HD14

North American Response Center

HP 3000 APPLICATION NOTE #37

AUTOINST

(Trouble-free Updates)

RESPONSE CENTER APPLICATION NOTES

HP 3000 APPLICATION NOTES *are published by the North American Response Center twice a month and are distributed with the Software Status Bulletin. These notes address topics where the volume of calls received at the Center indicates a need for addition to or consolidation of information available through HP support services.*

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This Application Note is an update of a paper distributed at the INTEREX Users Group Conference.

INTRODUCTION

AUTOINST was first introduced with T-MIT (G.01.00) and has been enhanced several times since its release. It was developed to enable customers to install their own operating systems without requiring the services of a Software Engineer on site. AUTOINST manages the installation process by restoring files, streaming jobs, and setting up the accounting structure and environment for installation. It then runs a program that creates a cold load tape with all the SL and system program changes necessary to run MPE and purchased software.

The material in this Application Note was prepared based on the UB-delta-1 (G.A2.01) version of AUTOINST. The Application Note is divided into three parts. PART I is an overview of the AUTOINST process, PART II is a set of recommendations for preparing for an update, and PART III is a list of common AUTOINST errors and recommended recovery procedures.

PART I

AUTOINST OVERVIEW

The following is a brief explanation of the steps performed by AUTOINST during its execution, and is included here for those who want to understand more about the update process. No understanding is necessary to successfully complete the procedure; novice users may want to limit their reading to Part II of this document.

As AUTOINST successfully completes each step, it passes this information to a disc file (HPINSTFL.PUB.SYS). If AUTOINST aborts or is terminated for any reason, it will resume after the last successfully completed step (once it is restarted), based on the information in HPINSTFL. If it is necessary to repeat a step or jump forward in the process, HPINSTFL can be modified by using the MPE editor. HPINSTFL is created when AUTOINST is invoked. If the HPINSTFL file is deleted, either accidentally or intentionally, AUTOINST will build the file and start from the beginning when run again.

Note that the steps below only include the steps performed by the AUTOINST program. They do not include the update from the FOS tape before running AUTOINST or the startup from the new cold load tape after the program has finished.

STEPS IN THE AUTOINST PROCESS

1. ENVIRONMENT IS SET

   This step is invoked each time the program is run. In this step, AUTOINST does the following:

   - Reserves enough space on ldev 1 to do a COLDSTART by building a file which takes up 17,000 contiguous sectors of disc space.

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- Sets the outfence to 14, the jobfence to 8, and the limits to 1,1.

- Builds the accounts used for installation if not present; account groups and special capabilities are added in step 3.

2. PROGRAM AND DATA FILES FROM THE FOS TAPE ARE RESTORED

Using an indirect file brought in with the update, AUTOINST restores files from the FOS tape and then determines if the restore completed successfully. The restore listing is copied to a permanent file FOSLIST. This file may be examined for errors. Errors during this step will result in an INSTERR #5.

3. ACCOUNTING STRUCTURE IS CREATED

AUTOINST streams a series of jobs that create the accounting structure used in the remainder of the installation. It checks to see if each job completed successfully. If any jobs are missing or terminate abnormally, this step will fail with an INSTERR #4.

Beginning with the UB-delta-4 (G.02.04) and V-delta-1 (G.03.01) versions of MPE, this step is postponed until after the files from the SUBSYS tape have been restored.

4. FILES FROM SUBSYS TAPE ARE RESTORED

AUTOINST restores @.@.@ from the SUBSYS tape. The restore listing is copied to a disc file named SUBSLIST. Errors during this step will result in INSTERR #6.

5. INSTALLATION OF NON-INSTALLABLE PRODUCTS ARE CONSIDERED

AUTOINST checks to see if file sets corresponding to different special products (for example, office products, HPTREND) are on the system. It then prints out a message indicating the products that must be installed manually. If the user indicates AUTOINST should stop to install the products, AUTOINST will terminate to allow this.

Before terminating, AUTOINST updates the HPINSTFL file and puts a "1" in the space for "special products installed". This flag indicates that the HPPL@ accounts, which hold the installation files for these products, should be purged when AUTOINST has finished its last step. For this reason, all products must be installed if the option to stop is chosen. Alternatively, the HPINSTFL file may be edited by the user to indicate that special products were not installed (replace the "1" with a "0") so that the accounts are not purged.

Beginning with the UB-delta-3 (G.02.03) and V-MIT (G.03.00) versions of MPE, an additional step precedes this one. In the additional step, some

installation jobs are automatically streamed by AUTOINST. The user does not receive any messages about special products which are automatically installed.

NOTE: Only a small number of products are separately installed. Most products (such as, languages) are inserted directly into the system SL by AUTOINST. Installation instructions for the separately installed products may be found in the update manual.

6. THE JOB DUMP IS CREATED

Using another program (INSTALL.PUB.SYS), AUTOINST checks the group USL.SYS for USL files to be inserted into the system SL. It uses information about the files in this group to build a job stream (DUMP.PUB.SYS) which adds or replaces segments in the system SL as appropriate. The program also creates the Diagnostic Utility Subsystem (DUS) tape for the system.

7. THE JOB DUMP IS STREAMED AND AUTOINST TERMINATES

AUTOINST streams the job created in the previous step. This job creates a new COLDLOAD tape containing the new system SL and files in PUB.SYS. Because of the length of time required to add or replace SL segments, the job can run from a few minutes to over 2 hours (depending on the number of products that were purchased) before it begins to write to the tape drive.

Purchased products (such as, languages, datacomm products) will only be available after this tape has been created and a COLDSTART has been done from this COLDLOAD tape.

When the job is finished and the COLDLOAD tape has been created, AUTOINST cleans up some of its utility files, sets the jobfence and outfence back to 7, issues a message to do a COLDSTART with the new COLDLOAD tape, and terminates.

PART II

PREPARING FOR AN UPDATE

With proper preparation, many of the problems encountered during installations may be avoided. The following is a list of suggestions to be used in preparing for the update. Users should also check the update manual included with the update tapes for additional recommendations. To prepare for an installation, you should:

1. Check to make sure all materials are present -- update manual, FOS tape, and SUBSYS tape.

2. Always do a full backup immediately before the update.

3. Check the packing list to make sure that the tape includes all special products (including disc caching) used on the system. FOS products (IMAGE, VPLUS, KSAM) will not be listed; these are included automatically. If products have been added to the system since the last update (for example: the product was sent on a special tape), make sure these are included on the packing list. If any products are missing, do not proceed with the installation. Contact your account SE or the local Hewlett Packard sales office immediately.

4. Purge all installation accounts which are used only by the installation process. This includes all the HPPL@ accounts and, unless they are used at your installation, the ITF3000 and SUPPORT accounts. If the HPOFFICE and/or RJE accounts are on the system, but contain no files, they should be purged as well. By performing this step, the likelihood of running into an error during the creation of the installation accounting structure is greatly decreased..

5. Following the instructions in the update manual, remove any passwords or UDCs which could interfere with the update process. Some versions of AUTOINST also require that certain users have AM capability. The update manual will included a list of these users if this step is required.

    If step #4 above (purging the installation accounts) is performed, this task will be fairly simple, since very few of the affected accounts will be present on the system. Note that the system will not be secured once the passwords have been removed. If this is a concern, disconnect the modems during the update.

6. Remove any disc space limitations on accounts affected by the update. (SYS,TELESUP,HPOFFICE,HPPL@). Use the REPORT command to determine if an account group has limits on the amount of disc space it may use. To remove the disc space limitations, use the ALTACCT or ALTGROUP commands with the "FILES=" (no value given) parameter.

7. As indicated in the update manual, HPINSTFL and FILELIST.PUB.SYS must be purged, SYSSTART renamed, and various other house cleaning activities performed. *DO NOT bypass these instructions*. The renaming of the SYSSTART file and removal of UDCs in SYS is particularly important because these files often perform tasks which could prevent AUTOINST from restoring new versions of products.

8. As indicated in the manual, make sure there are at least 17,000 sectors of contiguous disc space on ldev 1. If not, recover lost disc space and use VINIT/CONDENSE to free up disc space. If necessary, purge files until enough space is obtained. NOTE: this step only ensures that enough disc space exists on ldev 1 to perform an UPDATE or COLDSTART. It does not ensure that enough space exists to install all files on the FOS and/or SUBSYS tapes.

9. The system must also have enough space to restore all files on the FOS and SUBSYS tapes. The exact amount of disc space required will vary according to the size of the files being restored, the size of the "useful" chunks of disc space on the system, and the number of products on the SUBSYS tape. If the system is low on disc space, user files may be stored to tape and

purged before attempting the update in order to increase the likelihood of a successful update.

10. Because the update process may create a large number of utility groups and accounts, up to 1000 sectors (up to 600 sectors on UB-delta4 (G.02.04) and later versions of MPE) of directory space may be used during the update. Check SYSDUMP to determine if the difference between the minimum directory size and configured directory size is at least this value. If not, available directory space should be increased before attempting the update.

There are two ways to increase available directory space. The first is to increase the configured directory space on the system, which requires a reload. To increase the size of the directory during a reload, create a SYSDUMP tape with the increased directory size and start the reload from that tape.

The second is to increase available directory space is to purge some accounts from the system. These may be rebuilt after the update is completed by using the "CREATE=ACCT,GROUP,CREATOR" option in RESTORE when restoring the files in these accounts from the backup tapes. Keep in mind, however, that accounts, groups and users created in RESTORE will have only the default capabilities and access structure. If this is a problem, BULDACCT (an unsupported utility found in the TELESUP account) may be run before purging the accounts to generate job streams to rebuild the accounts with all their original capabilities after the update.

Purging files without purging the account structure will also free up directory space, but files take up much less room in the directory than account or group structures and a large number of files must be purged to have much effect on the directory size.

11. Have a fairly new tape handy to create the new COLDLOAD tape. This tape should have been used a few times to make sure it is good. If the COLDLOAD tape is bad, the entire update process may have to be repeated.

12. If there have been recent hardware problems with the tape drive or system, do not proceed with the update until these problems have been resolved. Clean the heads on the tape drive before the update and before creating the COLDLOAD tape.

PART III

COMMON AUTOINST ERRORS AND RECOMMENDED RECOVERY

The following is a list of some of the more commonly encountered AUTOINST errors and steps that may be taken to recover from them.

INSTERR #2 - Not enough disc space on ldev 1.

Whenever AUTOINST is invoked, it reserves enough space on ldev 1 to perform a successful COLDSTART from tape. This error indicates that it could not find this space. 17,000 sectors of contiguous disc space

must be made available to continue. As explained in the update manual, this space may be recovered by performing a COOLSTART with the recover lost disc space option (do NOT attempt an UPDATE or COLDSTART) and by storing to tape and then purging files until enough space exists on ldev 1. The space may be condensed into a contiguous block by using the VINIT subsystem (:VINIT) with the COND 1 option.

INSTERR #4 - Creation of the accounting structure has failed.

This error may be caused by failure to run AUTOINST from the system console. If another terminal was used for this purpose, logoff that session and restart AUTOINST from the console. If this is not the problem, determine the cause of the failure as follows:

1. Compare the completion messages which have been issued to the console with the list of messages in the update manual. Any missing completion messages indicate jobs which did not terminate normally.

2. Use the logon/logoff console messages to find the job numbers corresponding to any jobs which did not complete, and use SPOOK5 to examine the $STDLISTs for these jobs and determine which error(s) caused the job(s) to abort. Do not worry about warning messages or errors in statements which were preceded by CONTINUE statements.

3. Based on the error(s) which caused the job(s) to abort, fix the problem and continue. The following is a list of common errors and their corrective actions:

    - "MISSING PASSWORD. (CIERR 1444)" --

      A password was left on the account, user, or group for the job which is being streamed by the job being examined. Remove the offending password(s) and run AUTOINST again.

    - "ACCOUNT EXISTS, USER NAME DOESN'T. (CIERR 1438)" --

      The account existed previous to the update, but the user which it expects to find as account manager is missing. Create the user in the account and make sure to give it AM, IA, BA, ND and SF capabilities. Run AUTOINST again.

    - "THIS COMMAND REQUIRES ACCOUNT MANAGER (AM) OR SYSTEM MANAGER (SM) CAPABILITY. (CIERR 958)" --

      The account existed previous to the update, but the user which it expected to find as account manager does not have AM capability. Sign on as manager of the account in question and do an ALTUSER on the signon user in the job and give it AM, IA, BA, ND and SF capabilities. Run AUTOINST again.

    - "DIRECTORY OUT OF SPACE -- SYSTEM PROBLEM. (CIERR 915)" --

      The system cannot create any more directory entries for the group/account it is trying to build. This is a serious problem because

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increasing the amount of directory space may require a reload. See part 10 of the section "PREPARING FOR AN UPDATE" for suggestions on increasing the amount of directory space available. If you choose to stop the update at this point and complete it after you have corrected the problem, you may go back to the old operating system by following the directions under "RETURNING TO YOUR FORMER OPERATING SYSTEM" at the end of this section.

INSTERR #5 - FILES FROM FOS TAPE NOT SUCCESSFULLY RESTORED

AUTOINST was not able to restore all the files it expected from the FOS tape. Go into EDITOR, text in the file FOSLIST.PUB.SYS, and find the files that were not restored (hint: give the command 'C "NOT" TO "NOT" IN ALL' to get a list of those files that were not restored). The problem may be one of the following:

- "I/O ERROR READING UNLABELED TAPE" and other transmission errors --

    Clean the tape heads, check and tighten the cabling to the disc drives, and run AUTOINST again to repeat this step. If only one or two files are missing, attempt to restore the files manually, then adjust the current status in HPINSTFL to indicate that the step completed successfully. If the problem appears to be a hardware error on the tape drive, correct the problem before continuing with the installation.

    If the same file continues to cause the error, the tape may be damaged or defective. If you recognize the file as being unnecessary at your site, edit the current status in HPINSTFL and run AUTOINST again to continue at the next step. Otherwise, restore the system back to its original state before the update (see "RETURNING TO YOUR FORMER OPERATING SYSTEM" at the end of this section) and contact your Account SE or local HP Sales office to obtain a new tape.   Defective tapes should be returned to HP for analysis.

- "OUT OF ACCOUNT DISC SPACE" or "OUT OF GROUP DISC SPACE" --

    The account existed before the update with a limit on the amount of disc space it could occupy. Use ALTACCT and ALTGROUP with the ";FILES=" option to remove disc space limitations on the account and its groups. Run AUTOINST again to redo this step and continue.

- "OUT OF DISC SPACE" --

    There is not enough disc space on the system to restore the file(s). Purge files from accounts not related to the update (assuming there is a full backup of the system) until there is enough of disc space, and run AUTOINST again.

- "NOT ON TAPE" --

    This indicates that the FOS tape does not match the indirect file restored when the system was updated. In other words, the update was

not done from the same tape that is on the tape drive, or the update step was forgotten.

If the wrong tape is on the drive, put the correct tape on and run AUTOINST. If the update was not done before running AUTOINST, or if the wrong FOS tape was used, purge HPINSTFL.PUB.SYS, update from the correct FOS tape, and run AUTOINST to start the process again.

- "FILE IS LOADED" --

    The old version of this file has been allocated and cannot be overwritten. Use the DEALLOCATE command to deallocate the file(s) and run AUTOINST again to repeat this step and continue.

INSTERR #6 -- SUBSYS TAPE WAS NOT SUCCESSFULLY RESTORED

AUTOINST was not able to restore all the files on the SUBSYS tape. Run EDITOR, text in the file SUBSLIST.PUB.SYS, and find the files that were not restored (hint: give the editor command 'C "NOT" TO "NOT" IN ALL' to get a list of only those files that were not restored). The problems and remedies are the same as those for INSTERR #5 above.

INSTERR #8 -- COLD LOAD TAPE NOT SUCCESSFULLY CREATED

Use SPOOK5 to examine the spoolfile for the job "DUMPJOB". The most common problems encountered during this step are I/O errors or other errors writing to tape. Clean the tape heads again, check the tape drive cabling, mount a different tape on the tape drive, and run AUTOINST again.

OTHER ERRORS/PROBLEMS

- Wrong tape mounted for SUBSYS restore --

    If any tape is mounted when AUTOINST checks the tape drive to restore from the subsys tape, AUTOINST will automatically start reading the files from that tape. If the error is detected before the restore has completed, break out of AUTOINST, mount the correct tape, and run AUTOINST again. If the restore has already completed, break out of AUTOINST, text the HPINSTFL file into the MPE editor, change the "current status" under "progress check point" to the previous step, and run AUTOINST again.

- "NONEXISTENT PERMANENT FILE STORCHK" --

    This error occurs during the FOS or SUBSYS restore and indicates that AUTOINST was unable to save a temporary file on disc in the group PUB.SYS. This usually indicates that SAVE access has been taken from PUB.SYS or the group is out of file space. Use LISTDIR5 to determine the cause of the problem, correct it, and rerun AUTOINST.

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- Repeated tape requests --

    An operating system error sometimes causes AUTOINST to repeatedly send
    tape requests to the console. If this error occurs, press break to stop
    AUTOINST, purge all output spoolfiles, COOLSTART the system, and run
    AUTOINST again.

RETURNING TO THE FORMER OPERATING SYSTEM

For whatever reason, it may be necessary to discontinue the update and return to the former operating
system. The following guidelines should help accomplish this.

- If the update was from a pre-V/E system (such as Q-delta-2, V/P) and
  PCONVERT was run before beginning the update, see the note at the end of
  this section before attempting a COLDSTART.

- If you discontinued the update before AUTOINST restored any files from
  the FOS tape, COLDSTART from the latest COLDLOAD tape (or the first tape
  of the most recent backup). Using the system update manual, restore the
  system to its original state (passwords, UDCs).

- If the update was discontinued after files were restored from the FOS or
  SUBSYS tapes, perform the above step and then restore @.@.SYS,
  @.@.SUPPORT, @.@.HPOFFICE, @.@.ITF3000, and @.@.RJE (if these are
  present) from the last full backup. Purge the HPPL@ accounts.

- SPECIAL NOTE FOR THOSE RETURNING TO PRE-V/E SYSTEMS:

    If you were updating from a pre-V/E (G.A0.00) system and ran PCONVERT
    before the update, run PCONVERT again to convert your tables back to the
    pre-V/E table structure. COLDSTART from your last COLDLOAD tape (or the
    first tape of the most recent backup) and continue as above. *DO NOT RUN
    PCONVERT IF YOU DID NOT RUN IT TO BEGIN THE UPDATE PROCESS. IF YOU RUN
    PCONVERT AND ARE NOT GOING BACK TO A PRE-V/E SYSTEM, YOU WILL FORCE THE
    SYSTEM INTO A RELOAD.*

BACK ISSUE INFORMATION

Following is a list of the Application Notes published to date. If you would like to order single copies of back issues please use the *Reader Comment Sheet* attached and indicate the number(s) of the note(s) you need.