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Using Compaq Batch Scheduler with Enterprise Volume Manager

Abstract: Compaq, the industry leader in open storage system solutions adds high performance fibre channel storage management functionality through the Compaq SANworks™ Enterprise Volume Manager (EVM). Combined with Compaq Batch Scheduler provides a way to create copies of production volumes and dynamically migrate them to any host on the EVM storage network.

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Using Compaq Batch Scheduler with Enterprise Volume Manager
Deployment prepared by Storage Product Division

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Enterprise Volume Manager

Through the Enterprise Volume Manager (EVM) graphical interface, users can perform complex controller-based clone or snapshot operations with a single click. The rapid controller-based clone and snapshot replication methods provide point-in-time unit copies that can be used in parallel processes to minimize downtime for backups and data migration. EVM also includes a CLI Script Window that provides experienced IT professionals with web browser interface for command level control of the subsystem.

Systems Supported

The Enterprise Volume Manager currently supports:

- Windows NT/Intel
- HSG80 controller, switch and hub configurations
- ACS, and ACS 8.5F, 8.5S, 8.5P

Note: Windows NT/Alpha, Sun Solaris and Tru64 Unix will be supported in future releases of the Enterprise Volume Manager.

Features

- Optimizes system resources—Provides automated job scheduling.
- Reduces time and training—Easy-to-use visual interface provides drag and drop functionality for job scheduling and batch job scripting.
- Integrates fully with Windows NT—“Designed for BackOffice” logo-certified.
- Supports multi-platform environments—Schedules and jobs are launched and managed from a Server running Windows NT, but the Client can run on Windows NT, Windows 95, Windows 98, UNIX, or OpenVMS.

Compaq Batch Scheduler

Compaq Batch Scheduler (CBS) is an enterprise job scheduler that brings sophisticated, mainframe-caliber-automated batch processing. It provides automated, unattended job scheduling, allowing full use of your computing power. The CBS is designed to start batch files based on a calendar set by the user. While it can be used for many purposes, we shall limit this discussion to the scheduling and launching of Enterprise Volume Manager jobs. As it launches batch files, the specifics of which EVM job(s) will be run is contained in the batch file. The CBS simply launches a batch file by the name listed in the scheduler.

Components

Compaq Batch Scheduler has six basic components:

- The Automated Process Scheduler (APS) is the engine that launches all of the schedules. Smaller implementations of Compaq Batch Scheduler will need only one APS. For larger implementations, it may be advisable to have multiple APSs.
- The Sentinel controls communications between all Compaq Batch Scheduler components and runs on every computer that launches or runs schedules.
- The Administrator provides tools for the network administrator to configure the APS, to define users and set user privileges, to create machine lists and classes, and to define business calendars and calendar templates.
- The Monitor provides the window for creating and monitoring jobs and schedules.
- The Coordinator is the visual tool for scheduling jobs.
- The Script is a fully visual tool that allows easy creation of batch jobs

Benefits

- Creates schedules of jobs to launch automatically at defined times
 - Save total labor costs including at night and at remote sites
 - Fully utilize existing computer resources
- Provides graphical interface for job creation and scheduling
 - Easy-to-use drag-and-drop functionality
 - No need to enter commands to MS-DOS
- Designed for Windows NT
 - Fully integrated with Windows NT
 - “Designed for BackOffice” logo-certified
 - Native Windows NT code, not ported from UNIX
- Supports multi-platform environment
 - Launch jobs from Windows NT, Windows 95 or Windows 98
 - Run jobs on Windows NT, Windows 95, Windows 98, UNIX, or OpenVMS
 - SNMP Traps to Tivoli, HP OpenView, and others

Batch Files

There are two occasions for using batch files:

1. To start an EVM job from CBS which clones or creates a snapshot of one or more data volumes.
2. To start a backup utility from EVM which starts the backup process of saving the data to tape.

For any total backup operation, two batch files will be required. First, the scheduler starts the clone/snapshot operation and when that is completed, the second batch file will start the backup utility. This discussion will cover the first type in detail, as it is required for CBS.

EVM Batch File

This file is entered in the CBS as the scheduled job to run. It will run EVM undo clones/snapshot jobs to eliminate clones previously created by the EVM job to be called and then start any EVM clone/snapshot job(s) defined in the batch file. This file is required if the schedule is to be automated. It also provides monitoring of the job and can report failures. There are two EVM sample batch files provided and are located in *compaq\swevm\bin\sample batch files\start EVM batch files*.

CBSsamp1.bat

Provides an example for starting a single EVM job from CBS. This is the simplest means of running a scheduled job. A single EVM job to create clones or snapshots is started.

CBSsamp2.bat

Provides an example for starting multiple EVM jobs. This is used when multiple tape drives are used to backup multiple clones/snapshots separately. This is an ideal method for use when databases such as Microsoft Exchange or Oracle and each table space is separated onto a different storageset. Each sequential EVM job calls a different backup utility job using different tape drives. The result is that multiple backup tape operations can occur simultaneously and reduce the overall backup time. As Legato does not provide a means to backup data to tape ARRAYS, this is the optimum solution for it. It is excellent for the other backup utilities also.

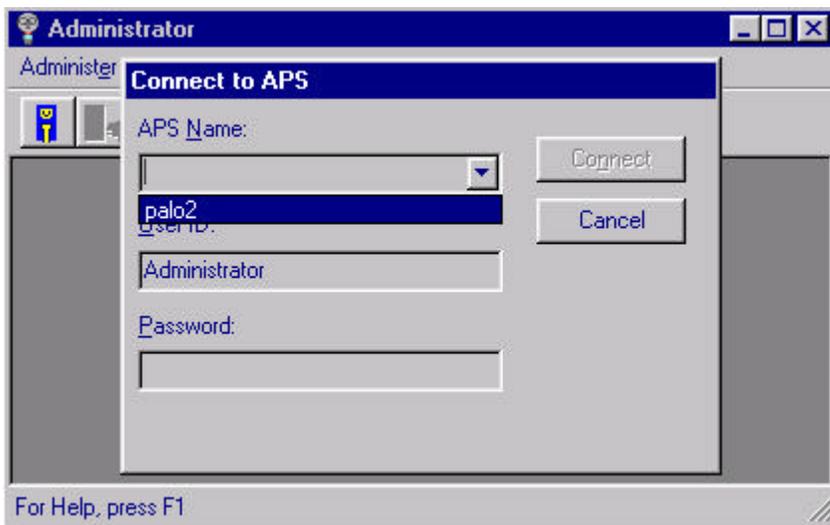
CBS Job Configuration:

Detailed documentation is included with the CBS and its included help file is also quite specific. This procedure is the minimum required steps to function with ESM. For information such as paging or e-mail notification of status, please refer to either of the above documentation.

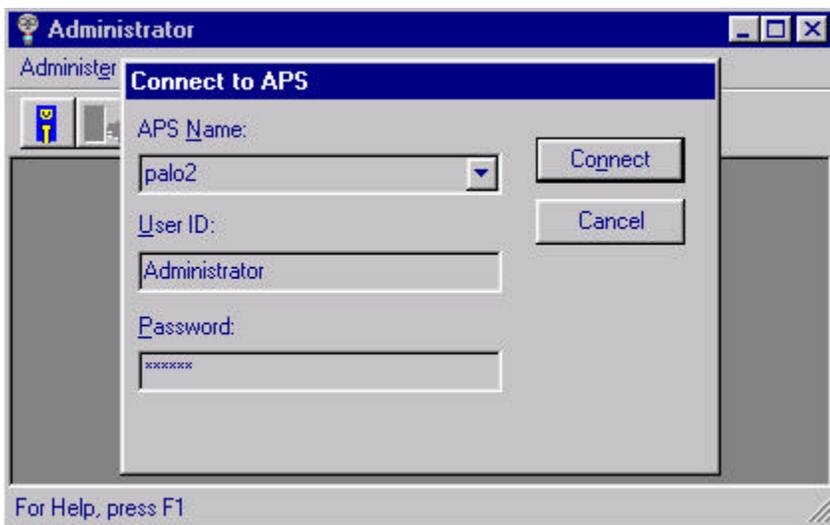
Note: Before starting this procedure, you should fill out the EVM Planning sheet (with attached instructions) to avoid confusion and mistakes.

1. With CBS installed on the server, start the CBS Administrator and the monitor from the start menu.
2. In the Administrator, Select *Add* to include the new server.
3. The Connect to APS menu will appear. In the APS Name field, click on the down arrow , to view choices. Make selection.

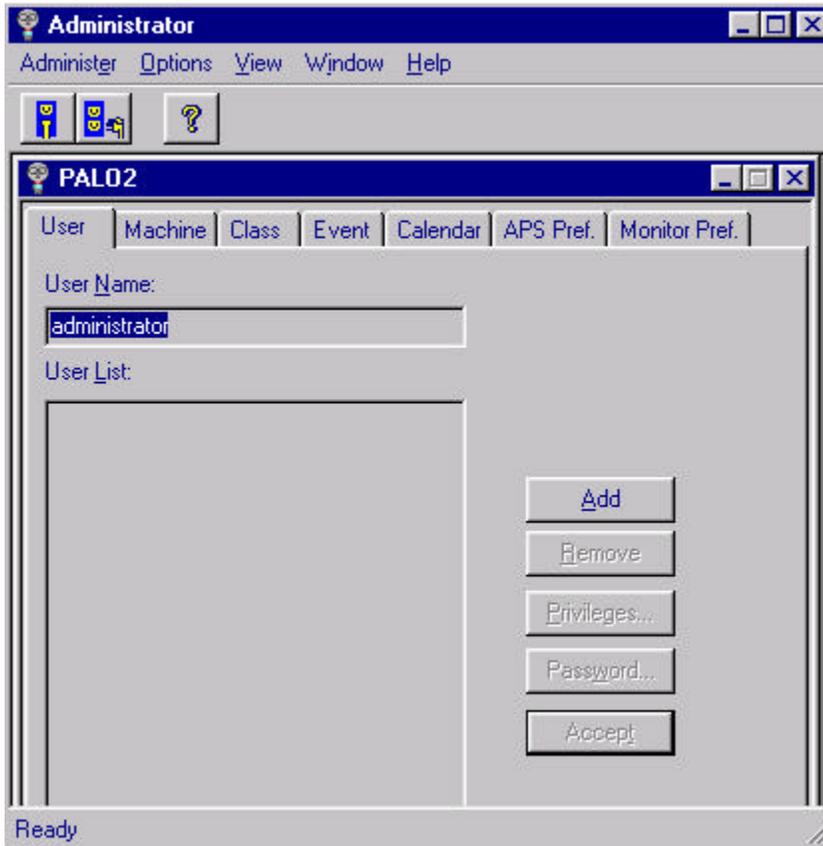
4. Use the default *Administrator* as the User ID.
5. Create a password to be used by the Administrator log-on. You can change this password or set passwords for other logons later.



6. Click on the *Connect* button.



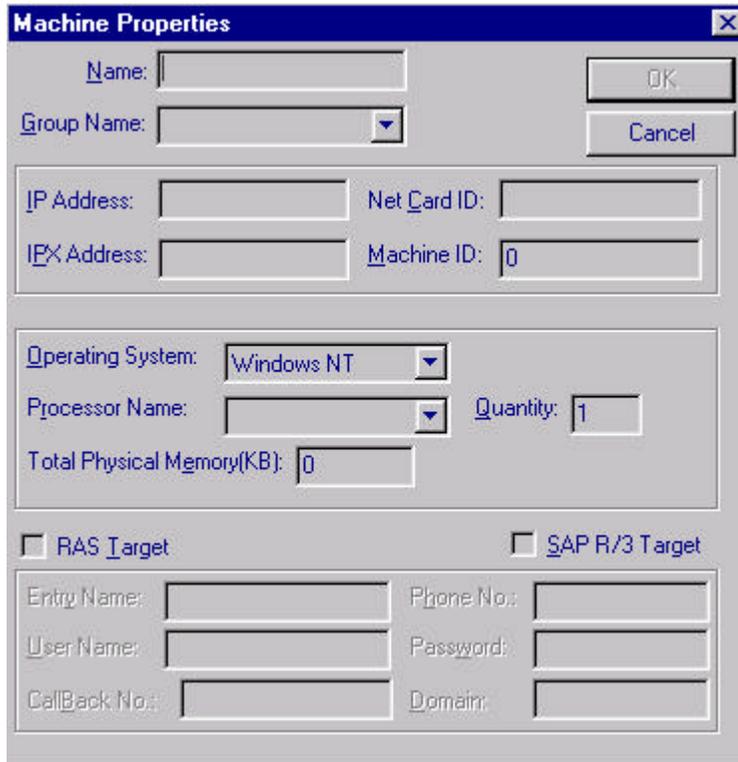
7. Once the connection is made, the following APS menu will appear with the heading of the APS (SERVER) you have selected. Use the default User Name *Administrator*.



8. Select the *Machine* Tab.
9. Click on the *New Machine* button.



10. The Machine Properties Menu will pop up.



The image shows a 'Machine Properties' dialog box with the following fields and controls:

- Name:** Text input field.
- Group Name:** Dropdown menu.
- OK** and **Cancel** buttons.
- IP Address:** Text input field.
- Net Card ID:** Text input field.
- IPX Address:** Text input field.
- Machine ID:** Text input field with the value '0'.
- Operating System:** Dropdown menu with 'Windows NT' selected.
- Processor Name:** Dropdown menu.
- Quantity:** Text input field with the value '1'.
- Total Physical Memory(KB):** Text input field with the value '0'.
- RAS Target**
- SAP R/3 Target**
- Entry Name:** Text input field.
- Phone No.:** Text input field.
- User Name:** Text input field.
- Password:** Text input field.
- CallBack No.:** Text input field.
- Domain:** Text input field.

11. Enter the name of the machine that has the APS mounted on it into the Name box.

12. Open the Operating System box and select Windows NT.

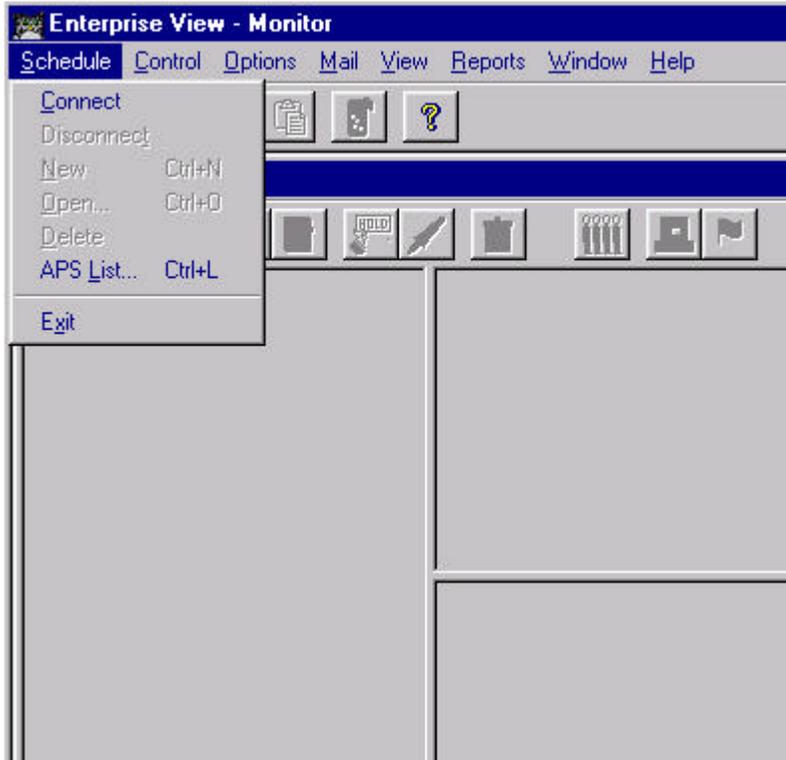
The screenshot shows the 'Machine Properties' dialog box. The 'Name' field contains 'Palo2'. The 'Group Name' field is empty. The 'IP Address' and 'Net Card ID' fields are empty. The 'IEX Address' and 'Machine ID' fields are empty. The 'Operating System' dropdown menu is open, showing a list of operating systems: 'Windows NT' (selected), 'Windows 95/98', 'HPUX', 'AIX', 'SOLARIS', 'DEC UNIX', and 'OpenVMS'. The 'Quantity' field contains '1'. The 'RAS Target' and 'SAP R/3 Target' checkboxes are unchecked. The 'Entry Name', 'Phone No.', 'User Name', 'Password', 'CallBack No.', and 'Domain' fields are empty.

13. Click on the *OK* button the menu will return to the Main Administrator Menu.

14. Click on the *Accept* button.

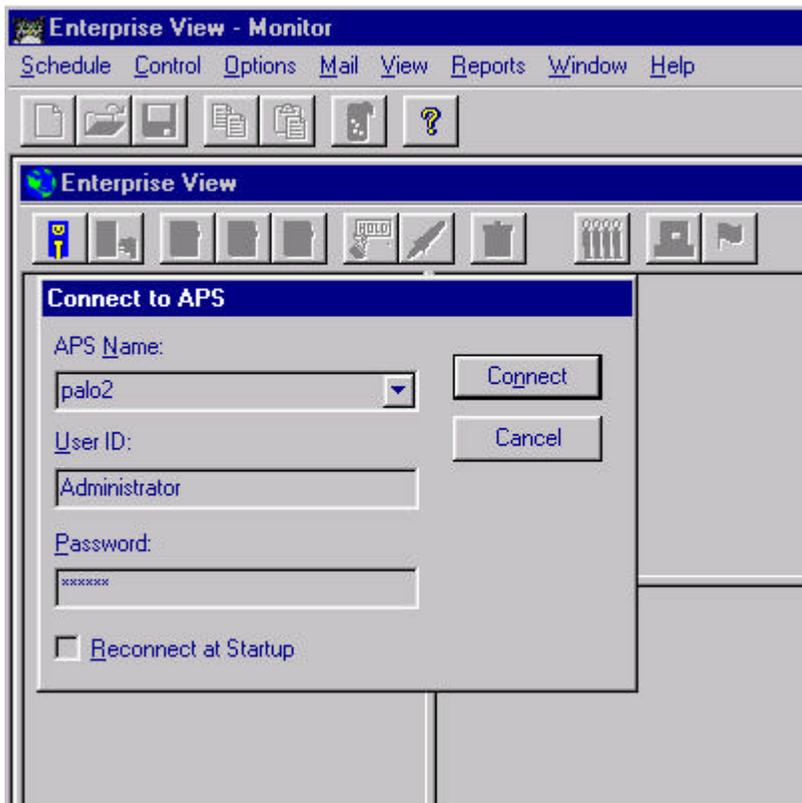


15. You can now reduce the Administrator Menu and select the Monitor Menu instead.



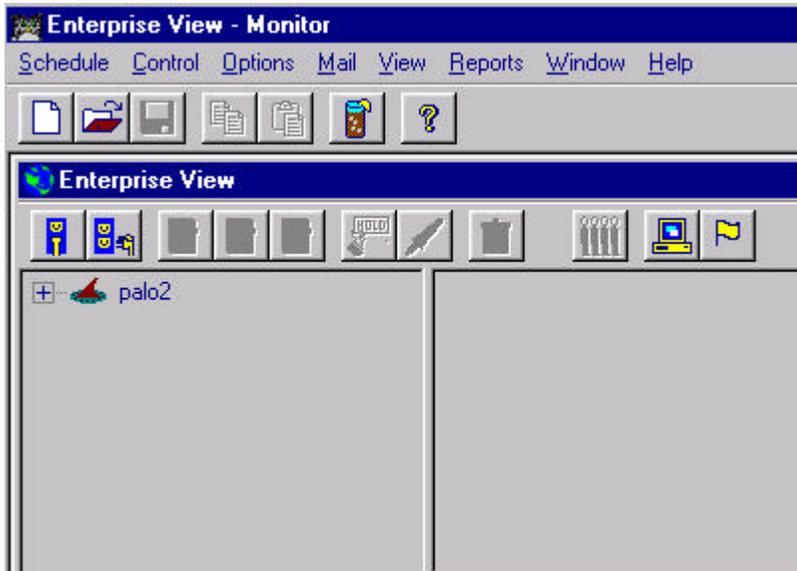
16. From the Task Bar, click on *Schedule* and then *Connect*.

17. The Connect to APS pop-up menu will appear. Using the next to the APS Name box, select the APS that is available.
18. Again use *Administrator* as the User ID, and then enter the password that you created in this procedure previously.

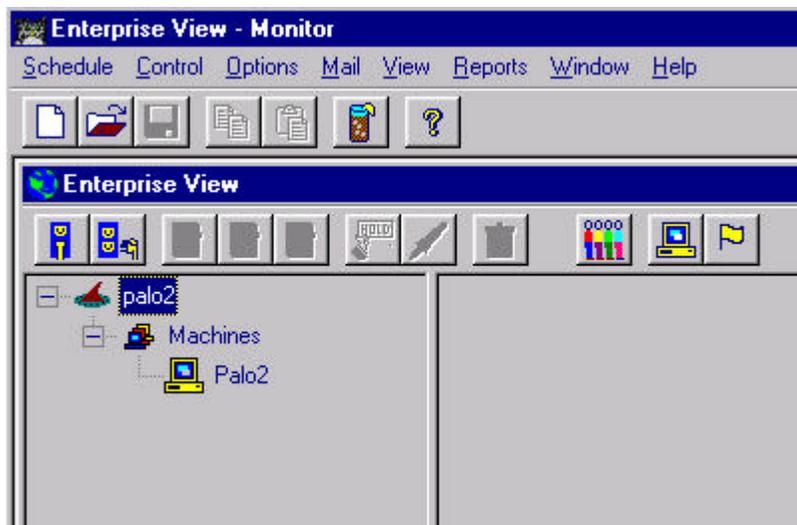


Note: You may wish to check the box labeled *Reconnect at Startup* to automate the *Connect* process in the future.

19. Click on the *Connect* button to complete connection.

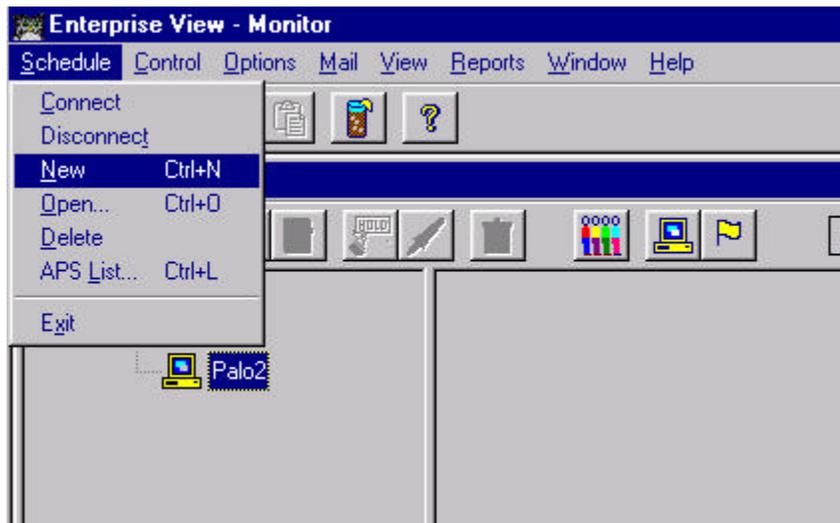


20. The Monitor will now show the APS system. Clicking on + twice will expand the showing to include the machine you added. For our example, which will function with ESM, the APS server name is the machine name also.

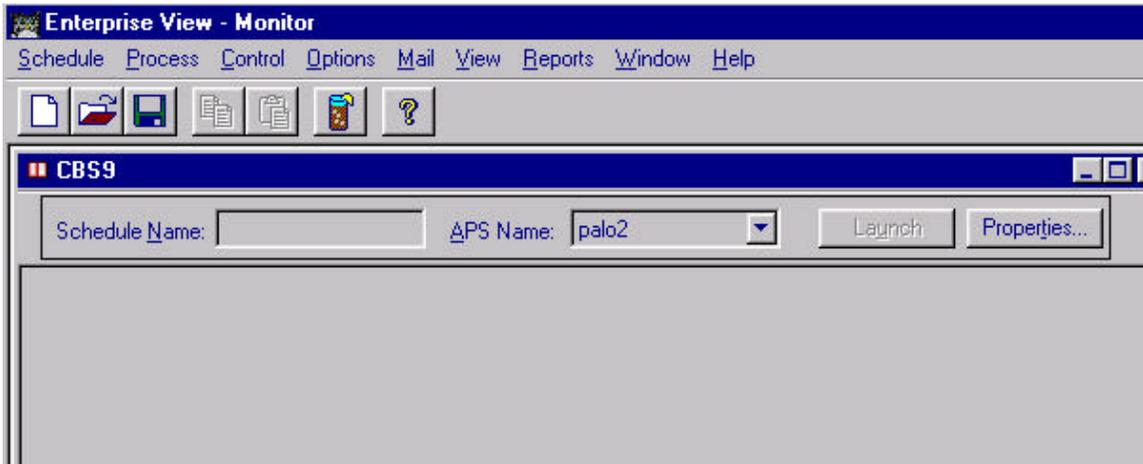


21. Highlight the machine name and then click on *Schedule* in the Task Bar.

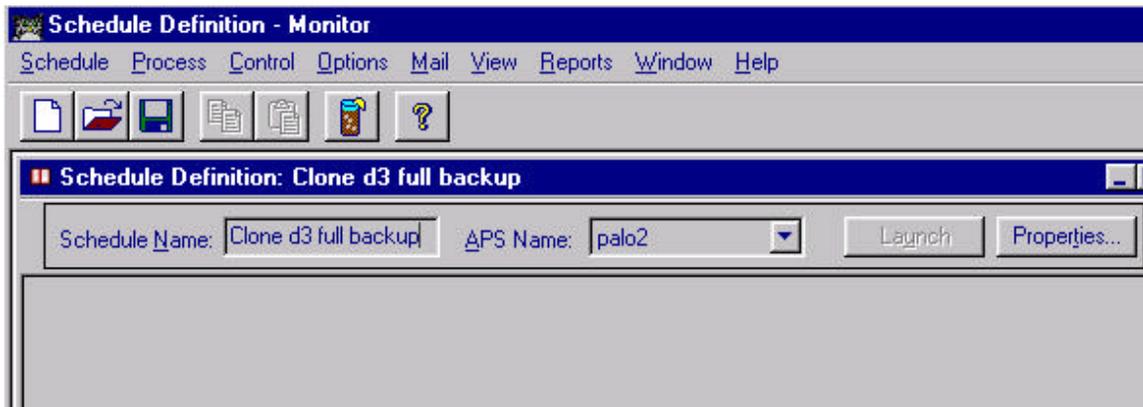
22. Select *New* and left click on mouse.



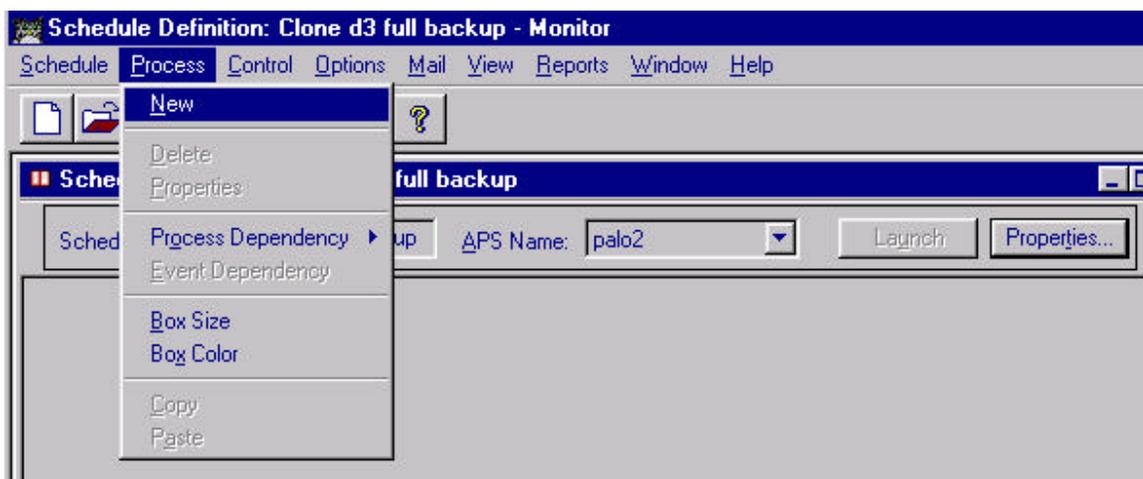
23. The CBS menu will appear.



24. From the EVM Planning sheet you prepared before starting, enter the *CBS Schedule Name* into the Schedule Name box. The default APS name is already selected.



25. Select *Process* from the Tool Bar and then click *New*.



26. The Process Properties Menu will appear for the schedule name you entered. Enter a description of the Job that the schedule will be starting in the Process Description box.

Clone d3 and backup to drive 1 - Process Properties

Process Info | Machine | When | Dependencies | Notify

Process Description:
Clone d3 and backup to drive 1

Program Name: Browse... NTBatch...

Parameter:

Working Directory:

Process Type:
Windows program

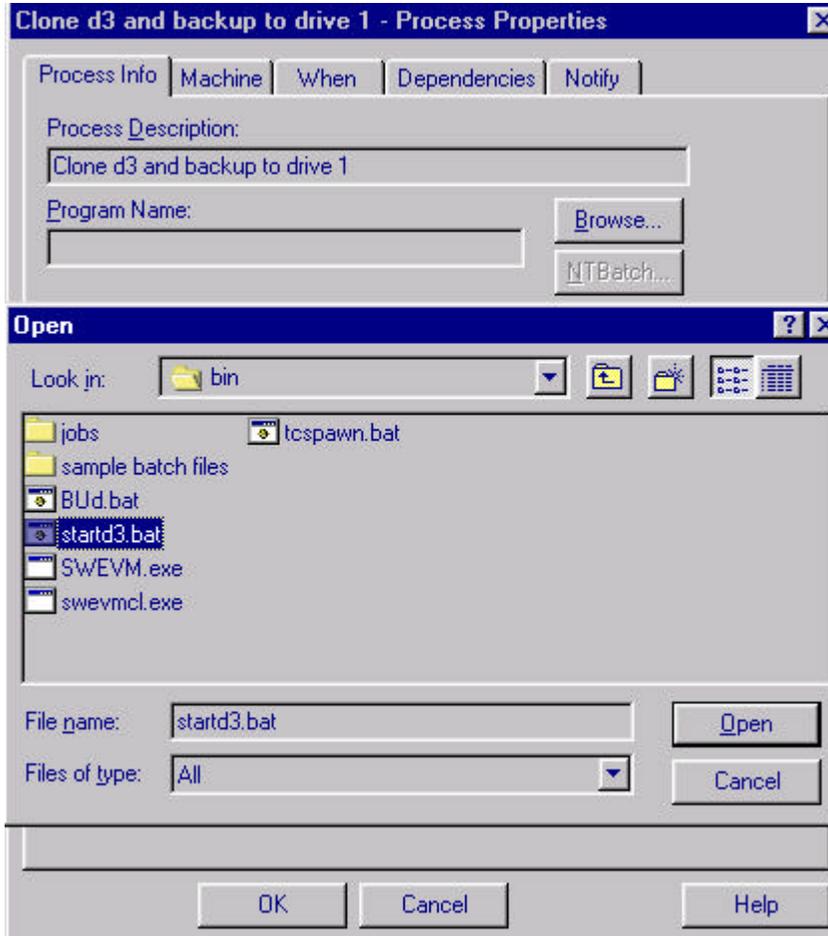
Redirect Output to Monitor
 Private Virtual DOS Machine
 Override Machine Load

ERROR if Return Code:
 Greater than
 Less than
 Equal
 Not Equal

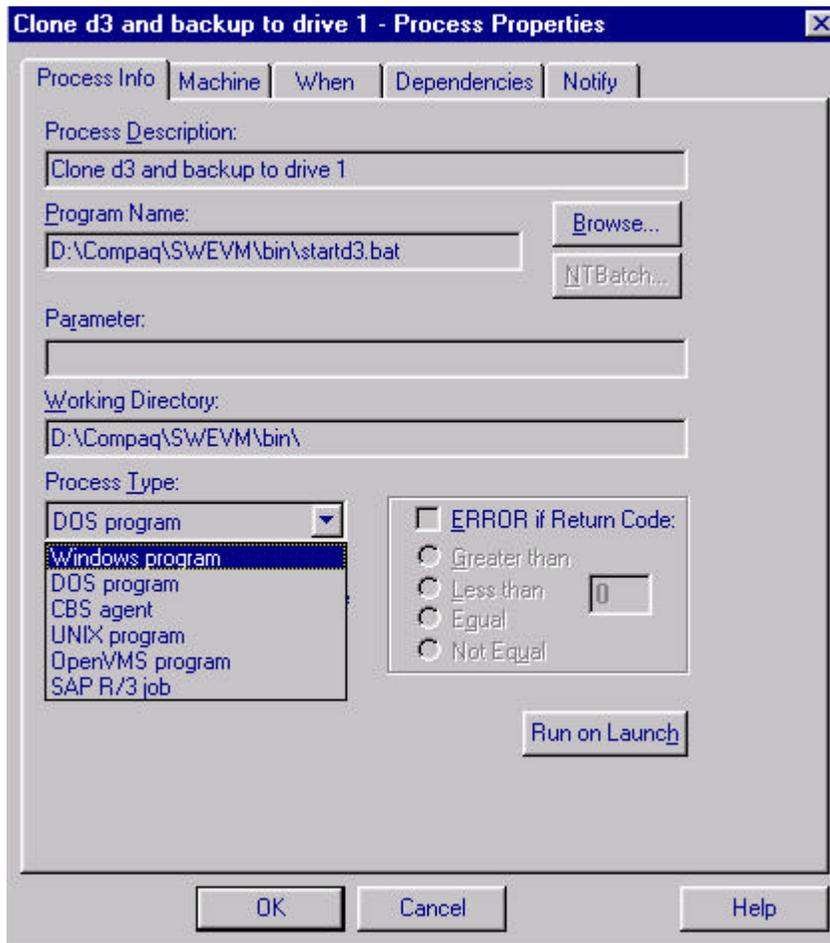
Run on Launch

OK Cancel Help

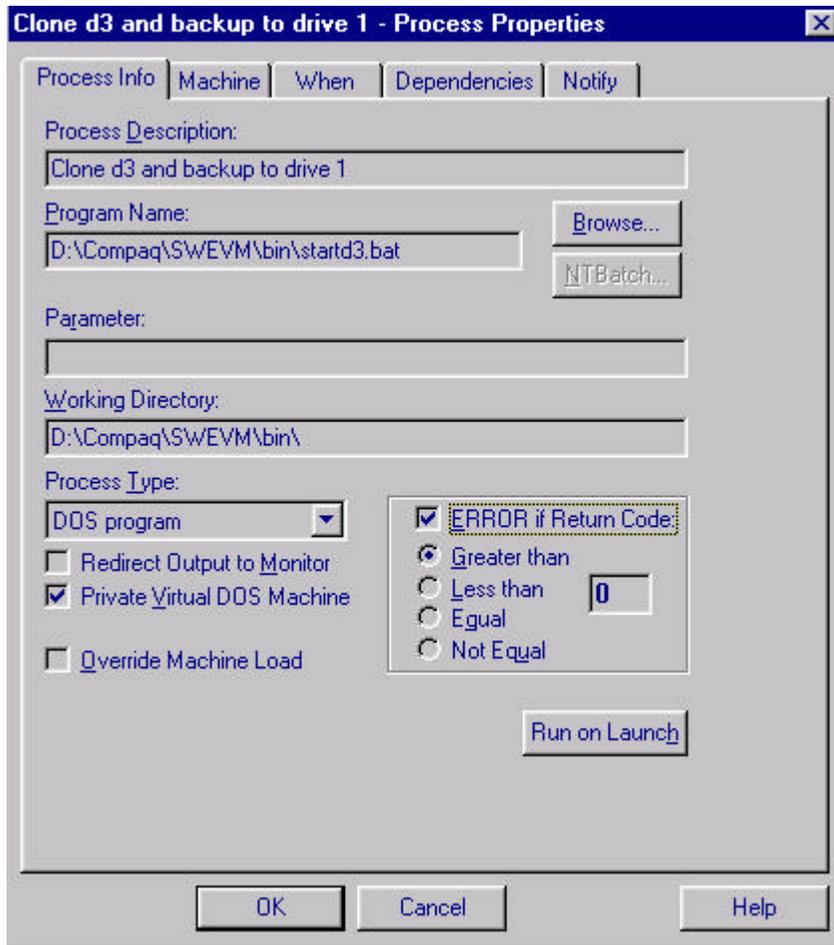
27. In the Program Name Box, type the *EVM Batch File name* that you listed in the EVM Planning Sheet preceded by its pathname. If you have already created the EVM Batch File, you can use the Browse button to find it and insert the pathname and file name for you. We have used the name startd3.bat for our example.



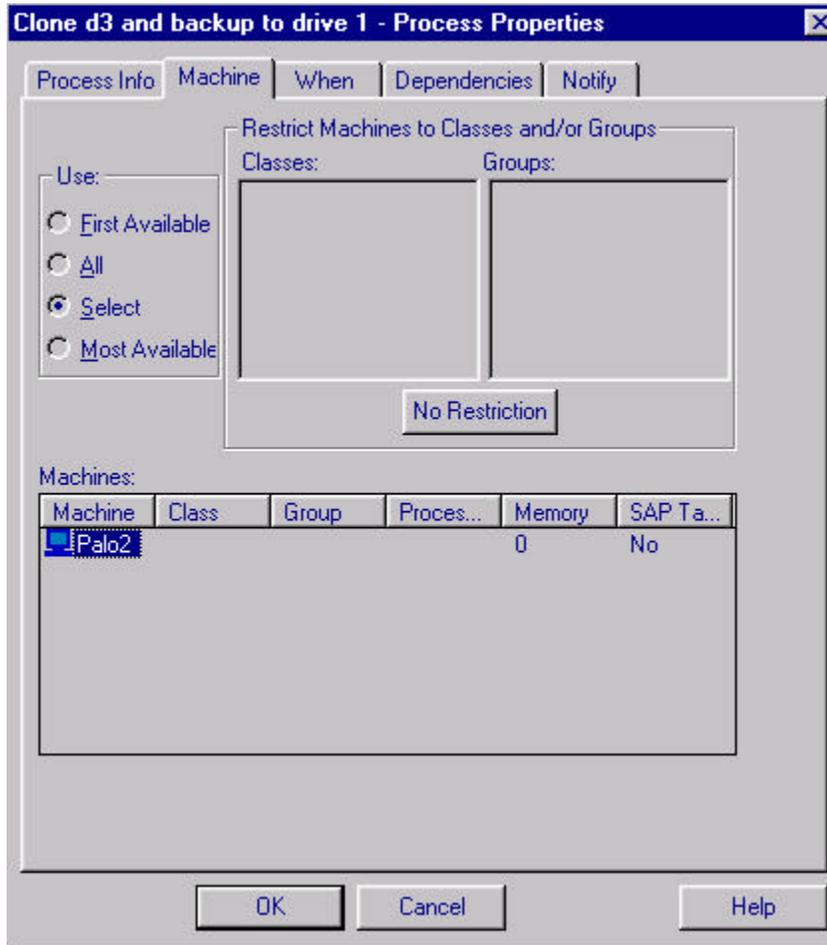
28. Select the Process Type by clicking on the down arrow ▼ to display drop down menu and select *DOS Program*.



29. Check the Error if Return Code Box.
30. Check the *Greater than* box.
31. Enter 0 into the box to indicated "Report error if error level returned by the EVM Batch File is greater than 0.



32. Select the *Machine* tab. Click on the *Select* option. The machine names will appear in the bottom box. If you have entered more than one machine name, highlight the one to be used by this job.



33. Select the *When* tab. This will display the schedule-planning page and you can select when the EVM job should start.
34. If this is the only EVM job that will be run on the given date, use something close to 24 hours for completion time. This means if you use the timer on this page, the job should start very early to ensure maximum job time. If more than one EVM job will be ran on the given date, run the EVM job and determine time requirements.

35. In the schedule calendar, click on the days you want to run this EVM job.
36. Input any exceptions by clicking on the *Except on* box.
37. The Priority Box is used if you have more than one job scheduled to run at a set time.
38. You can set a start date for enacting this schedule. The default is the today.

The screenshot shows the 'Clone d3 and backup to drive 1 - Process Properties' dialog box, specifically the 'When' tab. The dialog has several sections for configuring the job's execution schedule and timing.

Process Info | **Machine** | **When** | **Dependencies** | **Notify**

Use Processing Day Window

Start Time:

End Time:

Must Start By:

Terminate At End Time

Restart Every:

Relative To Start
 Relative To End

Stop When Return Code
 Greater than
 Less than
 Equal
 Not Equal

Schedule

S M T W T F S

1st						
2nd						
3rd						
4th						
5th						

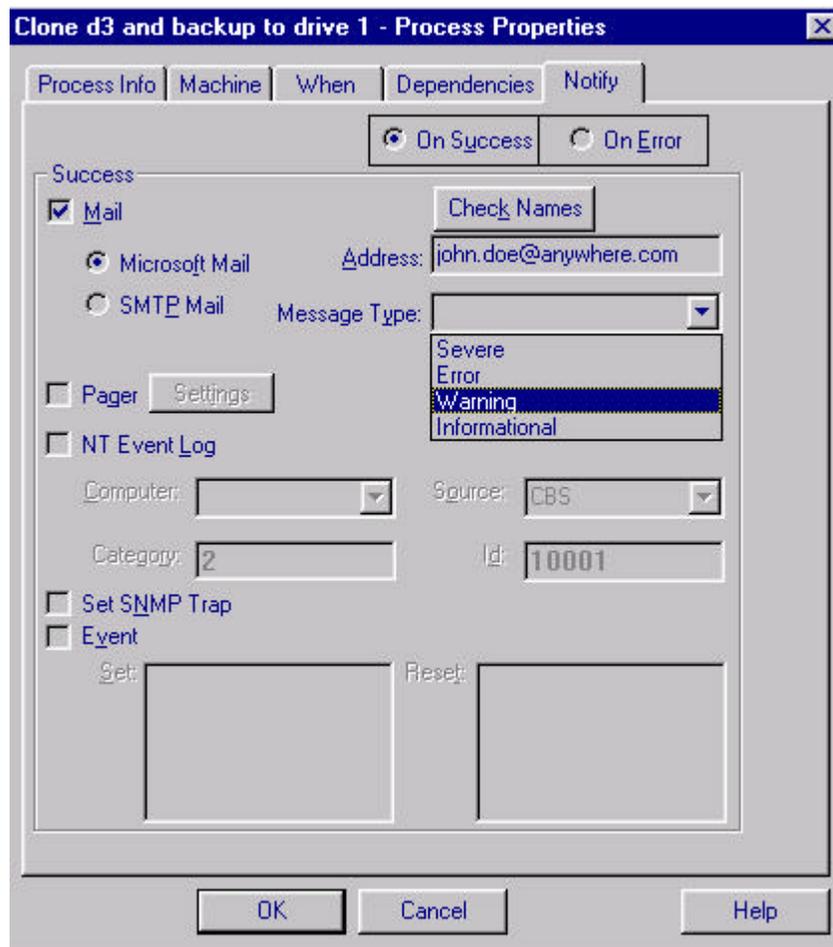
Priority:

High +2
 +1
 Normal 0
 -1
 Low -2

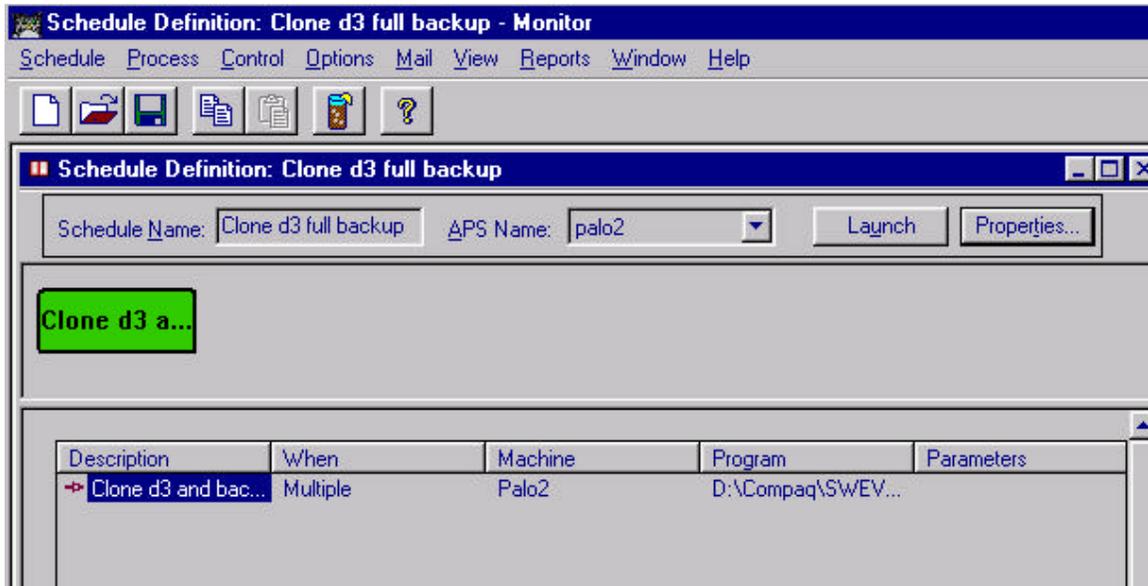
Hold

Effective Date:

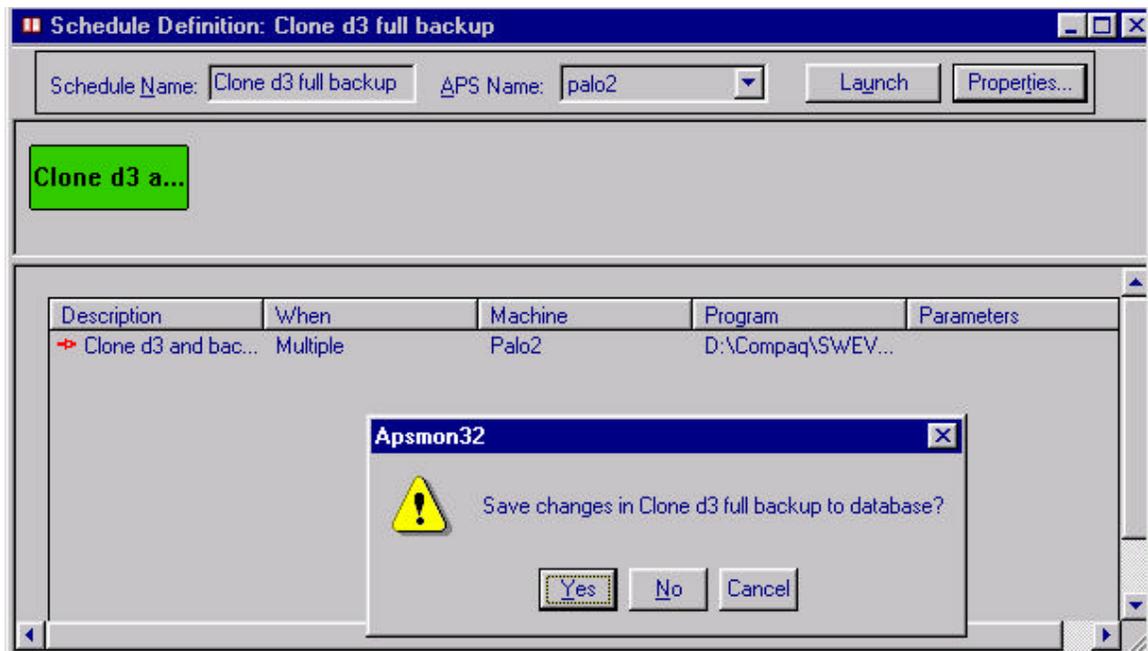
39. You can next select the *Notify* page to setup notification by e-mail, pager, or SNMP message. Refer to the CBS documentation for details. You can have notification sent on successful completion or on Error detected.



40. Click on the *OK* button to return to the Schedule Definition page.

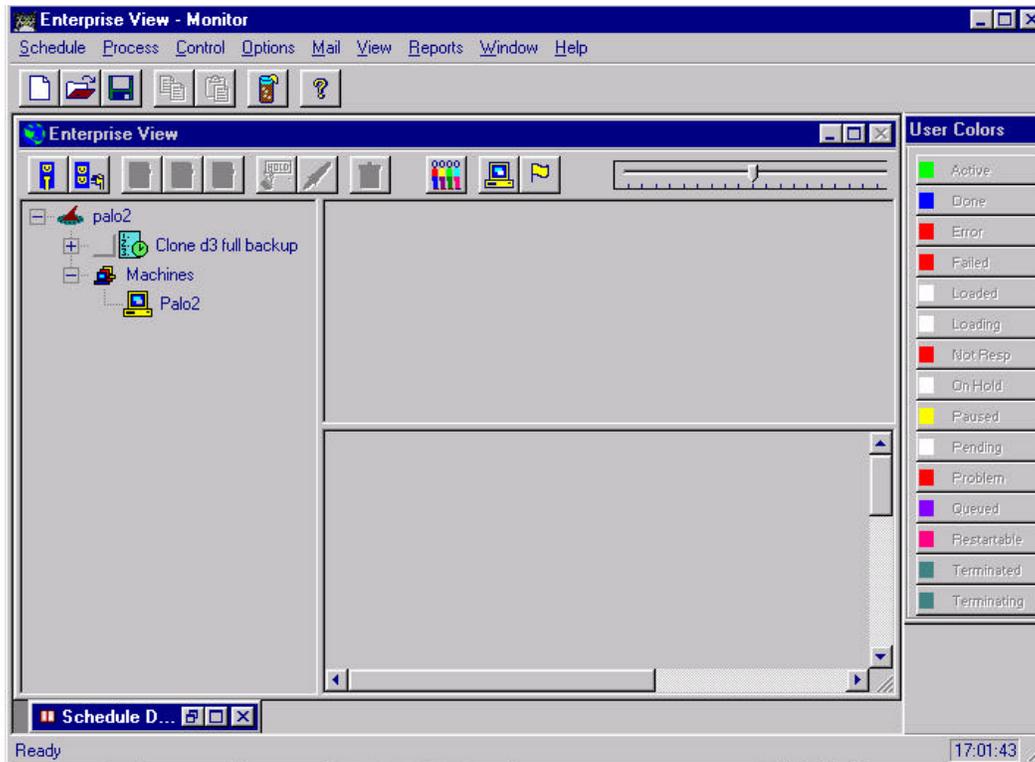


41. Click on the *Close* button in the upper right-hand corner [x] to start save process.

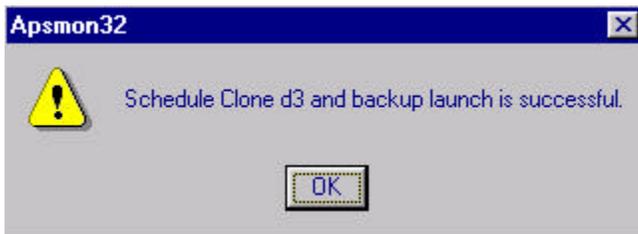


42. The Save changes pop-up will appear. Select *Yes* to save your entries.

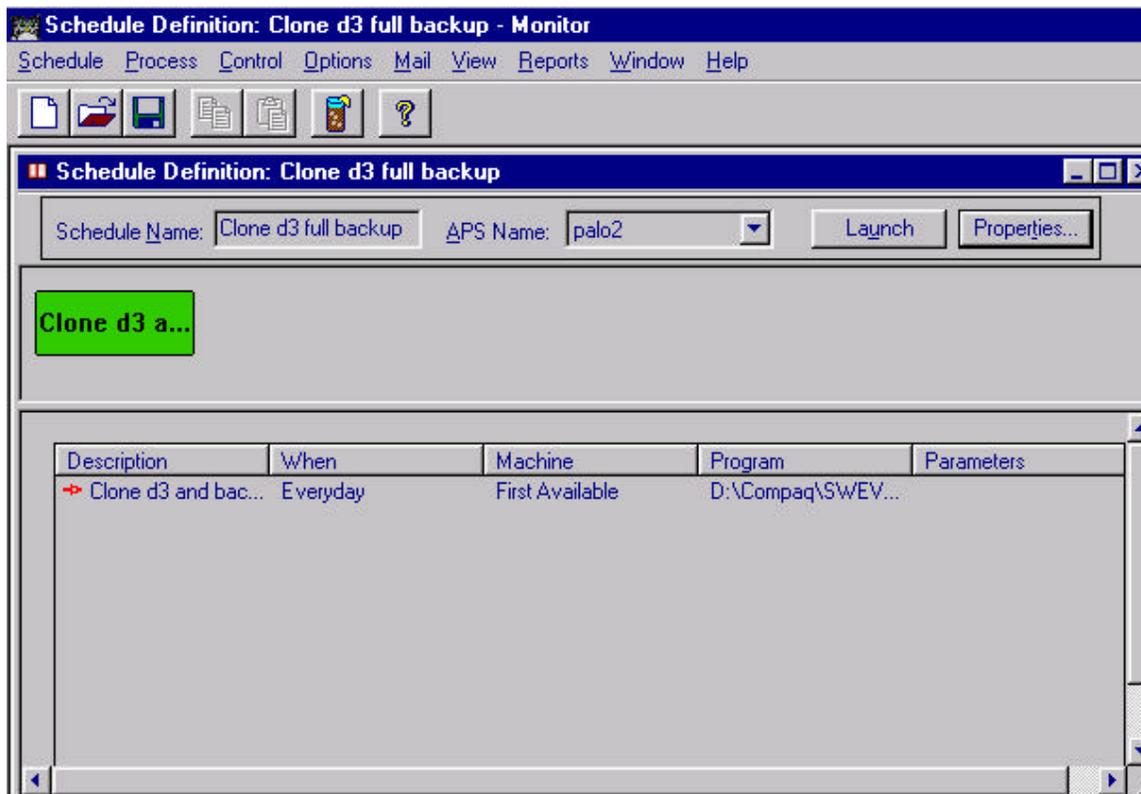
43. The Schedule Jobs will appear at the bottom of the Monitor menu. Clicking on the *Schedule* will bring up the Schedule Definition page again if you need to make changes or wish to manually launch the EVM job.



44. If you launch the Job, the following message will appear as soon as the job launches.



45. Once completed, your Monitor Schedule Definition page should look similar to the following.



Contacts

For technical support, visit our Compaq website at:

www.compaq.com/support

Send e-mail to:

support@compaq.com

Or in North America, call 1-800-AT-COMPAQ