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Top Tips for zSeries customers

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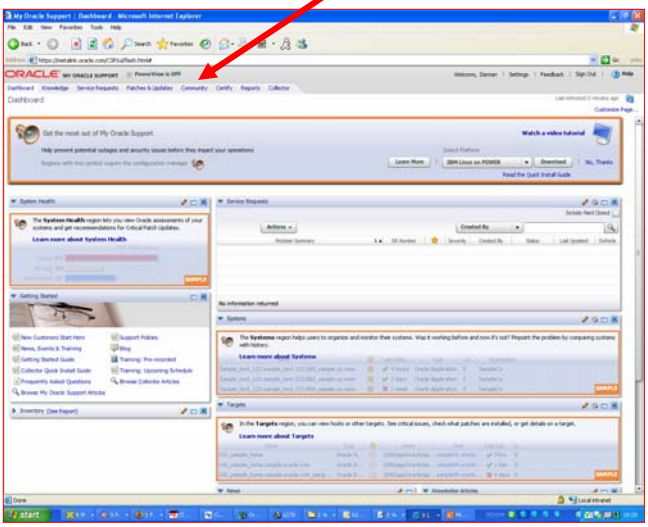
Agenda

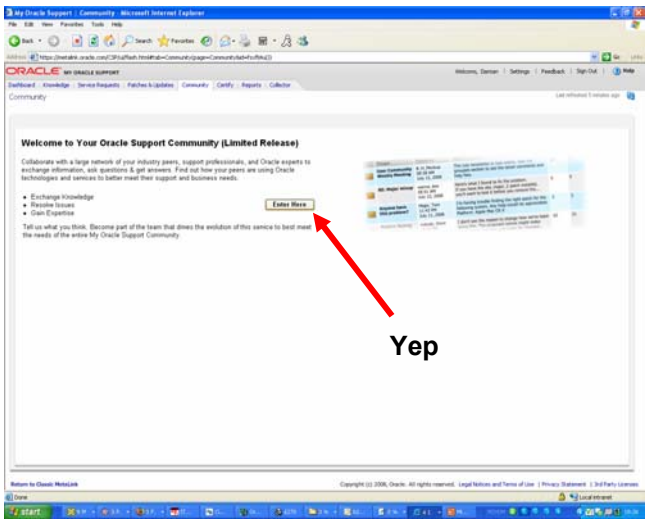
- My Oracle Support Communities
- Migration Strategies – to Linux on Z
- Oracle on Linux on Z installation gotchas
- Diagnostic and performance tools

My Oracle Support Communities

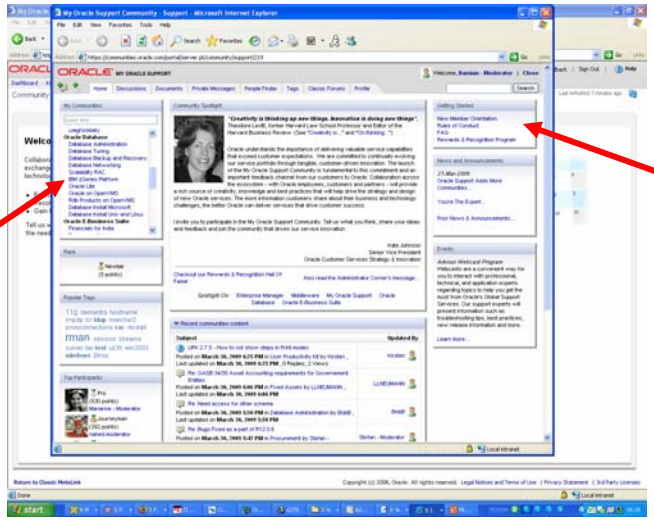
- Migration from the older Forum format
- Actively managed and moderated
- Encourages user posts
- Spotlight and highlight posts
- Specific community for zSeries customers
- Accessed via My Oracle Support (Metalink)

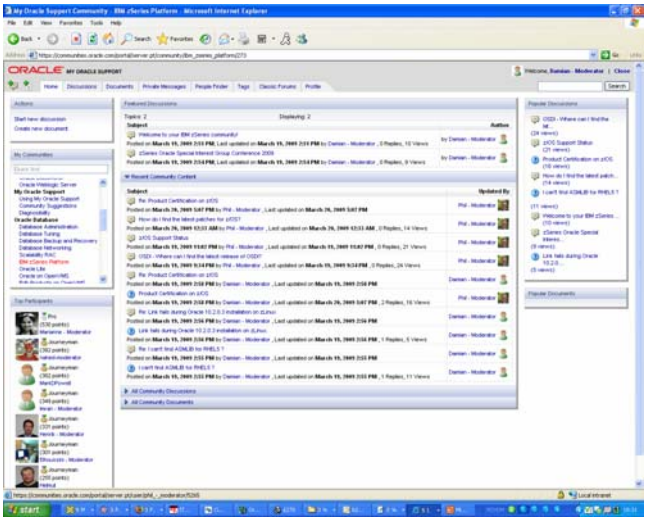
Here we are !!





Yep


zSeries
Getting Started



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Migration Strategies – to Linux on Z

- Pre 10g – Export / Import or dblink based
- Post 10g - Datapump or Transportable Tablespace
- Also possible to consider streams based

Transportable Tablespace

```
SQL> select * from v$transportable_platform;
PLATFORM_ID                 PLATFORM_NAME                  ENDIAN_FORMAT
 ----------- ------------------------------- --------------
1            Solaris[tm] OE (32-bit)        Big
2            Solaris[tm] OE (64-bit)        Big
7            Microsoft Windows NT           Little
10           Linux IA (32-bit)              Little
6            AIX-Based Systems (64-bit) Big
3            HP-UX (64-bit)                 Big
 5           HP Tru64 UNIX                  Little
4            HP-UX IA (64-bit)              Big
11           Linux IA (64-bit)              Little
15           HP Open VMS                    Little
8            Microsoft Windows IA (64-bit)  Little
9            IBM zSeries Based Linux        Big
13           Linux 64-bit for AMD           Little
16           Apple Mac OS                   Big
12           Microsoft Windows 64-bitAMD    Little
```


TT is an RMAN function

- If Endian the same, no conversion required
- If Endian different then:
- RMAN> convert **tablespace** 'REPOSIT'

2> to platform=" **IBM zSeries Based Linux**"
3>db_file_name_convert='/database/db101b2/V101B2/datafile/reposit01.dbf',
4> '/tmp/reposit01.dbf';

Full list of steps

- Set the **tablespace** to READ ONLY
- Export metadata
- Check the **endian**ness of the target database
- Convert if necessary
- Move datafiles and export dump file
- Import metadata
- Set the **tablespace** to READ WRITE
- **Note 243304.1 10g : Transportable Tablespaces Across Different Platforms**

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Oracle on Linux on Z installation gotchas

- Prior to 10.2.0.4, we unfortunately included the wrong stubs in the Oracle distribution materials, which causes the linkedit of the Oracel executable to fail - either with a pop up during the OUI GUI install, or silently , which is only reported in the installation log file.
- 10.2.0.4 includes the correct stubs, and since we recommend 10.2.0.4 should be used wherever possible, the simplest solution is to perform a software only install of 10.2.0.2, ignoring the link failure, and then installing 10.2.0.4 immediately, which will then have a clean installation and link.

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There are a series of articles on Metalink addressing this topic:

- **Information specific to SLES10:-**
- Note 556906.1 Requirements for Installing Oracle 10gR2 RDBMS on SLES 10 zLinux (s390x)
- Note 778319.1 Linking Errors on IBM zLinux (s390x) during 10.2.0.2 Installation - RHEL 5 or SLES 10
- **Information specific to RHEL5:-**
- Note 741646.1 Requirements for Installing Oracle 10gR2 RDBMS on RHEL 5 on zLinux (s390x)
- Note 778319.1 Linking Errors on IBM zLinux (s390x) during 10.2.0.2 Installation - RHEL 5 or SLES 10
- Note 779013.1 How to precompile sample demo programs on RHEL 5 on zLinux (s390x)
- **Information specific to SLES9:**
- Note 431443.1 Requirements for Installing Oracle 10gR2 RDBMS on SLES 9 zLinux (s390x)
- **Information specific to RHEL4:-**
- Note 420382.1 Requirements for Installing Oracle 10gR2 RDBMS on RHEL 4 on zLinux (s390x)

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Diagnostic and performance tools

- Oracel Configuration Manager
- Remote Diagnostic Agent
- LTOM
- OSWatcher

Oracle Configuration Manager

- Installed with CPU by default
- Configuration Support Manager utilizes core configuration management capabilities available from Oracle Enterprise Manager and provides:
- The ability to define configurations and organize projects
- A central view of Configuration details and changes
- Improved Service Request tracking and submission
- Proactive problem avoidance with Health Checks
- Proactive Product and Security Alerts

Benefits

- Benefits for customers, based on experience so far are:
- 30% Reduction Service Request Log Time

  20% Faster Response Time to Service Requests
- 40% Faster Issue Resolution

  25% Problem Avoidance with Alerts and Health Checks

Remote Diagnostic Agent

- A one off snapshot of system and Oracle
- Oracle Installation information
- Performance loadings
- Configuration files
- OS Kernel settings
- System load information – CPU, memory and IO
- Everything an engineer needs to understand a system
- Always load one when opening a SR

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The Lite Onboard Monitor (LTOM)

- A java program designed as a real-time diagnostic platform for deployment to a customer site.
- differs from other support tools, as it is proactive rather than reactive.
- provides real-time automatic problem detection and data collection.
- runs on the customer's UNIX server, is tightly integrated with the host operating system and provides an integrated solution for detecting and collecting trace files for system performance issues.
- The ability to detect problems and collect data in real-time will reduce the amount of time it takes to solve problems and reduce customer downtime.

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Major features

- Automatic Hang Detection
- System Profiler
- Automatic Session Tracing

Automatic Hang Detection

- The advantage of using automatic hang detection, is that if the database hangs at 2:00 in the morning and no one is around, the necessary diagnostic traces will be collected and a hang report will be generated.
- Email notification can be configured that will alert the user to the hang.
- To prevent traces from constantly being generated once a hang is detected, only one set of diagnostic traces are collected and no further hangs will be detected until the mode has been turned off and re-enabled.
- LTOM can also automatically determine the level of tracing based on the level of impact to the system of collecting additional diagnostic traces.

Default collection

- Once any session has been identified as hung, diagnostic traces are automatically generated. The type of hang diagnostic and number of diagnostic traces collected is determined by what has been defined in the rules file
- HangAnalyze Level 3
- Systemstate Level 266
- Wait 60 seconds
- HangAnalyze Level 3
- Systemstate Level 266

The System Profiler

- Provides the ability to continually collect data from both the operating system and oracle and provides an integrated snapshot of the overall health of the operating system together with the database.
- This data collection contains the output from operating system utilities (top, vmstat and iostat) along with Oracle session data (v$session, v$process, v$sesson_wait, v$system_event and v$system_statistics).
- The recording frequency and subsets of available data can also be configured when running the tool.

Automatic Session Tracing

- Uses a set of rules to determine when to turn on SQL trace for individual oracle sessions, using event 10046 level 12 trace.
- Rules can be defined for database wait events, CPU and specific users.
- For rules based on wait events, the automatic session recorder monitors certain V$ views at specified intervals and computes the average wait time between intervals for each event. This computed average wait time is compared to the rule definition for that event, if any. If a rule has been defined for that event and if the average wait time exceeds the rule threshold for that event then LTOM turns on tracing for that session.
- For rules based on CPU, the automatic session recorder computes the amount of CPU used by the session between intervals and compares it to the rule.
- For rules based on specific users, the automatic session recorder traces any session owned by that user.

OSWatcher

- A series of shell scripts that collect specific kinds of data, using Unix operating system diagnostic utilities. Control is passed to individually spawned operating system data collector processes, which in turn collect specific data, timestamp the data output, and append the data to pre-generated and named files. OSW invokes the distinct operating system utilities listed below as data collectors. These utilities will be supported, or their equivalents, as available for each supported target platform.
- ps
- top
- mpstat
- iostat
- netstat
- traceroute
- vmstat

Reports

- Both OSWatcher and LTOM are designed to have their data processed by a graphical postprocessor – supplied, which provides a graphical view over time.
- This makes it simple to see what was going on before a critical event – this is usually what gets missed – its not the event that matters, usually, but the profile leading up to it – 'the knee'.

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