

Archiver

Extensions

Version 1.2.0

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A package to provide additional functionality to the Archiver package.

Archiver Extension V1.2.0 - A package to provide additional
functionality to the Archiver package.

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Table of Contents

Table of Figures.....	3
Summary Of Changes.....	3
Introduction.....	4
About the Archiver Dataset.....	4
Installation.....	5
ARCHCOMP – Compare 2 Archive Indecies.....	6
ARCHCOMP Usage.....	6
Synchronizing Archives.....	7
How to Synchronize.....	8
ARCHDIR – Customized Index Reports.....	9
ARCHDIR Usage.....	10
ARCHRST – Reset Version Numbers.....	11
ARCHUTIL – Unload/Load Utility for Archives.....	13
ARCHUTIL Usage.....	13

Table of Figures

Figure 1: Example IDCAMS statement to create an Archive.....	4
Figure 2: Sample ARCHCOMP Report with option='group,archextn'.....	6
Figure 3: Sample ARCHDIR Default Report.....	9
Figure 4: Sample ARCHDIR Custom Report.....	10
Figure 5: Sample ARCHUTIL Report.....	13

Summary Of Changes

V1.1.0 - A new program ARCHRST was added to reset version numbers. No other programs were changed.

V1.2.0 – A revision to ARCHCOMP to sort by member or group. Also added ability to sync Archive 1 and Archive 2.

Introduction

Welcome to Archiver Extensions. This is a group of programs designed to provide additional feature for users of Archiver. The full use of ARCHIVER is out of scope of this document. Archiver 6.1.5 is pre-installed on TK5 systems. TK5 systems include a copy of the user guide in the DOC folder. It is also can be found at cbttape.org [File # 147 ARCHIVER All your non-VSAM datasets to 1 VSAM file](#).

Archive is a program designed for storage of almost any type of non-VSAM file. The file is stored in a VSAM KSDS (Keyed Sequential Data Set) in a compressed and encrypted format. One possible use of Archiver is for secured storage of production source code.

The collection (so far) consists of PL/I programs to:

- ARCHDIR – Produces directory listings sorted in user selected sequences
- ARCHCOMP – Compares the indices of two Archiver clusters to highlight differences
- ARCHRST – Resets version number
- ARCHUTIL = Unloads/Loads an Archive cluster to/from files suitable for transmission

About the Archiver Dataset

The Archiver Dataset is a VSAM cluster which must be defined using IDCAMS. Below is an example of the IDCAMS statement to define an Archive.

```
DEFINE CLUSTER(NAME( your archive name ) -  
  RECORDSIZE(200 32000) -  
  FREESPACE(20 20) -  
  BUFFERSPACE(262144) - (note)  
  KEYS(49 0))  
  DATA(NAME( your archive name .DATA) -  
  CYLINDERS( primary secondary )) -  
  INDEX(NAME( your archive name .INDEX) -  
  CYLINDERS( primary secondary ))
```

Figure 1: Example IDCAMS statement to create an Archive

The recordsize is the part the programs are sensitive to. Work areas are defined with 32,000 bytes of space. The routines to access the archive also assume the maximum record size is 32,000. It is recommended that all archives use the 32000 as the maximum record size. If you reduce the max record size, the programs may also need to be adjusted to the new record size.

For more information about the Archive cluster, see the Archiver Manual section “The Archiver Dataset” for more information.

Installation

1. The Archiver Extensions is distributed as a file name Arch-Exten-V1R2M0.zip. This .zip can be downloaded to your PC and the contents extracted.
 - ArchExten-V1R2M0.xmi
 - RESTTK5.jcl – restore to a TK5 system or systems with NJE38 installed.
 - RESTOTHR.jcl – restore to a system without NJE38 installed (uses RECV370).
2. On the host MVS system, allocate the dataset userid.ARCHEXTN.XMI with a record size of 80 and blksize of 3120. If the transfer process creates the dataset, it usually defaults to an undefined format.
3. BINARY Transfer the .xmi file to the host MVS system into userid.ARCHEXTN.XMI.
4. The RESTxxxx JCL defaults the user id to HERC01 and the volume to create the datasets is TSO002. You may need to change these before you submit. Be sure to remove the TYPRUN before you submit the RESTxxxx.jcl.
5. The userid.ARCHEXTN.XMI may be deleted since it is no longer required.
6. Submit the JCL in ARCHEXTN.V1R2M0.JCL(CLEANUP) to complete the install.

The RESTxxxx job will create the following datasets:

ARCHEXTN.V1R2M0.ASM	ARCHEXTN.V1R2M0.LOADLIB
ARCHEXTN.V1R2M0.COB	ARCHEXTN.V1R2M0.MACLIB
ARCHEXTN.V1R2M0.CNTL	ARCHEXTN.V1R2M0.NCALIB
ARCHEXTN.V1R2M0.INCLLIB	ARCHEXTN.V1R2M0.PLI
ARCHEXTN.V1R2M0.LISTING	ARCHEXTN.V1R2M0.PROCLIB

This 24 bit package was tested on Z/OS. However, for it run on Z/OS, the dataset PL/I (F) runtime “SYS1.PL1LIB” must be present on the Z/OS system.

ARCHCOMP – Compare 2 Archive Indecies

This utility will compare the indecies of two Archives highlighting matching and unmatching entries. The items can be sorted by Member or Group. Optionally, it can report mismatches or a full comparison report. Below is a sample of the report. When both sides of the report are printed, the items in both Archives are present. Note only the index data is compared. No attempt is made to compare the contents.

When a side of a line is blank, there is no matching item on the other side.

ARCHCOMP V1.2.0					RUN DATE: JUNE 25, 2024					PAGE 0001				
ARCHIVE 1					ARCHIVE 2									
GROUP	MEMBER	SUB GROUP	TYPE	VERSION	GROUP	MEMBER	SUB GROUP	TYPE	VERSION					
ARCHEXTN	++DEPEND	ARCHDATA	V00001	1	ARCHEXTN	++DEPEND	ARCHDATA	V00001	1					
ARCHEXTN	++DEPEND	DYNALOAD	V00001	1	ARCHEXTN	++DEPEND	DYNALOAD	V00001	1					
					ARCHEXTN	++DEPEND	DYNWORK	V00001	1					
					ARCHEXTN	++DEPEND	EDYNAL	V00001	1					
					ARCHEXTN	++DEPEND	EMACROS	V00001	1					
					ARCHEXTN	++DEPEND	JOBABEND	V00001	1					
					ARCHEXTN	++DEPEND	PLIEXTEN	V00001	1					
					ARCHEXTN	++DEPEND	SETRC	V00001	1					
ARCHEXTN	++DEPEND	PLIEXTEN	V00001	1	ARCHEXTN	++DEPEND	VSAMIO	V00001	1					
ARCHEXTN	++DEPEND	VSAMIO	V00001	1	ARCHEXTN	++DEPEND	DISTRO	V00001	1					
ARCHEXTN	++SNAP	DISTRO	V00001	1	ARCHEXTN	++SNAP	DISTRO	V00001	1					
ARCHEXTN	++SNAP	DISTRO	V1ROM0	2	ARCHEXTN	++SNAP	DISTRO	V1ROM0	2					
ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	1	ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	1					
ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	2	ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	2					
ARCHEXTN	ARCHCOMP	PROCLIB	JCL	1	ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	3					
					ARCHEXTN	ARCHCOMP	PROCLIB	JCL	1					
					ARCHEXTN	ARCHCOMP	PROCLIB	JCL	2					
					ARCHEXTN	ARCHCOMP	PROCLIB	JCL	3					
ARCHEXTN	ARCHCOMP	SOURCE	PLI	1	ARCHEXTN	ARCHCOMP	SOURCE	PLI	1					
ARCHEXTN	ARCHCOMP	SOURCE	PLI	2	ARCHEXTN	ARCHCOMP	SOURCE	PLI	2					
					ARCHEXTN	ARCHCOMP	SOURCE	PLI	3					

Figure 2: Sample ARCHCOMP Report with option='group,archextn'

ARCHCOMP Usage

The PROC for running ARCHCOMP is called ARCHCOMP. It has 4 keywords with only the SOUT (sysout) having a default of '*'. Examples:

```
//S1 EXEC ARCHCOMP,ARCH1='USER1.SLIM.ARCHIVE',
//      ARCH2='HERCEL.SLIM.ARCHIVE'
//*
//S2 EXEC ARCHCOMP,ARCH1='USER1.SLIM.ARCHIVE',
//      ARCH2='HERCEL.SLIM.ARCHIVE',
//      OPTION='GROUP,SUMMARY'
//S3 EXEC ARCHCOMP,ARCH1='USER1.SLIM.ARCHIVE',
//      ARCH2='HERCEL.SLIM.ARCHIVE',
//      OPTION='GROUP,SLIM'
```

Synchronizing Archives

ARCHCOMP can be used to synchronize two Archives. A testing archive can have new or modified items copied to a production archive. For a given project, ARCHCOMP will compare the index of the production and the index of the test archive and generate ARCHIVER copy statements to copy any new versions of an item from the test archive to the production archive.

Using proc ARCHCOMP, ARCH1 is the receiving archive and ARCH2 is the sending archive. An example will best describe the process using the following sample.

ARCHCOMP V1.2.0					RUN DATE:JUNE 25, 2024					PAGE 0001				
ARCHIVE 1					ARCHIVE 2									
GROUP	MEMBER	SUB GROUP	TYPE	VERSION	GROUP	MEMBER	SUB GROUP	TYPE	VERSION	GROUP	MEMBER	SUB GROUP	TYPE	VERSION
ARCHEXTN	++DEPEND	ARCHDATA	V00001	1	ARCHEXTN	++DEPEND	ARCHDATA	V00001	1					
ARCHEXTN	++DEPEND	DYNALOAD	V00001	1	ARCHEXTN	++DEPEND	DYNALOAD	V00001	1					
					ARCHEXTN	++DEPEND	DYNWORK	V00001	1					
					ARCHEXTN	++DEPEND	EDYNAL	V00001	1					
					ARCHEXTN	++DEPEND	EMACROS	V00001	1					
					ARCHEXTN	++DEPEND	JOBABEND	V00001	1					
					ARCHEXTN	++DEPEND	PLIEXTEN	V00001	1					
					ARCHEXTN	++DEPEND	SETRC	V00001	1					
ARCHEXTN	++DEPEND	VSAMIO	V00001	1	ARCHEXTN	++DEPEND	VSAMIO	V00001	1					
ARCHEXTN	++SNAP	DISTRO	V00001	1	ARCHEXTN	++SNAP	DISTRO	V00001	1					
ARCHEXTN	++SNAP	DISTRO	V1ROM0	2	ARCHEXTN	++SNAP	DISTRO	V1ROM0	2					
ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	1	ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	1					
ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	2	ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	2					
					ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	3					
ARCHEXTN	ARCHCOMP	PROCLIB	JCL	1	ARCHEXTN	ARCHCOMP	PROCLIB	JCL	1					
					ARCHEXTN	ARCHCOMP	PROCLIB	JCL	2					
					ARCHEXTN	ARCHCOMP	PROCLIB	JCL	3					
ARCHEXTN	ARCHCOMP	SOURCE	PLI	1	ARCHEXTN	ARCHCOMP	SOURCE	PLI	1					
ARCHEXTN	ARCHCOMP	SOURCE	PLI	2	ARCHEXTN	ARCHCOMP	SOURCE	PLI	2					
					ARCHEXTN	ARCHCOMP	SOURCE	PLI	3					

This above run of ARCHCOMP will generate ARCHIVER copy statements to copy any item in the right side that does not have a corresponding item in the left column. Referring to the above, third line of the right side (“ARCHEXTN ++DEPEND DYNWORK V00001 1”) would be copied to ARCHIVE 1. Upon completion, both sides of the report will be the same as shown below.

ARCHCOMP V1.2.0					RUN DATE: JUNE 25, 2024										PAGE 0001				
ARCHIVE 1										ARCHIVE 2									
GROUP	MEMBER	SUB GROUP	TYPE	VERSION	GROUP	MEMBER	SUB GROUP	TYPE	VERSION	GROUP	MEMBER	SUB GROUP	TYPE	VERSION	GROUP	MEMBER	SUB GROUP	TYPE	VERSION
ARCHEXTN	++DEPEND	ARCHDATA	V00001	1	ARCHEXTN	++DEPEND	ARCHDATA	V00001	1	ARCHEXTN	++DEPEND	ARCHDATA	V00001	1	ARCHEXTN	++DEPEND	ARCHDATA	V00001	1
ARCHEXTN	++DEPEND	DYNALOAD	V00001	1	ARCHEXTN	++DEPEND	DYNALOAD	V00001	1	ARCHEXTN	++DEPEND	DYNALOAD	V00001	1	ARCHEXTN	++DEPEND	DYNALOAD	V00001	1
ARCHEXTN	++DEPEND	DYNWORK	V00001	1	ARCHEXTN	++DEPEND	DYNWORK	V00001	1	ARCHEXTN	++DEPEND	DYNWORK	V00001	1	ARCHEXTN	++DEPEND	DYNWORK	V00001	1
ARCHEXTN	++DEPEND	EDYNAL	V00001	1	ARCHEXTN	++DEPEND	EDYNAL	V00001	1	ARCHEXTN	++DEPEND	EDYNAL	V00001	1	ARCHEXTN	++DEPEND	EDYNAL	V00001	1
ARCHEXTN	++DEPEND	EMACROS	V00001	1	ARCHEXTN	++DEPEND	EMACROS	V00001	1	ARCHEXTN	++DEPEND	EMACROS	V00001	1	ARCHEXTN	++DEPEND	EMACROS	V00001	1
ARCHEXTN	++DEPEND	JOBABEND	V00001	1	ARCHEXTN	++DEPEND	JOBABEND	V00001	1	ARCHEXTN	++DEPEND	JOBABEND	V00001	1	ARCHEXTN	++DEPEND	JOBABEND	V00001	1
ARCHEXTN	++DEPEND	PLIEXTEN	V00001	1	ARCHEXTN	++DEPEND	PLIEXTEN	V00001	1	ARCHEXTN	++DEPEND	PLIEXTEN	V00001	1	ARCHEXTN	++DEPEND	PLIEXTEN	V00001	1
ARCHEXTN	++DEPEND	SETRC	V00001	1	ARCHEXTN	++DEPEND	SETRC	V00001	1	ARCHEXTN	++DEPEND	SETRC	V00001	1	ARCHEXTN	++DEPEND	SETRC	V00001	1
ARCHEXTN	++DEPEND	VSAMIO	V00001	1	ARCHEXTN	++DEPEND	VSAMIO	V00001	1	ARCHEXTN	++DEPEND	VSAMIO	V00001	1	ARCHEXTN	++DEPEND	VSAMIO	V00001	1
ARCHEXTN	++SNAP	DISTRO	V00001	1	ARCHEXTN	++SNAP	DISTRO	V00001	1	ARCHEXTN	++SNAP	DISTRO	V00001	1	ARCHEXTN	++SNAP	DISTRO	V00001	1
ARCHEXTN	++SNAP	DISTRO	V1ROM0	2	ARCHEXTN	++SNAP	DISTRO	V1ROM0	2	ARCHEXTN	++SNAP	DISTRO	V1ROM0	2	ARCHEXTN	++SNAP	DISTRO	V1ROM0	2
ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	1	ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	1	ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	1	ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	1
ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	2	ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	2	ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	2	ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	2
ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	3	ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	3	ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	3	ARCHEXTN	ARCHCOMP	LOADLIB	EXEC	3
ARCHEXTN	ARCHCOMP	PROCLIB	JCL	1	ARCHEXTN	ARCHCOMP	PROCLIB	JCL	1	ARCHEXTN	ARCHCOMP	PROCLIB	JCL	1	ARCHEXTN	ARCHCOMP	PROCLIB	JCL	1
ARCHEXTN	ARCHCOMP	PROCLIB	JCL	2	ARCHEXTN	ARCHCOMP	PROCLIB	JCL	2	ARCHEXTN	ARCHCOMP	PROCLIB	JCL	2	ARCHEXTN	ARCHCOMP	PROCLIB	JCL	2
ARCHEXTN	ARCHCOMP	PROCLIB	JCL	3	ARCHEXTN	ARCHCOMP	PROCLIB	JCL	3	ARCHEXTN	ARCHCOMP	PROCLIB	JCL	3	ARCHEXTN	ARCHCOMP	PROCLIB	JCL	3
ARCHEXTN	ARCHCOMP	SOURCE	PLI	1	ARCHEXTN	ARCHCOMP	SOURCE	PLI	1	ARCHEXTN	ARCHCOMP	SOURCE	PLI	1	ARCHEXTN	ARCHCOMP	SOURCE	PLI	1
ARCHEXTN	ARCHCOMP	SOURCE	PLI	2	ARCHEXTN	ARCHCOMP	SOURCE	PLI	2	ARCHEXTN	ARCHCOMP	SOURCE	PLI	2	ARCHEXTN	ARCHCOMP	SOURCE	PLI	2
ARCHEXTN	ARCHCOMP	SOURCE	PLI	3	ARCHEXTN	ARCHCOMP	SOURCE	PLI	3	ARCHEXTN	ARCHCOMP	SOURCE	PLI	3	ARCHEXTN	ARCHCOMP	SOURCE	PLI	3

How to Synchronize

In order to synchronize two archives, a two step process is required. Below is the actual JCL used to produce the above examples.

```
//ARCHCOMP JOB CLASS=B,MSGCLASS=A,MSGLEVEL=(1,1),
//  USER=HERCEL,PASSWORD=CUL8TR
//*
//*
//*      RUN THE ARCHCOMP
//*
//ARCHCMP1 EXEC ARCHCOMP,
//          ARCH1='HERCEL.ARCHEXTN.ARCHIVE',
//          ARCH2='HERCEL.SLIM.ARCHIVE',
//          OPTION='GROUP,ARCHEXTN'
//CNTLFL DD DSN=&&COPY,UNIT=SYSDA,SPACE=(TRK,(20,20),RLSE),
//          DISP=(NEW,PASS)
//*
//ARCH EXEC PGM=ARCHIVER,REGION=4096K
//SYSPRINT DD SYSOUT=*
//ARCHIN DD DSN=HERCEL.SLIM.ARCHIVE,DISP=SHR
//ARCHOUT DD DSN=HERCEL.ARCHEXTN.ARCHIVE,DISP=SHR
//SYSIN DD DSN=&&COPY,DISP=(OLD,DELETE)
//*
//*
//*      RUN THE ARCHCOMP
//*
//ARCHCMP2 EXEC ARCHCOMP,
//          ARCH1='HERCEL.ARCHEXTN.ARCHIVE',
//          ARCH2='HERCEL.SLIM.ARCHIVE',
//          OPTION='GROUP,ARCHEXTN'
```

Step ARCHCMP1 is run to produce the copy statements into the file defined as CNTLFL.

Step ARCH is to run to execute the copy statements generated in step ARCHCMP1.

Step ARCHCMP2 is run to verify/demonstrate what happened.

ARCHDIR – Customized Index Reports

ARCHDIR is a program to print Archiver directory reports sorted in requested order. It is assumed the ARCHIVER is installed in a system library. The LIST Archiver command prints directory reports sorted by member, group, subgroup, type and version order. ARCHDIR provides for printing the directory report sorted in any desired order. Filters can be specified and any notes associated with the members can be printed.

ARCHDIR works by running Archiver with alternate DDNAMES for SYSIN and SYSPRINT. The SYSIN file is created with the following Archiver statements by default:

```
SET VSAM1DD=ARCHIVE
LIST ITEM=(*,*,*,*),NOTES=Y
```

ARCHRPT then reads the output from Archiver selecting the appropriate lines, reformatting the lines as requested, sorting the reformatted lines and printing a report. In addition, ALIAS items are listed in their order and also listed after the items the alias refers to. Notes are printed following the item.

An Archiver index consists of 5 items – member, group, sub group, type and version. ARCHDIR lets you select the sort order of the report.

ARCHDIR V1.0.0				FEBRUARY 02, 2024				PAGE 1						
OPTIONS PASSED				GSMTV, ITEM=(*,*,*,*), NOTE=Y										
GROUP	SUBGROUP	MEMBER	TYPE	VERSION	DCB									
ARCHDATA	COPYLIB	ARCHREC	COB	1	PS	FB	80	3,120	12/04/2023	07:13:51			18	
ARCHDATA	INCLLIB	ARCHDIR	PLI	1	PO	FB	80	3,120	07/17/2023	09:45:14			18	
ARCHDATA	INCLLIB	ARCHREC	PLI	1	PS	FB	80	400	12/04/2023	07:13:50			24	
ARCHUTIL	ARCHDATA	++DEPEND	V00001	1	PS	FB	80	80	07/17/2023	09:45:14			1	
ARCHUTIL	LOADLIB	ARCHUTIL	EXEC	1	PO	U		19,040	09/20/2023	20:01:00			60	
ARCHUTIL	PLIEXTEN	++DEPEND	V00001	1	PS	FB	80	3,120	09/20/2023	20:19:01			1	
ARCHUTIL	SOURCE	ARCHDIR	PLI	1	PO	FB	80	3,120	07/17/2023	09:45:14			232	
ARCHUTIL	SOURCE	ARCHRPT	PLI	1	PO	FB	80	3,120	07/17/2023	09:45:14			180	
ARCHUTIL	SOURCE	ARCHUTIL	PLI	1	PS	FB	80	3,120	09/20/2023	20:01:00			205	
ARCHUTIL	SYSOUT	ARCHUTIL	LISTING	1	PS	VBA	137	1,370	09/20/2023	20:01:00			1,420	
ARCHUTIL	VSAMIO	++DEPEND	V00001	1	PS	FB	80	80	07/17/2023	09:45:15			1	
BANNER	BLKPRT	++DEPEND	V00001	1	PS	FB	80	3,120	07/17/2023	09:45:04			1	
BANNER	EMACROS	++DEPEND	V00001	1	PS	FB	80	3,120	07/17/2023	09:45:04			1	
BANNER	LOADLIB	BANNER	EXEC	1	PO	U		19,040	01/03/2024	13:16:47			7	
BANNER	SOURCE	BANNER	ASM	1	PS	FB	80	3,120	01/03/2024	13:16:47			66	
BANNER	SYSOUT	BANNER	LISTING	1	PS	VBA	137	1,370	01/03/2024	13:16:47			312	
BASALO	EDYNAL	++DEPEND	V00001	1	PS	FB	80	3,120	07/17/2023	09:45:05			1	
BASALO	EMACROS	++DEPEND	V00001	1	PS	FB	80	3,120	07/17/2023	09:45:05			1	
BASALO	LOADLIB	BASALO	NCAL	1	PO	U		19,069	07/24/2023	10:47:51			6	
					ALIAS-BASALO	-LOADLIB			-BASALOP	-NCAL		-	1	
BASALO	LOADLIB	BASALOP	NCAL	1	ALIAS FOR -BASALO	-LOADLIB			-BASALO	-NCAL		-	1	
BASALO	SUBPGM	BASALO	ASM	1	PO	FB	80	3,120	07/17/2023	09:45:05			162	
BASALO	SUBPGM	BASALO	ASM	2	PO	FB	80	6,320	07/20/2023	22:50:34			163	
BASALO	SYSOUT	BASALO	LISTING	1	PS	VBA	137	1,370	07/24/2023	10:47:51			1,196	
BASALOP	LOADLIB	BASALOP	EXEC	1	PO	U		19,069	07/24/2023	10:57:56			136	

Figure 3: Sample ARCHDIR Default Report

Specifying what is to print is done via the EXEC statement PARM. Above is a sample report using all the defaults. To customized the report, there are 3 items that can be passed.

The first item is the order of the data to print. This item consist of 5 characters signifying the order of the columns to be printed. The first character of the column name specifies the order. In the sample, the default item is GSMTV, short for Group, Subgroup, etc

Below is a sample report where the data to print is VMGST

ARCHDIR V1.0.0					FEBRUARY 02, 2024					PAGE 1				
OPTIONS PASSED					VMGST, ITEM=(*,*,*,*), NOTE=Y									
VERSION	MEMBER	GROUP	SUBGROUP	TYPE	DCB									
1	++DEPEND	ARCHUTIL	ARCHDATA	V00001	PS	FB	80	80	07/17/2023	09:45:14			1	
1	++DEPEND	ARCHUTIL	PLIEXTEN	V00001	PS	FB	80	3,120	09/20/2023	20:19:01			1	
1	++DEPEND	ARCHUTIL	VSAMIO	V00001	PS	FB	80	80	07/17/2023	09:45:15			1	
1	++DEPEND	BANNER	BLKPRT	V00001	PS	FB	80	3,120	07/17/2023	09:45:04			1	
1	++DEPEND	BANNER	EMACROS	V00001	PS	FB	80	3,120	07/17/2023	09:45:04			1	
1	++DEPEND	BASALO	EDYNAL	V00001	PS	FB	80	3,120	07/17/2023	09:45:05			1	
1	++DEPEND	BASALO	EMACROS	V00001	PS	FB	80	3,120	07/17/2023	09:45:05			1	
1	++DEPEND	BASICMON	BASALO	V00001	PS	FB	80	80	07/17/2023	09:45:08			1	
1	++DEPEND	BASICMON	BASCORE	V00001	PS	FB	80	80	07/17/2023	09:45:07			1	
1	++DEPEND	BASICMON	BASEXTEN	V00001	PS	FB	80	80	07/17/2023	09:45:07			1	
1	++DEPEND	BASICMON	PDSACES	V00001	PS	FB	80	80	07/17/2023	09:45:07			1	
1	++DEPEND	BASICMON	PLIEXTEN	V00001	PS	FB	80	80	07/17/2023	09:45:07			1	
1	++DEPEND	BASIC1UP	BASALO	V00001	PS	FB	80	80	07/17/2023	09:45:08			1	
1	++DEPEND	BASIC1UP	BASCORE	V00001	PS	FB	80	80	07/17/2023	09:45:07			1	
1	++DEPEND	BASIC1UP	BASEXTEN	V00001	PS	FB	80	80	07/17/2023	09:45:07			1	
1	++DEPEND	BASIC1UP	PDSACFS	V00001	PS	FB	80	80	07/17/2023	09:45:07			1	

Figure 4: Sample ARCHDIR Custom Report

The second parm to ARCHDIR is an ITEM. The general format of item is

ITEM=(*,*,*,*)

This item is passed to ARCHIVER so ARCHDIR does no validation on it. This enables partial report to be printed. For example, you have an Archive with source code in it and you want to only print group items that start with PAY and are type COBOL. The Item to do this would be ITEM=(*,PAY*,*,COBOL,*). Please refer to the Archiver manual for further info about the ITEM

The third item NOTE is also passed to ARCHIVER so ARCHDIR does no validation on it. Please refer to the Archiver manual for further info about NOTE.

ARCHDIR Usage

It is assumed the ARCHIVER is installed in a system library. The full use of ARCHIVER is out of scope of this document.

The JCL member ARCHRPT is a sample of the JCL to run the ARCHRPT. The reporting order is controlled by the exec statement parm. The default parm is 'MGSTV'. (Member Group Subgroup Type Version). The parm must be 5 characters and only the characters M,G,S,T,V in any order is acceptable. Addition options for the Archiver List command can be added after the sort options. For example:

PARM='MGSTV,ITEM=(*,*,*,PL1),NOTE=Y'

This example tells ARCHRPT to sort the report in Member, Group, Subgroup, Type and Version order for only members of type PL1. Notes, if any, should be printed. See the Archiver manual for a full explanation of the options for the LIST command.

The PROC for running ARCHDIR is called ARCHDIR. It has 4 keywords with only the SOUT (sysout) having a default of '*'. Examples:

```
//S1 EXEC ARCHDIR,ARCHIVE='HERCEL.SLIM.ARCHIVE'
//S2 EXEC ARCHDIR,ARCHIVE='HERCEL.SLIM.ARCHIVE',SORT=VMGST
```

ARCHRST – Reset Version Numbers

ARCHRST adjusts version numbers. The best way to describe why this is needed is with an example. Listed below is listing from an ARCHIVE with the items related to a project. Lets assume that version 1 of all the members of the project are production. Subsequent changes result in multiple versions saved in the ARCHIVE while enhancements are being made.

ARCHIVER V6.1.5-- PDS/VSAM ARCHIVE MANAGEMENT SYSTEM 06/06/2024 23:36:41 PAGE 2												
(C) 1999, RICHARD A. FOCHTMAN JR., WOODRIDGE, ILLINOIS												
MEMBER	GROUP	SUBGRP	TYPE	VERSION	DS	RFM	LRECL	BLKL	DATE	TIME	RECORDS	
-SLIM	-SLIM	-LOADLIB	-EXEC	-	5	PO	U	19,069	03/12/2024	23:02:12	88	
-SLIM	-SLIM	-LOADLIB	-EXEC	-	4	PO	U	19,069	03/12/2024	22:39:04	88	
-SLIM	-SLIM	-LOADLIB	-EXEC	-	3	PO	U	19,069	03/07/2024	00:24:36	86	
-SLIM	-SLIM	-LOADLIB	-EXEC	-	2	PO	U	19,069	03/07/2024	00:15:29	86	
-SLIM	-SLIM	-LOADLIB	-EXEC	-	1	PO	U	19,069	02/16/2024	14:52:31	86	
-SLIM	-SLIM	-SOURCE	-PLI	-	5	PS	FB	80	3,120	03/12/2024	23:02:12	1,557
-SLIM	-SLIM	-SOURCE	-PLI	-	4	PS	FB	80	3,120	03/12/2024	22:39:04	1,557
-SLIM	-SLIM	-SOURCE	-PLI	-	3	PS	FB	80	3,120	03/07/2024	00:24:36	1,543
-SLIM	-SLIM	-SOURCE	-PLI	-	2	PS	FB	80	3,120	03/07/2024	00:15:29	1,543
-SLIM	-SLIM	-SOURCE	-PLI	-	1	PS	FB	80	3,120	02/16/2024	14:52:31	1,543
-SLIM	-SLIM	-SYSOUT	-LISTING	-	5	PS	VBA	137	1,370	03/12/2024	23:02:12	5,037
-SLIM	-SLIM	-SYSOUT	-LISTING	-	4	PS	VBA	137	1,370	03/12/2024	22:39:04	5,037
-SLIM	-SLIM	-SYSOUT	-LISTING	-	3	PS	VBA	137	1,370	03/07/2024	00:24:36	5,000
-SLIM	-SLIM	-SYSOUT	-LISTING	-	2	PS	VBA	137	1,370	03/07/2024	00:15:29	5,000
-SLIM	-SLIM	-SYSOUT	-LISTING	-	1	PS	VBA	137	1,370	02/16/2024	14:52:31	5,002
LIST PROCESSING COMPLETED.												
15 TOTAL ITEMS LISTED.												

The ARCHRST process for a given project will generate ARCHIVER control statement so the current version become the requested version. In this example, version 5 is the current test version and version 1 is the current production version. What is desired is to make version 5 the next production version. In other words, version 5 should become version 2. In order for this to happen, intermediate test versions must be deleted. In this example, version 2, 3 and 4 must be deleted and version 5 changed to version 2. Notes are added to version 5 to indicate the deletion of versions 2, 3 and 4.

ARCHRST will accomplish this. ARCHRST always assumes the most recent (highest) version is the one to reset. After execution, a LIST ITEM with NOTE=Y will appear as shown below.

ARCHIVER V6.1.5-- PDS/VSAM ARCHIVE MANAGEMENT SYSTEM 06/11/2024 07:00:41 PAGE 2												
(C) 1999, RICHARD A. FOCHTMAN JR., WOODRIDGE, ILLINOIS												
MEMBER	GROUP	SUBGRP	TYPE	VERSION	DS	RFM	LRECL	BLKL	DATE	TIME	RECORDS	
-SLIM	-SLIM	-LOADLIB	-EXEC	-	2	PO	U	19,069	03/12/2024	23:02:12	88	
1 -->	-SLIM	-SLIM	-LOADLIB	-EXEC	-	-	-	-	-	-	-	
2 -->	VERSION	4	DATED	3/12/2024	22:39:04	-	88	*DELETED*				
3 -->	-SLIM	-SLIM	-LOADLIB	-EXEC	-	-	-	-	-	-	-	
4 -->	VERSION	3	DATED	3/07/2024	00:24:36	-	86	*DELETED*				
5 -->	-SLIM	-SLIM	-LOADLIB	-EXEC	-	-	-	-	-	-	-	
6 -->	VERSION	2	DATED	3/07/2024	00:15:29	-	86	*DELETED*				
-SLIM	-SLIM	-LOADLIB	-EXEC	-	1	PO	U	19,069	02/16/2024	14:52:31	86	
-SLIM	-SLIM	-SOURCE	-PLI	-	2	PS	FB	80	3,120	03/12/2024	23:02:12	1,557
1 -->	-SLIM	-SLIM	-SOURCE	-PLI	-	-	-	-	-	-	-	
2 -->	VERSION	4	DATED	3/12/2024	22:39:04	-	1,557	*DELETED*				
3 -->	-SLIM	-SLIM	-SOURCE	-PLI	-	-	-	-	-	-	-	
4 -->	VERSION	3	DATED	3/07/2024	00:24:36	-	1,543	*DELETED*				
5 -->	-SLIM	-SLIM	-SOURCE	-PLI	-	-	-	-	-	-	-	
6 -->	VERSION	2	DATED	3/07/2024	00:15:29	-	1,543	*DELETED*				
-SLIM	-SLIM	-SOURCE	-PLI	-	1	PS	FB	80	3,120	02/16/2024	14:52:31	1,543
-SLIM	-SLIM	-SYSOUT	-LISTING	-	2	PS	VBA	137	1,370	03/12/2024	23:02:12	5,037
1 -->	-SLIM	-SLIM	-SYSOUT	-LISTING	-	-	-	-	-	-	-	
2 -->	VERSION	4	DATED	3/12/2024	22:39:04	-	5,037	*DELETED*				
3 -->	-SLIM	-SLIM	-SYSOUT	-LISTING	-	-	-	-	-	-	-	
4 -->	VERSION	3	DATED	3/07/2024	00:24:36	-	5,000	*DELETED*				
5 -->	-SLIM	-SLIM	-SYSOUT	-LISTING	-	-	-	-	-	-	-	
6 -->	VERSION	2	DATED	3/07/2024	00:15:29	-	5,000	*DELETED*				
-SLIM	-SLIM	-SYSOUT	-LISTING	-	1	PS	VBA	137	1,370	02/16/2024	14:52:31	5,002
LIST PROCESSING COMPLETED.												
6 TOTAL ITEMS LISTED.												

ARCHRST is controlled by EXEC parms. Six words separated by commas must be passed.

1. Member
2. Group
3. Subgroup
4. Type
5. Desired version
6. Action – must to TEST to display what will be done. COMMIT to actually due the changes.

The parm used for the above example is:

```
PARM='SLIM,SLIM,*,*,2,COMMIT'
```

There is a proc set up. Here is how it is coded

```
/*  
/* RUN ARCHRST  
/*  
//STEP2 EXEC ARCHRST,GROUP=SLIM,MEMBER=SLIM,SUBGRP='*',TYPE='*',  
// VERSION=2,COMMIT=COMMIT,  
// ARCHIVE='HERCEL.SLIMVER.ARCHIVE'
```

It is suggested that a TEST run be executed to verify that what you want done is going to be accomplished. It is also suggested to backup the ARCHIVE before running ARCHRST

ARCHUTIL – Unload/Load Utility for Archives

ARCHUTIL produces a sequential version of an Archive that is suitable for transmission. The sequential file is essentially 80 byte card images suitable for XMIT370 or NJE38 transmission.¹

*** EXEC CARD PARM=LOAD	
ARCHIVE RECORDS READ =	1192
SHORTEST RECORD READ =	70
LONGEST RECORD READ =	32000

Figure 5: Sample ARCHUTIL Report

ARCHUTIL Usage

There are two parts to ARCHUTIL – one to load an archive to a sequential file and the other to unload the sequential file to an archive¹. There are two procs – one to unload and the other to load.

```
//S1 EXEC ARCHUTIU,           Unload the archive
//   ARCHIN='HERCEL.SLIM.ARCHIVE',
//   SEQFL='HERCEL.ARCHEXTN.TEST',
//   SEQVOL=EVOL03
//S1 EXEC ARCHUTIL,           Load the archive
//   ARCHOUT='HERCEL.SLIM.ARCHIVE',
//   SEQFL='HERCEL.ARCHEXTN.TEST'
```

¹ The author of Archiver chose to use the term unload to *add data* to the archive. He also chose to use the term load to *take data* from an archive.