

# Archiver

## Extensions

### Version 1.0.0

Issued February 24, 2024

A package to provide additional functionality to the Archiver package.

Archiver Extension V1.0.0 - A package to provide additional  
functionality to the Archiver package.

Copyright © 2024 Edward G Liss

This program is free software: you can redistribute it and/or  
modify it under the terms of the GNU General Public License as  
published by the Free Software Foundation, either version 3 of  
the License, or any later version.

This program is distributed in the hope that it will be useful,  
but WITHOUT ANY WARRANTY; without even the implied warranty of  
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU  
General Public License for more details.

Please see <https://www.gnu.org/licenses/> for a copy of the GNU  
General Public License.

This document was produced using LibreOffice Writer.

**Table of Contents**

Table of Figures.....3

Introduction.....4

    About the Archiver Dataset.....4

Installation.....5

ARCHCOMP – Compare 2 Archive Indecies.....6

    ARCHCOMP Usage.....6

ARCHDIR – Customized Index Reports.....7

    ARCHDIR Usage.....8

ARCHUTIL – Unload/Load Utility for Archives.....9

    ARCHUTIL Usage.....9

**Table of Figures**

Figure 1: Example IDCAMS statement to create an Archive.....4

Figure 2: Sample ARCHCOMP Report.....6

Figure 3: Sample ARCHDIR Default Report.....7

Figure 4: Sample ARCHDIR Custom Report.....8

Figure 5: Sample ARCHUTIL Report.....9

## 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](http://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
- 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-V1R0M0.zip. This .zip can be downloaded to your PC and the contents extracted.
  - ArchExten-V1R0M0.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.V1R0M0.JCL(CLEANUP) to complete the install.

The RESTxxxx job will create the following datasets:

ARCHEXTN.V1R0M0.ASM	ARCHEXTN.V1R0M0.LOADLIB
ARCHEXTN.V1R0M0.INCLLIB	ARCHEXTN.V1R0M0.NCALIB
ARCHEXTN.V1R0M0.JCL	ARCHEXTN.V1R0M0.PLI
ARCHEXTN.V1R0M0.LISTING	ARCHEXTN.V1R0M0.PROCLIB

ARCHCOMP – Compare 2 Archive Indecies

This utility will compare the indecies of two Archives highlighting matching and unmatching entries. 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 V1.0.0		FEBRUARY 03, 2024			PAGE 0002				
		ARCHIVE 1							
MODULE	GROUP	SUB GROUP	TYPE	VERSION	MODULE	GROUP	ARCHIVE 2 SUB GROUP	TYPE	VERSION
ADEMO	MAP3270	LOADLIB	EXEC	1	ADEMO	MAP3270	LOADLIB	EXEC	1
ADEMO	MAP3270	SOURCE	ASM	2	ADEMO	MAP3270	SOURCE	ASM	2
ADEMO	MAP3270	SOURCE	ASM	1	ADEMO	MAP3270	SOURCE	ASM	1
ADEMO	MAP3270	SYSOUT	LISTING	2	ADEMO	MAP3270	SYSOUT	LISTING	2
ADEMO	MAP3270	SYSOUT	LISTING	1	ADEMO	MAP3270	SYSOUT	LISTING	1
AIDCODES	MAP3270	COPYLIB	ASM	1	AIDCODES	MAP3270	COPYLIB	ASM	1
AIDCODES	MAP3270	COPYLIB	COB	1	AIDCODES	MAP3270	COPYLIB	COB	1
AIDCODES	MAP3270	INCLLIB	PLI	1	AIDCODES	MAP3270	INCLLIB	PLI	1
					ARCHCOMP	ARCHEXTN	LOADLIB	EXEC	1
					ARCHCOMP	ARCHEXTN	SOURCE	PLI	1
					ARCHCOMP	ARCHEXTN	SYSOUT	LISTING	1
ARCHDIR	ARCHDATA	INCLLIB	PLI	1	ARCHDIR	ARCHDATA	INCLLIB	PLI	1
					ARCHDIR	ARCHEXTN	LOADLIB	EXEC	1
					ARCHDIR	ARCHEXTN	SOURCE	PLI	1
					ARCHDIR	ARCHEXTN	SYSOUT	LISTING	1
ARCHDIR	ARCHUTIL	SOURCE	PLI	1	ARCHDIR	ARCHUTIL	SOURCE	PLI	1
ARCHREC	ARCHDATA	COPYLIB	COB	1	ARCHREC	ARCHDATA	COPYLIB	COB	1
ARCHREC	ARCHDATA	INCLLIB	PLI	1	ARCHREC	ARCHDATA	INCLLIB	PLI	1
ARCHRPT	ARCHUTIL	SOURCE	PLI	1	ARCHRPT	ARCHUTIL	SOURCE	PLI	1
					ARCHUTIL	ARCHEXTN	LOADLIB	EXEC	1
					ARCHUTIL	ARCHEXTN	SOURCE	PLI	1
					ARCHUTIL	ARCHEXTN	SYSOUT	LISTING	1
ARCHUTIL	ARCHUTIL	LOADLIB	EXEC	1	ARCHUTIL	ARCHUTIL	LOADLIB	EXEC	1
ARCHUTIL	ARCHUTIL	SOURCE	PLI	1	ARCHUTIL	ARCHUTIL	SOURCE	PLI	1
ARCHUTIL	ARCHUTIL	SYSOUT	LISTING	1	ARCHUTIL	ARCHUTIL	SYSOUT	LISTING	1

Figure 2: Sample ARCHCOMP Report

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=SUMMARY
```

## 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	
BASALO	LOADLIB	BASALOP	NCAL	1	ALIAS-BASALO	-LOADLIB	-BASALOP	-NCAL				-	1	
BASALO	SUBPGM	BASALO	ASM	1	ALIAS FOR -BASALO	-LOADLIB	-BASALO	-NCAL				-	1	
BASALO	SUBPGM	BASALO	ASM	2	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
```



## 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.<sup>1</sup>

*** 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 archive<sup>1</sup>. 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=EVL03
//S1 EXEC ARCHUTIL,           Load the archive
//   ARCHOUT='HERCEL.SLIM.ARCHIVE',
//   SEQFL='HERCEL.ARCHEXTN.TEST'
```

---

<sup>1</sup> 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.