



RTE-A Virtual Code+ (VC+)

Installation Guide

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Printing History

The Printing History below identifies the edition of this manual and any updates that are included. Periodically, update packages are distributed which contain replacement pages to be merged into the manual, including an updated copy of this printing history page. Also, the update may contain write-in instructions.

Each reprinting of this manual will incorporate all past updates; however, no new information will be added. Thus, the reprinted copy will be identical in content to prior printings of the same edition with its user-inserted update information. New editions of this manual will contain new information, as well as all updates.

To determine what manual edition and update is compatible with your current software revision code, refer to the Manual Numbering File or the Computer User's Documentation Index. (The Manual Numbering File is included with your software. It consists of an "M" followed by a five digit product number.)

First Edition	..... Aug 1983	.....
Second Edition	..... Jan 1985	.....
Third Edition	..... Jan 1986	.....
Fourth Edition	..... Oct 1986	.....
Fifth Edition	..... Aug 1987	Rev. 5000 (Software Update 5.0) Programs GRUMP and Security/1000 Added
Sixth Edition	..... Jan 1989	..... Rev. 5010
Seventh Edition	..... Dec 1992	..... Rev. 6000





RTE-A Virtual Code+ (VC+)

The HP 92078A Virtual Code+ (VC+) is an extension package for the HP 92077A RTE-A Operating System with software revision code 2326 or higher. This package extends RTE-A system capabilities to support code and data separation for large programs, shared programs, and recursive and re-entrant code. Also included are multiuser operations, output spooling, LU redirection, and logging error messages to a file.

The features of VC+ are documented in the RTE-A manuals. Refer to the *RTE-A Index and Glossary*, part number 92077-90036, for a description of each manual.

While installing the VC+ software, the system must be regenerated. You must be familiar with RTE-A, the hierarchical file system, and the Primary System. You must also know the differences between using FMGR and CI, and how to generate systems. Before installing the VC+ software make sure that the latest version of the RTE-A software has been installed. Read this manual and refer to the *RTE-A System Generation and Installation Manual*, part number 92077-90034, and the *RTE-A System Design Manual*, part number 92077-90013, for detailed information regarding system generations.

Generating a VC+ System

When the latest version of the RTE-A Primary System is installed and working properly, install VC+ as follows:

1. To create the file space required to install and use the VC+ software, you may need to mount an additional disk LU. Refer to the *RTE-A System Generation and Installation Manual* for details about mounting an additional LU and, if necessary, adding another disk.
2. Restore the VC+ software from the supplied media. The files are located on directory /VCPLUS on the media and should be restored to directory /VCPLUS on the hard disk. Refer to the *RTE-A Primary System Software Installation Manual*, part number 92077-90038, for details on restoring files from media.

Software supplied on CTD tape, magnetic tape, and DDS media is in FST format.

3. List the Software Numbering File, A92078, part number 92078-17999, for a list of software modules. The file will be in directory /VCPLUS.

Compare the list with the software modules in directory /VCPLUS. If you are missing any software modules, contact your local HP representative.

4. Make a copy of the Primary System boot command file (BOOT.CMD). In this manual, the new file is named VCBOOT.CMD. You should read all comments in the file before beginning to modify it.

Note that you must comment out the reference to the program LUCFG. This program is used to configure the system console into the Primary System only. Because you will be generating a new system with LU 1 configured, LUCFG cannot be used.

- a. Copy /SYSTEM/BOOT.CMD to /SYSTEM/VCBOOT.CMD.

```
CI.01> co /system/boot.cmd /system/vcboot.cmd
```

- b. Edit VCBOOT.CMD to change the system and snapshot file names used in the SY and SN commands to VCSYS.SYS and VCSNAP.SNP.

- c. Make the following additional modifications to VCBOOT:

1. Comment out the following line by putting an asterisk in front of it:

```
rp,lucfg,prihp
```

2. Change the line "st,,1" to "st,,2".

5. Make a copy of the Primary System welcome file WELCOME1.CMD. In this manual, the new file is named WELCOME2.CMD.

- a. Copy /SYSTEM/WELCOME1.CMD to /SYSTEM/WELCOME2.CMD.

```
CI.01> co /system/welcome1.cmd /system/welcome2.cmd
```

- b. Edit WELCOME2.CMD to comment out the following line:

```
of prihp id
```

- c. Locate the following line:

```
co /system/primary.snp /system/snap.snp d
```

Change it to the following:

```
co /system/vcsnap.snp /system/snap.snp d
```

6. Create a new generator answer file, called VC.ANS, on directory /SYSTEM from the Primary system answer file /RTE_A/PRIMARY.ANS. Read all the directions in the answer file before beginning to modify it.

```
CI.01> co /rte_a/primary.ans /system/vc.ans
```

The generator answer file must be modified to reference the locations of the VC+ software modules, the libraries to be searched, and the system relocatables. The cartridges or disk volumes containing this software must be mounted before running RTAGN. For example, on a CS/80 disk, LU 17 contains the system relocatables, and directory /VCPLUS contains the VC+ modules and the new RPL file. The modified generator answer file references libraries on directory /LIBRARIES. These libraries, if missing, must be copied from the directory on which they currently reside to /LIBRARIES.

7. Change your working directory and run the RTE-A generator (RTAGN) to create the system, list, and snapshot files for the new system.

```
CI.01> wd /system
CI.01> rtagn vc.ans vc.lst vcsys.sys vcsnap.snp
```

8. If, in addition to installing VC+, you changed the layout of the system, install a new BOOTEX using the newly generated snapshot and system files. Refer to the *RTE-A System Generation and Installation Manual* for information about BOOTEX.
9. Boot your new system by specifying the boot command file for your VC+ system. For example, to boot from your disk with a VC+ boot command file named VCBOOT, enter the following:

```
VCP> %bdcb027vcboot.cmd
```

where *b* is the address of your disk.

Note

Because of the difference in RPL checksum values between the RTE-A Primary system and the VC+ system, any program RP'd in the boot command file causes an RPL checksum warning to be displayed during bootup. The error occurs during every bootup until the programs are relinked using the VC+ system snapshot file.

It is not necessary to relink other programs and system utilities for the VC+ system. However, the first time the program is run, an RPL checksum warning is displayed. The warning message does not occur the second time the program is run and the program works correctly.

Installing the VC+ Software

After your RTE-A system with VC+ is booted, you need to load the VC+ versions of various programs. These programs should eventually be placed on directory /PROGRAMS.

To install VC+ software, proceed as follows:

1. Mount the disk volume containing the VC+ software.

```
CI.01> mc <lu>
```

2. Change your working directory to /VCPLUS.

```
CI.01> wd /vcplus
```

3. The following CI variables may be set via the "SET" command prior to executing the installation command files:

\$RTE_SLINK If this variable is set to "T", symbolic links are to be installed. Within VC1.CMD, this causes the version of \$BGCDS that supports symbolic links to be installed. The default is to install the version of \$BGCDS that does not support symbolic links.

- \$RTE_LIBS** May be set to the directory name where libraries are to be copied. The default is “/LIBRARIES”. Note that this does not cause LINK to search this directory when loading programs, it only allows an alternate directory structure to be used for the target system.
- \$RTE_CATS** May be set to the directory name where NLS catalogs are to be copied. The default is “/CATALOGS”.
- \$RTE_HELP** May be set to the directory name where help files are to be copied. The default is “/HELP”.

4. Link the programs supplied with RTE-A VC+. You can use two command files, VC1.CMD and VC2.CMD to link these programs.

```
CI.01> crdir /vcprogs
```

```
CI.01> tr vc1.cmd,/system/vcsnap.snp,/vcprogs,/rte_a,/vcplus,,update,vc2
```

Command file VC1.CMD requires four parameters:

- a. the name of the VC+ snapshot file,
- b. the name of the directory (which must already exist) on which the programs should be placed,
- c. the name of the directory on which the RTE-A relocatables can be found, and
- d. the name of the directory on which the VC+ relocatables can be found.

The third parameter is used to modify temporary copies of the CI.LOD and CIX.LOD link command files, CI_TEMPLOD and CIX_TEMPLOD respectively, because some of the files needed are part of the RTE-A product, and some are part of the RTE-A VC+ product. Thus, it is important that no files already exist with the names of CI_TEMPLOD and CIX_TEMPLOD.

The fifth parameter is optional. If supplied, it must be the word “ABORT” and means to abort the transfer file if an error is encountered during linking. If not supplied, errors in linking will be noted, but the transfer file will continue.

The sixth parameter is optional. If the word “UPDATE” appears here, VC1 will update the /LIBRARIES, /CATALOGS, and /HELP directories.

The seventh parameter is optional. If the value “VC2” appears here, VC1 will transfer to the VC2.CMD file to load more programs.

5. The programs loaded by the two command files are

VC1.CMD:

ci.run }
cix.run } Command Interpreter Programs

cialogof.run }
grump.run }
logon.run } Multiuser Programs
prompt.run

sectl.run }
stgen.run } Security Programs



VC2.CMD:

cmplt.run }
resize.run }
drtr.run }
dl.run }
lns.run }
cp.run }
mv.run }
rm.run }
ls.run }
ftpls.run } Utility Programs
touch.run }
whosd.run }
path.run }
outpt.run }
restr.run }
smp.run }
sp.run }
spget.run }

killses.run }
seslu.run }
rinfo.run }
sinfo.run } Multiuser Programs

The versions of CI and CIX loaded by VC1.CMD are shareable programs. CI must have the name CI.RUN on directory /PROGRAMS to ensure that PROMT can RP CI as CM. CIX must have the name CIX.RUN to ensure that CI will be able to schedule it.

6. Copy the non-CDS .RUN files into /VCPROGS without the D option, so that CDS versions remain intact.

```
CI.01> co /programs/ /vcprogs/
```

Ignore any "File already exists" errors.

7. Set WD to /PROGRAMS. Rename /PROGRAMS to /PROGRAMS_NONVC and /VCPROGS to /PROGRAMS. If you originally created /VCPROGS on a different LU, make sure your BOOT.CMD file (VCBOOT.CMD) mounts the new /PROGRAMS LU before you RP the programs.
8. If you wish to preserve the non-CDS system, edit the non-CDS BOOT and WELCOME files to RP programs from /PROGRAMS_NONVC. You may wish to rename /PROGRAMS to /PROGRAMS_VC and /PROGRAMS_NONVC to /PROGRAMS in the non-CDS WELCOME file.
9. Edit the new welcome file (WELCOME2.CMD) to modify it as follows:

- a. RP PROMT and enable terminals with PROMT as the primary program instead of CI.01. For example:

```
rp promt
*
cn 1 20b promt
cn 68 20b promt
```

- b. Initialize the spool system on bootup by adding the SP IN command to the welcome file. (This modification is optional.)
- c. Add the following line to your welcome file:

```
rp restr
```

This RP command makes it possible to recover if your system should run out of System Available Memory (SAM). (This modification is optional.)

- d. To improve system performance you can:

1. Run PROMT with the -1 option to initialize LOGON and CM before any system requests for them are received. This is done by adding the following line after you RP PROMT:

```
ru promt -1
```

2. RP CI, RP EDIT and RP any other frequently used programs with the D option to create proto IDs in XSAM for them. This is done by adding the following lines to your welcome file:

```
rp ci,, D
rp edit,, D
```

Note that to force the system to use the proto ID instead of creating one from scratch, the program must be run without the path name specified. Thus when creating user.group account definitions in GRUMP specify RU CI at the startup command prompt, not RU CI.RUN::PROGRAMS, if you want the RP'ed CI to run at logon.

10. Run the Group and User Management Program, GRUMP, to create group and user accounts. The first time GRUMP is run, it prompts for the LU of the disk where the directory /USERS is to be placed. Be sure to place directory /USERS on a disk volume that is mounted at bootup or in the welcome file.

After you enter the LU number, the GRUMP program creates all the other necessary multiuser files on /USERS and automatically begins to create the first user. This user is named MANAGER, and is given superuser capability. In most cases, MANAGER is the only superuser in the system and is responsible for creating other users.

Multiuser programs are described in the Multiuser and Spooling Setup chapter of the *RTE-A System Generation and Installation Manual*, part number 92077-90034, and the Multiuser Account System chapter of the *RTE-A System Manager's Manual*, part number 92077-90056.

Security programs are described in the Resource Protection chapter of the *RTE-A System Manager's Manual*. Spooling is described in the chapter entitled Using the System of the *RTE-A User's Manual*, part number 92077-90002.

11. Reboot the new system, and log on.

```
VCP> %BDC27VCBOOT.CMD
```

