



# ITM 6 Problem Determination and Troubleshooting

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**Tivoli** software

A horizontal decorative bar spanning the width of the slide, featuring a series of colored squares and patterns, including a white asterisk on a red background.

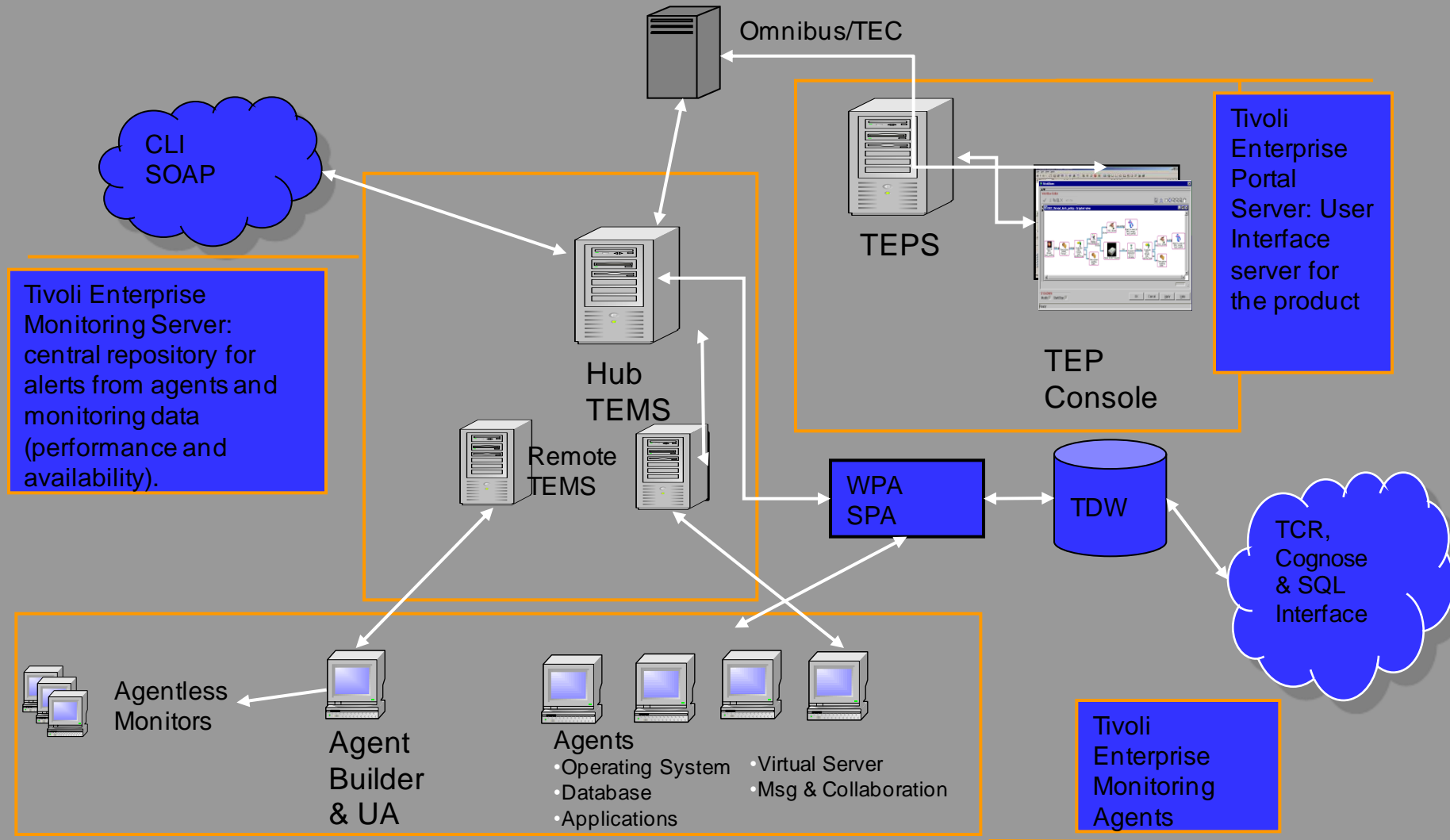
**ON DEMAND BUSINESS™**

- **Architecture Overview**
- **Available Tools for Troubleshooting**
- **Common Problems**
- **Q&A**

**Tivoli** software



# Architecture Overview



## Available Tools for Troubleshooting

### Product Provided

RAS1 log files

KDSTSNS/SPUF1

PDCollect

### Support Tools/Resources

ITMSUPER

IBM Support Assistant (ISA)

Log Analyzer



# RAS1 logs

- Purpose:

- ▶ The RAS1 acronym means Reliability, Availability and Serviceability. The RAS1 service in this discussion of ITM V6.x refers to the RAS1 building block (Basic Services component) used for diagnostic tracing.
- ▶ The RAS1 log file is the common way to start a debugging session and it is used for diagnostic tracing on all the components

- Operational Steps:

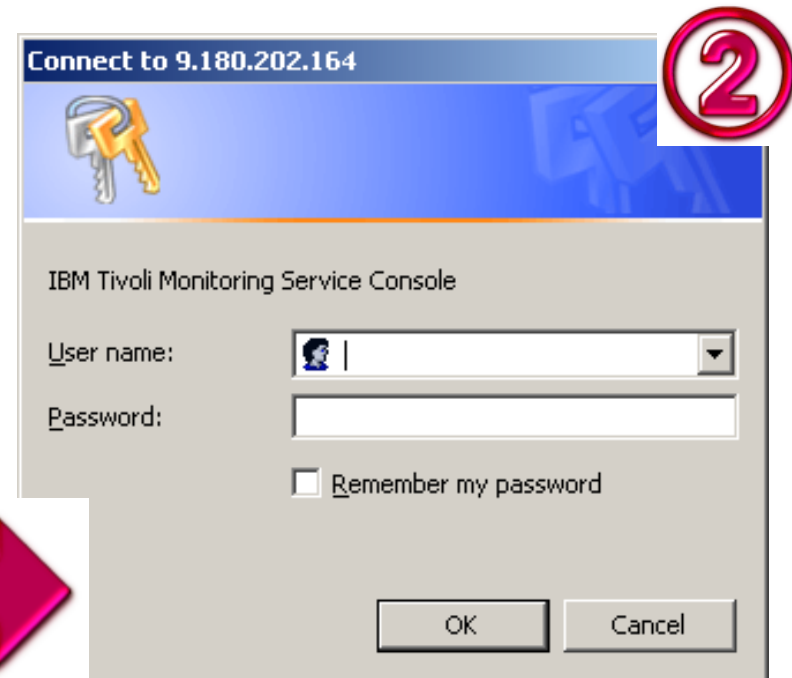
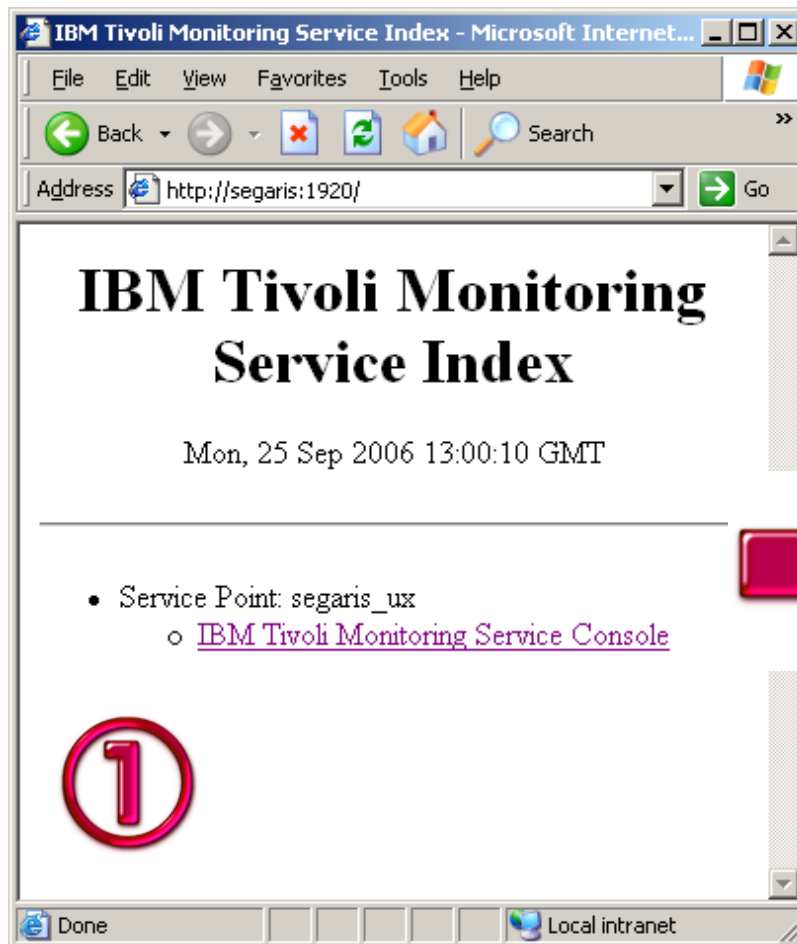
- ▶ Set trace: KBB\_RAS1={ERROR} (UNIT:Kxx <ERR, IN,...>)
- ▶ Sample trace levels can be found in ini/env files
- ▶ There are 3 ways to change tracing levels:
  - Service Console
  - MTEMS
  - Configuration files



## RAS1 logs – Service Console

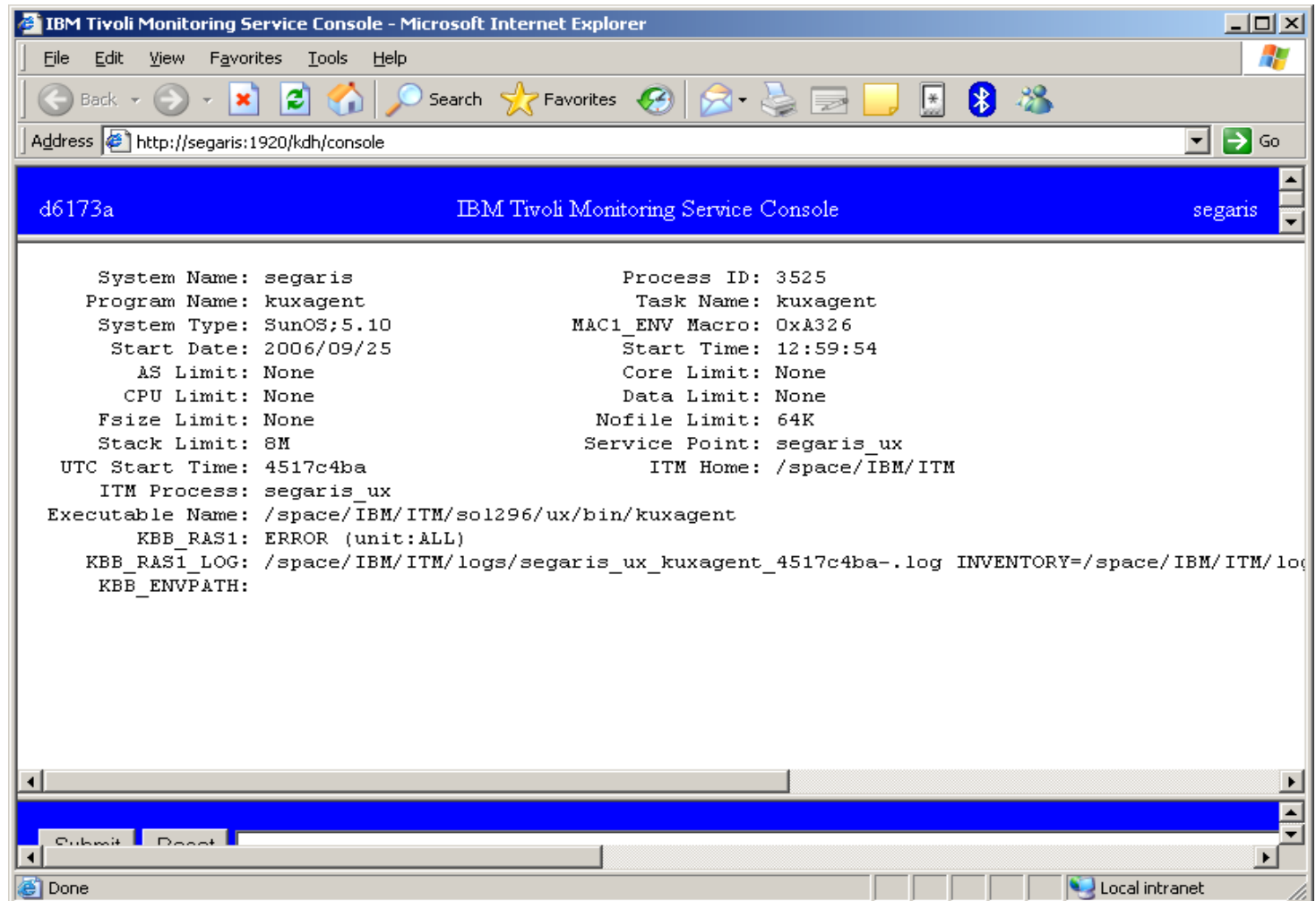
- Requires port 1920 open to target
- Requires local Administrator/root credentials
- Provides dynamic changing of trace levels
- Available for all components (TEMS, TEPS, S&P, WP & Agents)
- Technote with excellent details on this:
  - <http://www-1.ibm.com/support/docview.wss?rs=2366&uid=swg21266129>





1. Open <http://<hostname>:1920>
2. Enter Administrator/Root username & Password

## Example opening screen of Service Console



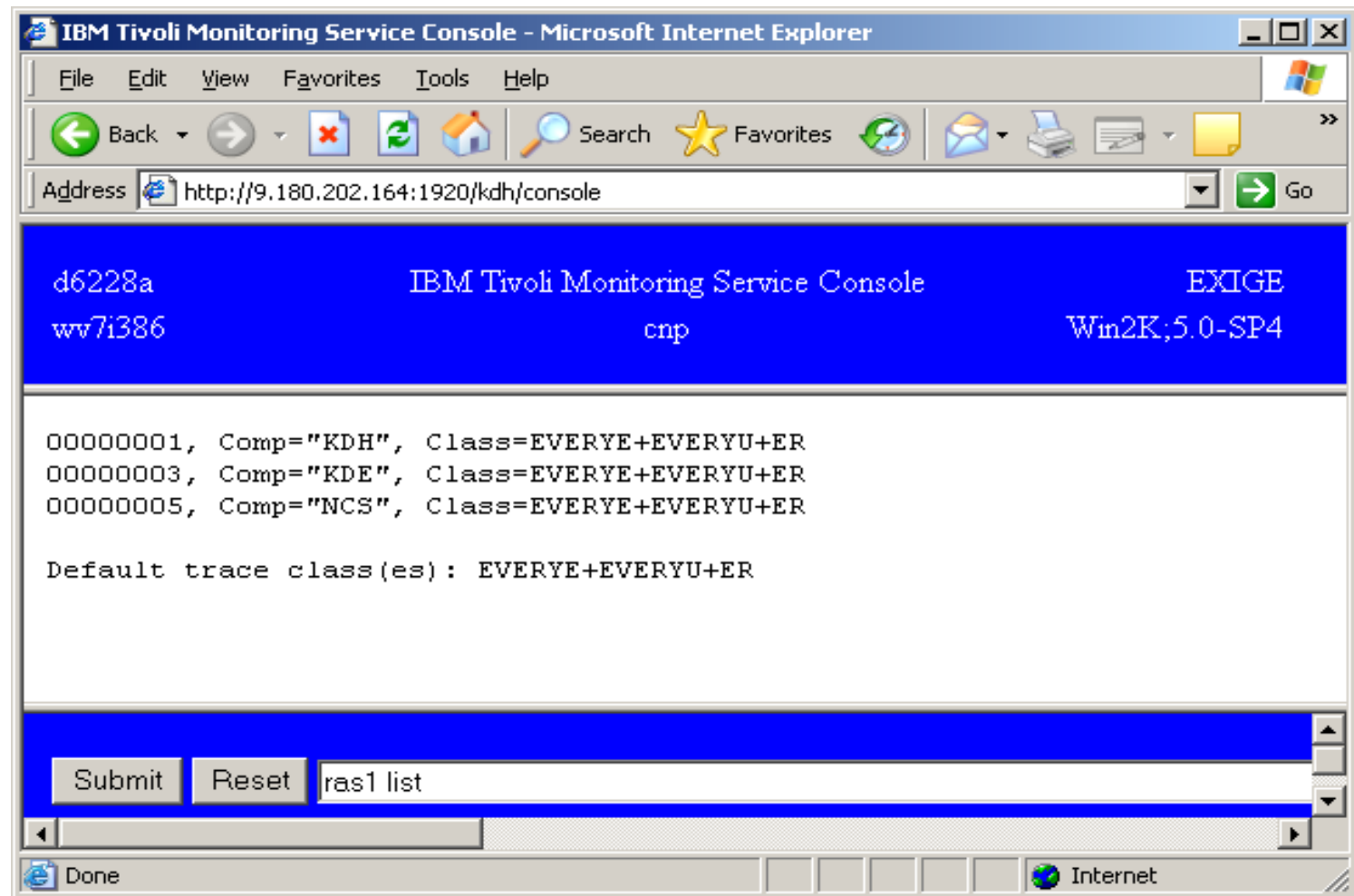


## Service Console commands (ras1)

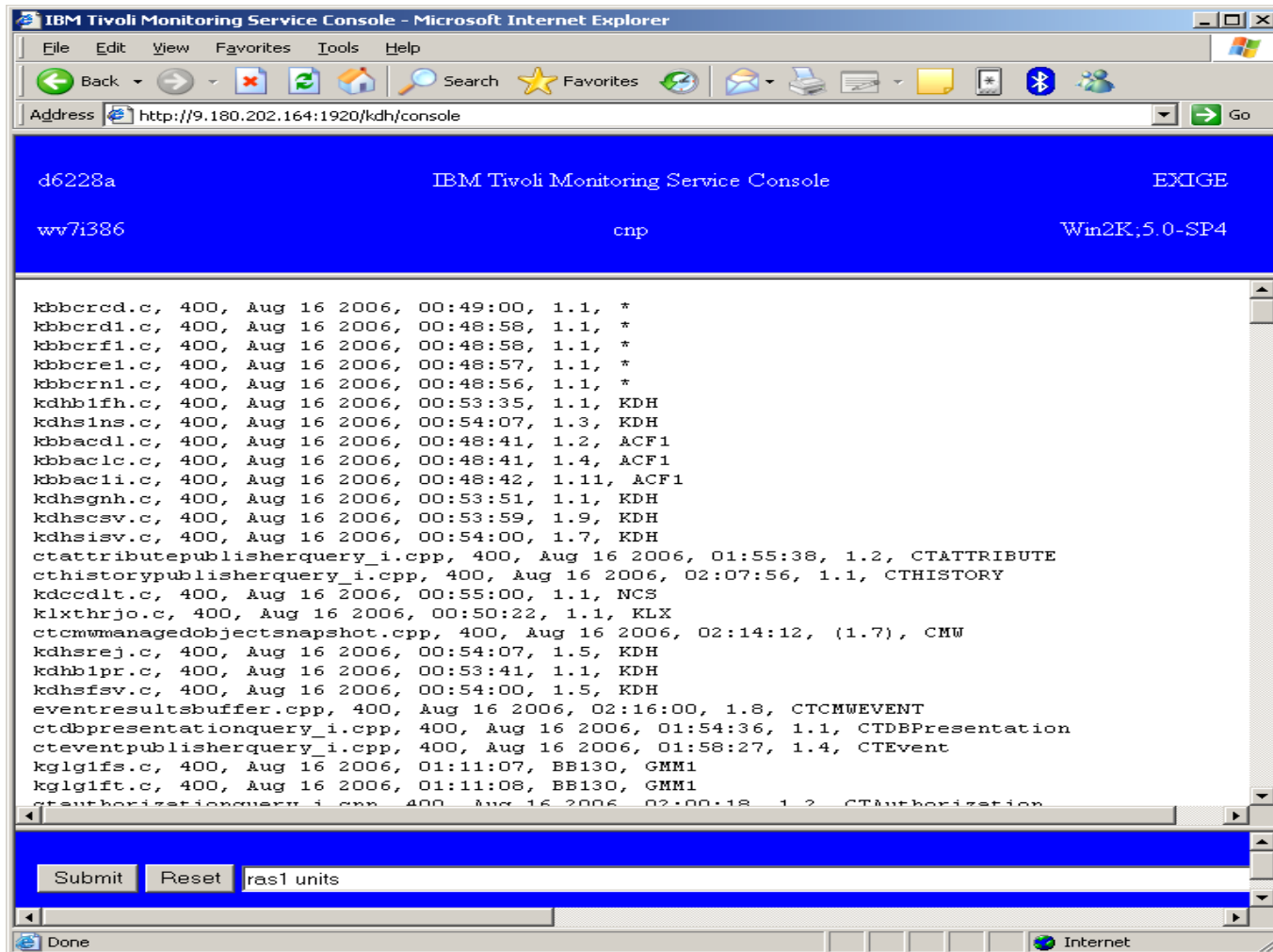
- Type '?' for full list of commands
- RAS1 offers commands to modify ras1 filters and display current ras1 settings
  - *usage : ras1 (command) ... (command)*
  - *Options : units, ctbld, set, list & log*
  - ras1 (list)
  - ras1 (list) (log)
  - ras1 – can be used to set or unset a specific trace filter
    - ras1 (UNIT:kdssqprs ALL)
    - ras1 (UNIT:kdssqprs NONE)



## Listing current trace settings

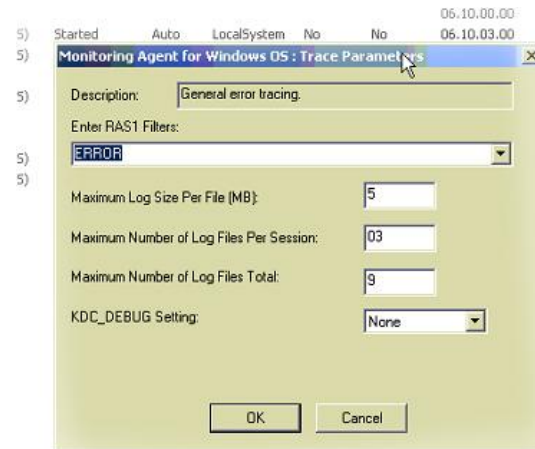
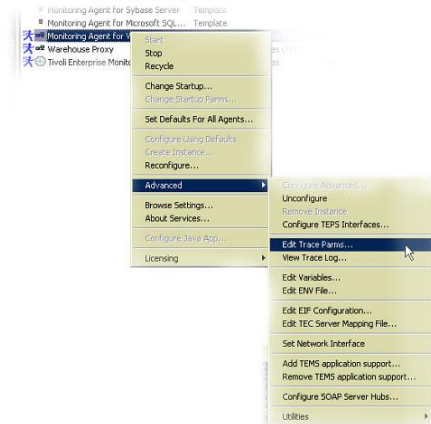


# Listing RAS1 units



# Setting the Trace Levels - MTEMS

- ▶ Manage Tivoli Monitoring Service
  - Requires Recycling after trace level modified
  - All TEMS components including KDC\_DEBUG and KDE\_DEBUG
  - Can modify trace levels, number of trace files, size of traces and maximum number of log files total
    - RAS1 Filter
    - Maximum Log Size per File
    - Maximum Number of Log Files Per Session
    - Inventory of Log Files
    - How many log files to preserve
  - Trace Parameters are not validated
    - syntax errors or typos will not be prevented.



# RAS1 logs – Configuration Files

## ■ UNIX/Linux

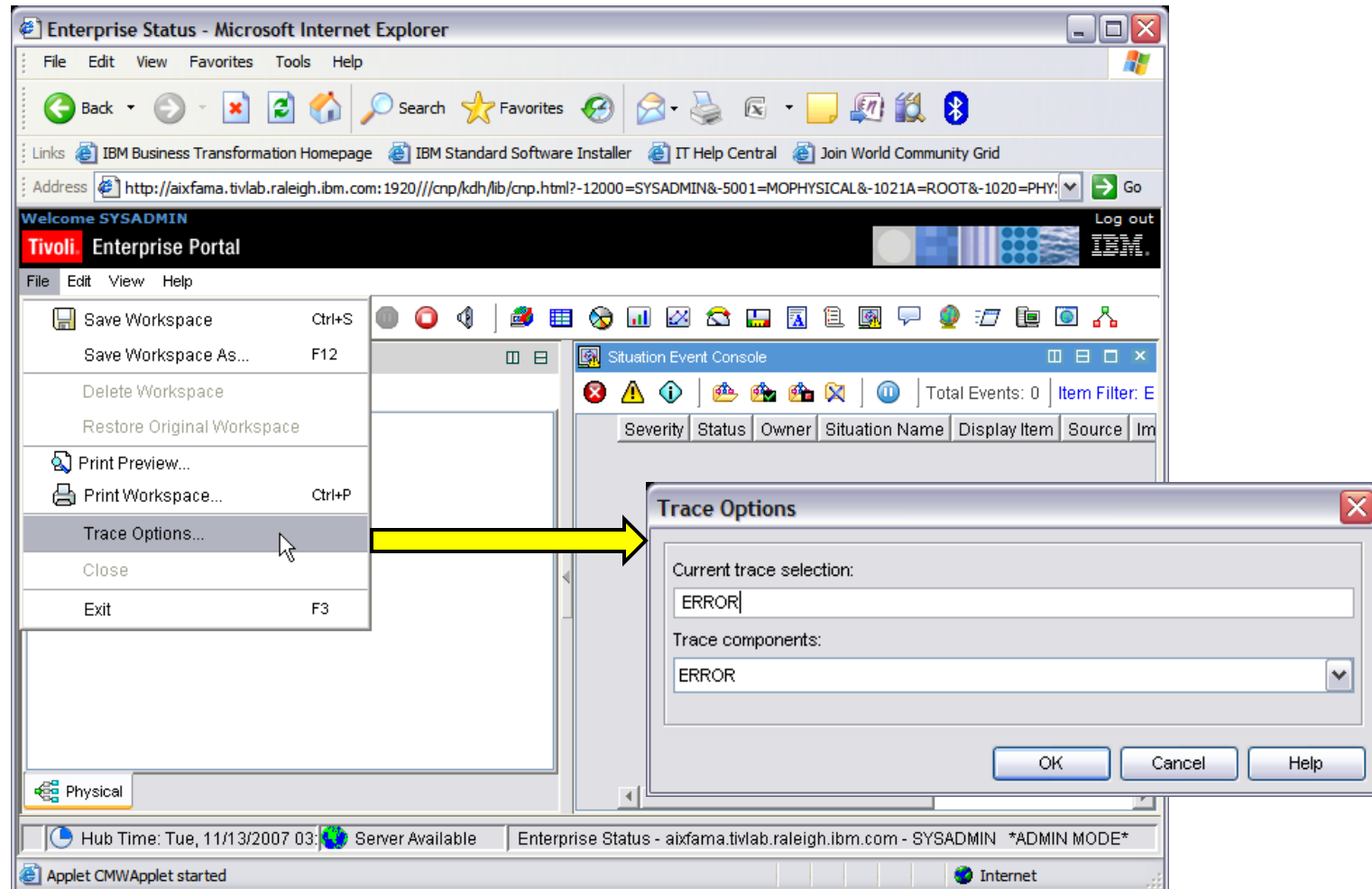
- ▶ Edit <pc>.ini file directly on the Managed System.
  - \$ CANDLEHOME /config/<pc>.ini
  - IE: ux.ini, mq.ini
- ▶ Requires Agent restart

## ■ Windows

- ▶ Edit <pc>ENV file directly on the Managed System
  - %CANDLE\_HOME%\TMAITM6\<PC>ENV
  - IE: KNTENV, KMQENV, KSYENV
- ▶ Requires Agent restart



# RAS1 logs – TEP Only



## RAS1 log files - Location

- Agents
  - ▶ Unix/Linux located at \$CANDLEHOME/logs
  - ▶ Windows located at %CANDLE\_HOME%\TMAITM6\logs
- TEMS & TEPS
  - ▶ \$CANDLEHOME/logs for Unix/Linux
  - ▶ %CANDLE\_HOME%\logs for Windows platform
- TEP Browser
  - ▶ C:\Documents and Settings\<User>\Application Data\IBM\Java\Deployment\log\Plugin142.trace
- TEP Desktop
  - ▶ %CANDLE\_HOME%\cnp\logs



## KDSTSNS/SPUFI

- SQL1 network client program
- Parses an input file that contains a SQL1 query and sends it to wherever it's been directed to connect (REMOTE TEMS or HUB)
- This is the SEED program invoked by INSTALL
- Defaults to SQLLIB for input location
- Query line lengths are limited to 72 characters.
- Some editors (i.e. notepad) do not format the file correctly and a blank line is required at the end
- SPUFI can be used to determine if a TEMS communication subsystem is hung.
- Running SPUFI in on the same machine where there's a running TEMS an sometimes encroach on the current running TEMS, i.e. KDSTSNS will overtake the RAS1 log. SET a local KBB\_RAS1 for that SPUFI session and point the KBB\_RAS1 to a different location so the RAS1 log is not overwritten by SPUFI.





## Running KDSTSNS/SPUFI

- SPUFI input is a file containing a SQL query. SPUFI looks for the path to the .sql file in the environment variable SQLLIB
- Create your SQL and store it in <CandleHome>\SQLLIB (for windows) or where ever you've set SQLLIB to refer to. On UNIX, the SQLLIB environment points into the deployment directory (cicatrsg). Either put your SQL file there or set a local SQLLIB environment variable (*i.e. export SQLLIB=/sql*).
- Additionally SPUFI may take over the TEMS log file if you run it on a system with a running TEMS. To prevent this, set a local environment variable to use a different like file (*i.e. set KBB\_RAS1\_LOG=c:\ibm\vtm\logs\spufi.log*)
- On Windows, start SPUFI by executing:  
`<CandleHome>\cms\kdstsns.exe`
- On UNIX, start SPUFI by executing:  
`<CandleHome>/<interp>/ms/bin/kdstsns`
- SPUFI will ask questions about how to connect – if you're physically at the HUB, hit enter and the program requires no additional information to connect.
- If you are connecting to a TEMS not locating at this box, enter the connection protocol (ip.pipe, ip, etc)
- Next enter the ip address, or a fully qualified hostname of the TEMS you are connecting to
- Lastly enter the port number for the TEMS (default is 1918)

## SPUFIL – zOS Platform

- Purpose

SPUFIL enables to access TEMS internal tables and manually retrieve data which are not usually available via TEP.

- Operational Steps

Create a member in &RHILEV.RKANSQL, of the TEMS you want to see this information on, containing the definition of your SQL query (eg. RKANSQL(NODELIST)).

Issue the modi(F)y command:

```
/F <cms>,CTDS START SPUFIL,<sql-member-name>
```

```
    /F CANSDDSST,CTDS START SPUFIL,NODELIST
```

Output of the query can be found in RKLVLLOG of the TEMS



## KIB.CAT – Describes the TEMS Database

- Writing a valid and helpful SQL1 TEMS query requires knowledge of the TEMS database (EIB).
- ITM SQL1 API is very close in definition to ANSI SQL.
- The definition of all TEMS tables are in the file KIB.CAT (<CANDLEHOME>\cms\RKDSCATL on windows for example). Tables are not explicitly defined, rather sets of columns are listed. the Column Definition Records for a table are tagged by a C in position 1 of a line.
- Here's all the columns in the TNODELST (nodelist) table

CO4SRV	TNODELST	AFFINITIES	SM2S44	VSE1EMT1SM2234	YN
CO4SRV	TNODELST	LOCFLAG	SM2S2	VSE1EMT1SM2240	YN
CO4SRV	TNODELST	LSTDATE	SM2S16	VSE1EMT1SM2238	YN
CO4SRV	TNODELST	LSTUSRPRF	SM2S10	VSE1EMT1SM2236	YN
CO4SRV	TNODELST	NODE	SM2S32	VSE1EMT1SM2230	YN
CO4SRV	TNODELST	NODELIST	SM2S32	VSE1EMT1SM2227	YN
CO4SRV	TNODELST	NODETYPE	SM2S1	VSE1EMT1SM2232	YN
CO4SRV	TNODELST	QIBCLASSID	SM2S4	VSE1EMT1SM2228	YN
CO4SRV	TNODELST	RESERVED	SM2S64	VSE1EMT1SM2242	YN

- Here's a SQL1 query to return data in the TNODELST table and order it by one of the columns (LSTDATE)

```
SELECT Nodelist, NODE, NODETYPE, LSTUSRPRF, AFFINITIES,
       LSTDATE
FROM O4SRV.TNODELST ORDER BY LSTDATE;
```



## Incore tables and other special tables

- Some tables are persisted only in memory – these are termed incore tables.
  - ▶ INODESTS – node status information is only maintained in the INCORE table
  - ▶ ISITSTSH – incore situations status history table
  - ▶ These work exactly like persisted tables.
- Some tables do not contain data, but drive collection or an action when a SELECT is issued.
  - ▶ TADVISOR – this is the table that causes a SITUATION to run. There is no data persisted her, rather this SELECT is issued by SITMON to drive the situation.
  - ▶ CLACTLCL – A SELECT on this table will drive a reflex emulation. The value of the cmd field will be executed.
- Many of the tables are no longer used by the TEMS (i.e. when the TEPS database used to be part of the TEMS).



## Example - Connecting to the local HUB

```
C:\>cd ibm\itm\cms
```

```
C:\IBM\ITM\cms>set SQLLIB=c:\sql
```

```
C:\IBM\ITM\cms>kdstsns
```

To terminate the program at any time, enter "end"

Enter NCS Address Family or "Node" (default: \*HUB):

Path Specification:

NCS:{NODE=\*HUB} CT/DS:{SERVER=SRVR01 USER=DSTSNS}

Socket Specification:

Server Version: 400 Build: 06275 Host Type: 6 Host Level: 1 Feature: NLS=Y

Requester Version: 400 Build: 06275 Host Type: 6 Host Level: 1 Feature: NLS=Y

Server Options: Case Matching = 0

Enter SQL member name (or "end" to quit) ...



## Connection to a non-local TEMS

```
C:\IBM\ITM\cms>kdstsns
```

To terminate the program at any time, enter "end"

Enter NCS Address Family or "Node" (default: \*HUB): **ip.pipe**

Enter host name/address :**elaix04.austin.ibm.com**

Enter NCS Server Port Number (eg. 1024, ....): **1918**

Path Specification:

```
NCS:{SOCKET=ip.pipe:elaix04.austin.ibm.com[1918]} CT/DS:{SERVER=SRVR01  
  USER=DSTSNS}
```

Socket Specification:

```
ip.pipe:kate.austin.ibm.com[1918]
```

```
Server      Version: 400 Build: 06275 Host Type: 6 Host Level: 1 Feature: NLS=Y
```

```
Requester Version: 400 Build: 06275 Host Type: 6 Host Level: 1 Feature: NLS=Y
```

```
Server Options: Case Matching = 0
```

```
Enter SQL member name (or "end" to quit) ...
```



## Example: TEMS not running – SPUFI can't Connect

```
C:\IBM\ITM\cms>kdstsns
```

To terminate the program at any time, enter "end"

Enter NCS Address Family or "Node" (default: \*HUB):ip.pipe

Enter host name/address :elaix04.usca.ibm.com

Enter NCS Server Port Number (eg. 1024, ....):1918

Path Specification:

```
NCS:{SOCKET=ip.pipe:elaix04.usca.ibm.com[1918]} CT/DS:{SERVER=SRVR01  
  USER=DSTSNS}
```

Socket Specifcation:

```
ip.pipe:kkawada.usca.ibm.com[1918]
```

CreatePath status = 172 → connection error (other error: 164,167,155)



## Example: SQL1 query has a syntax error

- Enter SQL member name (or "end" to quit) ... **Getnodelists** → *execute SQL1 file*
- Library Name: c:\sql
- Member Name: **getnodelists.sql** → *the SQL1 file to execute*
- SELECT NODELIST, NODE, NODETYPE, AFFINITIES,  
▪     LSTUSRPRF, LSTDATE,  
▪     FROM O4SRV.TNODELST ORDER BY LSTDATE;
- **SQL1\_CreateRequest status = 350** → *syntax error*
- Total Libraries Processed: 1
- Total Members     Processed: 1
- Total SQLs         Processed: 1
- Total Errors     Encountered: 1





## Example: Successful SPUFI query

Enter SQL member name (or "end" to quit) ... getnodes

Library Name: c:\sql

Member Name: getnodes.sql

```
SELECT GBLTMSTMP, NODE, THRUNODE, HOSTINFO, HOSTADDR,
       O4ONLINE, NODETYPE, VERSION
FROM O4SRV.INODESTS ORDER BY GBLTMSTMP;
```

```
/*****
/***** Create Request Was Done *****/
/*****/
```

1061101151635001 Primary:RED:NT ip.pipe:#9.53.24.71[10111]<NM>RED</NM>	HUB_RED	WinXP~5.1-SP1
	N V	06.10.04
1061101151640001 HUB RED <IP.PIPE>#9.53.24.71[1918]</IP.PIPE>	HUB_RED	
	Y	06.10.04

**Row Count: 2** → 2 rows of data returned

```
Total Libraries Processed: 1
Total Members Processed: 1
Total SQLs Processed: 1
Total Errors Encountered: 0
```

Enter SQL member name (or "end" to quit) ...



## SPUFI and capturing results

- SPUFI can be used in non-interactive fashion to capture data results with the following syntax (windows):

```
<CANDLEHOME>\kdstsns <sql_file> <CMS_NODEID> > <output_file_name>
```

- ▶ Where:

- sql\_file is the SQL1 file that is located via the SQLLIB environment variable
  - the CMS\_NODEID which is the TEMS NODEID
    - name can be substituted with \*HUB if issuing to the HUB TEMS.
  - output\_file\_name – name of the file to store the output results
- For command line operation to work as above the KDC\_FAMILIES environment variable should be appropriately set and local glb\_site.txt file pointed to the HUB TEMS correctly.



## Example of SPUIFI and file output

```
c:\IBM\ITM\cms>kdstsns getnodes.sql HUB_ITMDEV21 > output
c:\IBM\ITM\cms>type output
```

```
Library Name: c:\sql
Member Name:  getnodes.sql
```

```
SELECT GBLTMSTMP, NODE, THRUNODE, AFFINITIES, HOSTINFO,
       O4ONLINE, NODETYPE, VERSION
FROM O4SRV.INODESTS ORDER BY GBLTMSTMP;
```

```

/*****
/***** Create Request Was Done *****/
/*****/

```

1061103095002000	indaix04.tivlab.austin.ibm.com:K	HUB_ITMDEV21			
00f200000000000000000000000000000800000w0a7	AIX~5.2		Y	V	06.10.03
1061103095036000	Primary:ITMDEV21:NT	HUB_ITMDEV21			
00080000000000000000000000000000G00000w0a7	Win2003~5.2-SP1		Y	V	06.10.02
1061103095550000	HUB_ITMDEV21	HUB_ITMDEV21			
000000000800000000000000000000000000000068f0			Y		06.10.03

Row Count: 3

```
Total Libraries Processed: 1
Total Members Processed: 1
Total SQLs Processed: 1
Total Errors Encountered: 0
```

## RAS1log

- Ras1log
  - ▶ Converts the hex timestamp in the RAS1 logs into either local time or UTC time format
  - ▶ Sends the output to standard out
  - ▶ Provided for UNIX, Linux and Windows platforms



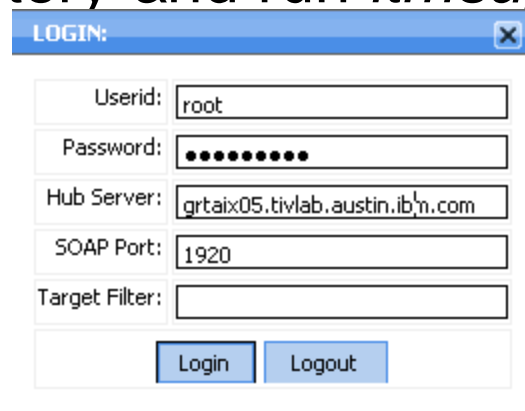
# PDCollect

- PDCollect is a multi-platform problem-determination data collection tool.
- Supported on Windows, Unix/Linux and z/OS
- PDCollect tool output consists of:
  - ▶ ITM log and configuration files
    - *Log files*
    - *History files*
    - *Database files*
    - *Configuration files*
  - ▶ Operating system/environment information
    - *Windows event logs*
    - *ITM directory listings*
  - ▶ Environment data
    - *TCP/IP information (ipconfig/ifconfig/netstat)*
    - *Environment variables*
    - *Disk space*



# ITMSUPER

- Downloadable from OPAL
  - ▶ Runs stand-alone on Windows and points to a TEMS on z/OS®, AIX®, Linux®, or Windows platform.
  - ▶ <http://catalog.lotus.com/wps/portal/topal/details?catalog.label=1TW10TM6L>
- From the directory where the package was uncompressed go into itmsup directory and run *itmsuper.htm*



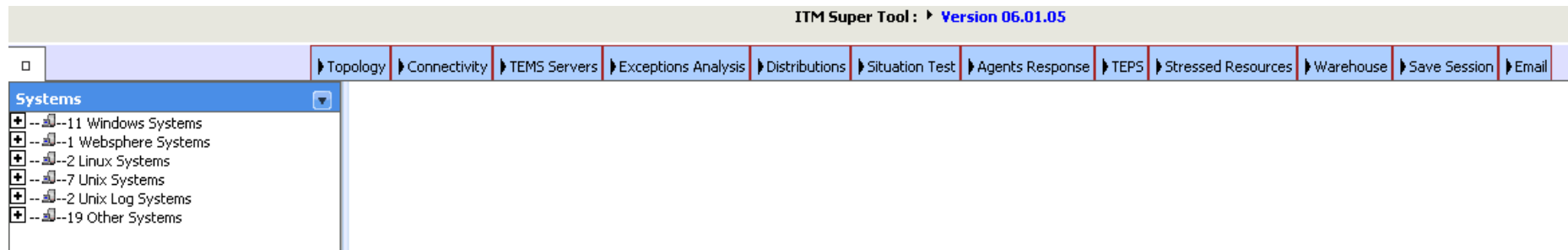
A screenshot of a web-based login window titled "LOGIN:". The window contains several input fields and two buttons. The "Userid:" field contains the text "root". The "Password:" field is filled with ten dots. The "Hub Server:" field contains the text "grtaix05.tivlab.austin.ibm.com". The "SOAP Port:" field contains the text "1920". The "Target Filter:" field is empty. At the bottom of the form are two buttons: "Login" and "Logout".

Userid:	root
Password:	.....
Hub Server:	grtaix05.tivlab.austin.ibm.com
SOAP Port:	1920
Target Filter:	
<input type="button" value="Login"/> <input type="button" value="Logout"/>	

# Report generated by ITMSUPER

1. Topology/Uptime for Agents
2. Connectivity Tool
3. TEMS Server
4. Exception Analysis
5. Distributions
6. Situation Test

1. Agents Response
2. TEPS
3. Stressed Resources
4. Warehouse
5. Save Session
6. Email



[illegible]

Green  
Red



# Uptime for Agents

Enterprise Topology VERSION 06.01.05(101 Systems.) Thursday, June 12, 2008 Response Time = 0.672 Seconds

## Uptime of Agents

Uptime of Agents report shows:

1. Name of the agent,
2. Start Time of agent.
3. Local Time of the agent.
4. Agent uptime in minutes.

Agents up for less than 5 days are highlighted in yellow.

## Enterprise Agent Inventory

### Hub\_grtaix05

Agent Name	Up Since	Local Time Now	Agent Uptime Minutes
Primary:GRTVMW04:NT	04/19/08 19:56:45	06/12/08 16:47:50	77571
Primary:GRTVMW18:NT	04/19/08 20:57:53	06/12/08 17:42:51	77564
grtaix11:SY	03/30/08 19:55:09	06/12/08 16:34:30	106359
grtaix11:Warehouse	05/07/08 14:40:20	06/12/08 16:34:30	51954
grtsol11:SY	05/16/08 16:24:58	06/12/08 16:34:12	38889
grtsol13:SY	05/23/08 15:09:17	06/12/08 16:32:28	28883
grtvmw17:GRTVMW04:QV	04/18/08 03:07:36	06/12/08 16:47:50	80020
vmw15g02:LZ	05/05/08 04:24:34	05/20/08 22:56:15	22711

### Remote\_grtsol10

Agent Name	Up Since	Local Time Now	Agent Uptime Minutes
grtaix01.grt.aus:KUX	03/29/08 18:09:58	06/12/08 16:36:19	107906
grtsol10:grtsol10:SYB	03/29/08 17:06:20	06/12/08 16:26:11	107959

### Remote\_vmw08g10

Agent Name	Up Since	Local Time Now	Agent Uptime Minutes
Primary:GRT2K301:NT	05/23/08 17:20:52	06/12/08 16:52:51	28771
Primary:GRTVMW06:NT	04/18/08 04:10:23	06/12/08 16:47:16	79956
Primary:GRTVMW07:NT	06/11/08 14:48:27	06/12/08 16:52:33	1564
Primary:GRTVMW09:NT	04/18/08 05:21:22	06/12/08 16:59:36	79898
Primary:GRTVMW10:NT	04/18/08 05:10:46	06/12/08 16:51:25	79900
grtaix10:KUL	04/05/08 21:05:03	06/13/08 16:49:43	99104
grtaix10:KUX	04/05/08 21:14:07	06/13/08 16:49:42	99095
grtsol12:KUX	04/04/08 20:55:30	06/12/08 16:33:59	99098
vmw10g10:LZ	04/18/08 05:14:13	06/12/08 16:51:02	79896

### Remote\_vmw10g10

Agent Name	Up Since	Local Time Now	Agent Uptime Minutes
------------	----------	----------------	----------------------



# Connectivity

grtvmw07.tivlab.austin.ibm.com - Remote Desktop

ITMSUPER Tool - Windows Internet Explorer

C:\downloads\itmsup\itmsuper.htm

File Edit View Favorites Tools Help

Self-Monitoring Topology ITMSUPER Tool

ITM Super Tool : Version 06.01.05

Topology Connectivity TEMS Servers Exceptions Analysis Distributions Situation Test Agents Response TEPS Stressed Resources Warehouse Save Session Email

**Systems**

- 11 Windows Systems
  - Primary:GRT2K301:NT
  - Primary:GRTVMW04:NT
  - Primary:GRTVMW06:NT
  - Primary:GRTVMW07:NT
  - Primary:GRTVMW08:NT
  - Primary:GRTVMW09:NT
  - Primary:GRTVMW10:NT
  - Primary:GRTVMW11:NT
  - Primary:GRTVMW13:NT
  - Primary:GRTVMW14:NT
  - Primary:GRTVMW18:NT
- 1 WebSphere Systems
  - grtaix12:WEBSPHERELOGS00
- 2 Linux Systems
  - vmw10g10:LZ
  - vmw15g02:LZ
- 7 Unix Systems
  - grtaix01.grt.aus:KUX
  - grtaix10:KUX
  - grtaix11:KUX
  - grtaix12:KUX
  - grthpx04:KUX
  - grtsol11:KUX
  - grtsol12:KUX
- 2 Unix Log Systems
  - grtaix10:KUL
  - vmw08g10:KUL
- 19 Other Systems
  - Hub\_grtaix05
  - Primary:grtaix10:KHTA
  - Remote\_grtsol10
  - Remote\_vmw08g10
  - Remote\_vmw10g10
  - SC\_Portal\_default\_:grtaix12:KYNS
  - WAREHOU:grtsol11:ORA
  - grtaix11:SY
  - grtaix11:Warehouse
  - grtaix11:grtaix11:ORA
  - grtaix12:KYNA
  - grtaix12ASFSdp:UAGENT00
  - grtsol10:grtsol10:SYB
  - grtsol11:SY
  - grtsol13:SY
  - grtvmw17:GRTVMW04:QV
  - vmw08g10ASFSdp:UAGENT00
  - vmw15g02:SY1 TEST00
  - vmw15g02ASFSdp:UAGENT00

**Connectivity HUB/RTEMS Discrepancies, Analysis Time: 0.235 Seconds**

Correctable Items Correct On Hub\_grtaix05

MS Last Reported PARENT STATUS Duration

MS	Last Reported	PARENT	STATUS	Duration
AppSrv01\$server1:grtaix03:KYNS	03/30/08 16:10:08	Primary:grtaix03:KYNA	N	73 days
GRT2K306:UA	03/30/08 16:10:08	Remote_vmw08g10	N	73 days
GRTVMW04:UA	04/19/08 18:28:21	Hub_grtaix05	N	53 days
GRTVMW07:Warehouse	03/30/08 16:10:08	Hub_grtaix05	N	73 days
Primary:GRT2K304:NT	03/30/08 16:10:08	Remote_vmw08g10	N	73 days
Primary:GRT2K306:NT	03/30/08 16:10:08	Remote_vmw08g10	N	73 days
Primary:GRTVMW05:NT	03/30/08 16:10:08	Remote_vmw08g10	N	73 days
Primary:GRTVMW12:NT	03/30/08 16:10:08	Remote_vmw10g10	N	73 days
Primary:VMW15G01:NT	03/30/08 16:10:08	Hub_grtaix05	N	73 days
Primary:grtaix03:KYNA	03/30/08 16:10:08	Hub_grtaix05	N	73 days
Primary:vmw05g03:T2	03/30/08 16:10:09	Remote_vmw10g10	N	73 days
Primary:vmw06g03:KY3A	03/30/08 16:10:09	Remote_vmw08g10	N	73 days
Primary:vmw06g03:KYNA	03/30/08 16:10:09	Remote_vmw10g10	N	73 days
VMW14G09:T6	03/30/08 16:10:09	Remote_vmw08g10	N	73 days
WAREHOU:grtsol13:ORA	05/23/08 15:40:51	Remote_vmw10g10	N	19 days
db2inst1:grthpx02	03/30/08 16:10:09	Remote_vmw10g10	N	73 days
db2tws:grtaix12	03/30/08 16:10:09	Remote_vmw08g10	N	73 days
default\$server1:vmw06g03:KYNS	03/30/08 16:10:09	Primary:vmw06g03:KYNA	N	73 days

**Agent Counts , Analysis Time:0.125 Seconds**

Hub_grtaix05 0 Seconds		Remote_grtsol10 0.016 Seconds		Remote_vmw08g10 0.015 Seconds		Remote_vmw10g10 0.016 Seconds	
Product	No	Product	No	Product	No	Product	No
BI	1	EM	1	EM	1		
EM	1	OY	1	LZ	1		
EM	4	UX	1	NT	1		
HD	2			NT	5		
HD	1			UL	1		
HT	1			UX	2		
LZ	4						
LZ	2						
NT	5						
NT	11						
OR	2						
OR	2						
OY	1						

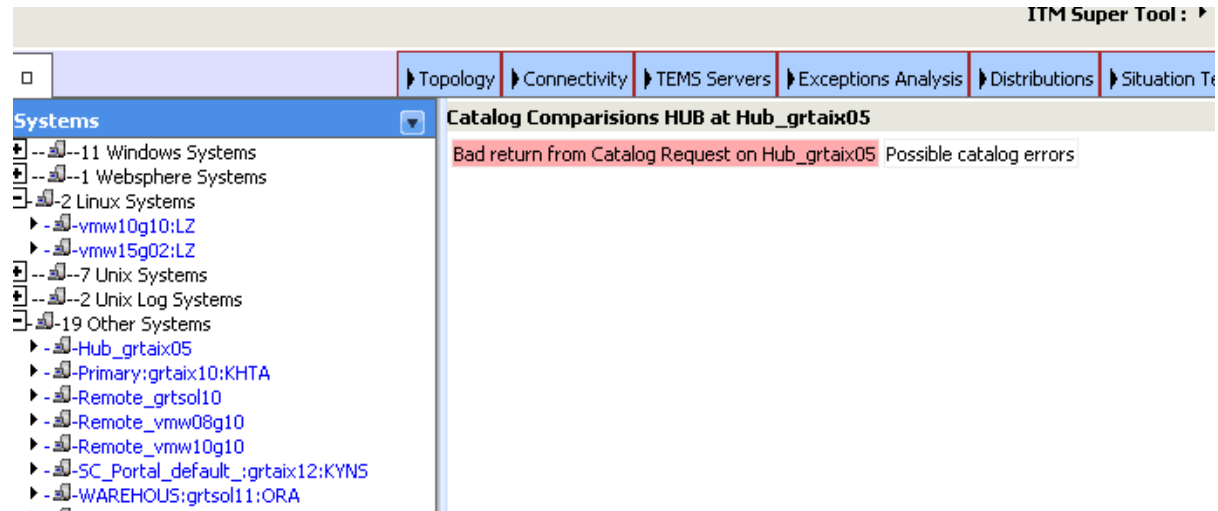
**Connectivity Status at each TEMS , Analysis Time :0.125 Seconds**

Hub_grtaix05 0 Seconds	Remote_grtsol10 0.015 Seconds	Remote_vmw08g10 0.016 Seconds	Remote_vmw10g10 0.016 Seconds
03/30/08 16:10:08 .. AppSrv01\$server1:grtaix03:KYNS		06/11/08 14:43:35 .. Primary:GRTVMW13:NT	
03/30/08 16:10:08 .. GRT2K306:UA			



# TEMS Server – Catalog problem

- Catalog error on TEMS Server
- Code issue to be resolved by APAR IZ22104: TEMS catalog returns too much data.  
SYSCOLUMNS



- You can get around the problem corrected by IZ22104 by removing following environment variables until the fix for the APAR is available.

KGL\_GMMSTORE=

KDS\_HEAP\_SIZE=



# ISA Work Bench

**Product Information - IBM Support Assistant Workbench**

File Administration Update Window Help

**Support Assistant**

Launch Activity Home Find Information

Search Information Product Information

Select a product: IBM Tivoli Monitoring 6.2

**IBM Tivoli Monitoring 6.2**

Home Page Support Page

**Skills Enhancements**

- [IBM Tivoli Monitoring Product Documentation](#)
- [IBM Tivoli Publications](#)
- [IBM Tivoli Software Training](#)
- [IBM Tivoli Training Finder](#)
- [IBM Tivoli Redbooks](#)

**Problem Determination**

- [Problem Determination Guide](#)
- [Support Featured Documents](#)
- [Support Recommended Fixes](#)
- [Support Information to Include](#)

**Skills info**

**Problem Determination**

**RSS Feeds**

**News**

**Flash**

- [Compatibility of ITM 6.2 and Omeqamon XE for Messaging 6.0 and 6.0.1](#)
- [Announcing the release of IBM Support Assistant version 4.0.](#)
- [Significant performance improvements realized for TEP client](#)

**APARs**

- [IZ00473: TACMD AND SOAP UNABLE TO CONNECT TO HUB TEMS ON UNIX](#)

**Fixes and Utilities**

- [IBM Tivoli Monitoring Version 6.1.0 Interim Fix 5 - 6.1.0.6-TIV-ITM-IF0005](#)
- [IBM Tivoli Monitoring Version 6.1.0 Interim Fix 2 \(6.1.0.6-TIV-ITM-IF0002\)](#)
- [IBM Tivoli Monitoring Version 6.1.0 Interim Fix 4 \(6.1.0.6-TIV-ITM-IF0004\)](#)
- [IBM Tivoli Monitoring Version 6.1.0 Interim Fix 1 \(6.1.0.6-TIV-ITM-IF0001\)](#)
- [IBM Tivoli Monitoring Version 6.1.0 Interim Fix 3 - 6.1.0.6-TIV-ITM-IF0003](#)
- [IBM Tivoli Monitoring Version 6.1.0 Fix Pack 6 \(6.1.0-TIV-ITM-FP0006\)](#)
- [IBM Tivoli Monitoring Agent Builder Interim Fix 0001, 6.2.0-TIV-ITM\\_ABLDR-IF0001](#)
- [IBM Tivoli Monitoring Version 6.1.0 Interim Fix 4 \(6.1.0.5-TIV-ITM-IF0004\)](#)

**Preventive service planning**

- [Recommended Maintenance Service Levels for OMEGAMON XE products on ITM V6.x](#)
- [Recommended Maintenance Service Levels for OMEGAMON XE products on ITM V6.x](#)

**Product documentation and publications**

- [Draft Redbooks - Certification Study Guide Series: IBM Tivoli Monitoring V 6.2](#)
- [IBM Tivoli Monitoring Newsletter](#)
- [Platform Maintenance Tables](#)
- [Featured documents for IBM Tivoli Monitoring Version 6](#)
- [Redbooks - Deployment Guide Series: IBM Tivoli Monitoring V6.2](#)
- [Redbooks - Getting Started with IBM Tivoli Performance Analyzer Version 6.1](#)
- [2005\\_12\\_06 STE: IBM Tivoli Monitoring V6.1 - Moving forward to ITM V6.1 for DM Customers](#)
- [2005\\_12\\_07 STE: IBM Tivoli Monitoring V6.1 - Maximizing the Investment in ITM V5.x Using ITM V6.1](#)
- [2005\\_12\\_08 STE: IBM Tivoli Monitoring V6.1 - Resource Models vs. Managed Systems](#)

**Technotes**

- [Known Limitations & Workarounds: OMEGAMON&reg; XE V4.1.0 & ITM Services V6.1.0](#)

# Log Analyzer

The screenshot shows the IBM Log Analyzer application interface. The main window is titled "Log Analyzer" and contains several panes:

- Log Navigator:** Located on the left, it shows a tree view of log sources and symptom catalogs. A red arrow points to the "Symptom Catalogs" section.
- Log View:** The central pane displays a table of log records. A red circle highlights this area, with a red arrow pointing to it from the "Imported logs" label. The table has columns: Creation Time, Severity, Source Component Name, Source Sub-compo..., and Message Text. The records show various error messages from Tivoli Enterprise Monitoring.
- Properties / Symptom Analysis Results View:** Located at the bottom, it shows details for a selected symptom. A red arrow points to this pane from the "Analysis & results" label. It includes a table of symptom occurrences and a "Recommendations and actions" section with a recommendation to "Install application support for the problematic agent on the TEMS (hub and remote)".

Red annotations highlight key features:

- Imported logs:** Points to the Log View pane.
- Symptom catalogs:** Points to the Log Navigator pane.
- Log view:** Points to the Log View pane.
- Analysis & results:** Points to the Properties / Symptom Analysis Results View pane.

# Log Analyzer – ITM Components

## ■ Log Adapters

- ▶ IBM Tivoli Monitoring MSG2 log
- ▶ IBM Tivoli Monitoring OPS XML log
- ▶ IBM Tivoli Monitoring OPS log
- ▶ IBM Tivoli Monitoring RAS log
- ▶ IBM Tivoli Monitoring zOS TEMS RAS log (RKLVLOG)

## ■ Symptom Catalogs

- ▶ IBM Tivoli Monitoring V6.1 (TEMS messages)
- ▶ IBM Tivoli OMEGAMON XE for Storage on zOS V3.1.0 and higher
- ▶ IBM Tivoli Monitoring technotes (top 40 technotes)

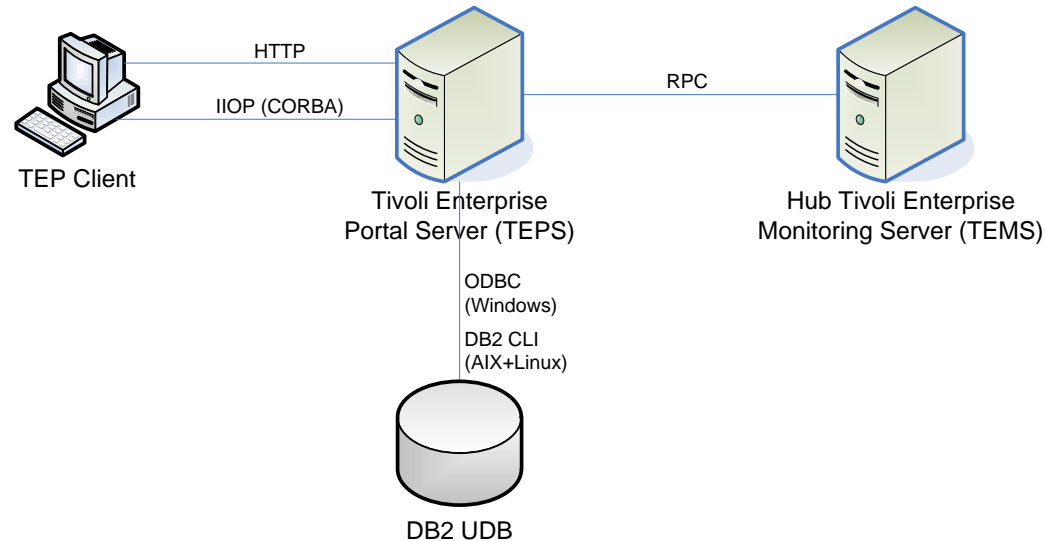


# TEPS & TEMS General Troubleshooting

- TEPS db main contents:
  - ▶ User records (attributes) and topology
  - ▶ Managed Objects and Situation Associations (alert/sound)
  - ▶ Presentation data
  - ▶ Historical settings
  - ▶ Launch-In-Context settings
  - ▶ Seed data info
- TEMS db main contents:
  - ▶ Situation definitions
  - ▶ Policy definitions
  - ▶ Distribution lists (situations and policies)
  - ▶ Situation status records
  - ▶ Node status and node list records
  - ▶ Take Action commands



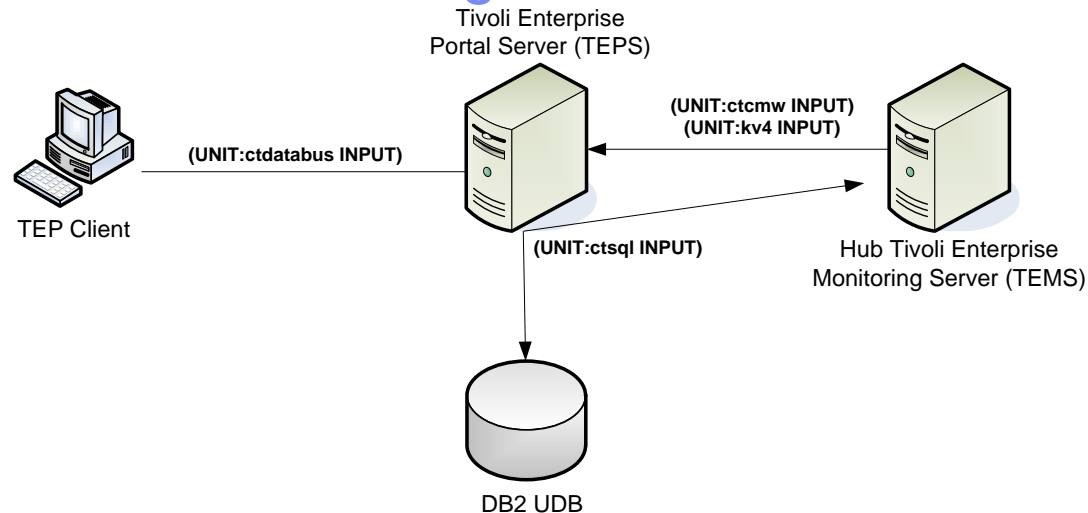
## TEPS/TEP Client Communication Flow



- HTTP connection is used by TEP browser to download JAR files and resources files that will be used by TEP client to communicate.
- HTTP server is, by default, installed in TEPS.
- IIOp CORBA layer is used by the client code to connect to TEP server.
- TEPS communicates with TEMS using RPC method.
- TEPS uses ODBC for Windows and DB2 client for Linux to communicate with the database.
- URL for browser: `http://<TEPS>:1920///CNP/client`



# TEPS General Troubleshooting



- To answer the question: Is the problem occurring in the TEPS?
- `ctdatabus` unit is used to log all the detail request from TEP client
- `ctcmw` and `kv4` units are used to log node status, situation and EIB update events from TEMS.
- `ctsql` is used to log raw SQL requests to TEMS, DB2 or ODBC and number of rows returned.
- Use: `KFW_DATABUS_INPUT_TRACE_IGNORE_HEARTBEAT=Y` to suppress the heartbeat events in the log. Will greatly reduce the amount of logs.
- Alternatively, `KFW_DATABUS_INPUT_TRACE_FILTER=<service name>` to log only the specified services.

# TEPS General Troubleshooting

- Typically, databus and SQL input traces will be set together.  
If left running for long periods of time or if many clients are connected and being actively used, databus and SQL input traces will generate large amounts of data
- Network traffic caused by typical OS agent workspace requests varies widely in size, depending on how many rows of data are returned
  - ▶ Workspaces requesting data from a large number of instances (Process, etc.) cause more network traffic
  - ▶ Average size of 150KB per request should be useful for planning purposes
- Situation Event processing on TEP client:
  - ▶ TEC Event view is the most efficient, then Situation event view and finally Message log view (combinations of the above is even worse)
  - ▶ In environments with a high event rate or a large number of active events, consider using the TEC Event view instead of the Message Log or Situation Event view if possible.



# Communications

- Name resolution
  - ▶ Ping the server/agent using name and IP
  - ▶ If configured with fully qualified hostname ensure it can be resolved
  
- Protocols in use
  - ▶ IP.PIPE, IP.SPIPE, IP.UDP & SNA
  - ▶ Ensure that the components use a protocol that is configured



# Communications

- Firewalls

- ▶ Use the KDE Firewall Gateway tool

- Ports

- ▶ Ensure the ports used by the product are not blocked
- ▶ 1918 default for TEMS
- ▶ 1920 default URL port to connect to TEPS
- ▶ 15001 default TEPS port for IOR
- ▶ 1919 default UA port for primary UA
- ▶ <http://www-1.ibm.com/support/docview.wss?&uid=swg21249998>



# Communications

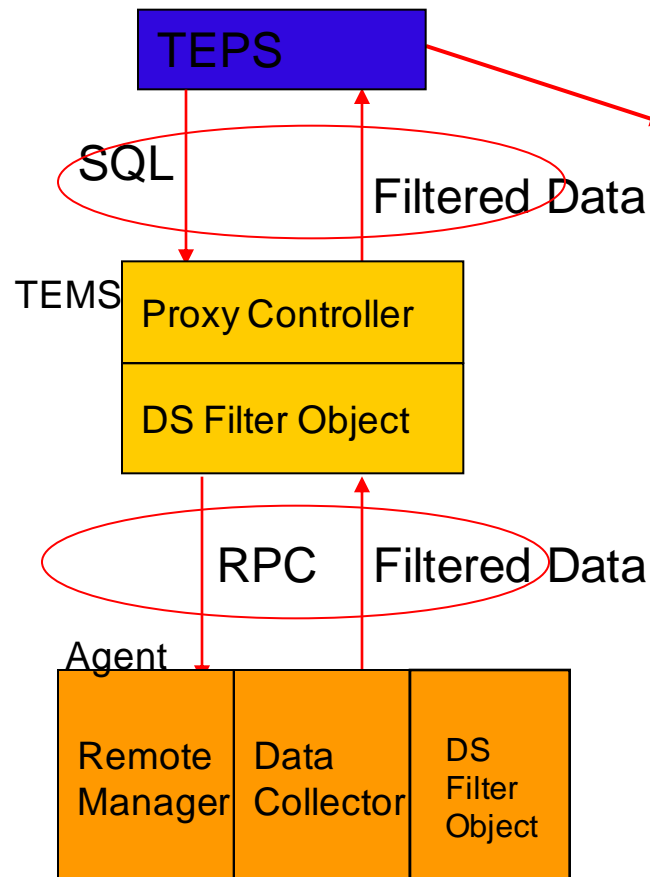
## Common Problems

- Agent/Remote TEMS cannot connect to TEMS
  - ▶ Wait for the Heartbeat time to be expired and check if reconnection occurs.
  - ▶ Check CMS\_LIST to point to the correct (R-)TEMS and KDC\_FAMILIES parm
  - ▶ KPX and KFA traces may be needed for TEMS initialization issues
  - ▶ KDC\_DEBUG may be needed
- Connection problems between agents and WPA
  - ▶ Check the WPA address registered in the Global Location Broker on the TEMS (glb\_KHD.txt) and the parm KPX\_WAREHOUSE\_CHK.
  - ▶ Check agent log file for connection errors
- User cannot login to TEP
  - ▶ TEPS not started or not yet initialized
  - ▶ Broken connection between TEPS
  - ▶ TEPS user locked out
  - ▶ Collect and check TEP, TEPS and TEMS log files

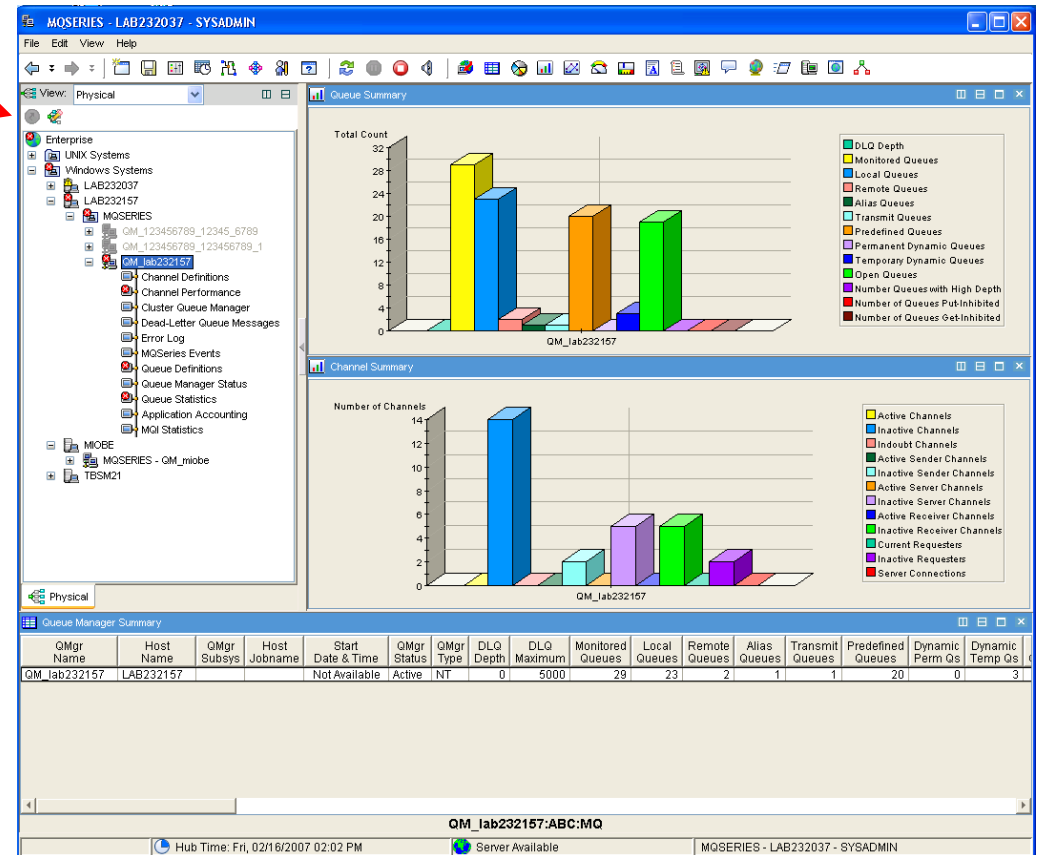


# Real-Time Data Collection

## Dataflow



## TEP



# Real-Time Data Collection

## Best Practices

- Check that SQL query is issued by TEPS  
Trace ctsql and ctdatabus units in TEPS log
- Check that TEMS proxy requests data to the agent  
Trace KRA/KPX components in TEMS log
- Check that Agent completes the collection of sampling data  
Agent log (traces vary by agent)
- Check that Agent sends data back to Proxy (TEMS)  
Trace KRA component in agent log
- Check that TEMS Proxy receives the requested data  
Trace KRA/KPX components in TEMS log
- Check that SQL query in TEPS returns not zero rows  
Trace ctsql and ctdatabus units in TEPS log



# Real-Time Data Collection

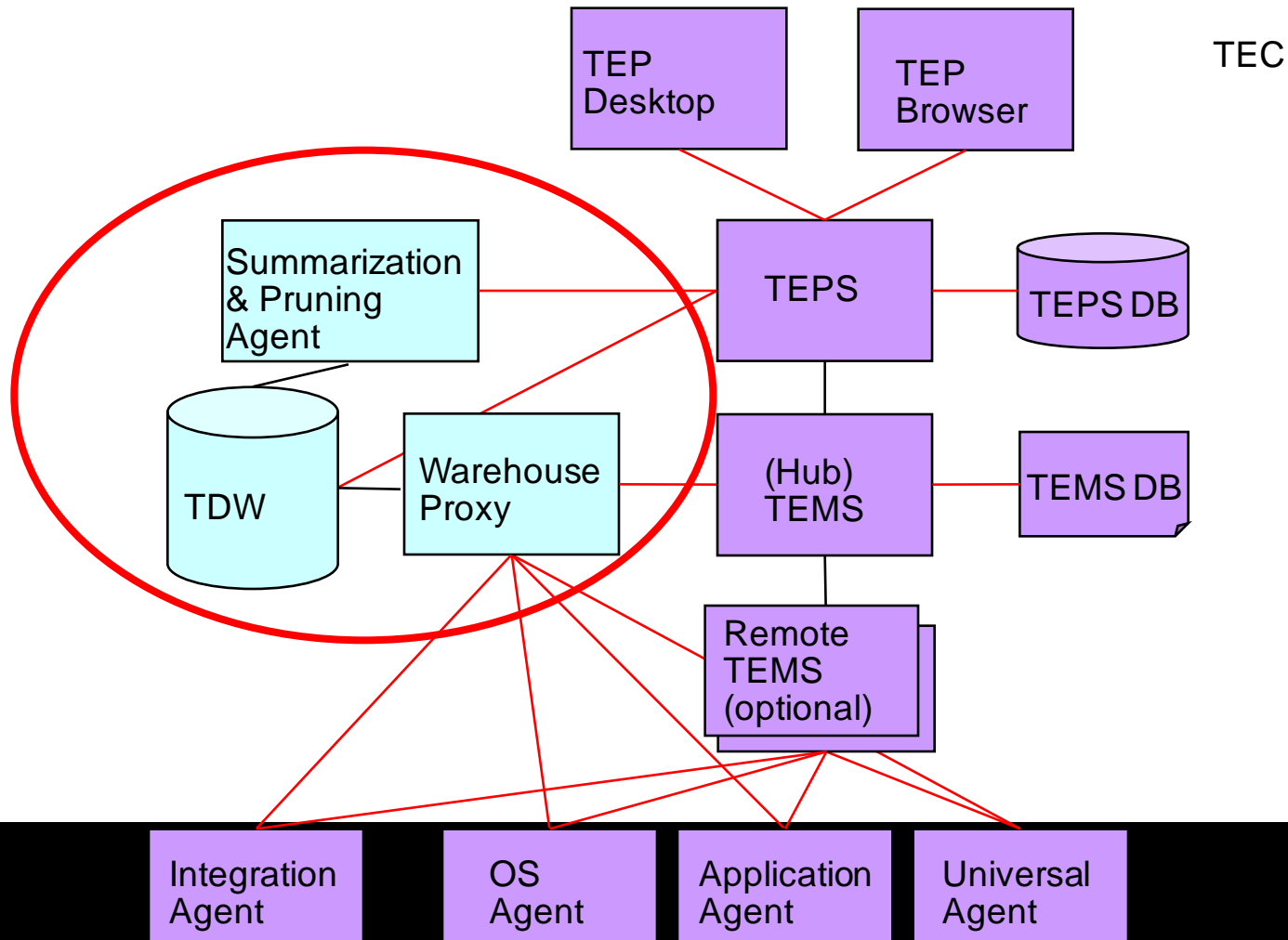
## Common Problems

- Views in TEP are empty
  - Agent does not retrieve data
  - Agent not connected to TEMS
  - Workspace created with a bad query
- Views in TEP contain invalid data
  - Compare data gathered from the agent (K<pc> and KRA tracing) with data in TEMS db (KDSTSNS/SPUFIL) and with info on the GUI (TEP client log).
- Agent online status is questioned
  - Check agent log and TEMS log for the ONLINE message
  - Data may be corrupted within core components: compares TEMS db data using SPUFIL/KDSTSNS with data logged in TEPS log

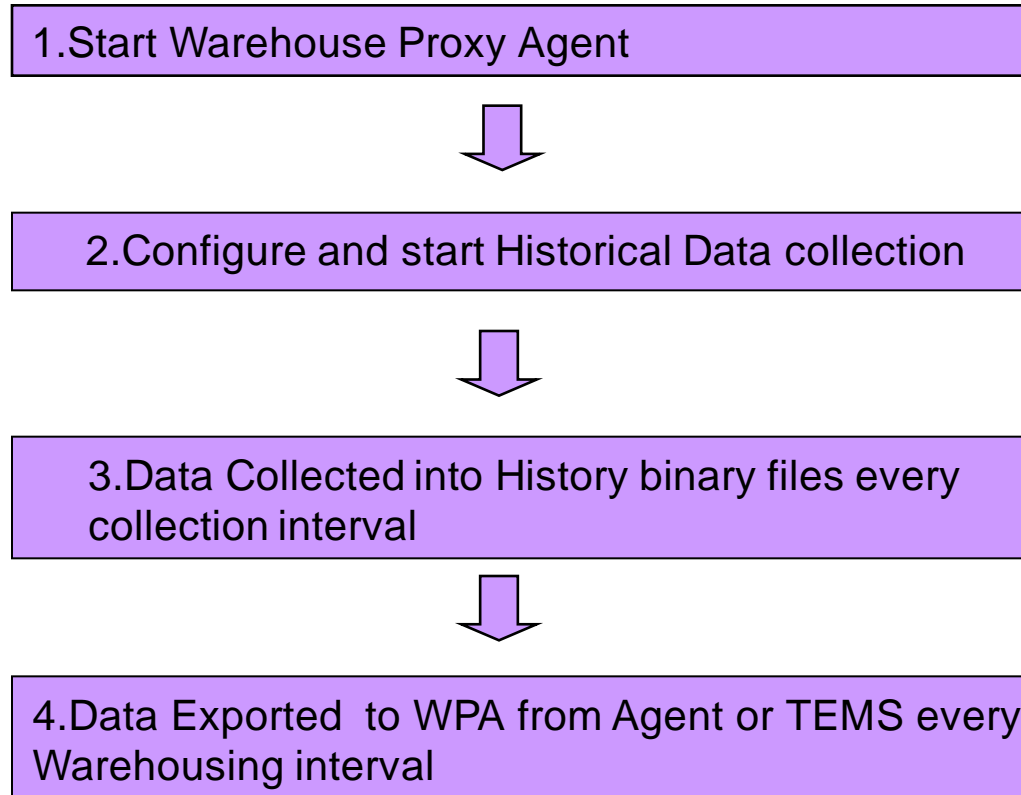




# Historical Data Collection



# Historical Data Collection



# Historical Data Collection

## Best Practices

- **Before panicking that no data exists, ensure your “Collection Interval” has expired.**
- **Collect historical data at the agent if at all possible if your ENV is large (200+ agents per TEMS)**
  - Reduces the network bandwidth consumption between agents and TEMS when data is exported
  - Significantly decreases the TEMS workload
  - Reduces binary file sizes since data is only for that TEMA



# Historical Data Collection

## Common Problems

- **Binary file size grows indefinitely**
  - ▶ Connection with Warehouse is not working.
  - ▶ Error in export process from TEMS or Agent
- **No historical data collection**
  - ▶ Check Historical situation started on the Agent operational log (<hostname>\_Warehouse.LG0)
  - ▶ Check data are being inserted into Warehouse table
  - ▶ Check for Warehouse Exporter Client errors
  - ▶ khdexp.cfg timestamp should change every hour
- **Inserted value too large for the column**
  - ▶ NLS\_LANG should be set to AMERICAN\_AMERICA.AL32UTF8
  - ▶ The database CHARACTER SET should be set to AL32UTF8 and not UTF16



# Best Practices & Common Problems Situations/Policies

- Always check the \*MS\*.LOG for situation starting messages that further isolates the situation starting error down to missing KFA targets versus KIB accesslist cache problems.
- Typical SITMON/IB traces are “COMP” traces however these log files are quite large and can wrap and important trace data may be lost.
  - (COMP:IBIFACE all) (COMP:SMAF all)
- More granular SITMON/IB traces:
  - ▶ Situation Not Starting –
    - Lodge Failed Error with is 1131 with a reason code
    - Error log contains message 1145 or 1133
      - To learn more set the trace to:
        - (UNIT:ko4sit ALL) (UNIT:ko4rul ALL) (UNIT:ko4attr ALL)
  - ▶ Situation not starting – no obvious error message an
    - Possible “stage 2 error” – this means that the database synchronization at the REMOTE is not working properly
      - To learn more set the trace at the REMOTE and HUB
        - (UNIT:ko4crtsq ALL) (UNIT:ko4tobje ALL) (UNIT:ko4cache all)
  - ▶ Missing situation events
    - Events are firing but not showing up in the TEPS
      - To learn more, set the traces at the REMOTE and HUB
        - (UNIT:ko4sitma ALL) (UNIT:ko4tobje ALL) (UNIT:ko4cache ALL)
  - ▶ Problems with Policies
    - Policies not starting or not executing properly
      - To learn more, set the traces at the appropriate TEMS
        - (UNIT:ko4pcy ALL) (UNIT:ko4mem ALL) (UNIT:ko4resul ALL) (UNIT:ko4ac ALL)



## Best Practices & Common Problems Situations/Policies

- Situations are monitoring entities that are launched from the Situation Monitor/Automated Facilities (KSMOMS) task within the TEMS Server runtime environment.
  - ▶ Situations are used to return results for monitoring (normal case)
  - ▶ Situations are used to control flow in Policies
  - ▶ Situations are used to drive collectors for History and Reports
- Situation records are kept in the table called TSITDESC and written out to physical DASD/Disk database name QA1CSITF (zOS is RKDSSITF).
- Situations are launched only at TEMS Server locations that have endpoints specified for the Situation to monitor.
  - ▶ The table that defines distribution of endpoints for given Situation object monitoring locations is called the access list table. Each record in this table corresponds to a single location for the specified Situation to run at

Situation deployment is defined using the access list defined on TEMS.

Both Policies and Situations are distributed this way



## Best Practices & Common Problems Historical Data Collection

### Documentation Needed

- Set of screenshots showing the Historical Data Collection settings
- TEPS Log  
KBB\_RAS1=ERROR (UNIT:ctdatabus INPUT) (UNIT:ctsql INPUT)  
Check that non zero rows are returned to TEPS
- Agent Logs  
KBB\_RAS1=ERROR (UNIT:KRAALL)  
Check UADVISOR situation is started for desired Attribute Group
- TEMS Log  
KBB\_RAS1=ERROR (UNIT:KHD ALL) (UNIT:KRAALL)  
Check historical data are being collected:  
2006.016 16:10:11.02 (01A7B8A8-F661C77B:kraahbin.cpp,601,"WriteRow")  
Wrote 6 rows history data, KN3.KN3TAS, <36700381,34603246>
- RKANPAR PDS CONTROL MEMBER (ZOS installation only)  
( KxxCPAL, KxxPDICT, KxxPG, KPDDEFN, KPDCTL)  
Use QUERY CONNECT and QUERY DATASTORE to verify status of PDS

