



***White Paper: Time Machine vs. Resetting  
the System Clock***

**WHY BOTHER TO USE TIME MACHINE? WHY NOT JUST RESET THE SYSTEM CLOCK?**

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| <b>1. Time Machine allows the testing of 200 virtual clocks simultaneously on one computer. ....</b>         | <b>1</b> |
| <b>2. No virtual date time stamps on files. ....</b>   | <b>1</b> |
| <b>3. Only specified users will see the virtual clock(s) on Time Machine. ....</b>                           | <b>1</b> |
| <b>4. Rental, demo, and licensed software can be excluded from the virtual clock with Time Machine. ....</b> | <b>1</b> |
| <b>5. Time Machine logs date and time sensitive requests. ....</b>   | <b>1</b> |
| <b>6. "Frozen" virtual times can be tested with Time Machine. ....</b>                                       | <b>2</b> |
| <b>7. Virtual dates and times can be automatically activated upon session and job log in. ....</b>           | <b>2</b> |
| <b>8. Non-root users can set virtual clocks. ....</b>  | <b>2</b> |
| <b>9. Real production data can be run concurrently. ....</b>   | <b>2</b> |
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**1. Time Machine allows the testing of 200 virtual clocks simultaneously on one computer.**

Time Machine saves resources of time and money by eliminating down time and the need to purchase duplicate systems for testing. Productivity is boosted since you are not limited to one clock at a time and you are able to expedite testing by running multiple clocks concurrently. In addition, with Time Machine, you can automate test suites, instead of manually resetting the system clock every time.

**2. No virtual date time stamps on files.**

Files manipulated by a user on Time Machine are not time stamped with the test/virtual date. In contrast, when the system clock is reset for testing, any files manipulated will be time stamped with the test clock. These time stamps can cause potential problems such as back up archive issues, file issues, or data corruption. Thus, it is extremely advantageous to not have the files' time stamps altered.

**3. Only specified users will see the virtual clock(s) on Time Machine.**

Users are assigned to a specific virtual clock on Time Machine. Users that are not on Time Machine will continue to see the system clock.

**4. Rental, demo, and licensed software can be excluded from the virtual clock with Time Machine.**

If you have software with an expiration date, you may not be able to use it after resetting the system clock. Worse yet, this software can cause problems if it is run and has expired. With Time Machine, these applications can be excluded from the virtual clock, by placing them on an exclusion list. Thus, the user is still able run the application, but the application will see the system clock.

**5. Time Machine logs date and time sensitive requests.**

Time Machine has six log levels. It records date and time related system calls, identifies the application making the call, which system call was utilized, and the date/time that was returned. Thus, Time Machine will aid projects by identifying the date intrinsics and date commands referenced. Resetting the system clock will only test the behavior of your applications

running on the future clock. Time Machine will not only do this, but it will also aid you in finding where and how the application failed or had problems.

**6. *"Frozen" virtual times can be tested with Time Machine.***

The virtual clock can be fixed in time to allow normally impossible testing scenarios.

**7. *Virtual dates and times can be automatically activated upon session and job log in.***

Users can be assigned to a clock once and will start traveling as soon as they log in without further assistance or manual operations.

**8. *Non-root users can set virtual clocks.***

On most systems, only root can reset the system clock. Since Time Machine isn't actually resetting the system clock, non-root users can be given the ability to set virtual times.

**9. *Real production data can be run concurrently.***

Since only assigned users are on Time Machine, users not traveling on Time Machine are unaffected, allowing production and development to continue normally and safely.

**10. *Logging and recovery of files may not work properly by resetting the system clock.***

In addition, backups are likely to miss certain files.