

# Uninterruptible Informix Database Transactions are here!

By  
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# Lester Knutsen



Lester Knutsen is President of Advanced DataTools Corporation, and has been building large data warehouse and business systems using Informix Database software since 1983. Lester focuses on large database performance tuning, training, and consulting. Lester is a member of the IBM Gold Consultant program and was presented with one of the Inaugural IBM **Information** Champion awards by IBM. Lester was one of the founders of the International Informix Users Group and the Washington Area Informix User Group.

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# Art Kagel



Art Kagel, Principal Consultant of Advanced DataTools Corporation. Art is a member of the IIUG Board of Directors and a recipient of the IIUG Directors Award. Art is a six time recipient of the IBM Information Champion Award with over thirty-five years of database experience.

He has served as Manager of Database Systems and Services for a major information systems and media corporation and is a leading consultant specializing in managing Informix Servers.

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# Tom Beebe



Tom is a Senior Database Consultant and has been with Advanced DataTools for over 10 years. He has been working with Informix since college with a long time fondness for open source languages. Tom is the lead consultant for Networking, Unix System Administration and Web Development needs. Currently, he is the Project Manager and lead developer on a variety of Web Development projects. Tom is IBM Information Champion Award.

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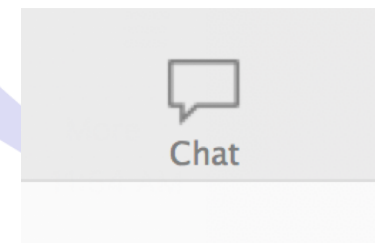


Jack is an Independent Consultant and Senior Database Consultant and Architect with Advanced DataTools. He has been working with Informix Databases since 1986. Jack is an experienced Unix, Database/Data Warehouse team leader. Skilled in large scale relational database design, development, tuning, operation and support. Expertise as an Agile practitioner. He has been an IBM Gold Consultant and IBM Information Champion.

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# Webcast Guidelines

- The Webcast is being recorded. The Webcast replay and slides may be available in a few days.
- Please Mute your Line. Background sounds will distract everyone.
- Use the Chat Button in the upper right to ask questions.



Several years ago, during a midnight conversation with a few of the Informix developers at the IIUG Conference, I offered a challenge for them to make it so that Informix transactions on a MACH11 cluster would be uninterruptible and survive if the primary server crashed! They accepted the challenge.

# Meet Informix Transaction Survival

That's what IBM named it, but since it was my idea, I still call it:  
**Uninterruptible Transactions**



# Uninterruptible Informix Database Transactions

Have you ever had a large batch job that had to be rerun from scratch when the primary server crashed after the job had been running for many hours?

Wouldn't you like to have that job just continue running when your secondary server takes over?

**You can!**

This will be a live demonstration of how to configure your servers to take advantage of the Informix Transaction Survival feature.

# How to set this up:

On all MACH11 servers in the cluster:

1. Set HDR\_TXN\_SCOPE to 'sync' or 'near\_sync'
2. Set DRTIMEOUT to some reasonable time before a secondary will take over, say 10 seconds
3. Set UPDATEABLE\_SECONDARY to 1
4. Set FAILOVER\_TX\_TIMEOUT to something larger than DRTIMEOUT
5. Optionally set FAILOVER\_CALLBACK to a script or executable the engine will run when a secondary takes over.

# How to set this up:

Choose your failover method:

- DRAUTO
  - Advantages:
    - Simple, one line configuration
  - Disadvantages:
    - DRAUTO currently won't work with Tx Survival (oops).
    - It's possible to get the "dual brain problem"!
    - If you set DRAUTO to 1 you cannot bring the down primary back online until all active transactions are complete and the system is quiet because changing the live server back to a secondary will kill all active transactions.

# How to set this up:

Choose your failover method:

- Connection Manager
  - Advantages:
    - Avoids “dual brain problem”
  - Disadvantages:
    - Complex to configure

# How to set this up:

Choose your failover method:

- Manual failover
  - Advantages:
    - Really easy.
    - No “dual brain” issues
  - Disadvantages:
    - You have to get the failover done before Tx Survival times out!

# How to set this up:

Choose your failover method:

- Manual failover
  - How to convert secondary to primary:  
`onmode -d make primary <current server>`
  - How to restart down primary as secondary:
  - `oninit -PHY`  
`onmode -d secondary <new primary>`

# Demo

## What I am going to do:

- There are two servers, a primary and an HDR secondary
- On a third system I will execute a dbaccess session that will connect to a database via the secondary server and execute an SQL script that loads an 605,280 row unload file into a permanent table up to three times. This would take several minutes to complete.
- While it is running I will use the Linux “killall” command to crash all of the oninit processes on the primary and use onclean -ky to remove shared memory.

# Demo

## What I am going to do:

- On the secondary I will execute:  
`onmode -d make primary < surviving secondary >`
- I will then let you watch the online log on the secondary as transaction survival kicks in.
- We will also watch what is happening to the contents of the table that was being loaded.
- After a bit I will restart the original primary server making it the new secondary:  
`oninit -PHY`  
`onmode -d secondary <new primary >`



# Demo

## What I am going to do:

- Finally we will turn off Transaction Survival and do the test again.

# Caviats

- Works with client connections to HDR, RSS, or SDS secondary servers
- Connections directly to the primary will be rolled back
- Irrelevant for clients connected to ER servers.
- Clients connected to a Shard cluster must connect to a secondary and are only protected from the loss of the primary associated with that secondary. Losing another primary in the cluster MAY cause open transactions to fail depending on the transaction state at the time.

# Questions?



Send follow-up questions to  
[info@advanceddatatools.com](mailto:info@advanceddatatools.com)

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# Next Webcast

## Informix Best Practices

- **Unloading and Loading data with Informix Best Practices**
  - **by Jack Parker - August 23, 2018 at 2:00pm EST**
  - Whether you're reorganizing a table, loading a table or doing a full data migration, you will want to use the unload/load capabilities of Informix. This is an in depth look at the various options available to you in such an endeavor as well as issues which should be taken into consideration.

Please register for each webcast here at:

<http://advanceddatatools.com/Informix/NextWebcast.html>

# Informix Training 2018

## – Advanced Informix Performance Tuning

- February 5-8, 2018 – Completed and Filled up

## – Informix for Database Administrators

- May 21-24, 2018 - Completed and Filled up
- September 17-20, 2018 – Registration in Progress
- All courses can be taken online on the web from your desk or at our training center in Virginia.
- We guarantee to *NEVER* cancel a course and will teach a course as long as one student is registered!
- Please register early as the last two courses have filled up and we have not been able to accommodate everyone.

<http://advanceddatatools.com/Training/InformixTraining.html>

# Eight New Training Servers



Each Student in class will have a server running Informix 12.10 with:

- 8 CPU Cores
- 16 GB RAM
- 1 SSD Disk
- 1- 4 disks



## ***Informix Support and Training from the Informix Champions!***

Advanced DataTools is an Advanced Level IBM Informix Data Management Partner, and has been an authorized Informix partner since 1993. We have a long-term relationship with IBM, we have priority access to high-level support staff, technical information, and Beta programs. Our team has been working with Informix since its inception, and includes 8 Senior Informix Database Consultants, 4 IBM Champions, 2 IIUG Director's Award winners, and an IBM Gold Consultant. We have Informix specialists Lester Knutsen and Art Kagel available to support your Informix performance tuning and monitoring requirements!

- ***Informix Remote DBA Support Monitoring***
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Thank You

***Advanced DataTools Corporation***

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