

# COMP-8: OpenEdge® Management in the Real World

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- **Based in Montréal, Québec, Canada**
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- **Specialized in performance tuning, system availability and business continuity planning**

## Agenda

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### Introduction

- **Out-of-the-box results**
- **Tips and Tricks**
- **Beyond “Out-of-the-box”**

## Introduction

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- **Who here has never heard of OpenEdge (Fathom®) Management?**
  - Progress' monitoring tool for both OpenEdge and system resources
- **Out-of-the-box you get**
  - Pretty darn good monitoring
  - More trending information than you'll know what to do with

- **Canada's largest home improvement retailer**
- **Roughly 5B\$CAN in sales**
- **Growth is continuing at a phenomenal rate**
- **Total database size has doubled in the past 2 years**
- **One DB grows by 1Gb per day**

## Rona (cont...)

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- **Near 24/7 operation**
  - **Need to get there ASAP!**
- **600+ local simultaneous users + 200 web B2B users**
- **The system cannot go down (unplanned).**
  - **The cost is enormous!**

## Rona (cont...)

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- **Their biggest challenge: No in-house technical Progress expertise**
- **Efforts to hire a full-time DBA failed**
- **None of the UNIX system administrators was interested in learning more about Progress**
- **We consultants can only spend so much time at any one client!**
- **They needed a solution: OpenEdge Mgmt**

# Introduction (cont...)

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- **Before we start, some nomenclature:**
  - **Resource:** A file, database, AppServer™, CPU, disk, etc...
    - Anything that needs monitoring
  - **Rule:** A test that is applied to a resource
  - **Alert:** What is generated when a resource does not pass a given rule
  - **Job:** Any task
  - **Action:** Something that is done as a response to a generated alert



# Introduction (cont...)

Fathom Management - Microsoft Internet Explorer provided by Rona Inc.

Address: http://platon:9000/fathom.htm

platon: admin  
My Fathom | Alerts (0 unseen) | Resources | Library | Reports | Jobs | Options | Help

Resources  
Sort by: Container

- platon
  - File
  - Network
  - OpenEdge
    - App Server
    - Database
      - FathomTrendDatabase
      - appel
      - bc
      - cars
      - cc
      - cf
      - co
      - coficio
      - dpTIKt40
      - dr
      - e3
      - erona
      - gl
      - gs
      - histo-co
      - histo-edi
      - reno
      - revy
      - safe
      - SAFIR
      - st
      - tmq
      - tmq-fixe
      - trad
  - Name Server
  - WebSpeed
  - System

Scripted Database: platon.bc

Copy

Failed (3 Minutes)  
Last Poll: Jun 20, 2005 1:59:22 PM  
Last Failure: Jun 20, 2005 2:00:14 PM  
Poll Count: 3397 Fail Count: 241 (7.1%)

Properties

Host: platon  
IP Address: 10.6.4.74  
Database name: /database/db01/bc/rona-bc

Database status

Database: Running  
Monitoring Agent: Running

Monitoring control

- Control: Stop monitoring agent
- Maintenance Jobs: Maintenance jobs associated with this database
- Monitoring Plans: Database conditions on which to alert
- Configuration Adviser: Suggests rule thresholds based on data in the trend database

Operational views

- Vital Signs: Summary of important DB information
- Record and Index Activity: I/O activity for tables and indexes
- Transactions: Database transactions
- Page Writers: Summary of Page Writer Activities
- Storage Areas: Storage Area and extent information and statistics
- User Activity: Connected users & user statistics
- Locks and Latches: Lock & Latch Activity Information
- Memory Resources: Summary of Buffers, Memory, etc.

Informational views

- Start Parameters: Start parameters of the DB
- General Details: Start info, Backup info, other general DB info

Advanced views (raw data)

- Raw VST Data: Examine individual VST tables
- Raw System Table Data: Examine individual System tables

Progress Software Corporation (www.progress.com)

View selected reports. Local intranet

# Introduction (cont...)

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My Fathom | Alerts (0 unseen) | Resources | Library | Reports | Jobs | Options | Help

Library

Sort by: Type

AppServer Rule Set: Rona\_AS\_RuleSet  
Rona Specific AppServer Rules

Edit Copy Delete

Name	Severity	Action
<a href="#">AppServer_Server_Killed</a>	Error	None
<a href="#">Client_Abnormal_Disconnect</a>	Warning	None
<a href="#">NameServer_Unavailable</a>	Error	Email_Sysadm
<a href="#">Process_CPU_High</a>	Warning	None
<a href="#">Queued_Request_Percent_High</a>	Warning	None
<a href="#">Rejected_Request_Percent_High</a>	Warning	None
<a href="#">Server_Unavailable</a>	Error	Email_Sysadm

Add Rule

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View selected reports.

# Introduction (cont...)

Fathom Management - Microsoft Internet Explorer provided by Rona Inc.

platon: admin

My Fathom | Alerts (0 unseen) | Resources | Library | Reports | Jobs | Options | Help

**Jobs**

- Defined Jobs
  - CheckSchemaHolder
  - DBAnalysis
  - DBLogMaintenance
  - DBPerf\_OLD
  - LicenceCount
  - LockConflicts
  - LockTableHWM
  - LongTxMonitor
  - PKAnalysis
  - SidmaAvail
- Job Templates

**Job: CheckSchemaHolder**  
FA\_CheckSchemaHolder.sh

Edit Copy Delete Run Now Schedule

**Job history**  
[View Job History](#)  
View the status of jobs that have finished running

**Properties**

Resource: platon.cars, platon.e3, platon.erona, platon.reno, platon.revy,  
User name:  
Command: /usr/local/bin/FA\_CheckSchemaHolder.sh  
Command parameters: /usr/local/etc/schemaholdertables

Working directory: /home/progress/fa30\_work  
Input file (stdin): None  
Output file (stdout): /home/progress/fa30\_work/CheckSchemaHolder.out   
Output file (stderr): /home/progress/fa30\_work/CheckSchemaHolder\_err   
Debug log file: None

Next 5 scheduled runs: Jun 21, 2005 6:30:00 AM  
Jun 22, 2005 6:30:00 AM  
Jun 23, 2005 6:30:00 AM  
Jun 24, 2005 6:30:00 AM  
Jun 27, 2005 6:30:00 AM  
...

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Local intranet

## Out-of-the-box

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- **Fairly simple implementation**
  - **But wait for my hints and tips later on**
- **Intuitive user interface**
- **Simple but effective**

# Out-of-the-box Results

- **One event early on justified the implementation at Rona:**
  - **A “smart” developer (now ex-developer) was running tests on one of the production databases**
  - **Did not want to wait so kill -9'd their own \_progres**
    - **Down goes the database**
    - **Our fault for giving them access...**
  - **But Fathom paged the sysadmin and the database was back up in a couple of minutes**
  - **Ugly but contained**

# Out-of-the-box Results

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- **Rona ran OpenEdge Mgmt more or less out of the box for the first few months**
- **Configured the database, AppServer and log file rulesets to alert an administrator in case of a problem**
  - **From a sysadmin point-of-view, this is sufficient**

# Out-of-the-box Results (cont...)

- **Of course, like any product, OpenEdge Mgmt is not without it's peculiarities**
  - **May the following hints and tips save you from some of the problems I experienced**
  - **I have installed and used OpenEdge Mgmt with:**
    - **9.1D09 & 9.1E02 32bit + AIX 5.2 & 5.3 32bit**
    - **10.0B03 64bit + AIX 5.3 64bit**
  - **Of course: YMMV**
    - **Use at your own risk and peril!**

# Tips and Hints

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- **Tip #1: Get a very recent version of Java™**
  - **Veeeeery recent**
  - **Older versions of Java are quite buggy**
    - **Especially on AIX!**
  - **Talk to Tech Support**
    - **They will have the latest information**



# Tips and Hints

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- **Tip #2: Give that AdminServer some elbow room**
  - Java loves memory
  - Increase memory window to 1Gb if you can
  - In `$DLC/java_env`, change memory parameters to `-ms 256m -mx1024m`

# Tips and Hints

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- **Tip #3: When installing patches, make sure java is in the UNIX path**
  - Type “java –fullversion” from the command line
  - Otherwise, install will fail to unpack some zip files
  - Error message is subtle and easily missed
  - Of course this is mentioned in the README.LAST file

# Tips and Hints

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- **Tip #4: Don't wait to apply OpenEdge Mgmt patches**
  - **osmetrics.dll: Some trouble in the past**
    - Used to crash AdminServer
    - Needed **DISABLE\_OSMETRICS\_CALLS=true**
    - Fixed in later versions
  - **Slow Archive/Purge**
    - Also fixed in later versions

# Tips and Hints

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- **Tip #5: Move your configuration information somewhere else**
  - **Fathom installation directory is no place for the Fathom ODB database (IMHO)**
    - **Tends to grow**
  - **Change fathomConfigDir in fathom.init.params**
  - **Move the fathom.o\*, fathom.properties and fathomweb.xml**

# Tips and Hints

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- **Tip #6: Setup a backup job for your fathom configuration database**

- **No need to backup \$FATHOM all the time**

```
# fathom -httpport <port> -dump <file.xml>
```

- **Plus remember to backup fathom.properties, fathom.init.properties and fathomrealm.properties**

## Tips and Hints

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- **Tip #7: Plan for plenty of disk space in the Fathom work directory**
  - **Fathom graph cache database can grow quite quickly**
  - **All your report outputs are written here**
  - **Also plan some kind of purge of this directory**

## Tips and Hints

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- **Tip #8: Configure Compact/Archive/Purge right away**
  - Don't wait a year
  - Very slow and painful in older SP's
  - Fixed in SP3 or SP4
    - Wow! Fast now!
  - Run it often (weekly)
    - Fathom DB will grow very quickly

# Tips and Hints

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- **Tip #9: Set your Fathom database startup parameters to optimize the compact/archive/purge**
  - **-B 20000 (\* 8K) or more if you can afford it**
  - **bi cluster size of 8192 or more**
  - **-L 100000 or more**
  - **-bibufs 50**
  - **One APW and the BIW should be sufficient**
  - **After all it's still only one process so there's no contention**



# Tips and Tricks

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- **And one last thing about the compact job:**
  - **Runs dataCompact.pl which connects to Fathom db in client-server**
  - **Modify the `_progres` line to remove the `-H` and `-S` parameters:**

```
$rc = system("$CMD -db \"$FM_DBPATH\" -b -p \"$DOTP\"");
```

## Tips and Tricks

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- **Tip #10: Get to know the OpenEdge Management Support Team**
  - **Brian: The Boss**
  - **Cyril, Libor and Darrel: The Front Line**
  - **They are most definitely your friends!**

## Next Steps...

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- **OpenEdge Management is now installed and properly configured**
- **All resources are created**
- **All monitoring is enabled**
- **We could have stopped here and our time, effort and investment would have been justified**
- **But Rona chose to do more...**

## Creating Custom Jobs

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- **Fathom allows you to easily configure multiple resources in the same job definition**

# Custom Jobs (cont...)

The screenshot shows the Fathom Management web interface in Microsoft Internet Explorer. The browser address bar shows the URL `http://platon.rona.ca:9000/fathom.htm`. The user is logged in as 'admin'. The main navigation bar includes 'My Fathom', 'Alerts (10 unseen)', 'Resources', 'Library', 'Reports', 'Jobs', 'Options', and 'Help'. The 'Jobs' section is active, showing a list of 'Defined Jobs' on the left, including 'CheckSchemaHolder', 'DBAnalysis', 'DBLogMaintenance', 'DBPerf\_OLD', 'FA\_Compact', 'FA\_CompactLocal', 'LicenceCount', 'LockConflicts', 'LockTableHWM', 'LongTxMonitor', 'PKAnalysis', and 'SidmaAvail'. The 'Job Templates' section is also visible. The main content area displays the configuration for the 'Job: DBAnalysis'. It includes a 'Save' and 'Cancel' button, a 'Properties' section with the following fields: 'Name' (DBAnalysis), 'Description' (FA\_DBAnalysis.sh), 'Resources' (Available: platon.cars, platon.coficio, platon.e3, platon.erona; Selected: platon.appel, platon.bc, platon.cc, platon.cf), 'Account information' (User name, Group, Password), and 'Job specification' (Command: /usr/local/bin/FA\_DBAnalysis.sh, Command parameters, Working directory: /home/progress/fa30\_work). The browser status bar at the bottom shows 'Internet'.

## Custom Jobs (cont...)

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- **What's less nice is that there is no built-in way to apply the job to all the resources**
- **Result: the multi-database job template**
  - **Can easily integrate old database scripts with Fathom**

## Custom Jobs (cont...)

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- **Parameters in job screen are assigned to environment variables**
- **Parse these variables and loop through the values**
- **Example: DB Analysis**
  - **Fathom DB Analysis job template is only good for one DB**
  - **Requires a job definition for every db**

## Custom Jobs (cont...)

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- **It's easy once you see it**
  - Not quite as obvious when you're starting from scratch
- **Scan the DBAnalsys.pl file**
  - See which environment variables are used
  - The .pl calls a .p so scan that too
  - Add the variables to the multi-db script
  - Watch out: Can change with SP's



## Custom Jobs (cont...)

- **This ksh function parses the variables set by Fathom and assigns them to arrays**

```
ValidateDBList(){  
  DBLIST=$RESRC_DBNAME  
  cnt1=0  
  for i in $DBLIST  
  do  
    DBNAME[cnt1]=$i;((cnt1=cnt1+1))  
    # Other variables here...  
  done  
}
```

## Custom Jobs (cont...)

- **Now all you have to do is loop:**

```
while (( i < ${#DBNAME[*]} ))
do
    RESRC_NAME=${DBRSNM[$i]}
    RESRC_DBNAME=${DBNAME[$i]}
    RESRC_DBPATH=${DBPATH[$i]}
    FM_CONTAINERNAME=${DBCONT[$i]}

    # Do something here

    ((i=i+1))
done
```

# DB Analysis Example

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- **Replace existing DB Analysis job**
  - Existing job runs against one database
  - New job runs underlying .p against multiple databases
- **We'll also look at some debugging info that will likely be useful**

## Example (cont...)

```
if [[ $fathomDebug4gl = 1 ]]
then
  echo $RESRC_DBNAME           # Name of database
  echo $RESRC_DBPATH          # Path name of database
  echo $RESRC_DBPORT          # TCP port of database
  echo $RESRC_DBHOST          # Hostname of database
  echo $FM_DBARULEVALIDATION   # used by dba-load.p
  echo $FM_DBAUTILIZATIONNUMBER # used by dba-load.p
  echo $FM_DBABLOCKNUMBER      # used by dba-load.p
  echo $FM_DBAINDEXCOMPACTION  # used by dba-load.p
  echo $FM_COMPACTIONNUMBER    # used by dba-load.p
  echo "***** ENV *****"
  env
  echo "***** END ENV *****"
fi
```

## Example (cont...)

```
while (( i < ${#DBNAME[*]} ))
do
    # extract current values as Fathom utilities
    # act on RESRC_DBPATH and RESRC_DBNAME.
    RESRC_NAME=${DBRSNM[$i]}
    RESRC_DBNAME=${DBNAME[$i]}
    RESRC_DBPATH=${DBPATH[$i]}
    FM_CONTAINERNAME=${DBCCONT[$i]}

    _progres -d mdy -db $FM_DBPATH -b \
            -p $fathomInstallDir/src/dba-load.p
    ((i=i+1))
done
```

## Example (cont...)

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### ■ Result:

- One job that runs DB Analysis on all databases
- An easy-to-reuse template for all your database maintenance needs

## Other jobs

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- **Easy to integrate old jobs**
  - **Just cut out the “heart” and paste it into the template**

## Other jobs (cont...)

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- **Some of the other Fathom jobs at Rona:**
  - **Check Schema Holders**
  - **Log File Maintenance**
  - **License Count**
  - **Lock Conflicts**
  - **Long Transactions**
  - **Lock Table HWM**



# Long Transactions

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- **One of the more successful monitoring jobs at Rona**
- **The ERP application is an older, 3GL-style ChUI app**
  - **Users can be “in” a transaction**
  - **Result:**
    - **bi file grows**
    - **other jobs hang waiting to lock a record**
    - **Users call to complain**

## Long Tx (cont...)

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- **Job emails user if in a transaction for longer than 30 minutes**
  - **Most of the time the user left their screen open in an order or item and went for a coffee**
- **Rona users respond well to training!**
  - **3 weeks after implementing the script, the problem almost disappeared!**

- **The AS/400 DBA's tend to forget about Progress**
  - **Accesses their database files through a DataServer**
  - **Sometimes they make dictionary changes without warning anyone**
  - **Boom! The schema holder is out of sync**
  - **Fathom job checks every morning to make sure all the schema holders are properly synched**

## Lock Conflicts

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- **Rona was suffering**
  - Programs were locking too many records for too long
  - Company growth is just making it worse
- **Lock conflict job monitors conflicts in all databases**
  - Reports results back to the appropriate people
  - Allows development to more effectively target their corrective efforts

## Others

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- **License Count**
  - Gives a real count of used concurrent licenses
  - Allows Rona to trend license growth and not user growth
- **Log File Maintenance**
  - Automate archive and purge of database log files
- **Lock Table HWM**
  - Nobody seems to watch this until they get a lock table overflow
  - Good to know the normal HWM for your DB

## Conclusion

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- **Everything Progress at Rona is now centered around Fathom**
- **The UNIX system administrators can concentrate on their UNIX projects**
- **Most importantly, when something goes wrong, it's usually fixed before anyone notices**

# Questions?

- **Questions or comments? Want some of this code? Send me an email:**  
[pk@progresswiz.com](mailto:pk@progresswiz.com)
- **And feel free to visit my website for this and other interesting information:**  
[www.progresswiz.com](http://www.progresswiz.com)



Thank you for  
your time!



# *PROGRESS*

**S O F T W A R E**