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## TRIGGER BASED LOGGING & MIRRORING

A JonokeMed™ Exclusive!



**This is a JonokeMed™ Exclusive  
- No other EMR can offer you a  
similar level of data security!**

### Don't Lose Your Medical Data...

Whether it be a little or a lot - any data loss can be catastrophic. Electronic medical data is the lifeblood of your practice. You owe it to yourself and your clinic, to take every reasonable measure you can to keep this data safe from harm.

#### TWO POWERFUL NEW FEATURES

1. A very robust and feature-rich external record logging.
2. Local or remote server mirroring.

These capabilities add a whole new level of data security to JonokeMed™ and are superior to the record logging and mirroring provided by other EMR vendors.

#### WHY JONOKEMED™'S DATABASE LOGGING IS SUPERIOR

For the sake of performance, every database server temporarily caches data changes in memory (i.e. RAM). Most implementations of database logging & mirroring wait until the changes are written to the server's hard disk. But what if the data file becomes corrupt? Or if there is a hardware or access permission error that prevents the server from saving these changes to disk? JonokeMed™'s answer is to quickly retrieve these changes while they are still in temporary memory and copy them to external files on other computers. This approach is inherently more robust.

#### WHY HAVING A DATABASE MIRROR IS SO IMPORTANT

Real-time mirroring requires that you have another computer in place locally or at another physical site. This computer is normally identical to your main server with respect to features and configuration. This "mirror" server is constantly updated with the data changes that occur in your main server's database. The mirror record logs are sent to the mirror right away - not every 20 minutes (or so) as a batch. (over to continue reading...)



At any moment in time, the mirror server's data is only a few minutes out of synch. Should the hard drive of your main server ever fail, the JonokeMed™ mirror server can then be reconfigured to act as the main server. The loss of data and the associated downtime is minimal. If there are any logged record changes that have yet to be imported, you can import this information manually before putting the mirror server online to serve your users.

If you want an extra level of data security, put your mirror server at another physical site. The mirror server will then survive any physical, environmental, or electrical catastrophe that befalls your main server.

#### UNMATCHED POWER & FLEXIBILITY

- JonokeMed™'s logging and mirroring is easy to configure and run. (Try to find another vendor that will stand behind this claim!)
- It is easy to see these features running. Also, Jonoke can program these features so that they alert your JonokeMed™ administrator if they are or aren't working.
- If for some reason you ever need to roll back or recover your database, you can choose what records you wish to import. Special import routines and the record logs of the main or mirror server can then be used to incrementally re-add any/all significant record updates made since the data file's backup was last made. By default, up to 90 days of database history can be restored!
- There is no need to run a 'Full Backup' to start logging or to run the mirror. (A big time saver!)

#### FOR MORE INFORMATION

Contact Jonoke today to find out more about getting your JonokeMed™ system configured with a Jonoke Mirror.

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#### SUPERIOR HARDWARE...Jonoke's recommended servers include:

- Dual power supplies: If one of the two power supplies fails then your system can still run. This gives you time to be alerted, obtain a new power supply, and install it.
- RAID level 5 configured hard drives: As with any mechanical device that is used intensively, hard drives fail. The question is not if, but when. If you have one hard drive, your data will be lost and you will not be able to use your EMR system until a new hard drive is installed and your data recovered. With the RAID Level 5 configured system all data is written onto 2 hard drives. Therefore, no matter which hard drive fails, the RAID system knows where to find the data on the other hard drives. RAID 5 is better than other RAID (i.e. simple mirroring) configurations because it is faster. One or two physician clinics can use simple hardware mirroring but they will not get the speed of RAID 5.

#### SO WHY WAIT?

All of these extra levels of protection greatly increase the reliability of your JonokeMed™ solution and the safety of your data. Between nightly backups, trigger-based logging, live mirroring, and fail-safe hardware, the chance of significant data loss is virtually non-existent.

#### *Some commonly used definitions involved with mirroring and logging:*

Security and reliability are quintessential for any EMR solution, but there are more precautions to take in order to protect your system – namely, backups and mirroring. Regular data backups ensure you can recover from an unexpected file corruption, for example. Mirroring essentially provides you with a duplicate server drive or computer, which can be used should the main drive fail.

**Backups:** The JonokeMed™ solution takes full advantage of backup technology, keeping your data safe.

**Tape backup:** The JonokeMed™ server, as the 'brain' of the system, is backed-up nightly to a tape drive. This is the industry-standard format for complete, reliable data storage, although FireWire/USB technology is producing increasingly superior alternatives.

**External (FireWire) hard drive:** This device is typically connected to the Image Server as a 'data overflow tank', should the computer's hard drive reach its capacity. However, hard drives are available in ever-larger capacities, meaning the FireWire drive would be a precaution. Alternately, this drive can be used as the media for nightly backups of your data file(s).

**CD-R/DVD-R backup:** The main data file must be backed-up anew every night. and so disc burning technology does not apply. However, the Image Server (which stores archival records, forms, etc.) can be sequentially backed-up to CD or DVD media.

**Mirroring/RAID:** The JonokeMed™ server is obviously critical to your JonokeMed™ system. There are precautions which give you a rescue in the event of a major hardware or software problem on the server.

**Data mirroring:** The basic 'mirror' setup has two computers running as servers. One computer is 'live' (active), while the second is modified in intervals, such as every hour, to contain the same information as the first. Should the first computer fail, the JonokeMed™ system can resume operation using the second.

**Hardware redundancy:** This approach to data management provides speed and safety. By using three (or more) hard drives sharing the server workload, data can be stored or retrieved much faster. Meanwhile, the RAID\* setup ensures that each piece of data exists on at least two drives, so that the failure of one drive will not result in lost information. Jonoke uses a RAID Level 5 implementation on the JonokeMed™ server. This is preferable to RAID Level 1, in that with Level 5 the drives are 'hot-swappable', meaning they can be exchanged without restarting the server.

\* RAID: Redundant Array of Independent Disks; originally Redundant Array of Inexpensive Disks