - Error No 0623 Line 0010 - No Restor>
29 07:48:46 From Environment Development to Test >
29 07:48:46 EMERGENCZGL13 - Compile Error - Error No 0623 Line 0010 - No Restor>
29 08:00:41 From Environment Test to Production >
29 08:00:41 EMERGENCZGL13 - - No Restore Done >
29 08:00:41 Error Message - 05 - FUSER - Source Code does not exist >

----- END OF REPORT -----

```

### Sample ISR Error Report with No restore

If BACKUP of any particular object does not complete, and the restore indicators are set to No, the migration will not abort, but will reflect a window stating that a non-backup report has been sent to the print queue. This report contains all objects that were not backed up. Users may determine the reason, and fix if necessary. Return non-backed up objects via CC102 and then re-migrate via CC100 to get a correct backup. If a new object is transferred, then a backup will not be taken in the TO environment as the object never existed in the Master environment. The backups get taken AFTER amendment and at the start of a move to the new environment, so new objects and existing objects will be backed up in the FROM environment, except when moving to Production.

If the BACKUP fails and the From or To Environment is the Master Index and the restore indicators are set to Yes (with the exception of new objects), then the ISR will abort and be restored as explained in a transfer error above.



```

gm712@CRONUS01:~
Job number 1287776: N.20220929.gm712.01 on form type NOPRINT START
....5....10....15....20....25....30....35....40....45....50....55....60....65....70....75....
2022/09/29          Audit Report for transfer of ISR No - 34
08:09:50.7

ISR Title.....: TEST BACKUP          Xref Number.....:
                TEST BACKUP

Environment From: Test
Environment To:   Production

LINE NO      TO      OBJECT  BACK TO BACK FROM  BACKUP  COPY RESTORE  COMPILE  NAT >
          LIBRARY  NAME      IND      IND      LIB      IND      IND      IND      ERROR>
-----
0001          Upload from Test to Production
0002  EMERGENC ZGL13      E      F      EMERGENC
0003  All Objects Restored if Backup Indicators correct

----- END OF REPORT -----

```

### ISR Backup Error Report

If the Backup is being done during the TO Migration and the To environment is the MASTER environment, then the ISR will abort if the backup was not successful, and the ISR will be restored according to the profile rules. See example window below.

```

gm712@CRONUS01:~
CCP100          Transfer ISR between Environments          09/29 08:09
CCM10002        From Test To Production                    GM712
  To      ISR NO: 34 - TEST BACKUP                          NAT
Library  Object  Backup  Back Lib  Copy  Restore  Compile  Err Line  Resp

```

```

Backup To True Master Env Error: Restored if Applicable
All Objects Restored if Backup Indicators correct
Press <Enter> to Continue

```

```

EMERGENC ZGL13      E      F  EMERGENC          Y  2
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

### ISR Backup Error to Master Environment



**AUDIT REPORT** – if AUDITRPT is set to Y in CC010 then see examples below of the printed report

```
gm712@CRONUS01:/opt/softwareag/cronus/ccont_eco/transfer
Job number 1133181: N.20220920.gm712.01 on form type NOPRINT START
....5....10....15....20....25....30....35....40....45....50....55....60....65....70....75....
2022/09/20      List of Objects with INCORRECT PATH - ISR No -
08:39:37.8      http://www.cronus.co.za

Path Validation Environment : Development      On Server : CRONUS01
Library  Object  Env      Library  Object  Env
-----  -----  ---      -----  -----  ---
          ESPDEMO  DEMO11      1

These Objects were not found in the FUSER for the Environment
FUSER PATH /opt/softwareag/Natural/fuser_natd
Directory for SRC

Determine why, reset ISR from Hold (CC075) and rerun
Either ensure correct path or unlink Object from CC050

----- END OF REPORT -----
```

### Audit Report with Errors

```
gm712@CRONUS01:/opt/softwareag/cronus/ccont_eco/transfer
Job number 1484999: N.20220920.gm712.01 on form type NOPRINT START
....5....10....15....20....25....30....35....40....45....50....55....60....65....70....75....
2022/09/20      Audit Report for transfer of ISR No - 27
15:01:18.8

ISR Title.....: TEST SYSOBJH      Xref Number.....:
                test sysobjh

Environment From: Development
Environment To:   Test

LINE NO      TO      OBJECT  BACK TO BACK FROM  BACKUP  COPY RESTORE  COMPILE  NAT >
          LIBRARY  NAME    IND      IND      LIB    IND    IND    IND  ERROR>
-----  -
0001      Upload from Development to Test
0002      ESPDEMO  DEMO14      F      ESPDEMO  Y    N    S      >
0003      SYSOBJH Download completed successfully in Env 1      >
0004      Uploaded from Development to Test - SOURCE - STOW - BACKUP      >
```

### Clean Audit Report



## SOURCE UNLOAD function

```

gm712@CRONUS01:/opt/softwareag/cronus/ccont_eco/transfer
Executing ...
CCP100          Transfer ISR between Environments      09/20 14:59
CCM10002        From Development To Test              GM712
To             ISR NO: 27 - TEST SYSOBJH              NAT
Library Object Backup Back Lib Copy Restore Compile Err Line Resp
EspControl SYSOBJH Information
        SYSOBJH File Copy Initiated
        Copying SYSOBJH script in process - please wait

ESPDEMO DEMO14      F ESPDEMO      Y 3      N      S 3
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

### Start of SYSOBJH Function

If the SOURCE UNLOAD indicator has been set to 'Y' in the linked Profile, the SYSOBJH function to unload the source during the migration of the FROM environment, as a text file on a LUW platform, will be called at the end of the successful migration of the ISR.

If the linked profile has a RESTORE INDICATOR of NO, then the SYSOBJH function will be called even if some objects were not successfully migrated.

This function will unload all the source of all objects that have been migrated to a specified /transfer directory on a LUW platform. This directory has been built up from the shell script path in CC001 with /transfer appended. This function will create a report saved on the LUW server, as well as a text file with the ISR number as the start of the file name. The time will be appended to the files, in the case of a migration being returned to the previous environment or new objects being linked. This new file will only contain the objects being moved once again, and not the objects that have already been successfully migrated to the next environment in the specified ISR. Therefore, more than one file for a migrated ISR could exist and all these files will have to be used in the Upload of the source via SYSOBJH if required, as they will reflect different objects at different migration times.



```

gm712@CRONUS01:/opt/softwareag/cronus/ccont_eco/transfer
Executing ...
CCP100          Transfer ISR between Environments          09/20 15:01
CCM10002        From Development To Test                  GM712
  To      ISR NO: 27 - TEST SYSOBJH                        NAT
Library  Object  Backup  Back Lib  Copy  Restore  Compile  Err  Line  Resp
-----
EspControl SYSOBJH Information
        SYSOBJH Procedure Initiated
        The SYSOBJH process is running - please wait

ESPDEMO DEMO14          F ESPDEMO  Y 3  N          S 3
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

### Current SYSOBJH Function

See screen below for examples of text files and the subsequent file names that would have been generated are as follows:

- **27.sysobjh.report.1452549** where 27 is the ISR number and the timestamp is at the end of the name
- **27.sysobjh.src.txt.1452549**

The above files are created in the /transfer directory using the SHELL SCRIPT PATH set up in function CC001 depending on the environment move.

The .txt file should be used in the SYSOBJH Upload function. (The export file is created in "transfer" format).

The below screen will be reflected after the successful unload showing the directory where to find the REPORT and TEXT file. The user must now ENTER to finalize the Update of the current movement of the ISR. At this stage the ISR status and the Object Status of each linked object will be updated to ensure that the object has completed the migration successfully.



```

gm712@CRONUS01:/opt/softwareag/cronus/ccont_tst
CCP100          Transfer ISR between Environments          09/20 14:52
CCM10002        From Development To Test                  GM712
  To      ISR NO: 27 - TEST SYSOBJH                        NAT
Library  Object  Backup  Back Lib  Copy  Restore  Compile  Err  Line  Resp
-----
EspControl SYSOBJH Information
[
  SYSOBJH Procedure Executed:
  Unload command executed successfully. Report is in:
    /opt/softwareag/cronus/ccont_eco/transfer/27.sysobjh.report.
  Press <Enter> to Continue with Final Update of ISR

ESPDEMO DEMO14          F ESPDEMO  Y 3  N      S 3
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

### SYSOBJH Confirmation window

```

gm712@CRONUS01:/opt/softwareag/cronus/ccont_eco/transfer
Job number 1472280: 27.sysobjh.report.1452549 on form type standard START
....5....10...15...20...25...30...35...40...45...50...55...60...65...70...75....
*** Unload Objects ***
Processing TRANSFER Work File $NATWK01

Library  Object Name          Type          S/C  DBID/FNR  Date      >
-----
ESPDEMO  DEMO14                Program       Src   22/31     2022-09-2>

Function completed successfully.

--- End of file ---

```

### SYSOBJH Unload Report



## SYSOBJH and SYSERR errors

The transferring of system error messages, also uses the SYSOBJH unload routine and if this routine aborts for either the Source Unload or System Error Message function, the rules for this error are the same in both SYSOBJH and SYSERR functions. Therefore this error routine, how to fix and continue with the migration, is only explained using the example in the window reflected for the system error messages. If an error does occur in the source unload transfer, the SYSOBJH ERROR indicator is set (see function CC076) and all other ISR functions will be blocked until the source has been unloaded without error.

## SYSTEM ERROR MESSAGE transfer

```

gm712@CRONUS01:/opt/softwareag/cronus/ccont_eco/scripts
Executing ...
CCP100          Transfer ISR between Environments      09/20 16:14
CCM10002        From Development To Test              GM712
To      ISR NO: 28 - TEST SYSERR                      NAT
Library Object Backup Back Lib Copy Restore Compile Err Line Resp
-----
EspControl SYSERR Information
    SYSERR File Copy Initiated
    Copying SYSOBJH ULND scripts in process - please wait

ESPDEMO DEMO14      F ESPDEMO      Y 3      N      S 3
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

## Start of SYSERR transfer

If System Error Messages have been linked to an ISR in CC050, the SYSOBJH function to transfer these error messages during the migration of the FROM environment to the TO environment, will be called at the end of the successful move of all objects linked in the ISR. If the linked profile has a RESTORE INDICATOR of NO, then the System Error transfer function will be called even if some objects were not successfully migrated.

This function will transfer all system error numbers with from and to libraries specified in PF4 in CC050 and will update the SYSERR function with the error number range in the next environment, using the error message data from the previous environment. Both a load and unload report will be created in the /transfer directory. Each time a migration is done the system error messages will also be transferred. So, therefore, if an ISR is returned and then re-migrated the error messages will again be transferred. If an ISR is





downloaded from the Master Environment, then the error messages will be taken from this environment to the Initial Environment including the objects, and then may be amended to move upwards if necessary.

**If error messages are only ever migrated in an upload movement i.e. from the Initial Environment upwards, then create an ISR linked to a dummy program only and choose the path of UPLOAD when using CC100, and in this way error messages will always move up the line.**

```

gm712@CRONUS01:/opt/softwareag/cronus/ccont_eco/scripts
Executing ...
CCP100          Transfer ISR between Environments          09/20 16:07
CCM10002        From Production To Development           GM712
To             ISR NO: 28 - TEST SYSERR                  NAT
Library Object Backup Back Lib Copy Restore Compile Err Line Resp
EspControl SYSERR Information
    SYSERR Procedure Initiated
    The SYSOBJH UNLD process is running - please wait

ESPDEMO DEMO14      N          Y 3  N      S 2
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
  
```

### Actual SYSERR transfer

See screen below for examples of text files and the subsequent file names that would have been generated are as follows:

- **28.syserr.unld.report** where 28 is the ISR number
- **28.syserr.load.report**

The above files are created in the /transfer directory using the SHELL SCRIPT PATH set up in function CC001 depending on the environment move.



Once completed successfully, the following screen will be reflected:

```

gm712@CRONUS01:/opt/softwareag/cronus/ccont_eco/scripts
CCP100          Transfer ISR between Environments          09/20 16:09
CCM10002        From Production To Development            GM712
  To      ISR NO: 28 - TEST SYSERR                        NAT
Library  Object  Backup  Back Lib  Copy  Restore  Compile  Err  Line  Resp
-----
EspControl SYSERR Information
[
  SYSERR Procedure Executed:
  Transfer command executed successfully. Report is in
  /opt/softwareag/cronus/ccont_eco/transfer/28.syserr.load.rep
  Press <Enter> to Continue
]
ESPDEMO DEMO14          N          Y 3  N          S 2
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

### **SYSERR Confirmation window**

The above screen will be reflected after the successful transfer of the error messages to the next environment. The user must now ENTER to either finalize the current movement of the ISR or create the SYSOBJH file if the linked profile has SOURCE UNLOAD = 'Y'. At this stage the ISR status and the Object Status of each linked object will be updated to ensure that the object has completed the migration successfully, if no SYSOBJH has been called for. If a SYSOBJH unload is still to occur, then this will complete first before updating the object statuses.



```

gm712@CRONUS01:/opt/softwareag/cronus/ccont_tst/transfer
Job number 1612901: 28.syserr.load.report on form type standard START^
....5....10....15....20....25....30....35....40....45....50....55....60....65....70....75....
*** Load Objects ***
Processing SYSUNLD Work File $NATWK01
Processing Load File created on 2022-09-20 at 16:35

Library   Error Number   Language Code   S/L   DBID/FNR   Type
-----
ESPDEMO   9000            1               S      22/32      U   User error message
ESPDEMO   9001            1               S      22/32      U   User error message

Function completed successfully.

--- End of file ---

```

### Example of SYSERR report

If the TRANSFER of System Error Messages or Source Unload aborts, the following screen will be reflected with the appropriate error message. In the Source Unload option, the error window and instructions will reflect SYSOBJH.

This error message may vary according to the actual error. The logs or the ISR History function CC095 may be viewed to check the error status of the unload.

See next page for example:



## SYSERR Error Screen and the following screen - SYSERR and SYSOBJH Error Instructions

```

gm712@CRONUS01:/opt/softwareag/cronus/ccont_tst/transfer

CCP100          Transfer ISR between Environments      09/20 15:15
CCM10002        From Production To Development        GM712
  To           ISR NO: 28 - TEST SYSERR                NAT
Library  Object  Backup  Back Lib  Copy  Restore  Compile  Err  Line  Resp
-----
EspControl SYSERR Information

[ ]

      SYSERR Procedure Executed:

      COPY OF LOAD SCRIPT FILE FAILED - PLEASE INVESTIGATE SCRIPT
      /opt/softwareag/cronus/ccont_prd/transfer/28.syserr.src.sag

      Press <Enter> to Continue

ESPDEMO DEMO14          N          Y 3  N          S 2
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
  
```

### SYSERR Error Screen

```

gm712@CRONUS01:/opt/softwareag/cronus/ccont_tst/transfer

CCP100          Transfer ISR between Environments      09/20 15:15
CCM10002        From Production To Development        GM712
  To           ISR NO: 28 - TEST SYSERR                NAT
Library  Object  Backup  Back Lib  Copy  Restore  Compile  Err  Line  Resp
-----
EspControl SYSERR Information

[ ]

      SYSERR Error - Fix problem and redo CC100 for SYSERR

      Press <Enter> to Continue

ESPDEMO DEMO14          N          Y 3  N          S 2
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
  
```

### SYSERR Error Instructions

The SYSERR and SYSOBJH source unload transfer function have been set-up in such a manner that an error in the TRANSFER does not RESTORE the entire ISR. The SYSOBJH or SYSERR transfer only commences once the objects have been moved. If an error in SYSOBJH or SYSERR unload occurs, the



user should correct the problem and redo CC100. This will only redo the SYSERR or SYSOBJH Function, but not the migration of the objects. Once the SYSERR or SYSOBJH function is successful, the migration may continue as normal to the next environment.

If an error occurs, the SYSERR ERROR indicator is set (see function CC077) and all other ISR functions will be blocked until the error messages have been transferred without error.

For a SYSOBJH ERROR, another indicator is set (see function CC076) and the same rules as specified above will apply.

#### Rerun of CC100, for SYSERR Error or SYSOBJH source unload will reflect SYSOBJH

```

gm712@CRONUS01:/opt/softwareag/cronus/ccont_tst/transfer
CCP100          *** Cronus Consulting - DEV ***          09/20 15:17
CCM10001        Transfer ISR between Environments        GM712

                ISR Title: TEST SYSERR

                Please Supply the ISR Number: 28_____

                SYSERR rerun - Extracted again from Production

                Press <ENTER> to Continue - PF3 to Abort

Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

#### SYSERR Error Rerun of CC100

The above is an example of where a SYSERR error occurred and is now re-running CC100. The above message will be displayed as the objects will NOT be re-transferred, but only the source unload or system error messages transfer, depending on what is appropriate for the ISR.



### 3.2.7 CC105 – Transfer with Skip of Environment

The function CC105, transfer with a skip of an environment, works in the same manner as the CC100 migration function, except that it allows the user to skip an environment. As you can see below the migration to the TEST environment has been skipped and the object will move directly to Production. This means the TEST will not have a backup or the new version of the source, since it was skipped.

```
gm712@CRONUS01:/opt/softwareag/cronus/ccont_eco/transfer

CCP105          *** Cronus Consulting - DEV ***          09/20 11:12
CCM10501        Transfer with Skip of Environment        GM712

                ISR TITLE: MOVE TEST

                Test will be SKIPPED

                Please Supply the ISR Number: 23_____

                Upload from Development to Production

                Press <ENTER> to Continue - PF3 to Abort

Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
```

#### Transfer with Skip of an Environment (direct from Dev to Prod, Test skipped)

There are specific rules regarding skipping, and there must be at least 3 environments defined. The skip to Development from Production (the initial download move) is NOT allowed. To skip the download move, the profile with a Path Choice of "Y" must be used and the user must request Upload only.



```

gm712@CRONUS01:/opt/softwareag/cronus/ccont_eco/transfer
CCP105          Transfer with Skip of Environment          09/20 11:12
CCM10002        From Development To Production            GM712
  To      ISR NO: 23 - MOVE TEST
Library  Object  Backup  Back Lib  Copy  Restore  Compile  Err Line  Resp

```

UPLOADED FROM Development TO Production

Press <Enter> to Continue

```

ESPDEMO DEMO11   T   F ESPDEMO   Y 3   N   S 3
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

#### Confirmation window after a SKIP

### 3.2.8 CC250 – Select Objects for Archiving

This function is used to **remove** objects from the EspControl object **inventory** and the actual module is **scratched** in the Natural **Source** library for all the selected environments. The library that must be used can be selected if required, per object, as in the CC050 selection and will be used for the chosen environment for archiving.

```

gm712@CRONUS01:~
ISP250          *** Cronus Consulting - DEV ***           09/19 18:10
ISM250          Select Objects for Archiving              GM712
No Archiving of SCL's - use <PF2> in CC050 for Removal
ISR.....: 22      Status: Archived

```

Select Environment(s) with X

Sel	Environment
X	Development
X	Test
X	Production

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---P  
Exit PgUp PgDn

```

Lib Library
Restart at Library:      Object:      No of Objects:
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit Scan

```

#### Archive ISR



Enter the ISR number (**ISRTYPE** on CC035/CC040 must be **OLD** to use this function) and select the required environments where the Object must be archived from. All the environments or a subset of these connected to the linked profile will be used. The object will be backed up if available, scratched from the selected environments and removed from the Object Inventory List (CC050). The archive log may be viewed in function CC095. As the program is removed from the Inventory List it will not be viewable from any object enquiries once archived. However, if the object name is known it may be entered in function CC088 using PF6 and then all available history will be displayed, even if this object no longer exists. This could always be manually restored from the backup path specified in the history, if necessary. If the object must again be added to the Inventory List, it may be scanned in CC050 using PF6 and a new object entry will be created.

Select the objects for archiving. Confirm the start the archive process with function key **PF4**.

```
gm712@CRONUS01:~
ISP250          *** Cronus Consulting - DEV ***          09/19 18:10
ISM250          Select Objects for Archiving            GM712
                No Archiving of SCL's - use <PF2> in CC050 for Removal
ISR....: 22      Status: 01 - Downloaded to Development
                Archiving will be completed for ALL selected Environments

Lib Library
ESPDEMO
ESPDEMO
ESPDEMO
ESPDEMO
ESPDEMO
ESPDEMO
ESPDEMO DEMO08 R Program 15 1 Y GM712 20220914
ESPDEMO DEMO09 R Program 15 1 Y GM712 20220914
ESPDEMO DEMO10 R Program Y GM712 20220914
ESPDEMO DEMO11 R Program 21 2 Y GM712 20220914
X ESPDEMO DEMO12 R Program 22 1 Y GM712 20220914
X ESPDEMO DEMO13 R Program 22 1 Y GM712 20220914
L=Lib          ** Start of Data **
Restart at Library: Object: No of Objects: 2
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
                Quit Arch Scan PgDn Curr
```

#### Archive confirmation Y or N

#### Archive with PF4

The selected objects are removed from the EspControl object inventory including source code or object code in the selected environment.

The ISR history functions can be used as audit trail for archived objects.

The source code and object code for the modules are saved to the "fuser-backup" directory defined in the CC001 Control Variable function.





The ISR is automatically completed after the archive process terminates.

If the code does not exist in the chosen environment i.e. Allow-Source was = M and so code was removed, there will be no removal and obviously no backup as nothing exists. The object will however be removed from the Inventory List, but the ISR will not abort if code is not available for backup.

See below window for archiving of objects with examples of both backup and no backup –

```

gm712@CRONUS01:~
Executing ...
ISP250          *** Cronus Consulting - DEV ***          09/19 18:10
ISM25001        Select Objects for Archiving            GM712

ISR.....: 22          Status: 01 - Downloaded to Development
Environment : Production
-----
Library  Object  RetCode  Comments

ESPDEMO  DEMO12          Backup of Source Code Successful
ESPDEMO  DEMO12          Object successfully deleted
ESPDEMO  DEMO12          3      No BACKUP taken due to NO Source Code
ESPDEMO  DEMO12          3      Source Code does not exist so was not deleted
ESPDEMO  DEMO12          3      No BACKUP taken due to NO Source Code
ESPDEMO  DEMO12          3      Source Code does not exist so was not deleted

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
          Quit  Arch      Scan      PgDn      Curr
  
```

#### Archive details while processing



```

gm712@CRONUS01:~
ISP095          *** Cronus Consulting - DEV ***          09/19 18:15
ISM095          Display ISR History                      GM712

ISR.....: 22          Status: 99 - Completed
Xref.....:          Toggle LEFT and RIGHT for Complete Description

  Date      Time      User ID   Program   Description
20220919 18:08:58 GM712     ISP035   Added ISR Request - PRD2DEV
20220919 18:09:23 GM712     ISP035   Changed ISR Request - PRD2DEV
20220919 18:13:40 GM712     ISP250   Object: ESPDEMO DEMO12 Selected for Archiv
20220919 18:13:40 GM712     ISP250   Object: ESPDEMO DEMO13 Selected for Archiv
20220919 18:14:45 GM712     ISP250   Archiving: ESPDEMO DEMO12(New) in Developm
20220919 18:14:48 GM712     CCN250   ESPDEMO DEMO12 - Backup Taken in Developme
20220919 18:14:49 GM712     ISP250   Object successfully deleted
20220919 18:14:49 GM712     ISP250   Archiving: ESPDEMO DEMO12(New) in Test
20220919 18:14:50 GM712     CCN250   ESPDEMO DEMO12 - NO Backup in Test as no c
20220919 18:14:52 GM712     ISP250   Source Code does not exist so was not dele
20220919 18:14:52 GM712     ISP250   Archiving: ESPDEMO DEMO12(New) in Producti
20220919 18:14:53 GM712     CCN250   ESPDEMO DEMO12 - NO Backup in Production a

** Start of Data **
Restart at Date:  Time:
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Print      Quit      PgDn      Left      Right

```

### Archive ISR History Details



### 3.3 ISR Maintenance Function Overview (CC502)

#### 3.3.1 CC051 – Transfer an Object to another ISR

```
gm712@CRONUS01:/opt/softwareag/cronus/ccont_eco/transfer

ISP051          *** Cronus Consulting - DEV ***          09/20 11:32
ISM051          Transfer an ISR          GM712
ISR....: 20          Status: 00 - Object Selection in Progress
Transfer to ISR: 25          * Only Status 00 or 01 can be transferred *
Profile: PRD2DEV          Desc : PROD TO DEV

  LIBRARY  OBJ NAME  OBJ TYPE  Mode  Current  ISR  Stat  New  Saved By  Date
X  ESPDEMO  DEMO02   Program   R      20     1    GM712  20220914
X  ESPDEMO  DEMO03   Program   R      20    99    GM712  20220914

L=Lib          *** End of Data ***
Restart at Library:      Object:      No of Objects: 2
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit X-FER
```

#### Object Transfer between ISR's

Objects, while in the development status or any initial environment as determined by the profile linked to the ISR, may be **transferred** from one **ISR** to another. Both the **From ISR Nr** and the **Transfer To ISR Nr** must be in a development status, status 00 or 01.

This means that the objects must have either only been linked, or been downloaded **to** the "Initial" environment. All objects linked to the From ISR, which are in the correct status, will be reflected. All objects that need to be transferred must be selected with 'X' in the first column (see above).

**Confirm** by pressing <PF4>, and the selected objects will be transferred, with their current object status, to the new **Transfer To ISR**. This action removes these objects from their current ISR and places them in the Transfer ISR. **History** (CC095) is available on both the From and To ISR numbers.



```

gm712@CRONUS01:/opt/softwareag/cronus/ccont_eco/transfer
ISP050          *** Cronus Consulting - DEV ***          09/20 11:32
ISM050          Select Objects for Transfer              GM712

ISR....: 25      Status: 00 - Object Selection in Progress
Profile: PRD2DEV Desc : PROD TO DEV

Lib Dep Library Object Mode Object Type Current ISR Stat New Saved By Date
X  -  - ESPDEMO DEMO02 R Program 25 1 ESPCNTRL 20220920
X  -  - ESPDEMO DEMO03 R Program 25 99 ESPCNTRL 20220919
-  -  - ESPDEMO DEMO04 R Program Y ESPCNTRL 20220919
-  -  - ESPDEMO DEMO05 R Program Y GM712 20220919
-  -  - ESPDEMO DEMO07 R Program Y GM712 20220914
-  -  - ESPDEMO DEMO08 R Program 15 1 Y ESPCNTRL 20220914
-  -  - ESPDEMO DEMO09 R Program 15 1 Y GM712 20220914
-  -  - ESPDEMO DEMO10 R Program Y GM712 20220914
-  -  - ESPDEMO DEMO11 R Program Y GM712 20220914
-  -  - ESPDEMO DEMO14 R Program Y GM712 20220914
-  -  - ESPDEMO NOMAP S Map ESPCNTRL 20220914
-  -  - ESPDEMO TST2 R Program ESPCNTRL 20220912

L=Lib          ** Start of Data **
Restart at Library: █ Object: █ No of Objects: 2
Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Dupl AddCC Quit Error ScanD Scan PgDn Curr

```

#### Example of the Objects being transferred between ISR 20 and 25

Object selection or removal may continue as normal for both ISR's 20 and 25.

The ISR transfer function is just a tool for the assistance of removing objects from one ISR and then re-selecting them to another ISR via CC050.



### 3.3.2 CC060 – Upload Approval ISR for Transfer

This function is used to **Upload Approve** an ISR and to set the approval status of the ISR so that CC100 can be executed for the next migration. Upload Approval cannot be set if the Return Approval is already set. This approval request is set on the linked profile via CC002 when marking A-A indicator with a “Y” or “N”. The indicator will reflect against the environment being migrated **TO**. If no approval is required (N), as specified by the profile, then CC100 can continue as normal and will return no error.

If for example, approval is required for the move to Production, then the indicator must be set to Y against the environment that will be moved to. Therefore, if Dev, Test and Prod environments exist, Production must be marked with “Y”.

```

gm712@CRONUS01:~
ISP060          *** Cronus Consulting - DEV ***          09/19 11:41
ISM060          ISR Upload Approval for Transfer          GM712

ISR....: 18          Status: 02 - Uploaded to Test
Profile: PRD2DEV      Desc:  PROD TO DEV
Upload Approved:  Y (Y / N)  Title:  SYSTEM ERROR MESS
From Envir
Library  O
ESPDEMO Z

Upload Approved for Upload to Production

Press <ENTER> to Continue

Reposition at Library:      Object:
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
  
```

#### Upload Approval per ISR

The **Upload Approval Indicator** field on Profile set-up function **CC002** is used to control the “Upload Approval” of ISR’s before they are migrated **to** the next environment. The **Upload Approval Indicator** can be set to “Y” or “N” on each of the environments. Function **CC060** – Upload Approve ISR for transfer is required for any environment where the **Upload Approval Indicator** is set. During the move from the Master to the Initial Environment (First move), no upload approval will ever be requested.

If the ISR Code SAMEAPPROV has been set to “N”, then a user other than the creator (CC030) of the ISR needs to do the Upload Approval. If the same user executes this function, an error message will be returned.



```

gm712@CRONUS01:~
ISR has not been Upload Approved for Transfer
CCP100          *** Cronus Consulting - DEV ***          09/19 11:42
CCM10001        Transfer ISR between Environments        GM712

Please Supply the ISR Number: 17_____

Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

**CC100 showing error where approval is required.**

CC060 also checks the profile set up in CC002 for a group. If a group (not user) is linked to the environment being migrated from, the user doing the approval in CC060 must be part of this group.

```

gm712@CRONUS01:/opt/softwareag/cronus/ccont_tst
User GM712 not part of GROUP to Approve migration to Test
ISP060          *** Cronus Consulting - DEV ***          09/20 13:46
ISM060          ISR Upload Approval for Transfer        GM712

ISR....: 26_____ Status:
Profile:          Desc:
Upload Approved: (Y / N) Title:
From Environment:          To Environment:
Library Object   Obj Type Object Status          Curr. ISR

Reposition at Library: _____ Object: _____
Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

**CC060 approval error as user not part of the group in the linked profile**



If the code APPROVE in CC010 has been amended to include USERID's other than the default APPUSER, then only this list will be allowed to approve an ISR on CC060.

```
gm712@CRONUS01:/opt/softwareag/cronus/ccont_tst
User GM712 not on Approval list to Approve migration to Test
ISP060          *** Cronus Consulting - DEV ***          09/20 13:52
ISM060          ISR Upload Approval for Transfer          GM712

ISR....: 26_____ Status:
Profile:                               Desc:
Upload Approved: (Y / N)   Title:
From Environment:                               To Environment:
Library Object   Obj Type Object Status                               Curr. ISR

Reposition at Library: _____ Object: _____
Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
```

**CC060 approval error as user not part of the list in CC010 on code APPROVE**



### 3.3.3 CC070 – Mark an ISR as Completed

This function is used to change the status of an ISR to complete. Once an ISR's status has been changed to completed, all objects linked to that ISR will once again be available for selection and no more migration may take place against the completed ISR.

```

gm712@CRONUS01:~
<ENTER> to complete ISR
ISP070          *** Cronus Consulting - DEV ***          09/19 13:10
ISM07001        Mark an ISR as Completed                GM712

ISR Number: 19
ISR Status: 03 - Uploaded to Production

-----
Profile:      PRD2DEV      PROD TO DEV
-----
** If Manual Complete and objects should not be restored, Mark with N **
Restore.....: Y (Y/N/P - Yes/No/Previous ISR)
-----

Actual Work Hours: 1.00
Completion Date.: 20220919

Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
  
```

#### Complete an ISR

The following information must be entered:

- Actual Man Hours                      -        Number of hours used to complete the request
- Completion Date                       -        Set to System Date
- Restore                                 -        Y/N/P – Yes, No, Previous ISR

On completion of the ISR during a CC100 migration will occur when the modules reach the Master Environment Index of the profile used. The status will be updated to 99 and all modules will be unlinked from the ISR. However, CC070 may be manually selected to end the cycle of a current ISR. The cycle will be completed and the ISR status will also then be updated to 99.

**RESTORE (Y,N or P)** – this will only be applicable if the ISR has not been transferred to the master environment and called from the final migration in CC100. Therefore, an early completion (manual selection of CC070) of an ISR will use this indicator.





To abort completion of the ISR press 'PF3', (by pressing <ENTER> all changes will be lost and ISR will be restored to all applicable environments, depending on the RESTORE indicator). PF3 will allow an amendment of the RESTORE indicator.

**RESTORE – Y,N or P**, If marked with **Y** or **P**, then objects will be restored. **Y** will use the current backup of the ISR (see backup cycle to get more detail on current backup). **P** will use the backup from the Previous ISR, which actually refers to the previous code before the current ISR was initiated. If marked with **N**, then ISR will be closed off as complete and the object source will be left as is, in whatever environment it has been migrated too.

```

gm712@CRONUS01:~
ISP070          *** Cronus Consulting - DEV ***          09/19 13:10
ISM07001        Mark an ISR as Completed                GM712

ISR Number: 17
ISR Status: 03 - Uploaded to Production

-----
Profile:                Complete ISR
-----
** If Manual          Object(s) linked to ISR: 2          N **
R
-----
ISR has not been Transferred to Master Environment
All Objects will be Restored to Curr backup
-----
Ac      Press <ENTER> to Continue - PF3 to Abort
C

Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

**Completion Restore if NO Restore marked as N**



### 3.3.4 CC075 – Reset ISR Status

The function is used to **reset** the status of an ISR. This should only be used if a technical problem occurred during the migration of objects or if the ISR is STOPPED via the user during a migration process due to OBJECT COLLISION or if the ISR fails the PATH VALIDATION at the start of each migration step.

```
gm712@CRONUS01:~  
ISR in 'HOLD STATUS' - Transfer in Progress  
CCP100          *** Cronus Consulting - DEV ***          09/19 08:34  
CCM10001        Transfer ISR between Environments        GM712  
  
Please Supply the ISR Number: 17  
  
Direct Command:   
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---  
Quit
```

#### Example of ISR in HOLD error

```
gm712@CRONUS01:~  
ISR removed from HOLD  
ISP075          *** Cronus Consulting - DEV ***          09/19 08:32  
ISM07501        Remove an ISR from HOLD                  GM712  
  
ISR Number: 17  
ISR Status: 00 - Object Selection in Progress  
-----  
Profile:        PRD2DEV      PROD TO DEV  
-----  
  
Remove from HOLD : Y  
  
Direct Command:   
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---  
Quit
```

#### Remove an ISR from Hold



Whenever an ISR gets selected for a particular function, e.g. Linking of Objects, Migration, Return of Objects etc., the selected ISR gets automatically updated to a HOLD status. This is a security measure that prevents other users from using the same ISR when it is being worked on, or from running a function while a selected function is still busy. For example, while an ISR is busy being migrated via CC100, the ISR cannot be amended via CC050.

This HOLD indicator may be manually RESET by using the above function. This should only be done if the ISR is in HOLD due to a line error or a function did not complete correctly as specified in the manual which will force the ISR to HOLD.

Enter ISR NO and mark Remove from HOLD with a 'Y'. This will then allow the ISR to be used again.

This function should not be allocated to all users, so that ISR's do not get reset out of turn.



### 3.3.5 CC076 – Remove ISR from SYSOBJH Error

```
gm712@CRONUS01:/opt/softwareag/cronus/ccont_tst/transfer
ISR SYSOBJH Error reset
ISP076          *** Cronus Consulting - DEV ***          09/20 15:22
ISM07601        Remove an ISR from SYSOBJH Error        GM712

ISR Number: 29
ISR Status: 02 - Uploaded to Test

-----
Profile:      PRD2DEV      PROD TO DEV
-----

Reset SYSOBJH Error: Y

Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
```

#### Reset an ISR from SYSOBJ ERROR

If an ISR has been marked for Source Unload and during the migration via CC100, the Unload function did not complete successfully, then the ISR is marked as being in SYSOBJH ERROR. This allows the user to redo the migration by re-running CC100 without the objects being migrated again. This SYSOBJH ERROR indicator allows the re-migration of the ISR until the source unload has completed successfully.

If it is decided that the full migration, including the objects, must be re-executed, then this SYSERR ERROR may be RESET in CC077 as indicated above.

For security purposes, this ISR will be blocked from any other function until the source has been unloaded successfully or the SYSOBJH Error indicator has been reset.



### 3.3.6 CC077 – Remove an ISR from System Message Error

```
gm712@CRONUS01:/opt/softwareag/cronus/ccont_tst/transfer
ISR SYSTEM Error reset
ISP077          *** Cronus Consulting - DEV ***          09/20 15:17
ISM07701        Remove an ISR from System Message Error  GM712

ISR Number: 28
ISR Status: 00 - Object Selection in Progress

-----
Profile:      PRD2DEV      PROD TO DEV
-----

Reset System Message Error: Y

Direct Command: 
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
```

#### Reset an ISR from System Message Error

If a range of Error numbers have been linked to an ISR in CC050 for the migration of the SYSERR error messages and during the migration via CC100, the SYSERR transfer function did not complete successfully, then the ISR is marked as being in SYSERR ERROR. This allows the user to redo the migration by re-running CC100 without the objects being migrated again. This SYSERR ERROR indicator allows the re-migration of the ISR until the system error messages have been transferred.

If it is decided that the full migration, including the objects, must be re-executed, then this SYSERR ERROR may be RESET in CC077 as indicated above.

For security purposes, this ISR will be blocked from any other function until the System Error Messages have been transferred successfully or the SYSERR Error indicator has been reset.



### 3.4 Display ISR Information Function Overview (CC503)

#### 3.4.1 CC080 – Display ISR Status

```

gm712@CRONUS01:~
ISP080          *** Cronus Consulting - DEV ***          09/19 12:52
ISM080          Display ISR Status                      GM712

      ISR Number: 19          Profile: PRD2DEV   PROD TO DEV
-----
      ISR Status: 02 - Uploaded to Test
      ISR Title.: COPY FUNCTION

System.....: ACC Access Control
Originator.....: GM712          Date Originated.....: 20220919
Allocated to....: GM712          Allocation Date.....: 20220919
Telephone Ext...:                Return Error.....: N
                                   SYSOBJH-Error.....: N
                                   System Message Error: N

Description.....: copy function
Date IT Received: 20220919       Estimated Work Hours: 1.00
Date Completed...:               Actual Work Hours...:
Date Required....: 20220919       Rejected (Y)es/(N)o.: N

Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
                                   Quit      Incom
  
```

#### ISR Status Enquiry

The function is used to display general information about the ISR:



### 3.4.2 CC085 – Display Object Dependents

The function is used to display the dependants of a selected Object:

```

gm712@CRONUS01:~
ISP085          *** Cronus Consulting - DEV ***          09/19 12:59
ISM085          Display Object Dependants                GM712

  Dep Library  Object  Mode Object Type Current ISR Stat New Saved By  Date

  -----Building Object List-----

  Enter Library and environment index
  or PF3 to Exit

  Library : ESPDEMO_
  Env No  : 01

  Restart at Library: ESPDEMO_ Object: _____ SCL's: N (Y/N)
  Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit      EnvNo
  
```

#### Object Dependents Environment Number and Library Input

This function does server validation in the background and if CC001 is populated with more than one Development environment with different fusers on the Local Server, it will first bring up a window (see above screen) for the user to capture the environment number and the library. It will use this environment number to set up the correct fuser which in turn will find all the dependents of the selected object. The library will be validated against the entered environment number. This library and environment number would tie up to the initial scan in CC300 or any new objects scanned in CC050. It will use these entered parameters to determine the Inventory List for that particular environment and only display these objects. PF5 must be used to change the environment number for a new library if required. However, if the background validation determines that CC001 does not have multiple Development environments, this window will be bypassed and the full Inventory List displayed.



```

gm712@CRONUS01:~
ISP085          *** Cronus Consulting - DEV ***          09/19 12:53
ISM085          Display Object Dependants              GM712
                  Development
Dep  Library  Object  Mode Object Type Current ISR Stat New Saved By  Date
-   -   -   -   -   -   -   -   -   -   -
-   ESPDEMO  DEMO01   R  Program      15    1   Y  ESPCNTRL 20220914
-   ESPDEMO  DEMO02   R  Program      19    2   Y  ESPCNTRL 20220919
-   ESPDEMO  DEMO03   R  Program      19    2   Y  ESPCNTRL 20220919
-   ESPDEMO  DEMO04   R  Program      17    2   Y  ESPCNTRL 20220919
-   ESPDEMO  DEMO05   R  Program              Y  GM712    20220914
-   ESPDEMO  DEMO07   R  Program              Y  GM712    20220914
-   ESPDEMO  DEMO08   R  Program      15    1   Y  ESPCNTRL 20220914
-   ESPDEMO  DEMO09   R  Program      15    1   Y  GM712    20220914
-   ESPDEMO  DEMO10   R  Program              Y  GM712    20220914
-   ESPDEMO  DEMO11   R  Program              Y  GM712    20220914
-   ESPDEMO  DEMO12   R  Program              Y  GM712    20220914
-   ESPDEMO  DEMO13   R  Program              Y  GM712    20220914
-   ESPDEMO  DEMO14   R  Program              Y  GM712    20220914
-   ESPDEMO  NOMAP    S  Map              ESPCNTRL 20220914
                  ** Start of Data **
Restart at Library: █ Object: █ SCL's: N (Y/N)
Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
                  Quit                               PgDn

```

## Object Dependents

Information regarding the library and its objects are displayed:

- |                        |   |  |
|------------------------|---|--|
| • Library Name         | - | Object Library Name (Scanned in Library) |
| • Object               | - | Object Name                              |
| • Mode                 | - | Structured or Reporting                  |
| • Object Type          | - | Object Type as defined in Natural        |
| • Current ISR          | - | ISR number - Blank if not linked         |
| • Object Status        | - | Status of object                         |
| • Object new indicator | - | New or old indicator                     |
| • Saved information    | - | User that last saved the object          |
| • Date Saved           | - | Date last saved                          |

Select Objects with 'X'





A list of the dependants found for the object is displayed detailing the **Object Name** and **Object Type**.

```

gm712@CRONUS01:~
ISP085
ISM085

*** Cronus Consulting - DEV ***                                09/19 13:04
                                                                GM712

Dep Library Obj Library: ESPDEMO Object: DEMO05
- ESPDEMO DEM
- ESPDEMO DEM
- ESPDEMO DEM
- ESPDEMO DEM
X ESPDEMO DEM
- ESPDEMO DEM
- ESPDEMO DEM
- ESPDEMO DEM
- ESPDEMO DEM
- ESPDEMO DEM
- ESPDEMO DEM
- ESPDEMO DEM
- ESPDEMO DEM
- ESPDEMO DEM
- ESPDEMO DEM
- ESPDEMO DEM

w Saved By Date
ESPCNTRL 20220914
ESPCNTRL 20220919
ESPCNTRL 20220919
ESPCNTRL 20220919
GM712 20220919
GM712 20220919
GM712 20220919
GM712 20220919
GM712 20220914
ESPCNTRL 20220914
GM712 20220914
GM712 20220914
GM712 20220914
GM712 20220914
GM712 20220914
GM712 20220914

*** End of Data ***

Restart at Library: _____ Object: _____ SCL's: N (Y/N)
Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Quit PgDn

```

### Dependents Displayed for Selected Object

#### The object dependants detail:

- Library Name - Library Name of Object
- Object Name - Object Name
- Object Type - Description of object type

Only 10 objects are displayed per page – use **PF8** to page forward and **PF7** to page back.

**NOTE :** This function will not give the correct results if the code has been “moved” from or only “object code” exists in the scanned environment, it will only reflect objects where source is currently residing in the Development Areas, as this function reads through the actual code that exists in the fuser.



### 3.4.3 CC088 – Display Object History

A list of all objects in the Object Inventory (scanned objects) will be displayed, and the user can choose as many objects, by marking with an 'X', as he likes. This will in turn display all the history pertaining to this object using the CC095 function.

```

gm712@CRONUS01:~
ISP088          *** Cronus Consulting - DEV ***          09/19 13:37
ISM08801        Display Object History                    GM712

Library Object Object Type Stat Current
      ESPDEMO DEMO01 PROGRAM    01      15
X ESPDEMO DEMO02 PROGRAM    99      20
- ESPDEMO DEMO03 PROGRAM    99      20
- ESPDEMO DEMO04 PROGRAM
- ESPDEMO DEMO05 PROGRAM
- ESPDEMO DEMO07 PROGRAM
- ESPDEMO DEMO08 PROGRAM    01      15
- ESPDEMO DEMO09 PROGRAM    01      15
- ESPDEMO DEMO10 PROGRAM
- ESPDEMO DEMO11 PROGRAM    02      21
- ESPDEMO DEMO12 PROGRAM
- ESPDEMO DEMO13 PROGRAM
- ESPDEMO DEMO14 PROGRAM
- ESPDEMO NOMAP MAP

Restart at Library: _____ Object: _____ SCL's: N (Y/N)
Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
                        Quit      Old   PgUp  PgDn
  
```

#### Object List for History Selection

The information displayed includes:

- 'X' (to select) - Selected Object(s) to be for History Display
- Library Name - Library Name of Object
- Object Name - Object Name
- Object Type - Object Type
- Object Status - Object status, which equals the status of the selected profile's environment where the object has currently been migrated to.  
99 is for Complete.
- Current ISR Number - Linked ISR number (if still linked to an ISR)



```

gm712@CRONUS01:~
*** Cronus Consulting - DEV ***                                09/19 13:38
ISM088                                                           GM712
Display Object History

Object Id: DEMO02__
Toggle LEFT and RIGHT for Complete Description
Date      Time      ISR No  Function Description
20220919  12:51:18  19    ISP050  SELECTED FOR XFER: ESPDEMO DEMO02 (NEW)
20220919  12:51:38  19    CCN301  ESPDEMO DEMO02 - SRC Backup Taken in Dev
20220919  12:51:41  19    CCN303  From Library ESPDEMO To Library ESPDEMO
20220919  13:10:26  19    CCN301  ESPDEMO DEMO02 - SRC Backup Taken in Tes
20220919  13:10:30  19    CCN303  From Library ESPDEMO To Library ESPDEMO
20220919  13:26:23  20    ISP054  SELECTED FOR XFER: ESPDEMO DEMO02 (OLD)

*** End of Data ***
Restart at Date:  Time:
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Print      Quit      Audit      PgDn      Left  Right
  
```

### ISR History per Object chosen

The above screen is the result of marking 'X' in the selection field and displays all History information (as in CC095 when an ISR is selected), per ISR. This window, by using PF8 to page down and PF7 to page up, will reflect **ALL** ISR's that the selected object was linked to and all the relevant information pertaining to that object in that ISR.

Use PF11 to scroll to the right and PF10 and scroll to the left to see more information per screen.





### 3.4.4 CC090 – Display Objects Linked to an ISR

This function is used to display the status of the ISR and all the objects linked to the ISR during the change request. Once an ISR has been completed the objects will still be displayed, however the Current ISR column will either be blank or contain the ISR No to which the object is now currently linked.

```

gm712@CRONUS01:~
ISP090          *** Cronus Consulting - DEV ***          09/19 13:39
ISM090          Display Objects Linked to an ISR          GM712

ISR....: 19          Status: 99 - Completed
Profile: PRD2DEV          PROD TO DEV

'X' Library Object Type Object Status          Curr. ISR
- ESPDEMO DEMO02 P 99 - Completed          20
- ESPDEMO DEMO03 P 99 - Completed          20

*** End of Data ***
Reposition at Library: █ Object: 
Direct Command: 
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit          PgDn

```

#### Objects linked per ISR

The information displayed includes:

- 'X' (to select) - Reflects the Environment and Libraries used for the selected Object during the cycle of the ISR
- Library Name - Library Name of Object
- Object Name - Object Name
- Object Type - Object Type
- Object Status - Object status, which equals the status of the selected profile's environment where the object has currently been migrated to.  
99 is for complete
- Current ISR Number - Linked ISR number (if still linked to an ISR)



```

gm712@CRONUS01:~
ISP090          *** Cronus Consulting - DEV ***          09/19 13:39
ISM090          Display Objects Linked to an ISR          GM712

ISR.....: 19          Status: 99 - Completed
Profile: PRD2DEV          PROD TO DEV

Display Library    Display Object    To Library    Environment
ESPDEMO           DEMO03            ESPDEMO       Development
                  ESPDEMO            ESPDEMO       Test
                  ESPDEMO            ESPDEMO       Production

ISR NO:
19

** HISTORY **

-- ENTER TO CONTINUE --

Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit                                PgDn

```

### Reflects Libraries per Environment of Selected Object

The above screen is the result of marking 'X' in the selection field next to the object name and will show the migration path and the libraries used in each environment. This function will show the history of the library and environment movement, even if the profile has since changed for new ISR's.



### 3.4.5 CC093 – Display X-REF History

This function is used to display the History of all ISR's that have been linked to a specific X-REF Number. This X-REF Number is informational only but can be linked to a user exit ISNEX030 where site specific code can be entered to validate this X-REF Number. A list of all X-REF numbers used in migrations will be displayed, if function entered without an X-REF number, and these X-REF numbers may then be selected. This will in turn display all ISR numbers linked to this X-REF and then the history pertaining to each selected ISR. One X-REF Number may have many ISR's linked.

A screenshot of a terminal window titled "gm712@CRONUS01:~". The screen displays the "Display X-REF History" function. At the top, it shows "ISM093" on the left, "\*\*\* Cronus Consulting - DEV \*\*\*" in the center, and the date/time "09/19 13:40" and user "GM712" on the right. Below this, there is a box containing the prompt "XREF Number:" followed by a list of XREF numbers. The first entry is "X 9001" with "MANUAL" below it. At the bottom of the box is the prompt "Restart at XREF No:" followed by a green cursor. Below the box, there is a "Direct Command:" line with a green cursor. At the very bottom, there is a row of function keys: "Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---". Below this row, the words "Print" and "Quit" are aligned under PF1 and PF2 respectively.

#### Help on X-REF numbers when entering in CC093

#### The information displayed includes:

- |                   |   |   |
|-------------------|---|---|
| • 'X' (to select) | - | Selected ISR(s) for History Display               |
| • ISR No          | - | Linked ISR No                                     |
| • ISR Title       | - | The title associated with the ISR set up in CC030 |



```

gm712@CRONUS01:~
*** Cronus Consulting - DEV ***                                09/19 13:40
ISM093                  Display X-REF History                    GM712

XREF Number.....: 9001_____

'X'      ISR No      ISR Title
X         15      MANUAL DEMONSTRATION

*** End of Data ***

Reposition at ISR No: █
Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
      Print      Quit      PgUp

```

### Display X-REF History per ISR

On selection of as many ISR's as required, the function will in turn for each selected ISR, reflect the History screen CC095. PF3 to exit each History screen to see the next selected ISR. On PF3 of the last selected ISR, the user will be returned to the X-Ref Display main window.

```

gm712@CRONUS01:~
ISP095                  *** Cronus Consulting - DEV ***          09/19 13:41
ISM095                  Display ISR History                      GM712

ISR.....: 15          Status: 01 - Downloaded to Development
Xref....: 9001          Toggle LEFT and RIGHT for Complete Description

  Date      Time      User ID  Program  Description
20220914 12:18:03 GM712    ISP030  Added ISR Request - PRD2DEV
20220914 12:40:27 GM712    ISP040  Approved by IT - PRD2DEV
20220914 12:44:10 GM712    ISP050  SELECTED FOR XFER: ESPDEMO DEMO01 (OLD)
20220914 12:44:10 GM712    ISP050  SELECTED FOR XFER: ESPDEMO DEMO08 (NEW)
20220914 12:44:10 GM712    ISP050  SELECTED FOR XFER: ESPDEMO DEMO09 (NEW)
20220914 12:53:53 GM712    ISP050  OBJECT REMOVED: ESPDEMO DEMO01
20220914 12:53:55 GM712    ISP050  SELECTED FOR XFER: ESPDEMO DEMO01 (OLD)
20220914 13:06:47 GM712    CCN453  ESPDEMO DEMO01 - Does not Exist in Product
20220914 13:06:47 GM712    CCN453  Error Path - /opt/softwareag/Natural/fuser
20220914 13:06:59 GM712    CCP100  Path(s) Failed - See Error Paths in Histor
20220914 13:06:59 GM712    CCP100  PATH VALIDATION failed - ISR Aborted and i
20220914 13:08:58 GM712    CCN303  From Library ESPDEMO To Library ESPDEMO -

** Start of Data **

Restart at Date: █ Time: _____
Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
      Print      Quit      PgDn      Left      Right

```

### Display ISR History for selected XREF





### 3.4.6 CC095 – Display ISR History

This function provides an audit trail of the ISR's progress with date's, time's and descriptions of the various actions performed during the selection, migration, backup or restore of any particular ISR.

```

gm712@CRONUS01:~
ISP095          *** Cronus Consulting - DEV ***          09/19 13:34
ISM095          Display ISR History                      GM712

ISR....: 21      Status: 02 - Uploaded to Test
Xref....:      Toggle LEFT and RIGHT for Complete Description

  Date      Time      User ID   Program   Description
20220919 13:33:24 GM712     ISP035    Added ISR Request - MOV3PRD
20220919 13:33:37 GM712     ISP050    SELECTED FOR XFER: ESPDEMO DEMO11 (NEW)
20220919 13:34:33 GM712     CCN301    ESPDEMO DEMO11 - SRC Backup Taken in Devel
20220919 13:34:36 GM712     CCN303    From Library ESPDEMO To Library ESPDEMO -
20220919 13:34:41 GM712     CCP100    Object ESPDEMO - DEMO11 Scratched in Devel
20220919 13:34:41 GM712     CCP100    Uploaded from Development to Test - SOURCE

*** End of Data ***
Restart at Date:  Time:
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Print      Quit      PgDn      Left      Right
  
```

#### ISR History Enquiry

The information displayed includes:

- Date - Date transferred
- Time - Time of transfer
- User Id - User that executed the transfer
- Program - EspControl Program executed (function)
- Description : - Description of the actual event, including environments, paths, library and object names
- XREF Number - The XREF number captured per ISR in CC030 if Applicable
- PF5 - Audit Facility (see explanation below)

The description is more than one screen in width. Use **PF11** to toggle to the Right to see more information and **PF10** to return to the left again.



## Right hand side of the History Display screen

```

gm712@CRONUS01:~
ISP095          *** Cronus Consulting - DEV ***          09/19 13:34
                  Display ISR History                      GM712

ISR.....: 21          Status: 02 - Uploaded to Test

Description
Added ISR Request - MOV3PRD
SELECTED FOR XFER: ESPDEMO DEMO11 (NEW)
ESPDEMO DEMO11 - SRC Backup Taken in Development
From Library ESPDEMO To Library ESPDEMO - DEMO11 Copied
Object ESPDEMO - DEMO11 Scratched in Development
Uploaded from Development to Test - SOURCE - STOW - BACKUP

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Print      Quit      PgDn      Left      Right

```

### ISR History Enquiry – PF11 to the right

Detailed information regarding the ISR is kept – every phase of the migration is recorded and logged on the ESP audit history file – ISR creation, ISR approval, Linking of Objects, Transfer, Return, Restores, Archiving etc.

### PF5 – Audit Facility

By pressing PF5, the user will execute the audit facility. This audit is a reflection of events between a start and end date entered by the user, as well as a selection of the required environments, and will in turn produce either a report or .csv file, depending on the selection by the user. The start and end date will refer to the creation of the ISR (when created via CC030) and the end date will refer to the completion of the ISR (CC070).

The audit events reflected will be per object, using input data, as follows:

- The creation of the ISR and user, the approval of the ISR and user, the migration of the ISR and user, date and time and the function requested
- ECOCOPY – the migration of an object
- ECORETN – the return of an object
- ECOREST – the restore of an object
- ECORESTA – the restore of an object with error
- ECOARCH – Archive to an environment



```

gm712@CRONUS01:~
ISP195          *** Cronus Consulting - DEV ***          13:44:27.7
ISM195          Audit History Report or .csv File        2022/09/19

Start Date:      2022/01/01          (Format CCYY/MM/DD)
End Date   :      2022/09/19
Objects: Y   or   SCL's...: N

Print Report:    N
.csv File   :    Y

.csv file name ==> /dev shell script path/transfer/userid_date_time.csv

** ISR Completion Date will be used for the parameter Start and End Date **
** Therefore only COMPLETED ISR's will be included

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Exit

```

### PF5 – Audit input screen

```

gm712@CRONUS01:~
ISP195          *** Cronus Consulting - DEV ***          13:45:55.6
ISM195          Audit History Report or .csv File        2022/09/19

Start Date:      2022/01/01          (Format CCYY/MM/DD)
End Date   :      2022/09/19
Objects: Y   or   SCL's...: N

Print Re  .csv FILE has been created... see path below to FTP
.csv Fil  /opt/softwareag/cronus/ccont_eco/transfer/
          FILE NAME - AUDITGM712_20220919_1344.csv
          time.csv
          Enter to Continue

** ISR Completion Date will be used for the parameter Start and End Date **
** Therefore only COMPLETED ISR's will be included

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Exit

```

### Audit .csv file Confirmation Window



```

gm712@CRONUS01:~
Job number 399227: N.20220919.gm712.01 on form type NOPRINT
....5....10....15....20....25....30....35....40....45....50....55....60....65....70....75....
2022/09/19          HISTORY AUDIT OF OBJECT MIGRATIONS TO TEST
13:47:36.1

START DATE...: 2022/09/14          END DATE.....: 2022/09/19

      ISR      ISR  CREATED  APPROVED  CALL      ECO      EVENT      EVENT      COPI>
      REQ      TYPE      BY      BY      OPT      EVENT      DATE      TIME      BY>
-----
17  ISR  TITLE: NEW CC TEST          XREF.....:          >
    NAT  GM712          CC100 ECOCOPY  2022/09/19  10:15 GM712>
    GM712          CC100 ECOCOPY  2022/09/19  10:15 GM712>
18  ISR  TITLE: SYSTEM ERROR MESS    XREF.....:          >
    UE   GM712          CC100 ECOCOPY  2022/09/19  10:29 GM712>
    GM712          CC100 ECOCOPY  2022/09/19  10:58 GM712>
19  ISR  TITLE: COPY FUNCTION        XREF.....:          >
    NAT  GM712          CC100 ECOCOPY  2022/09/19  12:51 GM712>
    GM712          CC100 ECOCOPY  2022/09/19  12:51 GM712>
      --- End of page 2 ---

```

### Audit Report Example

```

gm712@CRONUS01:~
ISP095          *** Cronus Consulting - DEV ***          09/19 17:23
ISM095          Display ISR History          GM712

ISR.....: 21          Status:
Xref....:          Toggle LEFT and RIGHT for Complete Description
  Date      Time      User ID  Program  Description

Restart at Date:          Time:
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
      Print Compa Quit          Audit Adhoc          Left  Right

```

### PF2 Compare, PF6 Adhoc

#### PF2 – Compare Log

COMPARE is a function from CC200 where the source is moved from Production to Library COMPARE in Development, so that source comparisons can be done between Production and Development. PF2 will show the log for the COMPARE function. It always defaults to ISR 99999999.



```

gm712@CRONUS01:~
ISP095          *** Cronus Consulting - DEV ***          09/19 18:02
ISM095          Display ISR History                      GM712

ISR....: 99999999__ Status: 00 - Object Selection in Progress
Xref....: Toggle LEFT and RIGHT for Complete Description
  Date      Time      User ID   Program   Description
20220919 18:02:25 GM712     CCN203   DEMO02 : moved to DEV Compare - CCP200
20220919 18:02:46 GM712     CCN203   DEMO03 : moved to DEV Compare - CCP200
20220919 18:02:51 GM712     CCN203   DEMO01 : moved to DEV Compare - CCP200

*** End of Data ***
Restart at Date: █ Time: ____
Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Print      Quit      PgDn      Left      Right

```

## Compare Log

### PF6 – Adhoc Log

ADHOC is a function from CC200 where the source is moved from a Development Adhoc Library, defined in code ADHOCL in CC010, to Production directly, without having to create an ISR. PF6 will show the log for the ADHOC function. It always defaults to ISR 77777777.

```

gm712@CRONUS01:~
ISP095          *** Cronus Consulting - DEV ***          09/19 18:06
ISM095          Display ISR History                      GM712

ISR....: 77777777__ Status: 00 - Object Selection in Progress
Xref....: Toggle LEFT and RIGHT for Complete Description
  Date      Time      User ID   Program   Description
20220919 18:04:58 GM712     CCN204   DEMO05 : moved to Prod ADHOC - CCP200
20220919 18:05:12 GM712     CCN204   DEMO07 : moved to Prod ADHOC - CCP200
20220919 18:05:28 GM712     CCN204   DEMO05L : moved to Prod ADHOC - CCP200
20220919 18:06:01 GM712     CCN204   DEMO05M : moved to Prod ADHOC - CCP200

*** End of Data ***
Restart at Date: █ Time: ____
Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Print      Quit      PgDn      Left      Right

```

## Adhoc Log



### 3.4.7 CC097 - Display Object Status

Displays a list off all objects currently defined in the Inventory of EspControl.

```

gm712@CRONUS01:~
ISP097          *** Cronus Consulting - DEV ***          09/19 13:48
ISM097          Display Object Status                    GM712

  Library  Object  Mode  Object Type  Stat  New  Current  ISR  ISR Title
- ESPDEMO  DEMO01   R   PROGRAM      1                15
- ESPDEMO  DEMO02   R   PROGRAM     99                20
X ESPDEMO  DEMO03   R   PROGRAM     99                20
- ESPDEMO  DEMO04   R   PROGRAM
- ESPDEMO  DEMO05   R   PROGRAM
- ESPDEMO  DEMO07   R   PROGRAM
- ESPDEMO  DEMO08   R   PROGRAM      1                15
- ESPDEMO  DEMO09   R   PROGRAM      1                15
- ESPDEMO  DEMO10   R   PROGRAM
- ESPDEMO  DEMO11   R   PROGRAM      2                21
- ESPDEMO  DEMO12   R   PROGRAM
- ESPDEMO  DEMO13   R   PROGRAM
- ESPDEMO  DEMO14   R   PROGRAM
- ESPDEMO  NOMAP    S   MAP

Restart at Library: _____ Object: _____ SCL's: N (Y/N)
Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
  
```

#### Current Object Status

If an object is selected with a 'X', a list of all ISR's that the object has been linked to will be displayed

The following information is given per object:

- |                     |   |   |
|---------------------|---|---|
| • Library           | - | Scanned in Library in the Dev environment         |
| • Object Name       | - | Object name                                       |
| • Object Mode       | - | Structured/Reporting mode                         |
| • Object Type       | - | Object type e.gg Program/Map/Local                |
| • Object Status     | - | Object status - Blank if not linked to an ISR     |
| • New/Old indicator | - | Y for New and Blank for Old                       |
| • Current ISR No    | - | Current ISR nr. - Blank if not linked to an ISR   |
| • ISR Title         | - | Current ISR Title - Blank if not linked to an ISR |

A list of all ISR's that the object has been linked to will be displayed by selecting the object.



```
gm712@CRONUS01:~  
ISN097          *** Cronus Consulting - DEV ***          09/19 13:50  
ISM09702        Object Status per ISR                    GM712  
  
Library: ESPDEMO  Object: DEMO03  
  
  ISR No  ISR Title      Originator      Completed  Developer  
    19  COPY FUNCTION    GM712        2022-09-19  GM712  
    20  COPY FUNCTION    GM712  
  
*** End of Data ***  
Restart at ISR No: █  
Direct Command: _____  
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---  
Quit                                           PgDn
```

### ISR History per Object selected

The following information history is displayed per object:

- ISR No - Previously linked ISR's
- ISR Title - Title of ISR
- Originator - Originator of the ISR
- Completed - Date ISR was completed
- Developer - The name of the developer

**NOTE:** This function displays a list of all objects that have been scanned into the Object Inventory List, whether old or new objects, but NOT archived objects.



### 3.4.8 CC099 - ISR Status Summary

This function will display a summary of all ISR's and their current statuses (status description is dependent on the linked Profile) in a summarised format that have been created by the Userid entered. The summary can also be displayed for ALL users by omitting the User-ID.

```

gm712@CRONUS01:~
ISP099          *** Cronus Consulting - DEV ***          13:53:24.2
ISM09901        ISR Status Summary                      2022/09/19

User Id: GM712___ (Blank for All)

   Status Description                               Count
   █  00 Object Selection in Progress                3
   -  01 Downloaded to Development                   1
   -  02 Uploaded to Test                            1
   -  92 Approved by IT                             1
   X  99 Completed                                  13

Total: 19

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

#### ISR Status Enquiry reflecting ALL ISR's

The following information history is displayed per user:

- Status - EspControl Status
- Description - Description of status
- Count - Number of ISR's with the associated status

To view all ISR's in a particular status – select the relevant status with an 'X'.





```

gm712@CRONUS01:~
ISP099          *** Cronus Consulting - DEV ***          13:53:07.3
ISM09902        ISR Status Summary                      2022/09/19

ISR Status: 99 - Completed

User ID  ISR No  Title                Profile  Request Date  Est. Time  Date Completed  SCL
GM712    3    TEST SCL                SCL2DEV  20220817      1.00      20220817      SCL
GM712    4    TEST NO COMPILE        PRD2DEV  20220818      1.00      20220818
GM712    5    TEST NO COMPILE        PRD2DEV  20220818      1.00      20220824
GM712    6    TEST NO COMPILE        PRD2DEV  20220824      1.00      20220824
GM712    7    SCL ADHOC TEST         SCL2DEV  20220826      1.00      20220910      SCL
GM712    8    TEST                   PRD2DEV  20220908      1.00      20220908
GM712    9    TEST                   PRD2DEV  20220909      1.00      20220909
GM712   10    TEST                   PRD2DEV  20220909      1.00      20220909
GM712   13    INITIAL BACKUP         BACKUP01 20220914      1.00      20220914
GM712   14    INITIAL BACKUP         BACKUP01 20220914      1.00      20220914
GM712   17    NEW CC TEST            PRD2DEV  20220918      1.00      20220919
GM712   18    SYSTEM ERROR ME        PRD2DEV  20220919      1.00      20220919

Restart at - User: _____ Isr No: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

### ISR Status Selection

The following information history is displayed per status as shown above:

- User ID - User-id of creator of the ISR
- ISR No - ISR Number
- ISR Title - ISR Title
- Profile - Profile Name
- Request Date - Date ISR was requested
- Est Time - Estimated man hours
- Date Completed - Date the ISR was completed



### 3.5 ISR RETURN AND RESTORE FUNCTION OVERVIEW (CC504)

#### 3.5.1 CC053 – Link Objects per ISR for RETURN

This function is used to select all objects that will form part of the requested ISR that is to be returned to the previous environment.

```

gm712@CRONUS01:~
ISP053          *** Cronus Consulting - DEV ***          09/28 09:53
ISM053          Mark Objects for Return to Previous Environment  GM712
ISR....: 26      Status: 02 - Uploaded to Test
                                From Environment: Test
Profile: PRD2DEV  Desc: PROD TO DEV  Return to Environ: Development
LIBRARY  OBJ NAME  OBJ TYPE  Mode  Current ISR  Stat  New  Saved By  Date
X _      ESPDEMO  DEMO02   Program  R        26      2      ESPCNTRL 20220920
X _      ESPDEMO  DEMO03   Program  R        26      2      ESPCNTRL 20220920
_ _      ESPDEMO  DEMO04   Program  R        26      2      Y        ESPCNTRL 20220920

L=Lib          *** End of Data ***
Restart at Library:      Object:      No of Objects: 3
Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit  Updat Reset
  
```

#### Link Objects to ISR for Return to Previous Environment

Once the ISR No has been entered a list of all objects already LINKED to that ISR will be displayed and then these objects must be marked for Return to a previous environment. Only the objects selected will be returned to the previous environment. Only objects already in the second and upper environment may be linked, as if the object is already in the Initial Environment, it cannot be returned anywhere. If an ISR is complete, i.e. in the Master Environment, then the ISR cannot be returned either. In this scenario, a new ISR must be opened for the migration of these objects to be downloaded to Development.

Objects can now be linked by entering an 'X' next to the object in the New Column. Once selection is complete for the displayed screen, press PF4 for the updating of these linked objects. A confirmation window will be displayed as reflected below. The user may now move forwards via PF8 to the next available screen and then link and update via PF4 again, until all linked objects have been viewed or move back to the previous screen via PF7 or exit the transaction using PF3. The objects must first be approved via CC061 (if the code RETAPP = Y in CC010, else no return approval is required) and then the actual return executed via function CC102.



```

gm712@CRONUS01:~
ISP053          *** Cronus Consulting - DEV ***          09/28 09:53
ISM053          Mark Objects for Return to Previous Environment  GM712
ISR....: 26      Status: 02 - Uploaded to Test

Profile: PRD2DEV Desc: PROD TO DEV From Environment: Test
Return to Environ: Development
LIBRARY OBJ NAME OBJ TYPE Mode Current ISR Stat New Saved By Date
X _ ESPDEM
X _ ESPDEM
_ _ ESPDEM
Current Screen Objects have been Updated
Press <ENTER> to Continue

L=Lib          *** End of Data ***
Restart at Library: Object: No of Objects: 3
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Quit Updat Reset

```

#### PF4 Confirmation of Return Linking Update

Objects that are returned, will be returned to the previous environment using the source or object in the current environment, in the same manner that it was moved forwards (rules of the linked profile). However, no backups of these objects are taken. The backup will be redone when moving back up the line via CC100 again, using the same version number and therefore overwriting the backup with the new source.

Multiple returns of an ISR are also allowed, without all the objects being in the same status. This means that if the objects are in Test and for example, only 2 are returned to Dev, more returns via CC053 are still allowed with other objects not already in return status, being selected and then re-running CC053 until the user requires another migration via CC100. When CC100 is run again, all the modules that are in Dev will again be moved up the line to Test until all the objects are in the same status.

Objects may also be deselected by removing the X next to the object. PF5 may be used to RESET the entire ISR from Return, i.e. un-link all linked objects, reset any Error Returns in this ISR and reset the RETURN APPROVAL (see CC061) so that normal migration may continue. After the successful resetting of the ISR, a confirmation window will be displayed as follows:



```

gm712@CRONUS01:~
*** Cronus Consulting - DEV ***                                09/28 09:53
ISM053      Mark Objects for Return to Previous Environment      GM712
ISR.....: 26_____ Status: 02 - Uploaded to Test
Profile: PRD2DEV Desc: PROD TO DEV From Environment: Test
Return to Environ: Development
LIBRARY OBJ NAME OBJ TYPE Mode Current ISR Stat New Saved By Date
X _ ESPDEM NTRL 20220920
X _ ESPDEM NTRL 20220920
- _ ESPDEM NTRL 20220920
All Objects have been unlinked from Return
Press <ENTER> to Continue

L=Lib *** End of Data ***
Restart at Library: _____ Object: _____ No of Objects: 3
Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit Updat Reset

```

### Reset Returned Objects

By marking the LIB column with an 'L', a window will be reflected displaying all the libraries linked to the selected object. This window is read-only, as the Return ISR transaction involves ISR's already in use, and therefore these libraries cannot be amended here. The same Library rules will be applied as were set up in the normal migration.



### 3.5.2 CC061 – Return Approval for ISR

This function is used to Return Approve an ISR and to internally set the status of the ISR so that return is possible. Once an ISR has been approved for return to a previous environment, the return migration function (CC102) will be used to return all objects that have been linked for return (in CC053) to the previous environment. **NOTE: if the code RETAPP in CC010 has been marked with an “N”, then CC061 can be bypassed.**

```

gm712@CRONUS01:~
ISP061          *** Cronus Consulting - DEV ***          09/28 10:03
ISM061          ISR Return Approval for Transfer          GM712

ISR....: 26          Status: 02 - Uploaded to Test
Profile: PRD2DEV      Desc:  PROD TO DEV
Return Approved:  Y (Y / N)  Title:  TEST APPROVAL
From Envir
Library O
ESPDEMO D          Return Approved for Return to Development
ESPDEMO D
ESPDEMO D          Press <ENTER> to Continue

ent
Curr.ISR Ret
      26 Y
      26 Y
      26

Reposition at Library:  Object:
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Quit          PgUp  PgDn
  
```

#### Return Approval of an ISR



### 3.5.3 CC102 - Return ISR to Previous Environment

This function is used to **return** all **objects marked for Return (via CC053)** linked to an ISR between the defined environments. This function is identical to the function CC100 specified above, except that the marked objects are migrated to the previous environment and no backup or restores are done. If any error occurs during the return, NO RESTORE is done. These error objects will be displayed in the ISR History enquiry and will be reflected on an error report. The function CC102 may be run again and again to return these error objects to the previous environment, until the return is successful, therefore no restore is necessary.

According to the current status of an ISR and the profile linked to it, the system will determine to which environment, objects must be returned.

A screenshot of a terminal window titled "gm712@CRONUS01:~". The terminal displays the following text:

```
CCP102          *** Cronus Consulting - DEV ***          09/28 10:05
CCM10201        Return Transfer ISR to Previous Environment  GM712

                ISR Title: TEST APPROVAL

                Please Supply the ISR Number: 26_____

                Returned from Test to Development

                Press <ENTER> to Continue - PF3 to Abort

Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
```

#### Return an ISR

Once the user has pressed enter to continue the ISR will be validated for return via the normal PATH VALIDATION routine – see explanation in CC100.



```

gm712@CRONUS01:~
CCP102          *** Cronus Consulting - DEV ***          09/28 10:05
CCM10202      Return Transfer ISR to Previous Environment  GM712
  ISR NO: 26 - TEST APPROVAL
Library  Object  Backup Copy Difference  Compile NAT Err Line Resp

```

Returned from Test to Development

Press <Enter> to Continue

```

ESPDEMO DEMO02    N    Y  4    Y          S  2
ESPDEMO DEMO03    N    Y  4    Y          S  2
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

### Return ISR Confirmation

If ALLOW-SOURCE = "N", when returning to the Initial Environment (the first environment of the profile), the source will be migrated to this environment. If ALLOW-SOURCE = "N" in any other environment, the return of objects will be the object code only.

If the ALLOW-SOURCE = "M" or "Y", the code will always be returned to the previous environment.

If the STOW-CAT option = N, then only the source will be returned and saved, else it will be STOWed or CATalogued as selected.

The next time the ISR is migrated it will have to move forwards again to the next environment and so on. Remember, only objects marked for Return will be returned, all unmarked objects will remain in the higher environment until all the returned objects have been migrated forward again and all objects are in the same status.

If the object is successfully returned, the object status is updated with the new environment (lower status) and is treated accordingly. If the object is unsuccessful it will remain **LINKED FOR RETURN** and the function CC102 must again be run until the object has been moved successfully. See below for Error Report example or go to the ISR History (CC095) to view the error.



```

gm712@CRONUS01:~
CCP102          *** Cronus Consulting - DEV ***          09/28 10:10
CCM10202      Return Transfer ISR to Previous Environment  GM712
  ISR NO: 26 - TEST APPROVAL
Library  Object  Backup Copy Difference      Compile NAT Err Line Resp

          UNSUCCESSFUL Return from Test to Development
          No Restore Done
          Print Return Error Report - or go to History      Y
          Press <Enter> to Continue

ESPDEMO DEMO04      N      Y  4      Y      E  2      0001 8888
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
  
```

### Error Screen for Return

```

gm712@CRONUS01:~
Job number 311884: N.20220928.gm712.01 on form type NOPRINT  START
....5....10....15....20....25....30....35....40....45....50....55....60....65....70....75....
2022/09/28      Return Transfer ISR Error Report - ISR No - >
10:11:27.0      http://www.cronus.co.za

Environment From: Test
Environment To:   Development

Program      User      Date      Time      Error Descri>
  Id          Id
-----
CCP102      GM712      20220928 10:10:47 Returned from Environment Test to Developme>
            GM712      20220928 10:10:47 ESPDEMO DEMO04 - Compile Error - Error No 0>

  Before continuing, fix errors and redo Return transaction
  If not required, go back to CC053 and unlink error objects

  If one of the above options is not done, ISR will be forever in Error
  
```

### Error Report for Return





```
gm712@CRONUS01:~  
ISR in Return Error, Complete Return or Reset in CC053  
CCP100      *** Cronus Consulting - DEV ***      09/28 10:12  
CCM10001    Transfer ISR between Environments    GM712  
  
Please Supply the ISR Number: 26 _____  
  
Direct Command: _____  
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---  
Quit
```

### CC100 - Example of an ISR in Return Error

The above ISR is in return error and until a successful return has occurred via function CC102 or all the objects have been reset in CC053, the normal migration via CC100 will be disallowed.

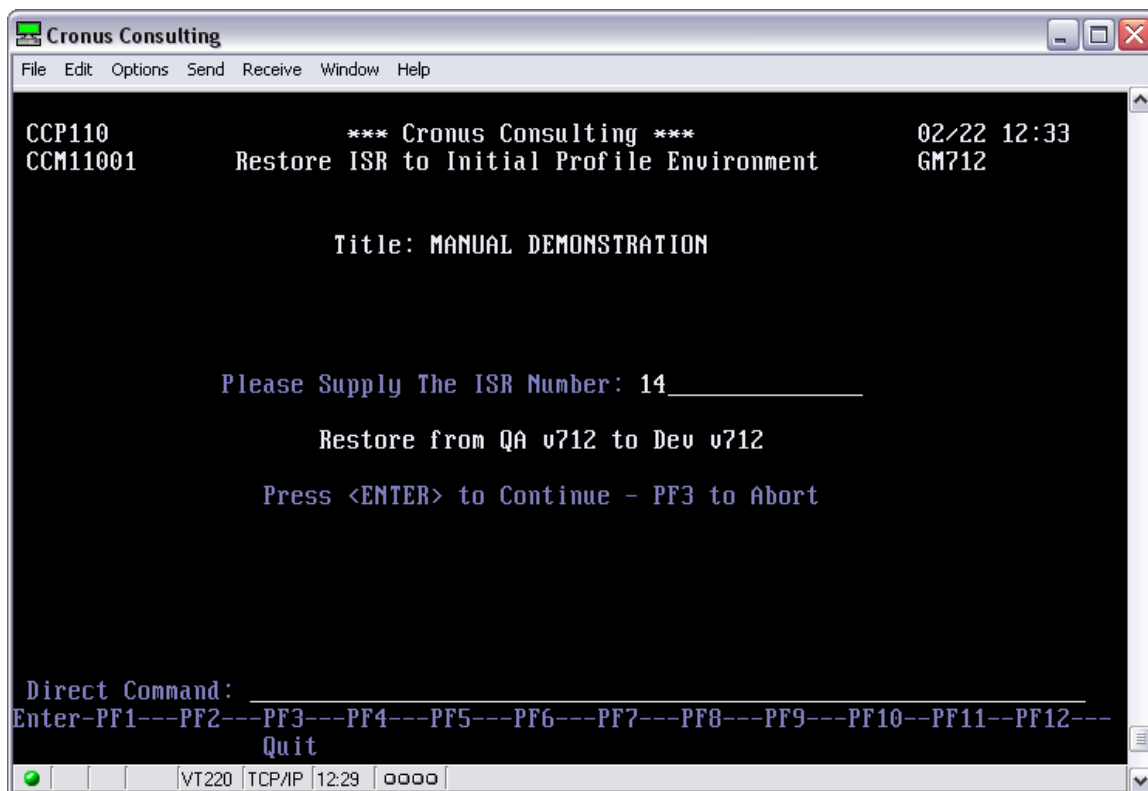


### 3.5.4 CC110 - Restore ISR to Initial Environment

This function is used to restore all objects linked to an ISR, back to the initial environment of the profile linked to the ISR being restored. All other environments will be restored to the backup that was taken during the migration process of the ISR. If an environment has not yet been reached, no changes or restore will take place.

**NOTE:** The restore of an ISR will restore to the backups taken in the ISR (which only happen after a migration move) and so will not restore the code to the state it was in before the ISR was run. If no backup exists, then a previous backup version of the previous ISR linked to this object will be used. If this is not what is required, then function CC200 MUST be used and the correct ISR may be chosen to restore whatever source or object is necessary.

This is also library dependent on the library rules that were set up for the object when migrating via CC100. The same library per object will be used that was used in CC100. The objects will be restored in the correct object type order, so that compiling may take place correctly.



### Restore Full ISR to Development

The rules specified for which backups are used in the restore, follow the backup path explained in CC100 and the restore routine as explained above, for all restore functions CC110, CC115, complete ISR CC070 with restore and unlink objects CC050 with restore.



```
gm712@CRONUS01:~  
Executing ...  
CCP110          *** Cronus Consulting - DEV ***          09/28 10:32  
CCM11002        Restore ISR to Initial Profile Environment  GM712  
  
Library  Object  Message  
  
          Restoring Object  
          Environment: Test  
          Object Name: ESPDEMO DEMO02  
  
ESPDEMO DEMO02  
Direct Command: _____  
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---  
Quit
```

### Restoring Confirmation window

The backup version of the source code is restored in the target environment and the ISR status is updated accordingly – the object status for each object is set to the initial environment status.

If there is no backup (and no previous backup) or backup indicator is set to No, then a window reflecting “no restore of object” will be displayed. If backups exist, a window reflecting “restoring object” and what environment is being restored to, is displayed as seen in the above figure. These windows are representative of ALL restore functions and are displayed in the same manner, no matter what restore functions have been selected. See next page for example of the “no restore window”.

If backup indicators are set to “N” for the profile linked to the ISR, none of the objects in the ISR will be restored, but the object status will be set to the initial environment.



```
gm712@CRONUS01:/data/analyzer/WORK
Executing ...
CCP110          *** Cronus Consulting - DEV ***          09/28 11:52
CCM11002        Restore ISR to Initial Profile Environment  GM712

Library  Object  Message

          No Restore of Object

Environment: Test

Object Name: ESPDEMO DEMO02

ESPDEMO DEMO02
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
```

### No Restore window



### 3.5.5 CC115 - Restore Object(s) to Initial Environment

This function is used to restore individual objects linked to an ISR back to the initial environment. All environments that have been migrated to, including the initial (if in the case of no source), will be restored to the backup version, either taken in the ISR after a move, or the previous backup taken for that specific object. If the backup indicators are set to N, none of the objects will be restored, only the object status will be updated to the initial environment. **See rules for restore in function CC110, the only difference between the two functions is that CC115 allows restore of selected objects while CC100 restores entire ISR giving no choice.**

This is also library dependent using the same rules as was set up when first running CC100 for a particular ISR.

```

gm712@CRONUS01:/data/analyzer/WORK
CCP115          *** Cronus Consulting - DEV ***          09/28 11:54
CCM115          Restore Object(s) to Initial Profile Environment  GM712

ISR.....: 26          Status: 02 - Uploaded to Test

  Library  Object  Type  Object Status  Curr. ISR
  -----  -
ESPDEMO  DEMO02   P    02 - Uploaded to Test  26
X ESPDEMO  DEMO03   P    02 - Uploaded to Test  26
- ESPDEMO  DEMO04   P    02 - Uploaded to Test  26

Reposition at Library:      Object:
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
  
```

#### Object Selection for Restore

Confirm the restore with <enter>



```

gm712@CRONUS01:/data/analyzer/WORK
Executing ...
CCP115      *** Cronus Consulting - DEV ***      09/28 11:54
CCM115      Restore Object(s) to Initial Profile Environment  GM712

ISR.....: 26      Status: 02 - Uploaded to Test

  Library  Object  Type  Object Status  Curr. ISR
  -----  -
  ESPDEMO  DEMO02   P    02 - Uploaded to Test      26
  X ESPDEMO  DEMO03   Restoring Object      26
  - ESPDEMO  DEMO04      Environment: Development      26
                        Object Name: ESPDEMO DEMO03

Reposition at Library:      Object:
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

### Restoring Confirmation Window

See CC110 for example of NO RESTORE window, if no backups exist or backup indicator is set to N.

**NOTE :** As this is a manual restore function, the correct object types must be selected first e.g. maps, copy-code etc for restore, else the compile of the restored object will not take place correctly and only the source will be SAVED. If the entire ISR is to be restored, rather use function CC110, which restores objects in correct object order. The unlinking of objects in CC050, also has the same manual restore effect if, unlinking with restore, is selected.



### 3.5.6 CC200 - Restore Objects Versions to ANY Environment in ISR

The main purpose of this function is used to Display or Restore previous object versions using the backed up copy via the EspControl System per ISR. The number of object versions available is dependent on the system default for Maximum backups set in CC001. If No backup is selected for specific ISR's, then obviously no restore or display may be done. This function is available to restore to or display source of any ISR (as long as backup still exists) across any of the environments that were used during the migration of that specific ISR. If a specific restore of objects is required, then this is the function to use, as the user may manually decide what to restore to.

The other purpose of CC200 depending on the codes ADHOCL, SCLADHOC, RESTOREPRD and EMERGENC is the C (Compare), A / PF5 /PF6 (Adhoc) and E (Emergency) options where these options all transfer source between the Development and Production environments without the creation of an ISR. There is security around these options as well. These options will be detailed below after the Display and Restore explanations.

For Display or Restore select the object with 'X' and then once selected use 'D' or 'R' against the ISR that is being selected. Once the ISR is selected, use 'X' to select the environments required. Enter to continue.

The display function across all environments enables one to first check the code before doing a restore. The display function will display the code on the screen, with the version number, environment name and object name at the top of the window. Use PF3 to exit. Enter ? on the command line and a list of commands will be displayed. Use these to page backwards and forwards and even scan for a specified piece of code. The scan function is not case sensitive and so will find the scan-set in both upper and lower case.

The default is to restore to the backed-up library, or the user may enter a specific library where the code must be restored to. This library is validated per selected environment and an error will be returned if the library is not valid. For example, library RESTORE can be used if you do not want the code to be directly restored to the backup library and can then use SYSMAIN to copy to the correct library.

A list of all objects in the Inventory List is displayed for the user to select, starting with the initial scan library set up in CC001 (more than one object may be selected at any given time). Once selected, the linked ISR's will be displayed. If the selection field is not open for any specific ISR, it means that the backups no longer exists for those ISR's, due to no backup taken or backups were deleted due to maximum number of versions set up in CC001, and therefore no DISPLAY or RESTORE can be done. The number of maximum versions is therefore of great importance for the site to decide on when and how to restore.

Once an ISR No has been selected, the environments for that ISR (as were set up from the linked profile) will be reflected and the user may select one or all of the environments, depending on the type of restore



or display. Once restore has been confirmed and relevant restore library selected by the user, the restore will commence. If only Display has been selected, code will be displayed on the screen. Once complete for that particular object use PF3 to automatically continue to the next selected object or the same object in the next selected environment.

The backup path is determined from the backup-history file and CC200 will check for backups in this directory.

```

gm712@CRONUS01:~
CCP200          *** Cronus Consulting - DEV ***          09/29 08:28
CCM20001        Restore Objects Versions to ANY Env per ISR  GM712

Library  Object  Object Type  Stat  Current  Title  Profile
-----  -
ESPDEMO DEMO01  PROGRAM      01      15  MANUAL DEMONSTRATION PRD2DEV
ESPDEMO DEMO02  PROGRAM
ESPDEMO DEMO03  PROGRAM
X ESPDEMO DEMO04  PROGRAM
ESPDEMO DEMO05  PROGRAM
ESPDEMO DEMO07  PROGRAM
X ESPDEMO DEMO08  PROGRAM      01      15  MANUAL DEMONSTRATION PRD2DEV
ESPDEMO DEMO09  PROGRAM      01      15  MANUAL DEMONSTRATION PRD2DEV
ESPDEMO DEMO10  PROGRAM      02      29  TEST SYSOBJH          PRD2DEV
ESPDEMO DEMO11  PROGRAM
ESPDEMO DEMO14  PROGRAM      02      28  TEST SYSERR           PRD2DEV
ESPDEMO NOMAP  MAP
X ESPDEMO TST2   PROGRAM
ESPDEMO TST3   PROGRAM

                                If ISR in Error, Object NOT shown
Restart at Library: _____ Object: _____ SCL's: N (Y/N)
Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
                                Quit          ADHOC
  
```

### Object Selection for Display/Restore

Select the object(s) to see available versions saved for this object.

The following information is given per object:

- Library - Library where object resides (Scanned in Library)
- Object Name - Object name
- Object Mode - Object programming mode (S/R)
- Object Type - Object type description
- Object Status - Object status - Blank if not linked
- Current ISR No - Current ISR nr - Blank if not linked to an ISR
- ISR Title - ISR Title - Blank if not linked to an ISR
- Profile - Profile Name if linked to an ISR





**Note:** The restore compiles the object if applicable. In other words, it will try and compile the source if it has been restored to a library where the object has all the resources to stow.

```

gm712@CRONUS01:~
CCP200          *** Cronus Consulting - DEV ***          09/29 09:09
CCM20002        Restore Objects Versions to ANY Env per ISR  GM712

Library: ESPDEMO  Object: TST2          Obj Env: Development

   ISR No  ISR Title          Originator          Completed  Developer
   ---
D  14  INITIAL BACKUP        GM712              2022-09-14  GM712
   13  INITIAL BACKUP        GM712              2022-09-14  GM712
   9   TEST                  GM712              2022-09-09  GM712
   8   TEST                  GM712              2022-09-08  GM712

Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
                                Quit          ADHOC
  
```

### ISR Selection for Restore or Display (D or R)

#### Function Options:

- D - Display Object
- R - Restore Object

#### The following information is given per object:

- Current ISR No - Current ISR nr - Blank if not linked to an ISR
- ISR Title - ISR Title - Blank if not linked to an ISR
- Originator - Originator of ISR
- Completed - Date selected ISR was completed
- Developer - Developer/Person that modified the code

A window will next be displayed of the environments of the selected ISR. It is for this reason that environments may **not** be deleted from CC001, as they may be needed for further use in a restore. If an environment is no required, then mark PATH = N, for all current profiles still in use. This will not allow any further migrations to these environments.



```

gm712@CRONUS01:~
CCP200          *** Cronus Consulting - DEV ***          09/29 09:09
CCM20002        Restore Objects Versions to ANY Env per ISR  GM712

Library: ESPDEMO  Object: TST2          Obj Env: Development

  ISR No  IS
  --- --  --
  14 IN   Select Environment(s) with X
  13 IN   Sel Environment
  9  TE   X Development
  8  TE   Test
           X Production

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---P
                               Exit      PgUp  PgDn

Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
                               Quit      ADHOC

```

### Select Environment for Restore or Display

All available environments linked to the selected ISR, as determined by the profile for that ISR, will be displayed and the user may select with "X" more than one or a subset for restore or display.

```

gm712@CRONUS01:~
LIST: TST2 VER: 3 - Development - PF3 TO EXIT

0010 * This is a test pgm for ESPDEMO
0020 END
0030 * 20190628 ISR: 0000023 Desc: TEST GP MOVES          Changed By: GM712
0040 * 20220908 ISR: 0000008 Desc: TEST                    Changed By: GM712
0050 * 20220909 ISR: 0000009 Desc: TEST                    Changed By: GM712

ISR      : 13
File Path: /opt/softwareag/Natural/fuser_natdbck/.BCK/ESPDEMO/SRC/TST2.NSP.0
Command  : (? - Help)

```

### Display Source Window



```

gm712@CRONUS01:~
LIST: TST2 VER: 3 - Development - PF3 TO EXIT
Help
0010
0020
0030  ?, HELP - DISPLAY HELP 12
0040  --, T, TOP - TOP 12
0050  ++, B, BOT, BOTTOM - BOTTOM 12
- - PAGE BACK
+ - PAGE FORWARD
- H - HALF A PAGE BACK
+ H - HALF A PAGE FORWARD
NNNN - RESTART AT LINE NNNN
SC <SCAN VALUE> - SCAN FOR <SCAN VALUE>
1 SC <SCAN VALUE> - SCAN FOR <SCAN VALUE> FROM TOP
PF3 - EXIT
PF5 - REPEAT SCAN
PF7, PGUP - PAGE BACK
PF8 - PAGE FORWARD
PF9 - REPOSITION AT CURSOR
ENTER - SCROLL FORWARD 1 LINE

ISR
File .NSP.0
Command : ? (? - Help)

```

#### List of commands for User to enter on Command Line

```

gm712@CRONUS01:~
CCP200 *** Cronus Consulting - DEV *** 09/29 09:09
CCM20002 Restore Objects Versions to ANY Env per ISR GM712

Library: ESPDEMO Object: TST2 Obj Env: Development

Restore Object per
Source will be restored to Backup LIBRARY: ESPDEMO
Source will be STOWED, if applicable

ISR No.....: 9

From Library: ESPDEMO
Object Name.: TST2
Environment.: Development

Confirm.....: Y (Y)es or (N)o

Amend Library ID to restore to another ESPDEMO_

Direct Enter-P Quit ADHOC 1--PF12---

```

#### Restore Details per ISR

```
gm712@CRONUS01::~*** Cronus Consulting - DEV ***      09/29 09:32  
CCP200          Restore Objects Versions to ANY Env per ISR    GM712  
CCM20002
```

Library: ESPDEMO Object: TST2 Obj Env: Development

I \_\_\_\_\_ Restore Object \_\_\_\_\_ per

```
-  
R  
-  
  
ISR No.....: 9  
Envrionment: Development  
  
Object Name: TST2  
Version No.: 2  
  
Object Successfully Restored  
  
Press <Enter> to Continue  
  
Direct  
Enter-P
```

Quit ADHOC 1--PF12---

## Restore Confirmation per ISR

**See example of error window below if no backup exists, so no source can be restored. The same would be applicable if Display was selected.**

```
gm712@CRONUS01::~
```

```
CCP200                *** Cronus Consulting - DEV ***           09/29 09:32  
CCM20002             Restore Objects Versions to ANY Env per ISR GM712
```

```
Library: ESPDEMO   Object: DEMO08      Obj Env: Development
```

```
R |----- Restore Object -----|per
```

```
|  
  
Error Restoring Object to LIBRARY: RESTORE  
    ISR No.....: 15  
    Envrionment: Test  
  
    Object Name: DEMO08  
    Version No.: 1  
  
Error Msg... NO BACKUP found for this Environment  
  
Press <Enter> to Continue
```

```
-P
```

```
Direct  
Enter-P
```

```
Quit          ADHOC
```

```
1--PF12---
```

## No source backup so No Restore

```
gm712@CRONUS01:~  
CCP200          *** Cronus Consulting - DEV ***      09/29 09:37  
CCM20002        Restore Objects Versions to ANY Env per ISR    GM712  
  
Library: ESPDEMO Object: TST2       Obj Env: Development  
  
I _____ Restore Prod to EMERGENC _____ per  
- |  
- R |  
- |  
  
Not on the Authorised list to restore  
to Production  
  
Press <Enter> to Continue  
-P  
_____  
  
Direct  
Enter-P  
  
Quit ADHOC  
1--PF12---
```



The ADHOC function will use the environment numbers in code ADHOCL to determine the development and production environment.

CC095 keeps a simple log of all ADHOC copies (both object and SCL) and can be seen when selecting PF6 which is always linked to ISR 77777777.

```

gm712@CRONUS01:~
Executing ...
CCP200          *** Cronus Consulting - DEV ***          09/29 09:51
CCM20001        Restore Objects Versions to ANY Env per ISR  GM712

Library  Object  Object Type  Stat  Current  Title  Profile
-----  -
ESPDEMO  DEMO01  PROGRAM      01      15  MANUAL DEMONSTRATION  PRD2DEV
ESPDEMO  DEMO02  PROGRAM
ESPDEMO  DEMO03  PROGRAM
ESPDEMO  DEMO04  PROGRAM
A ESPDEMO  DEMO05  PROGRAM
ESPDEMO  DEMO07  PROGRAM
ESPDEMO  DEMO08  PROGRAM      01      15  MANUAL DEMONSTRATION  PRD2DEV
ESPDEMO  DEMO09  PROGRAM      01      15  MANUAL DEMONSTRATION  PRD2DEV
ESPDEMO  DEMO10  PROGRAM      02      29  TEST SYSOBJH          PRD2DEV
ESPDEMO  DEMO11  PROGRAM
ESPDEMO  DEMO14  PROGRAM      02      28  TEST SYSERR          PRD2DEV
ESPDEMO  NOMAP   MAP
ESPDEMO  TST2    PROGRAM
ESPDEMO  TST3    PROGRAM

                                If ISR in Error, Object NOT shown
Restart at Library: _____ Object: _____ SCL's: N (Y/N)
Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
                                Quit          ADHOC
  
```

### Option A for ADHOC function

```

gm712@CRONUS01:~
CCP200          *** Cronus Consulting - DEV ***          09/29 09:51
CCM20001        Restore Objects Versions to ANY Env per ISR  GM712

Library  Object  Object Type  Stat  Current  Title  Profile
-----  -
ESPDEMO  DEMO01  PROGRAM      01      15  MANUAL DEMONSTRATION  PRD2DEV
ESPDEMO  DEMO02  PROGRAM
ESPDEMO  DEMO03  PROGRAM
ESPDEMO  DEMO04  PROGRAM
A ESPDEMO  DEMO05  PROGRAM
ESPDEMO  DEMO07  PROGRAM
ESPDEMO  DEMO08  PROGRAM      01      15  MANUAL DEMONSTRATION  PRD2DEV
ESPDEMO  DEMO09  PROGRAM      01      15  MANUAL DEMONSTRATION  PRD2DEV
ESPDEMO  DEMO10  PROGRAM      02      29  TEST SYSOBJH          PRD2DEV
ESPDEMO  DEMO11  PROGRAM
ESPDEMO  DEMO14  PROGRAM      02      28  TEST SYSERR          PRD2DEV
ESPDEMO  NOMAP   MAP
ESPDEMO  TST2    PROGRAM
ESPDEMO  TST3    PROGRAM

                                If ISR in Error, Object NOT shown
Restart at Library: _____ Object: _____ SCL's: N (Y/N)
Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
                                Quit          ADHOC
  
```

ADHOC to PROD Object

Object Name: DEMO05

has been copied from DEV  
to Prod ADHOC successfully

Press <Enter> to Continue

```

                                N PRD2DEV
                                N PRD2DEV
                                PRD2DEV
                                PRD2DEV

ESPDEMO  TST2    PROGRAM
ESPDEMO  TST3    PROGRAM

                                If ISR in Error, Object NOT shown
Restart at Library: _____ Object: _____ SCL's: N (Y/N)
Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
                                Quit          ADHOC
  
```

### DEMO05 has been copied to library ADHOC

```

gm712@CRONUS01:~
Not on the Authorised list for option ADHOC
CCP200          *** Cronus Consulting - DEV ***          09/29 09:41
CCM20001        Restore Objects Versions to ANY Env per ISR  GM712

Current
Library Object Object Type Stat ISR Title Profile
- ESPDEMO DEMO01 PROGRAM 01 15 MANUAL DEMONSTRATION PRD2DEV
- ESPDEMO DEMO02 PROGRAM
- ESPDEMO DEMO03 PROGRAM
- ESPDEMO DEMO04 PROGRAM
A ESPDEMO DEMO05 PROGRAM
- ESPDEMO DEMO07 PROGRAM
- ESPDEMO DEMO08 PROGRAM 01 15 MANUAL DEMONSTRATION PRD2DEV
- ESPDEMO DEMO09 PROGRAM 01 15 MANUAL DEMONSTRATION PRD2DEV
- ESPDEMO DEMO10 PROGRAM 02 29 TEST SYSOBJH PRD2DEV
- ESPDEMO DEMO11 PROGRAM
- ESPDEMO DEMO14 PROGRAM 02 28 TEST SYSERR PRD2DEV
- ESPDEMO NOMAP MAP
- ESPDEMO TST2 PROGRAM
- ESPDEMO TST3 PROGRAM

If ISR in Error, Object NOT shown
Restart at Library: _____ Object: _____ SCL's: N (Y/N)
Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Quit ADHOC

```

```

gm712@CRONUS01:~
*** Cronus Consulting - DEV ***
09/29 10:00
CCP200
CCM20001 Restore Objects Versions to ANY Env per ISR GM712

Library Object Object Type Stat Current Title Profile
ESPDEMO DEMO01 PROGRAM 01 15 MANUAL DEMONSTRATION PRD2DEV
Enter ADHOC Object
Enter Object Name: DEMO99
Object Type: P
To be copied to Prod ADHOC 5 MANUAL DEMONSTRATION PRD2DEV
PF3 to Exit 5 MANUAL DEMONSTRATION PRD2DEV
9 TEST SYSOBJH PRD2DEV
ESPDEMO DEMO14 PROGRAM 02 28 TEST SYSERR PRD2DEV
ESPDEMO NOMAP MAP
ESPDEMO TST2 PROGRAM
ESPDEMO TST3 PROGRAM

If ISR in Error, Object NOT shown
Restart at Library: Object: SCL's: N (Y/N)
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Quit ADHOC

```

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Using PF5 for ADHOC requires the object name and type to be input. This is an option when you do not want to scan the module into the Inventory List. A check will be done to ensure that the object does exist in the ADHOC library.

```

gm712@CRONUS01:~
Not on the Authorised list for option ADHOC
CCP200          *** Cronus Consulting - DEV ***          09/29 10:33
CCM20001        Restore Objects Versions to ANY Env per ISR  GM712

Current
Library Object Object Type Stat ISR Title Profile
- ESPDEMO DEMO01 PROGRAM 01 15 MANUAL DEMONSTRATION PRD2DEV
- ESPDEMO DEMO02 PROGRAM
A ESPDEMO DEMO03 PROGRAM
- ESPDEMO DEMO04 PROGRAM
- ESPDEMO DEMO05 PROGRAM
- ESPDEMO DEMO07 PROGRAM
- ESPDEMO DEMO08 PROGRAM 01 15 MANUAL DEMONSTRATION PRD2DEV
- ESPDEMO DEMO09 PROGRAM 01 15 MANUAL DEMONSTRATION PRD2DEV
- ESPDEMO DEMO10 PROGRAM 02 29 TEST SYSOBJH PRD2DEV
- ESPDEMO DEMO11 PROGRAM
- ESPDEMO DEMO14 PROGRAM 02 28 TEST SYSERR PRD2DEV
- ESPDEMO NOMAP MAP
- ESPDEMO TST2 PROGRAM
- ESPDEMO TST3 PROGRAM

If ISR in Error, Object NOT shown
Restart at Library: _____ Object: _____ SCL's: N (Y/N)
Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit ADHOC
  
```

#### ADHOC option restricted to list of users in RESTOREPRD

**Option COMPARE** - Option C next to an object is used for COMPARE copies. A COMPARE copy will directly migrate the source from Production to Development to library COMPARE without the need of an ISR. Option C is available to all users of CC200 and is used to compare Development to Production source especially if using NaturalOne. NaturalONE has a compare function that can be used between two libraries. Library COMPARE must be set up in Natural Security in Development if Natural Security is used, else the copy will not work. The COMPARE copy will copy the module from Production using the library in CC200 to a static library called COMPARE. This library cannot be changed. CC095 keeps a simple log of all COMPARE copies and can be seen when selecting PF2 which is always linked to ISR 99999999.





```

gm712@CRONUS01:~
Executing ...
CCP200          *** Cronus Consulting - DEV ***          09/29 10:44
CCM20001        Restore Objects Versions to ANY Env per ISR  GM712

Library Object Object Type Stat Current ISR Title Profile
ESPDEMO DEMO01 PROGRAM 01 15 MANUAL DEMONSTRATION PRD2DEV
ESPDEMO DEMO02 PROGRAM
ESPDEMO DEMO03 PROGRAM
ESPDEMO DEMO04 PROGRAM
ESPDEMO DEMO05 PROGRAM
C ESPDEMO DEMO07 PROGRAM
- ESPDEMO DEMO08 PROGRAM 01 15 MANUAL DEMONSTRATION PRD2DEV
- ESPDEMO DEMO09 PROGRAM 01 15 MANUAL DEMONSTRATION PRD2DEV
- ESPDEMO DEMO10 PROGRAM 02 29 TEST SYSOBJH PRD2DEV
- ESPDEMO DEMO11 PROGRAM
- ESPDEMO DEMO14 PROGRAM 02 28 TEST SYSERR PRD2DEV
- ESPDEMO NOMAP MAP
- ESPDEMO TST2 PROGRAM
- ESPDEMO TST3 PROGRAM

If ISR in Error, Object NOT shown
Restart at Library: _____ Object: _____ SCL's: N (Y/N)
Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit ADHOC

```

### Option C for COMPARE function

```

gm712@CRONUS01:~
CCP200          *** Cronus Consulting - DEV ***          09/29 10:44
CCM20001        Restore Objects Versions to ANY Env per ISR  GM712

Library Object Object Type Stat Current ISR Title Profile
ESPDEMO DEMO01 PROGRAM 01 15 MANUAL DEMONSTRATION PRD2DEV
ESPDEMO DEMO07 PROGRAM
ESPDEMO DEMO08 PROGRAM 01 15 MANUAL DEMONSTRATION PRD2DEV
ESPDEMO DEMO09 PROGRAM 01 15 MANUAL DEMONSTRATION PRD2DEV
ESPDEMO DEMO10 PROGRAM 02 29 TEST SYSOBJH PRD2DEV
ESPDEMO DEMO11 PROGRAM
ESPDEMO DEMO14 PROGRAM 02 28 TEST SYSERR PRD2DEV
ESPDEMO NOMAP MAP
ESPDEMO TST2 PROGRAM
ESPDEMO TST3 PROGRAM

If ISR in Error, Object NOT shown
Restart at Library: _____ Object: _____ SCL's: N (Y/N)
Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit ADHOC

```

COMPARE LIB Object

Object Name: DEMO07

has been copied from PROD  
to DEV COMPARE successfully

Press <Enter> to Continue

N PRD2DEV  
N PRD2DEV  
PRD2DEV  
PRD2DEV

### DEMO07 has been copied to library COMPARE



**Option EMERGENC** - Option E next to an object is used for EMERGENCY copies. An EMERGENCY copy will directly migrate the source from Production to Development to the library set in the EMERGENCY code in CC010, without the need of an ISR. Option E is available to all users of CC200 and is used to copy objects from the library in CC200 to the EMERGENCY library. This is defaulted to EMERGENC in code EMERGENCY in CC010, but can be changed to any emergency type library. The EMERGENCY library must be set up in Natural Security in Development if Natural Security is used, else the copy will not work. CC095 keeps a simple log of all EMERGENCY copies and can be seen when selecting PF2 which is always linked to ISR 99999999.

```

gm712@CRONUS01:~
CCP200          *** Cronus Consulting - DEV ***          09/29 10:52
CCM20001        Restore Objects Versions to ANY Env per ISR  GM712

Library  Object  Object Type  Stat  Current  Title  Profile
-----  -
ESPDEMO  DEMO01  PROGRAM      01      15  MANUAL DEMONSTRATION  PRD2DEV
ESPDEMO  DEMO02  PROGRAM
ESPDEMO  DEMO03  PROGRAM
ESPDEMO  DEMO04  PROGRAM
ESPDEMO  DEMO05  PROGRAM
ESPDEMO  DEMO07  PROGRAM
ESPDEMO  DEMO08  PROGRAM      01      15  MANUAL DEMONSTRATION  PRD2DEV
ESPDEMO  DEMO09  PROGRAM      01      15  MANUAL DEMONSTRATION  PRD2DEV
ESPDEMO  DEMO10  PROGRAM      02      29  TEST SYSOBJH          PRD2DEV
E ESPDEMO  DEMO11  PROGRAM
ESPDEMO  DEMO14  PROGRAM      02      28  TEST SYSERR           PRD2DEV
ESPDEMO  NOMAP   MAP
ESPDEMO  TST2    PROGRAM
ESPDEMO  TST3    PROGRAM

                                If ISR in Error, Object NOT shown
Restart at Library: _____ Object: _____ SCL's: N (Y/N)
Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
                                Quit          ADHOC
  
```

#### Option E for EMERGENC function



```

gm712@CRONUS01:~
CCP200          *** Cronus Consulting - DEV ***          09/29 10:52
CCM20001        Restore Objects Versions to ANY Env per ISR  GM712

Library  Object  Object Type  Stat  Current  Title  Profile
ESPDEMO  DEMO01  PROGRAM      01      15  MANUAL DEMONSTRATION  PRD2DEV
- ESPD    -----EMERGENC LIB Object-----
- ESPD    █
- ESPD    Object Name: DEMO11
- ESPD    has been copied from PROD
- ESPD    to DEV EMERGENC successfully
- ESPD    Press <Enter> to Continue
- ESPD    N PRD2DEV
- ESPD    N PRD2DEV
- ESPD    PRD2DEV
- ESPD    PRD2DEV
- ESPDEMO  TST2    PROGRAM
- ESPDEMO  TST3    PROGRAM

Restart at Library: _____ Object: _____ SCL's: N (Y/N)
Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit      ADHOC
  
```

**DEMO11 has been copied to library EMERGENC**

```

gm712@CRONUS01:~
Valid Options are: (C)ompare, (A)dhoc, (E)mergency or 'X' to Select
CCP200          *** Cronus Consulting - DEV ***          09/29 11:01
CCM20001        Restore Objects Versions to ANY Env per ISR  GM712

Library  Object  Object Type  Stat  Current  Title  Profile
ESPDEMO  DEMO01  PROGRAM      01      15  MANUAL DEMONSTRATION  PRD2DEV
- ESPDEMO  DEMO02  PROGRAM
- ESPDEMO  DEMO03  PROGRAM
- ESPDEMO  DEMO04  PROGRAM
- ESPDEMO  DEMO05  PROGRAM
- ESPDEMO  DEMO07  PROGRAM
- ESPDEMO  DEMO08  PROGRAM      01      15  MANUAL DEMONSTRATION  PRD2DEV
- ESPDEMO  DEMO09  PROGRAM      01      15  MANUAL DEMONSTRATION  PRD2DEV
- ESPDEMO  DEMO10  PROGRAM      02      29  TEST SYSOBJH          PRD2DEV
- ESPDEMO  DEMO11  PROGRAM
- ESPDEMO  DEMO14  PROGRAM      02      28  TEST SYSERR           PRD2DEV
- ESPDEMO  NOMAP   MAP
- ESPDEMO  TST2    PROGRAM
- ESPDEMO  TST3    PROGRAM

Restart at Library: _____ Object: _____ SCL's: N (Y/N)
Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit      ADHOC
  
```

**CC200 valid options if codes applicable set to Y**



## Appendix A – SCL Transfer

SCL transfer will only be available if EspBatch is set to 'Y' at installation of EspControl. Obviously, EspBatch cannot be set to 'Y' if no EspBatch is actually running. This will in turn create a code ESPBATCH in CC010 with a code value of 'Y' and an extra code value of 'SCL' for code ISRTYPE in CC010. Both of these codes need to be set up if SCL transfer is required.

Once set up, if SCL Transfer is no longer required, delete code value 'SCL' on code ISRTYPE and amend code ESPBATCH to 'N'.

All EspControl routines that allow SCL access, will be discussed below. If no SCL access is applicable, these screens will not be affected at all, no SCL detail or functions will be displayed, and will execute as specified in the EspControl manual above.

The functions specified below, will detail the SCL function on the screen, and unless the process is different to the function process explained above in the EspControl manual, the execution and rules for the function will remain as explained for objects, and will not appear in the Appendix A at all.

An SCL ISR and a normal ISR may not be mixed together i.e. an SCL ISR will have a different ISR number to a normal object ISR. SCL ISR's must always be linked to ISR Type 'SCL' and this will be the indicator the EspControl system needs to determine whether it is an SCL or normal ISR function. Due to the fact that specific rules are required for SCL profiles (for e.g. Move source or No source cannot be selected), these ISR's must also be linked to their own profiles. Every SCL profile must start with SCLxxx and this must always be linked to SCL type ISR's.

The backup cycle is completely different for an SCL ISR compared to a normal ISR. See explanation in manual above for backup cycle for normal ISR's. The backup of a SCL is always done BEFORE the move to the next environment, and not after the move as is done in normal ISR's. For this reason, no initial backup is required for SCL's. i.e. no CC350 must be executed for SCL's. No previous backup may be requested when unlinking a SCL from CC050, as the current backup will always be for the current ISR. Therefore, when selecting any restore function, the SCL will be restored to a version of the SCL before it was overwritten in the last migration.

Each point specified below, will use the same number conventions as used in the above manual, for ease of use and will only detail any differences. All other explanation and details may be taken from the EspControl manual as detailed above for Normal ISR's.



These ISR's may be linked and run simultaneously, or they may be executed individually at the user's discretion. The SCL's must be scanned in separately to the normal objects. This will be done for new SCL's via CC050 as with objects, but for the initial scan it must be done via a separate function – CC330. This is the only function that has been separated from normal ISR's. Every other function will detect whether it is an SCL ISR or a normal ISR and execute accordingly.

```

gm712@CRONUS01:~
ISP090          *** Cronus Consulting - DEV ***          09/29 11:03
ISM09002        Display Objects Linked to an ISR          GM712

ISR....: 31          Status: 99 - Completed
Profile: SCL2DEV      SCL PROD 2 DEV

'X' SCL User      Name SCL Type Object Status          Curr. ISR
---
X DEMO          DAILY SCL      99 - Completed
X DEMO          J505S011 SCL      99 - Completed
X DEMO          JOB3    SCL      99 - Completed

*** End of Data ***
Reposition at SCL User: _____ SCL Name: _____
Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Quit PgDn

```

#### Example of how SCL's will be reflected – per user, per name and per type

Note, if an environment includes entries in CC001 for the same fuser, this must not be included in a profile for an SCL. i.e. only one entry must be marked as a PATH for an SCL. This is because, when migrating normal objects, they may move from one Natural Library to the next, in the same fuser, thereby allowing “duplicate fuser's” with different environment names. Because an SCL is not linked to a Natural environment, it will only occur once in each fuser in EspBatch under JS300.i.e there is one ESPSOFT Natural library per environment. Marking duplicate fuser's will effectively do nothing as the same SCL will overwrite itself.

If the function is to work as is, no further detail will be given, and will not be specified below at all. Note, not all screens will be shown. If an SCL ISR is allowed, the screen will function in the same manner as shown in the screen image below. For objects – Object Name and Library will be reflected. For SCL's – SCL User, SCL Name and SCL Type will be reflected, but the process of the function will remain the same.



## 1. Menu Overview And Function Overview showing SCL's

### Sub Menu CC500

```

gm712@CRONUS01:~
MAP902          *** Cronus Consulting - DEV *** V7.2.1          06:41:40.2
MAM902          - CC500 : ISR Control and Profiles -          2022/09/29

CC001      Maintain ISR Control Variables
CC002      Maintain ISR Profiles
CC010      ISR Code Maintenance
CC025      ISR Profile Enquiry
CC300      Scan Program Source-code (Initial Scan ONLY)
CC330      Scan SCL's for Transfer (Initial Scan ONLY)
CC350      Run Initial Backup Routine

*** End of Data ***
Printer.: PRT01          UDB.: 31
Function:  Data:          User: MENUADM
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
          Uexit Quit          PgDn  SetPr          Logof
  
```

### CC500 showing specific SCL function CC330

**CC330** – function for scanning in SCL's. This will only be visible on sub menu CC500, if SCL transfer is allowed. The scanning of new SCL's must be done from the Production environment to set up the correct Inventory List visible in CC050. Any new SCL will be scanned via PF6 in CC050 in the Development environment.



### 3.1 ISR Control And Profile Function Overview

#### 3.1.1 CC002 – Maintain ISR Profiles

When creating a new profile, the user will be requested to indicate if this is an SCL profile or a normal profile. Once created, this profile type will be displayed on the CC002 maintenance screen, but cannot be amended. If an error has been made about the type of profile, delete the profile and recapture.

```
gm712@CRONUS01:/data/analyzer/WORK
NO CODE SELECTED
CCP002          *** Cronus Consulting - DEV ***          09/28 11:58
CCM00203        Maintain ISR Profiles                    GM712
Option:         A
Profile:        SCL2DEV_  SCL Type (Y/N): Y
Description:    SCL PROD 2 DEV_

-----
█

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
```

#### CC002 – SCL Type Y or N

- For normal type profiles, mark SCL Type as N
- For SCL type profiles, mark SCL Type as Y
- If SCL type marked as Y, profile name must start with SCLxxxxx
- IF SCL type profile created, specific rules apply and will force an error if not followed:
  - (a) Initial Scan SCL user must not be a library, but a valid SCL user in JS300 (the main user in the Production environment)
  - (b) Restore indicator may never be N, always mark with Y
  - (c) Comment must be marked with N, as no text comment will be added to the SCL
  - (d) Allow Source must be Y
  - (e) Source Unload must be N (No SYSOBJH function available for SCL's)
  - (f) Stow/Cat indicator must be S
  - (g) Backup must be marked with Y, backups always made before the move of an SCL
  - (h) ISR Library is not allowed, as SCL's are transferred using the same user, name and type that they were scanned in with.



### 3.1.2 CC010 – ISR Code

- Code ESPBATCH must be marked with Y for the SCL transfer functions to be available. This will be done at installation time, if a new installation, and can be amended via CC010 after installation if necessary.
- A new code value SCL will be automatically added at installation time for the code ISRTYPE. These 2 codes work together. If at a later stage it is decided not to use SCL transfer anymore, and ESPBATCH is amended to N, then the ISRTYPE SCL must first be deleted, before the amendment can take place.
- Code SCLADHOC will determine if users are allowed to migrate SCL User “ADHOC” directly from Development to Production and vice versa, without going through all the paths or having to create an ISR.
- Code ADHOCL which is used for modules reflects a LIBRARY NAME for an ADHOC Natural Library. This same “ADHOC” name is used in SCLADHOC as the SCL User.

### 3.1.3 CC330 – Scan SCL's for Transfer

Use this function to scan in SCL's from the EspBatch environment. Only SCL's may be scanned in from this function and objects must be scanned in via CC300 as specified in the manual above. This function is used to populate the EspControl SCL inventory and update the “new-scl” indicator to “old” on all the SCL's being scanned in. The function should **only** be executed during the installation procedure of EspControl. All SCL's scanned will be recorded as existing SCL's in all the environments (to which the SCL has been linked in an ISR to a SCL profile) which means that the ISR transfer flow will **start** from the Master Index environment to the Initial Environment specified on the profile. The SCL scan must take place from the Production environment (and not the Development environment as is the case for normal ISR's).





```
gm712@CRONUS01:/data/analyzer/scripts

CCP330          *** Cronus Consulting - DEV ***          16:15:38.2
CCM330          Scan SCL's for Transfer (Initial Scan ONLY) 2022/09/28
                                                         GM712

Enter SCL User.....: CRONUS _
Enter SCL Type.....: SCL _
Start SCL.....: A
End SCL.....: ZZZZZZZZ
Scan environment....: 03 - Production

Enter * in SCL User to scan ALL Users in SCL selection
Enter * in SCL Type to scan ALL Types in SCL selection

Direct Command: █

Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit
```

### CC330 – Scan SCL's for Transfer

#### 3.1.4 CC350 – Run Initial Backup Routine

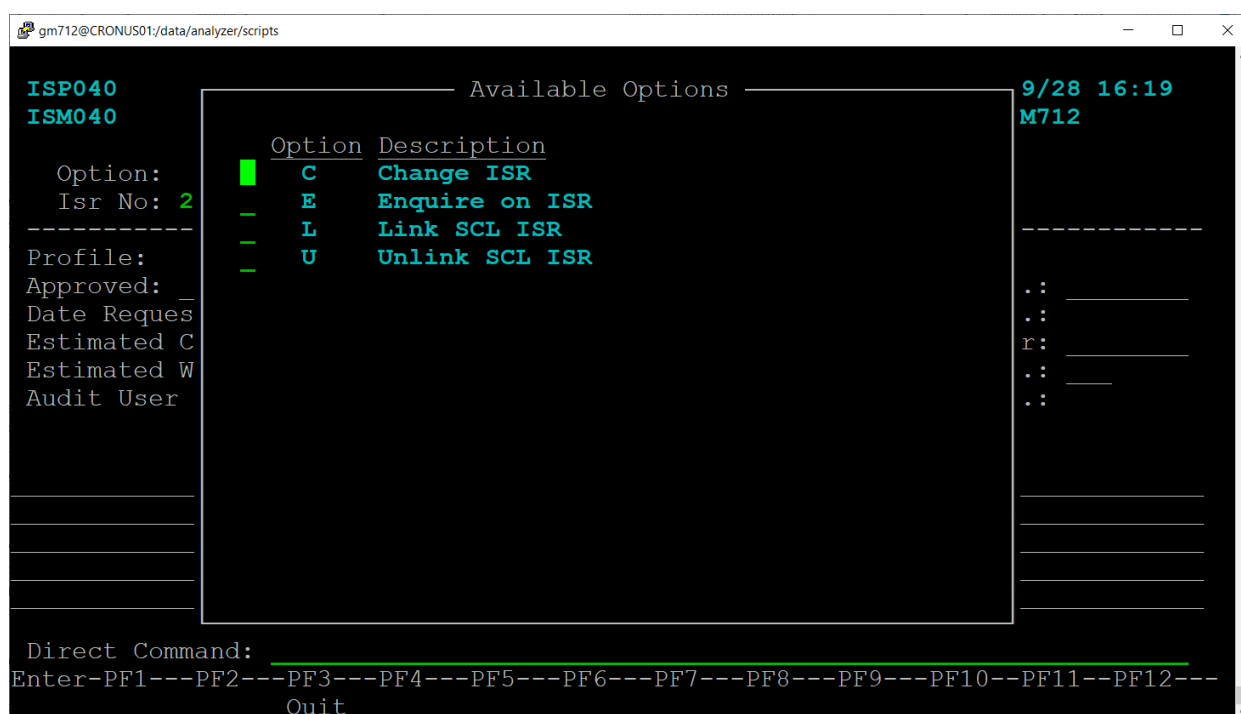
This routine must not be executed for SCL's. No initial backup is required, as each SCL will be backed up before the move to the next environment and not after the move as for normal ISR's.



## 3.2 ISR Transfer Function Overview

### 3.2.1 CC040 – Approve ISR Request

Approve the SCL ISR as normal. However, the ISRTYPE must be selected as SCL and the profile must have been set up in CC030 as an SCL type Profile. If CC035 is used, then the approval and SCL type will already be entered. To use the link option as described below, even if CC035 was used, CC040 must be used for linking. There is an option where the SCL ISR may be linked to a normal ISR. This will enable the migration to be run in sync and will prompt the user to start the SCL ISR once the normal ISR has completed one move to the next environment. To link the ISR, the normal ISR must be used as the base. In CC040, either C for change the normal ISR, or L for Link of an SCL ISR – but in both cases, use the normal ISR number. Enter the SCL ISR number in the “LINK SCL ISR” field as show in the figure below. This must be a SCL type ISR and must also be in the correct status (new). Once a SCL ISR has been through a migration, it cannot be linked to a normal ISR, unless the entire SCL ISR is restored to the initial environment. Once linked, if the SCL ISR is enquired on, it will reflect the linked normal ISR as enquiry only. An SCL ISR can however be unlinked at any time, or when in any status (unless complete), from the normal ISR. Use option U for the unlinking, and enter the normal ISR number, and then remove the SCL ISR from the linked SCL ISR field.



### CC040 – Options L and U

When linking an SCL ISR to a normal ISR, it will only be possible to run the SCL ISR in tandem via CC100 or CC105. If the SCL ISR number is entered in CC100, an error will be given to inform the user to



run the normal ISR. If this is no longer required, unlink via CC040 and then the SCL ISR may again be run individually. If no link of the SCL ISR has taken place, then this SCL ISR may be entered in CC100 or CC105. The linking of an ISR does not affect the Return function CC102. If an SCL of a linked ISR is to be returned, it must be run individually in CC102.

```

gm712@CRONUS01:/data/analyzer/scripts

ISP040          *** Cronus Consulting - DEV ***          09/28 16:34
ISM040          IT Request Maintenance                  GM712

Option: C
Isr No: 26      01 - Downloaded to Development
-----
Profile:  PRD2DEV          Description:  PROD TO DEV
Approved: A (A)pproved (R)ejected    Date Received by IT....: 20220920
Date Request Registered: 20220920    System.....: ACC
Estimated Comp Date....: 20220920    Development Team Member: GM712
Estimated Work Hours....: 1.00        ISR Type.....: NAT
Audit User Id.....: GM712            ISR Security.....: N
Linked SCL ISR.....: 31
Description of Change / Other Enhancements    Page: 1 of 6
TEST APPROVAL AND LINKING OF SCL ISR
-----
Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit                               PgUp   PgDn

```

### CC040 – SCL ISR in Linked SCL ISR field

As reflected in the example above, SCL ISR 31 is going to be linked to normal ISR 26. When migrating via CC100 or CC105, only enter ISR number 26, and once a move has completed for 26, the function will automatically call SCL ISR 31 to be migrated as well.

### 3.2.2 CC050 – Link SCL's to an ISR

When an ISR number is entered and CC050 detects that it is an SCL ISR, it will only display SCL's from the Inventory. SCL's may be linked to an ISR via an 'X' in the select column in the same manner as normal objects. However, no library selection exists as SCL's must be transferred to and from environments with the same SCL user and SCL Type. SCL's may be unlinked by removing the 'X' from the selection column, users will be requested to do a restore (if in correct status) but only current versions restores will be allowed. Previous backup restores are not available as they are in normal object ISR's.



```

gm712@CRONUS01:/data/analyzer/scripts
*** Cronus Consulting - DEV ***                                09/28 16:37
ISM055 Select SCL's for Transfer                                GM712

ISR.....: 31 Status: 00 - Object Selection in Progress
Profile: SCL2DEV Desc : SCL PROD 2 DEV

  User      Name      Type      Current ISR Stat New Scan By      Date
X DEMO      DAILY      SCL              Y GM712 20220928
  DEMO      DEMOJCL    SCL              Y GM712 20220928
  DEMO      DEMOJCLX   SCL              Y GM712 20220928
  DEMO      DEMOSCL    SCL              Y GM712 20220928
X DEMO      J505S011   SCL              Y GM712 20220928
  DEMO      JGL230     SCL              Y GM712 20220928
  DEMO      JOB1       SCL              Y GM712 20220928
  DEMO      JOB2       SCL              Y GM712 20220928
X DEMO      JOB3       SCL              Y GM712 20220928
  DEMO      JOB4       SCL              Y GM712 20220928
  DEMO      JOB4-1     SCL              Y GM712 20220928
  DEMO      JOB4-2     SCL              Y GM712 20220928

** Start of Data **

Restart at SCL User: SCL Name: No of SCL's:
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
      Del   Quit      Scan      PgDn      Curr

```

### CC050 – Select SCL's for Transfer

The only PFKEYS available are PF2, PF3, PF6, PF7, PF8 and PF10. The other PFKEYS visible in CC050 for a normal ISR are not applicable to SCL's and so cannot be selected.

- The common keys PF3 for Quit, PF7 for PgUp, PF8 for PgDn and PF10 for Curr and All operate as normal.
- PF6 – scan in SCL's. If a new SCL has been created in the Development ESPBATCH, scan in this SCL via PF6, which will create a new entry in CC050. 'Y' will be indicated under New and when a migration is done the New SCL will follow the same rules as a New object. There will be no download from Production and because the SCL does not exist, there will be no backup of the SCL in the next environment.
- PF2 – Delete SCL off the Inventory List. Unlike Objects which must be archived via CC250 when removing from the Inventory List in CC050, SCL's are not archived. The actual SCL does not get deleted from EspBatch, only the entry in CC050 gets removed, which means that no further migration will be possible for this SCL, but the SCL will still exist in all environments in EspBatch. Removal from EspBatch must be done via JS300 as is normal for SCL's.

```
gm712@CRONUS01:/data/analyzer/scripts
```

```
ISP055          *** Cronus Consulting - DEV ***          09/28 16:37
ISM055          Select SCL's for Transfer                GM712

ISR....: 31_____ Status: 01 - Downloaded to Development
Profile: SCL2DEV   Desc : SCL PROD 2 DEV

                               Scanning SCL's
X DEMO                      can By      Date
DEMO                        M712        20220928
DEMO                        M712        20220928
DEMO                        M712        20220928
X DEMO                       M712        20220928
DEMO                        M712        20220928
DEMO                        M712        20220928
DEMO                        M712        20220928
X DEMO                       M712        20220928
DEMO                        Y GM712     20220928
DEMO                        Y GM712     20220928
DEMO                        Y GM712     20220928

                               ** Start of Data **

Restart at SCL User: _____ SCL Name: _____ No of SCL's: 3
Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11---PF12---
```

## CC050 – New SCL to be scanned

```
gm712@CRONUS01:/data/analyzer/scripts
```

```
ISP055                      *** Cronus Consulting - DEV ***                   09/28 16:37  
ISM055                      Select SCL's for Transfer                        GM712
```

```
ISR....: 31                  Status: 01 - Downloaded to Development  
Profile: SCL2DEV            Desc : SCL PROD 2 DEV
```

```
User                               Archive SCLS                                can By           Date  
DEMO                             M712                20220928  
DEMO                              M712                20220928  
DEMO                              M712                20220928  
DEMO                              M712                20220928  
DEMO                             M712                20220928  
DEMO                              M712                20220928  
DEMO                              M712                20220928  
DEMO                              M712                20220928  
DEMO      JOB3          SCL                    31       1       Y    GM712        20220928  
DEMO      JOB4          SCL                                  Y     GM712        20220928  
DEMO      JOB4-1        SCL                                  Y     GM712        20220928  
DEMO      JOB4-2        SCL                                  Y     GM712        20220928
```

```
Enter SCL to be Removed off CC050  
or PF3 to Exit  
SCL User : DEMO  
SCL Name : SCL  
SCL Type : JOB4
```

```
** Start of Data **  
Restart at SCL User:         SCL Name:         No of SCL's: 3  
Direct Command:  
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
```

```
Del   EXIT                     Scan                       PgDn                     Curr
```

## CC050 – SCL to be Removed



### 3.2.3 CC054 – Copy an ISR

The copy function operates as normal but a check exists that will only allow normal ISR's to be copied to normal ISR's and SCL ISR's to be copied to SCL ISR's. I.E. both Copy from and Copy To must be the same type of ISR.

### 3.2.4 CC100 – Transfer an ISR between Environments

The transfer of SCL's differs to the transfer of normal objects in the manner of the actual transfer, not in the running of the routine CC100. An SCL ISR may be run via CC100 individually or if linked to a normal object ISR, it will be run in tandem with the normal ISR. If the SCL ISR is run individually, CC100 will process as normal with regards to the rules of migration, approvals and returns. The actual transfer of the SCL, whether individually run or linked to a normal ISR, will be detailed below.

#### Linked ISR's

Only the normal ISR number will be entered and the routine will prompt the user to start the linked SCL ISR, once the normal ISR has completed one migration. In this manner, both the linked normal object ISR and the SCL ISR will always be in the same status and will be transferred together to each environment in the selected profile. Each ISR will use its own profile to determine the migration as an SCL ISR has to be linked to an SCL type profile.

The exception to this rule is if the user is prompted to run the SCL ISR and the user elects to Exit via PF3, and not go through with the SCL ISR. In this case the SCL ISR will be one migration behind the normal object ISR. However, when running CC100 again, even if the SCL ISR is behind the normal ISR, enter the normal ISR number. CC100 will control the migrations of linked ISR's and always ensure that each ISR will be on the same level / status before running the next migration. In this case, when entering the normal ISR number via CC100, CC100 will inform the user that the SCL ISR is one migration behind and immediately transfer the user to the SCL migration and will ignore the normal ISR migration, until the linked SCL ISR's are in the same status. See screen images below to see detail. The rules of CC100 will apply to both linked ISR's and will not allow any migration of either ISR to be commenced until all the validations have been passed. For example, if only the SCL profile specifies approval and when running CC100, the normal ISR does not request approval, the normal ISR will not be processed and an error will be displayed that the linked SCL ISR must first be approved. This will apply to approvals, user / group security, return indicators, ISR's in hold. If a normal ISR goes through the final migration, completes and then the user exits before the completion migration cycle of the SCL, the next time CC100 is run, the SCL ISR number must be used, even though it was linked. The user will be prompted to do this. If at any time, a linked SCL ISR is not required to be linked anymore, use option U in CC040 to unlink the ISR. Note, an SCL ISR can only be linked to a normal ISR if no migration of the normal ISR has taken place.

#### SCL Transfer



The running of an SCL ISR performs the following tasks (this differs from normal object ISR's).

- EXPORT of SCL from the FROM Environment
- BACKUP of SCL in the TO Environment (before overwriting SCL with new transferred SCL)
- IMPORT of SCL into the TO Environment

### Audit Report

If the code AUDITRPT is set to 'Y' in ISR Codes (CC010), an audit report will be produced in the same manner as the audit report for normal object ISR's. If a SCL ISR has been linked to a normal ISR, two separate reports, one for each ISR number will be produced. The SCL audit report will reflect the SCL indicators Export, Backup and Import and the SCL User, Name and Type, with the rest of the display and format the same as the normal object ISR report.

```
gm712@CRONUS01:/data/analyser/scripts
Job number 682118: N.20220928.gm712.01 on form type NOPRINT START ^
....5....10....15....20....25....30....35....40....45....50....55....60....65....70....75....
2022/09/28          Audit Report for transfer of ISR No - 31 >
17:01:08.5

ISR Title.....: TEST SCL LINK          Xref Number.....: >
                  TEST SCL LINK >

Environment From: Test
Environment To:   Production

LINE NO   SCL   SCL   SCL   EXPORT  BACKUP  IMPORT  RESTORE
          USER NAME TYPE   IND     IND     IND     IND
-----
0001      Upload from Test to Production
0002      DEMO   DAILY   SCL     Y       N       Y       N
0003      DEMO   J505S011 SCL     Y       N       Y       N
0004      DEMO   JOB3     SCL     Y       N       Y       N
0005      Uploaded from Test to Production - SCL - BACKUP >
          --- End of file ---
```

### CC100 – Audit Report produced for SCL ISR if AUDITRPT is set to Y



### Examples of CC100 for transfer of SCL's:

See below for examples of validation rules, linked SCL's, the actual transfer of an SCL, migrations that abort and the display of error messages.

```

gm712@CRONUS01:/data/analyser/scripts

CCP100                                Transfer ISR between Environments                                09/28 16:48
CCM10002                             From Development To Test                                GM712
To      ISR NO: 26 - TEST APPROVAL      NAT
Library Object Backup Back Lib Copy Restore Compile Err Line Resp

Linked SCL ISR to proceed: 31
Press <Enter> to Continue - PF3 to abort

ESPDEMO DEMO02      F ESPDEMO      Y 4      N      S 4
ESPDEMO DEMO03      F ESPDEMO      Y 4      N      S 4
ESPDEMO DEMO04      F ESPDEMO      Y 4      N      S 4
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

### CC100 – Linked SCL prompt

```

gm712@CRONUS01:/data/analyser/scripts

CCP100                                *** Cronus Consulting - DEV ***                                09/28 16:50
CCM10001                             Transfer ISR between Environments                                GM712

Linked SCL ISR to proceed: 31
Current ISR is in higher status
Press <Enter> to Continue - PF3 to abort

Please terminate this session manually!!

Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

### CC100 – Linked SCL in lower status than Normal, Normal ISR bypassed





```

gm712@CRONUS01:/data/analyzer/scripts
SCL ISR has been linked to 26 - unlink via CC040 to run individually
CCP100      *** Cronus Consulting - DEV ***      09/28 16:50
CCM10001    Transfer ISR between Environments    GM712

Please Supply the ISR Number: 31_____

Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

**CC100 – If SCL ISR has been linked, it cannot be run individually**

```

gm712@CRONUS01:/data/analyzer/scripts
Executing ...
CCP120      Transfer SCL ISR between environments    09/28 16:52
CCM12002    GM712
            ISR NO: 31 - TEST SCL LINK
SCL User   SCL Name   SCL Type   Export   Backup   Import   Restore   Err   Line   Resp
Run Routines validation for SCL ISR 31
SCL ISR will be Rejected in HOLD if any errors occur
Please wait while VALIDATION takes place

Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

**CC100 – Validation routines Window before start of SCL Migration**



```

gm712@CRONUS01:/data/analyzer/scripts
Executing ...
CCP120          Transfer SCL ISR between environments      09/28 16:52
CCM12002        From Development To Test                  GM712
                ISR NO: 31 - TEST SCL LINK
SCL User  SCL Name  SCL Type  Export  Backup  Import  Restore  Err  Line  Resp

Running of Export and Import Routines for SCL's
Please wait while Routines Complete

Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

### CC100 – Wait Window for SCL's during actual Migration

```

gm712@CRONUS01:/data/analyzer/scripts
Linked SCL ISR not Upload Approved: 31
CCP100          *** Cronus Consulting - DEV ***           09/28 16:53
CCM10001        Transfer ISR between Environments         GM712

Please Supply the ISR Number: 26

Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

### CC100 – Example that validation rules apply to linked SCL ISR before any migration



```

gm712@CRONUS01:/data/analyser/scripts
<ENTER> to complete ISR
ISP070          *** Cronus Consulting - DEV ***          09/28 16:59
ISM07001        Mark an ISR as Completed                GM712

ISR Number: 26
ISR Status: 03 - Uploaded to Production

-----
Profile:      PRD2DEV      PROD TO DEV
-----

** If Manual Complete and objects should not be restored, Mark with N **
Restore.....: Y (Y/N/P - Yes/No/Previous ISR)
-----

Actual Work Hours: █ 1.00

Completion Date.: 20220928

Enter to Continue with Linked SCL ISR

Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---

```

### CC100 – When Normal ISR completes, user will be prompted to start linked ISR

#### SCL Transfer

See below figure for completion window of an SCL Transfer. Notice the different indicators for an SCL transfer viz. Export, Backup and Import, the 3 processes for migration of an SCL. The restore indicator is also displayed and if N, no errors occurred and the SCL will complete successfully.

A SCL transfer will export all SCL's, then Backup all SCL's and then Import all SCL's. If a problem occurs in any of the 3 processes, the ISR will abort on the error SCL and only restore the SCL's already through the specific processes. Therefore, no restore is done if the Export process aborts as no update has taken place to the actual SCL. Backups are created before the move to an environment and are also linked to a version number per ISR. See function CC200 in the Appendix below for detailed explanation of how the backup version is created and linked to an ISR.



```

gm712@CRONUS01:/data/analyzer/scripts
CCP120          Transfer SCL ISR between environments      09/28 17:01
CCM12002        From Test To Production                  GM712
                ISR NO: 31 - TEST SCL LINK
SCL User SCL Name SCL Type Export Backup Import Restore Err Line Resp
                [
                |
                |      Uploaded from Test to Production
                |      Press <Enter> to Continue
                |
                ]
DEMO      DAILY      SCL      Y      N      Y      N
DEMO      J505S011    SCL      Y      N      Y      N
DEMO      JOB3       SCL      Y      N      Y      N
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

### CC100 – Completion Window showing indicators for Export, Backup and Import

#### 3.2.5 CC105 – Transfer with Skip of Environment

CC105, transfer with the skipping of an environment, works in the same manner as CC100 for SCL's, except that an environment will be skipped and the SCL will be transferred to an environment plus one. (As is done in CC105 for normal objects, see further detail in CC105 above in manual).

Individual SCL ISR's may be run via CC105 on their own, and linked SCL ISR's may be run via the normal object ISR as is explained in CC100 for SCL's above. The only exception being, that the ISR's must be in synch, status wise, else it will not allow the skip.

#### 3.2.6 CC250 – Select Objects for Archiving

This routine must not be executed for SCL's. NO SCL's are archived. If it is required to remove an SCL from the Inventory List, use PF2 in CC050 on a valid SCL ISR, to remove the SCL from CC050. This is explained in CC050 in the SCL section above.



---

### **3.3 ISR Maintenance Function Overview**

#### **3.3.1 CC051 – Transfer a SCL to another ISR**

The transfer function operates as normal object ISR but a check exists that will only allow objects from normal ISR's to be transferred to another normal ISR and SCL's from SCL ISR's to be transferred to another SCL ISR. I.E. both Transfer from and Transfer To must be the same type of ISR.

#### **3.3.2 CC076 – Remove ISR from SYSOBJH Error**

This function will not be used for SCL type ISR's, as an SCL cannot use the SYSOBJH function. An error will be returned if a SCL type ISR is entered via CC076.

#### **3.3.3 CC077 – Remove ISR from System Message Error**

This function will not be used for SCL type ISR's. System error messages must be transferred via normal ISR's. An error will be returned if a SCL type ISR is entered via CC077.



### 3.4 Display ISR Information

The functions specified below, have all been amended in the same manner. There is an indicator which switches between Objects and SCL's and objects will be reflected when on the Objects screen and all SCL's will be reflected when on the SCL screen. Screen prints will be shown in the function description below (CC085), but all other functions specified under 3.4 Display ISR Information, will have the same set of indicators and operate in the same manner as CC085. The initial screen displayed will always be for Objects. To view SCL's mark Y in the SCL indicator. This will transfer you to the SCL view, and again, to go back to the Object view, mark Y in the Object indicator. Amend SCL user (in field Restart at SCL User) to view other SCL Users. The default SCL user in the display will be taken from the last updated SCL profile.

#### 3.4.1 CC085 – Display Object Dependents

```

gm712@CRONUS01:/data/analyzer/scripts
ISP0851          *** Cronus Consulting - DEV ***          09/28 18:31
ISM08502        Display SCL Detail - No Dependants      GM712

Current
SCL User SCL Name SCL Type   ISR   Stat New Scan By  Date
DEMO     DAILY     SCL                Y   GM712 20220928
DEMO     DEMOJCL    SCL                Y   GM712 20220928
DEMO     DEMOJCLX   SCL                Y   GM712 20220928
DEMO     DEMOSCL    SCL                Y   GM712 20220928
DEMO     J505S011  SCL                N   GM712 20220928
DEMO     JGL230    SCL                Y   GM712 20220928
DEMO     JOB1       SCL                Y   GM712 20220928
DEMO     JOB2       SCL                Y   GM712 20220928
DEMO     JOB3       SCL                N   GM712 20220928
DEMO     JOB4       SCL                Y   GM712 20220928
DEMO     JOB4-1     SCL                Y   GM712 20220928
DEMO     JOB4-2     SCL                Y   GM712 20220928
DEMO     JOB4-3     SCL                Y   GM712 20220928
DEMO     PRED1      SCL                Y   GM712 20220928

Restart at SCL User: █ SCL Name: _____ Objects: N (Y/N)
Direct Command: _____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12---
Quit PgUp PgDn

```

#### CC085 – SCL indicator was marked with Y

#### 3.4.2 CC088 – Display Object History

As shown above in CC085, mark the SCL or Object indicator to switch between the different screens.

#### 3.4.3 CC090 – Display Objects linked to an ISR

Depending on the ISR number entered, the type will be picked up and either Objects (with Object Name and Library) will be reflected or SCL's (with SCL User, Name and Type) will be reflected.



### 3.4.4 CC095 – Display ISR History

Both SCL type ISR's and normal Object ISR's use the same enquiry. There is no difference to the actual enquiry, except the details displayed. The major difference is that SCL's are Exported, Backed Up (before the migration to any environment) and Imported in each move. The Objects are Backed Up (after the migration to all non-production environments and before the migration to Production), Copied and Stowed in each move.

```

gm712@CRONUS01:/data/analyzer/scripts
ISP095          *** Cronus Consulting - DEV ***          09/28 18:34
ISM095          Display ISR History                      GM712
                  SCL Type ISR
ISR....: 31      Status: 99 - Completed
Xref....: Toggle LEFT and RIGHT for Complete Description
  Date      Time      User ID  Program  Description
20220928 16:30:25 GM712    ISP035  Added ISR Request - SCL2DEV
20220928 16:41:50 GM712    ISP055  SELECTED: DEMO DAILY SCL (NEW)
20220928 16:41:50 GM712    ISP055  SELECTED: DEMO J505S011 SCL (NEW)
20220928 16:41:50 GM712    ISP055  SELECTED: DEMO JOB3 SCL (NEW)
20220928 16:52:05 GM712    CCP120  SCL ISR auto called from CC100 ISR - 26
20220928 16:52:13 GM712    CCN313  DEMO DAILY SCL Exported from Development
20220928 16:52:13 GM712    CCN313  DEMO J505S011 SCL Exported from Development
20220928 16:52:13 GM712    CCN313  DEMO JOB3 SCL Exported from Development
20220928 16:52:17 GM712    CCN313  DEMO DAILY SCL Imported to Test
20220928 16:52:17 GM712    CCN313  DEMO J505S011 SCL Imported to Test
20220928 16:52:17 GM712    CCN313  DEMO JOB3 SCL Imported to Test
20220928 16:52:17 GM712    CCP120  Uploaded from Development to Test - SCL -
                ** Start of Data **
Restart at Date:  Time:
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Print      Quit      PgDn      Left      Right

```

### CC095 – History Detail for SCL ISR – Export, Backup and Import

PF5 for Audit History can be run for both Objects and SCL's. Mark either OBJECT or the SCL indicator with Y, not both.

### 3.4.5 CC088 – Display Object Status

As shown above in CC085, mark the SCL or Object indicator to switch between the different screens.



## 3.5 ISR Return And Restore Function Overview

### 3.5.1 CC102 – Return Transfer ISR to Previous Environment

The return of an SCL works in the same manner as explained above in the SCL appendix for CC100, escape the SCL will be returned to the previous environment. The only difference is that a linked SCL ISR must be run individually in CC102 and will not be called automatically as in the case of CC100 linked ISR's. SCL's that are to be returned must be updated via CC053 in the same manner as objects are and must also be approved via CC061 (unless RETAPP code is set to N).

### 3.5.2 CC110 – Restore ISR to Initial Profile Environment

Operates in the same manner as objects, but because the backup cycle is different to that of objects, when restoring, it will always restore to the version before the environment move. SCL's are restored all at once in each applicable environment, whereas objects are done one at a time in all environments. See screen image below as these will differ from the restore screens of normal object ISR's.

```

gm712@CRONUS01:/data/analyser/scripts
Executing ...
CCP110          *** Cronus Consulting - DEV ***          09/28 18:39
CCM11001        Restore ISR to Initial Profile Environment  GM712

                                Title: TEST SCL ISR

                                Restore SCL Routines called for Environment:
                                Test
                                Please wait while RESTORES Complete for Applicable SCL's

Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit

```

### CC110 – Restores all SCL's Per Environment





### 3.5.3 CC115 – Restore Object(s) to Initial Profile Environment

Operates in the same manner as objects, where applicable SCL's must be selected for restore and not the entire ISR as in CC110. Once the SCL's have been selected, the restores will complete as in CC110 but only for the selected SCL's. Screen images will be the same as in CC110.

### 3.5.4 CC200 – Restore Object Versions to ANY Env per ISR

As shown above in CC085, mark the SCL or Object indicator to switch between the different types of ISR's. Depending on your selection, either all objects or all SCL's will be displayed. Amend SCL user (in Restart at SCL User field) to view other SCL Users. The default SCL user in the display will be taken from the last updated SCL profile.

Both the selection process for the applicable SCL's and the type of either D for display or R for Restore, and the environments, work as in the normal Object CC200. However, the actual Display and Restore functions differ for SCL's.

#### DISPLAY:

A backed up SCL is actually created in EspBatch and may be viewed in JS300 in the applicable environment. For this reason, the actual source of the backup will not be displayed in the Display function, but only the environment and backup version number for the user to view in JS300. This version number will be different for each ISR, in the same manner as objects have version numbers per ISR.

```
gm712@CRONUS01:/data/analyser/scripts
DEMO JOB3 SCL - PF3 TO EXIT

To View Backed Up SCL in Environment...: Development
Go to JS300 and Enquire on.....: DEMO.JOB3.SCL C01

ISR      : 32
SCL Path: Development/DEMO.JOB3.SCL C01
```

### CC200 – Display function showing where to view applicable backup



---

**RESTORE:**

The restore function for SCL's will be restored to SCL User RESTORE by default, in each of the selected environments. If the SCL must be restored to the original SCL User, this user must be entered in the field as seen below (Re-Enter SCL User). If the field is left blank the original SCL will not be affected, but the applicable backed up version will be restored to SCL User – RESTORE. The restore function will restore from the linked backup version to the selected ISR, but the restored version will not include the version number Cnn in the SCL Type, it will restore to the original SCL Type that excludes the Cnn.

Explanation of Backed Up Versions:

- Whenever a migration takes place, the SCL is backed up before the import to the next environment.
- A version number is allocated per ISR (same version number for each environment)
- The backed up version is actually stored in EspBatch in the same file as the normal SCL's.
- The backed up version may be viewed in JS300 (Enquiry and Print only), it may not be amended or deleted.
- The SCL Type of each backed up version is created as follows - SCL Type "C" version number, for e.g. SCL C03. This backup version is created in the same manner the "Versioning" Option in JS300 which a user may create. The "Versioning" option creates a "V01", whereas the ISR backup option uses a "C01" etc.
- Versions are automatically deleted, depending on the Maximum Version Number entered in CC001. Once the maximum number of versions has been reached the oldest version will be deleted. This will mean that although a link may exist to a backup version number, it will no longer exist and any restore or display in CC200 will specify that the backup cannot be found.

See examples below of Restore Functions.



```

gm712@CRONUS01:/data/analyzer/scripts
*** Cronus Consulting - DEV ***      09/28 18:50
CCP2001                               GM712
CCM20004      Restore SCL Versions to ANY Env per ISR

SCL User: DEMO      SCL Name: JOB3      SCL Type: SCL

Restore SCL

SCL will be restored to SCL USER: RESTORE

ISR No.....: 32

SCL User....: DEMO
SCL Name....: JOB3
SCL Type....: SCL

Environment.: Development

To Restore to DEMO      Re-Enter SCL USER: DEMO

Confirm.....: Y (Y)es or (N)o

Direct Enter-P Quit
1--PF12---
```

### CC200 – Restore function to restore to Original User

```

gm712@CRONUS01:/data/analyzer/scripts
*** Cronus Consulting - DEV ***      09/28 18:50
CCP2001                               GM712
CCM20004      Restore SCL Versions to ANY Env per ISR

SCL User: DEMO      SCL Name: JOB3      SCL Type: SCL

Restore SCL

ISR No.....: 32
Envrionment.: Development

SCL User....: DEMO      Restored To.: DEMO
SCL Name....: JOB3
SCL Type....: SCL

Version ID...: SCL C01

SCL Successfully Restored

Press <Enter> to Continue

Direct Enter-P Quit
1--PF12---
```

### CC200 – Successful Restore showing Version used for Restore



**Option ADHOC** - Code SCLADHOC is used to determine if SCL's can be moved from SCL User ADHOC to either Production SCL User ADHOC or Development SCL User ADHOC. The ADHOC SCL User is determined by the code ADHOCL in the same manner as it determines the ADHOC library. PF5 is used for SCL ADHOC copies from Development to Production. PF6 is used for SCL ADHOC copies from Production to Development.

The SCLADHOC function will only be allowed if the 1<sup>st</sup> code = 'E' or 'Y'. If it is set to N, then PF5 and PF6 will not be allowed. The 2<sup>nd</sup> code is the Production environment number and the 3<sup>rd</sup> code is the Development environment number. (See detailed explanation in CC010).

If the 1<sup>st</sup> code is set to 'E', then if code SCLADHOC has a set of users, not only the default user ADHUSER, the SCL ADHOC function will be limited to this set of users.

The SCL ADHOC function will use the environment numbers in code ADHOCL to determine the development and production environment.

CC095 keeps a simple log of all ADHOC copies (both object and SCL) and can be seen when selecting PF6 which is always linked to ISR 77777777.

```

gm712@CRONUS01:~
CCP2001          *** Cronus Consulting - DEV ***          09/29 11:11
CCM20003          Restore SCL Versions to ANY Env per ISR  GM712

          Current
SCL User SCL Name SCL Type Stat  ISR  Title  Profile
- DEMO    DAILY    SCL
- DEMO    DEMOJCL   SCL
- DEMO    DEMOJCLX  SCL
- DEMO    DEMOSCL   SCL
- DEMO    J505S011  SCL
- DEMO    JGL230    SCL
- DEMO    JOB1       SCL
- DEMO    JOB2       SCL
- DEMO    JOB3       SCL
- DEMO    JOB4       SCL
- DEMO    JOB4-1    SCL
- DEMO    JOB4-2    SCL
- DEMO    JOB4-3    SCL
- DEMO    PRED1     SCL

          If ISR in Error, SCL NOT shown
Restart at SCL User: _____ SCL Name: _____ Objects: N (Y/N)
Direct Command: █
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
          Quit          ADD2P ADP2D

```

### PF5 and PF6 for the SCL ADHOC function



```

gm712@CRONUS01:~
CCP2001          *** Cronus Consulting - DEV ***          09/29 11:11
CCM20003          Restore SCL Versions to ANY Env per ISR  GM712

SCL User SCL Name SCL Type Stat   Current   Title      Profile
- DEMO      DAILY    SCL
- DEMO      -----Enter ADHOC SCL-----
- DEMO      SCL User: ADHOC
- DEMO      Enter SCL Name: TEST
- DEMO      Enter SCL Type: SCL
- DEMO      To be copied FROM Dev
- DEMO      TO PRODUCTION
- DEMO      PF3 to Exit
- DEMO      JOB4-2    SCL
- DEMO      JOB4-3    SCL
- DEMO      PRED1     SCL

Restart at SCL User:      SCL Name:      Objects: N (Y/N)
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit      ADD2P ADP2D

```

**PF5 copy from Development to Production – enter the SCL Name and Type**

```

gm712@CRONUS01:~
CCP2001          *** Cronus Consulting - DEV ***          09/29 11:11
CCM20003          Restore SCL Versions to ANY Env per ISR  GM712

SCL User SCL Name SCL Type Stat   Current   Title      Profile
- DEMO      DAILY    SCL
- DEMO      -----SCL ADHOC Transfer-----
- DEMO      SCL: ADHOC.TEST.SCL
- DEMO      could not be copied from DEV
- DEMO      to Prod ADHOC      - Error
- DEMO      SCL Not Found for Exporting
- DEMO      Press <Enter> to Continue
- DEMO      JOB4-3    SCL
- DEMO      PRED1     SCL

Restart at SCL User:      SCL Name:      Objects: N (Y/N)
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit      ADD2P ADP2D

```

**PF5 SCL ADHOC copy error**



```

gm712@CRONUS01:~
CCP2001          *** Cronus Consulting - DEV ***          09/29 11:17
CCM20003          Restore SCL Versions to ANY Env per ISR  GM712

SCL User SCL Name SCL Type Stat   Current   Title      Profile
DEMO     DAILY    SCL
- DEMO   -----Enter ADHOC SCL-----
- DEMO
- DEMO   SCL User: ADHOC
- DEMO   Enter SCL Name: TEST1
- DEMO   Enter SCL Type: SCL
- DEMO   To be copied FROM Prod
- DEMO   TO DEVELOPMENT
- DEMO
- DEMO   PF3 to Exit
- DEMO
- DEMO   JOB4-2    SCL
- DEMO   JOB4-3    SCL
- DEMO   PRED1     SCL

Restart at SCL User:      SCL Name:      Objects: N (Y/N)
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit      ADD2P ADP2D

```

**PF6 copy from Production to Development – enter the SCL Name and Type**

```

gm712@CRONUS01:~
CCP2001          *** Cronus Consulting - DEV ***          09/29 11:17
CCM20003          Restore SCL Versions to ANY Env per ISR  GM712

SCL User SCL Name SCL Type Stat   Current   Title      Profile
DEMO     DAILY    SCL
- DEMO   -----SCL ADHOC Transfer-----
- DEMO
- DEMO   SCL: ADHOC.TEST1.SCL
- DEMO
- DEMO   has been copied from PROD
- DEMO   to DEV ADHOC successfully
- DEMO
- DEMO   Press <Enter> to Continue
- DEMO
- DEMO   JOB4-3    SCL
- DEMO   PRED1     SCL

Restart at SCL User:      SCL Name:      Objects: N (Y/N)
Direct Command:
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Quit      ADD2P ADP2D

```

**SCL – ADHOC.TES1.SCL successfully copied to SCL User ADHOC in Development**