



Getting Started with the PTC System Monitor

June 2012

Getting Started with the PTC System Monitor



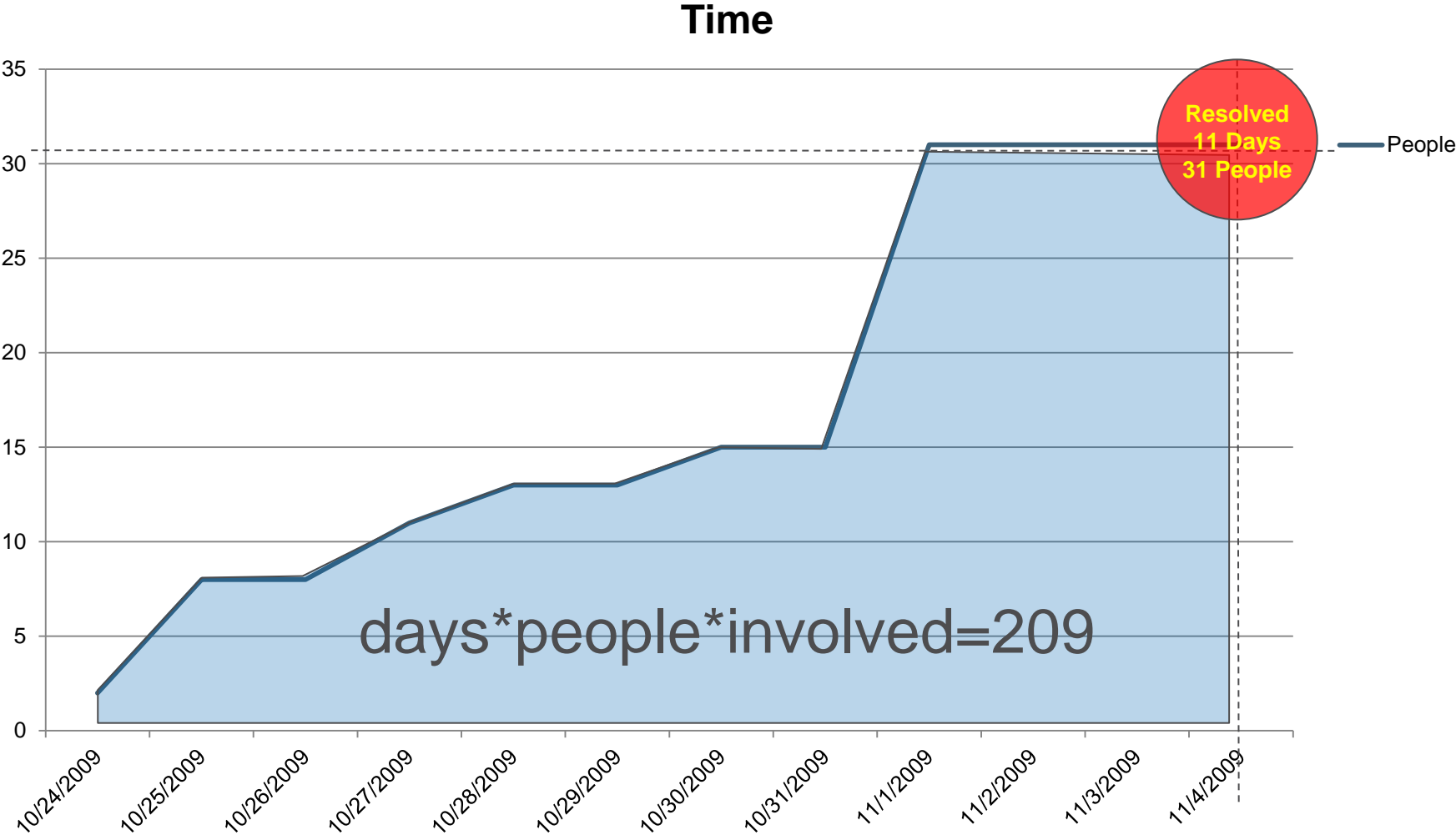
This course is a subset of content from:

- TRN-3171 Monitoring Windchill Performance using the PTC System Monitor

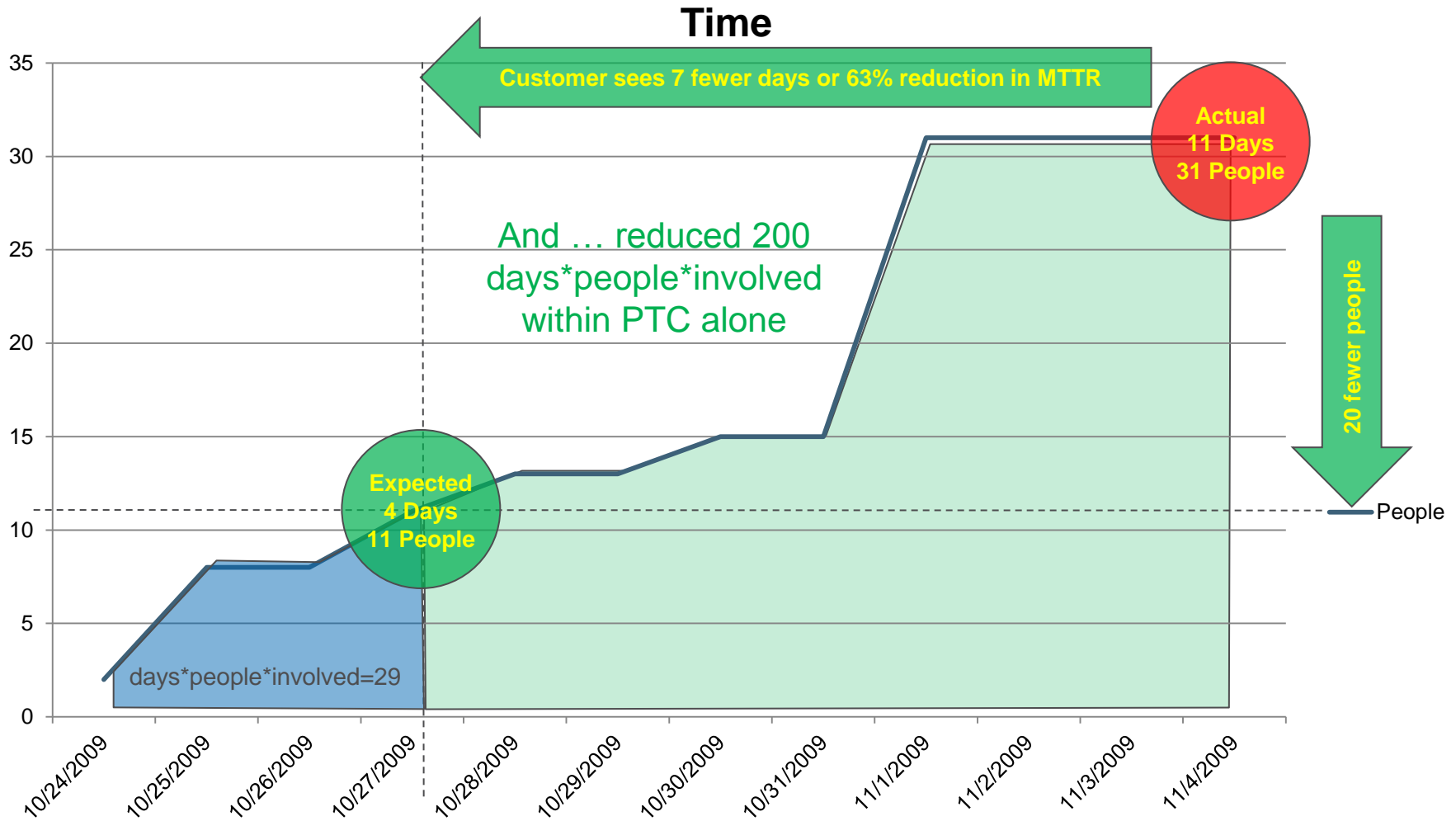
- Learn the fundamentals of the PTC System Monitor
- Plan PTC System Monitor architecture and deployment
- Review the installation procedure
- Learn the basics of the PTC System Monitor client
- Use Export Session to capture data for diagnosis by PTC or others
- Use Fastpacks
- (Optional) advanced diagnostic options

Purpose: Reduce Turnaround Time and Escalations

How long would this incident take to troubleshoot with the new System Monitor?



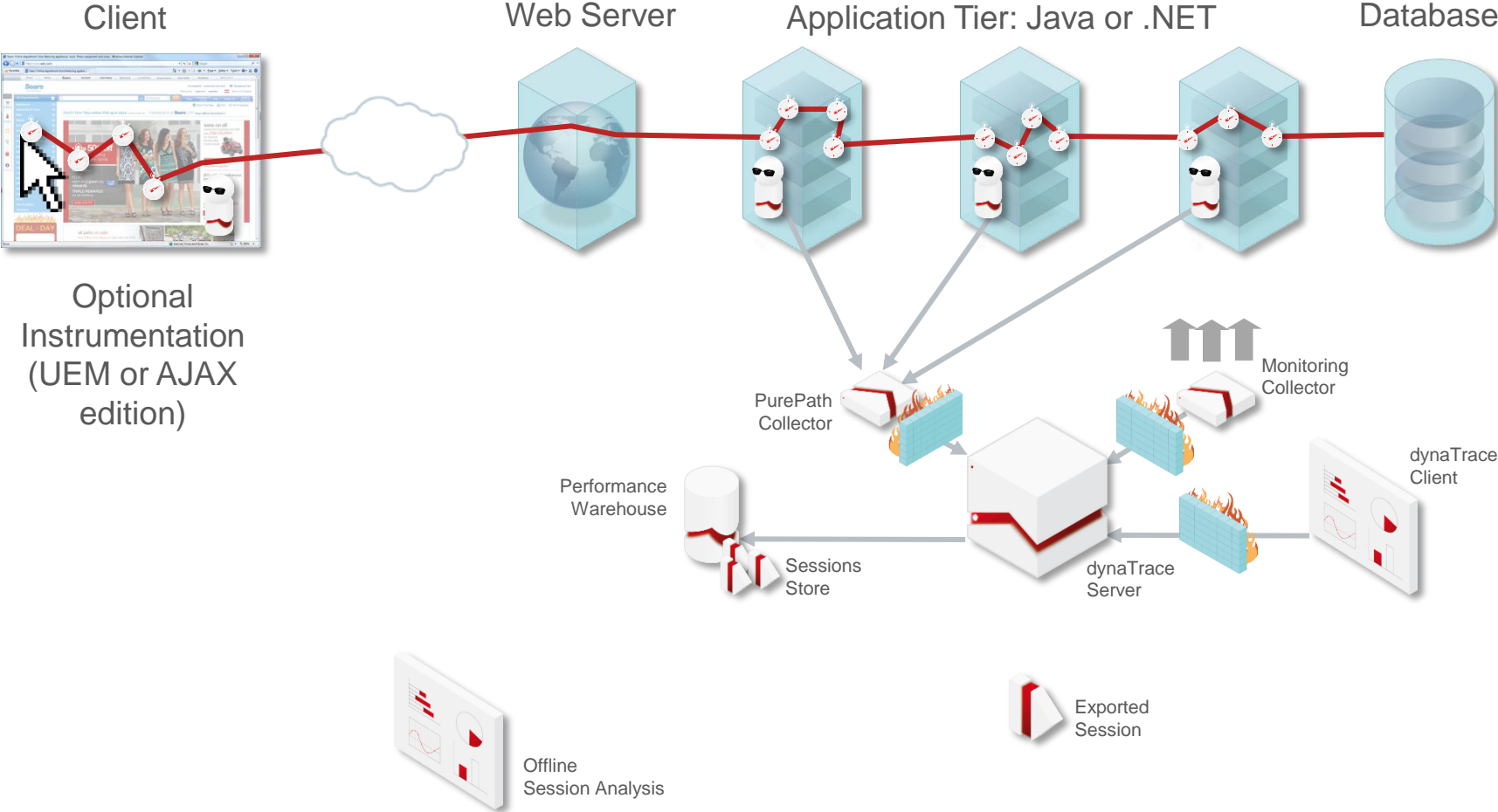
Answer: Estimate 7 fewer days and almost 10 times fewer people*days*involved.



How the PSM functions

- PSM is a **separate server-client system** powered by dynaTrace that monitors Windchill and/or Sharepoint
 - stays on if Windchill/Sharepoint is down
 - Licensed for PTC software monitoring only, but can be expanded to monitor other systems with further license purchases from dynaTrace
- It **continuously gathers** Java/.NET method data and **samples** O/S metrics directly on the production system– “flight data recorder”
- A **separate database** stores a subset of collected data depending on configurable parameters (for example: **incident definitions**)
- **Dashboards** are accessible via http URL for remote monitoring
- Easily or automatically **store** and **export** incident data for use by PTC for diagnostic analysis
- It is **customizable** for customer requirements and custom source code

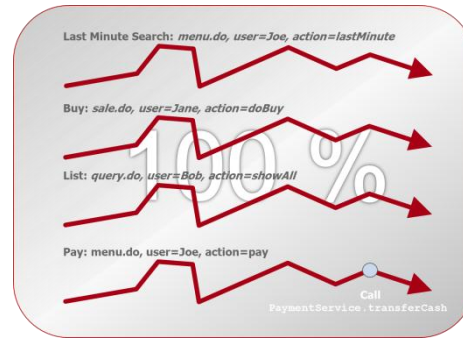
PSM: uses PurePath Technology from dynaTrace



Capture Data

Method Sensor Rules

Method Sensor	API	Place
com.jloadtrace.gospace.backend.util.		<input checked="" type="checkbox"/>
com.jloadtrace.gospace.frontend.util.		<input checked="" type="checkbox"/>
com.jloadtrace.gospace.shared.		<input checked="" type="checkbox"/>
com.jloadtrace.gospace.		<input checked="" type="checkbox"/>
<all methods>(*)	GoSpace	include



- Diagnose Performance
 - API Breakdown
 - Business Transactions
 - Components
 - Database
 - Entry Points
 - Memory Allocations
 - Messaging
 - Methods
 - Naming Services
 - PurePath Comparison
 - PurePaths
 - Remoting
 - Sequence Diagram
 - Synchronization
 - Tagged Web Requests
 - Web Requests
 - Web Services

Analyze Data

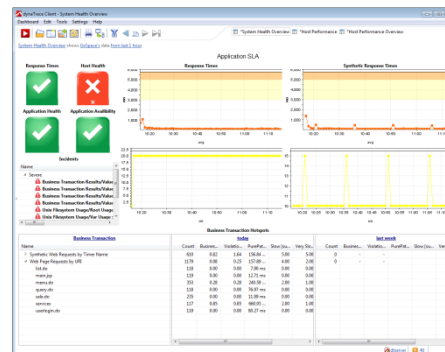
Monitor Captured Data

- Business Transactions
 - Buy Duration
 - Cash transferred through DotNetPay
 - Direct Bookings
 - Last Minute Search Duration
 - Query duration
 - Regular Bookings
 - Search Mask Duration
 - Synthetic WebTransactions by Monitor
 - Transactions by User
 - Transactions grouped by User
 - Transfer Cash Duration
 - User Login Duration

Define Data to be Monitored (Subscribe Measures and Define Incidents)

Group/Measure

- Web Services
- Web Requests
- Remoting
- PurePaths
- Process Performance
- Naming Services
- Methods



Incident Overview

Warning: DotNetPay TravelPage

Warning: GoSpace Backend exceeds used memory limit

Warning: High Volume Cash Transaction via DotNetPay

Warning: LastMinute Search

Severe: GoSpace Backend exceeds used memory limit

Severe: LastMinute Search

Severe: LastMinute Search

Warning: DotNetPay TravelPage

Warning: GoSpace Backend exceeds used memory limit

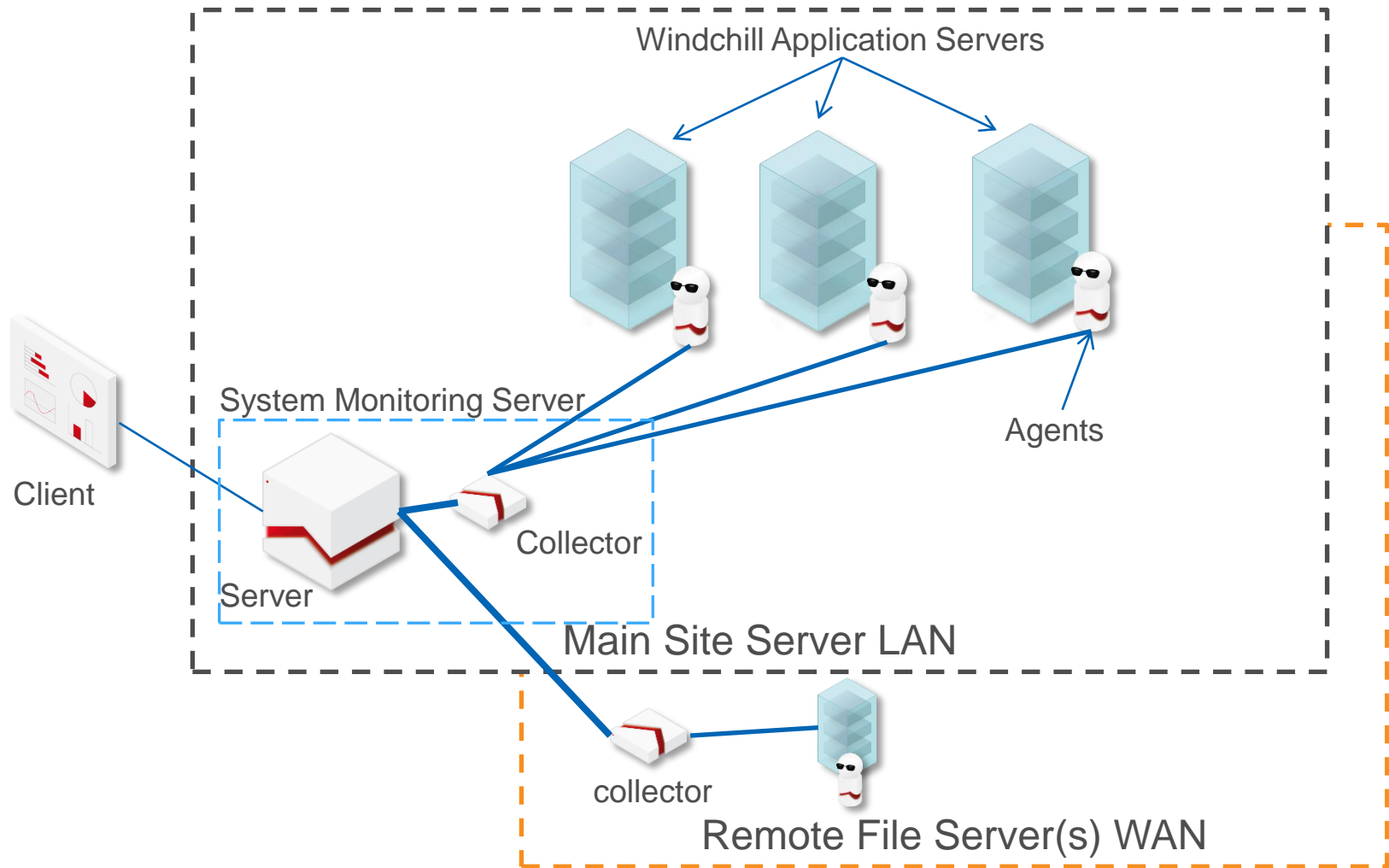
Warning: High Volume Cash Transaction via DotNetPay

Warning: LastMinute Search

Severe: GoSpace Backend exceeds used memory limit

Incident/Incidents	Start Time	End Time	Duration	System Profile	Message	Descript
Severe: LastMinute Search	2009-09-31 19:28:43	2009-09-31 19:28:43	0s	GoSpace	Business Transac...	Measured
Severe: LastMinute Search	2009-09-31 19:28:41	2009-09-31 19:28:41	0s	GoSpace	Business Transac...	Measured
Warning: DotNetPay TravelPage	-	-	-	GoSpace	-	-
Warning: GoSpace Backend exceeds used memory limit	-	-	-	GoSpace	-	-
Warning: GoSpace Backend exceeds used memory limit	2009-09-31 19:25:41	2009-09-31 19:28:02	2min 20s	GoSpace	Java Virtual Machi...	Measured
Warning: High Volume Cash Transaction via DotNetPay	-	-	-	GoSpace	-	-
Warning: LastMinute Search	-	-	-	GoSpace	-	-
Severe: GoSpace Backend exceeds used memory limit	-	-	-	GoSpace	-	-

PSM can be deployed over LAN and WAN environments



What is installed?

■ Components (memory)

- Server (Xmx minimum 768Mb recommended 8 Gb)
- Performance Warehouse (Oracle or SQL Server, 20 Gb)
- Collector (Xmx recommended 1Gb per 50 agents)
- Agents (for Windchill JVMs)
- Client (local install or java web start)
- (optional) Analysis Server

■ **Client** - Windows/Linux 32 bit only. There is no Unix client

■ **Server/Collector/Analysis Server** – Windows/Linux/Solaris/AIX, 64 bit only

■ **Agents** – all platforms (including HP), both 32 bit and 64 bit

Placement, Memory, Performance Warehouse Disk Space

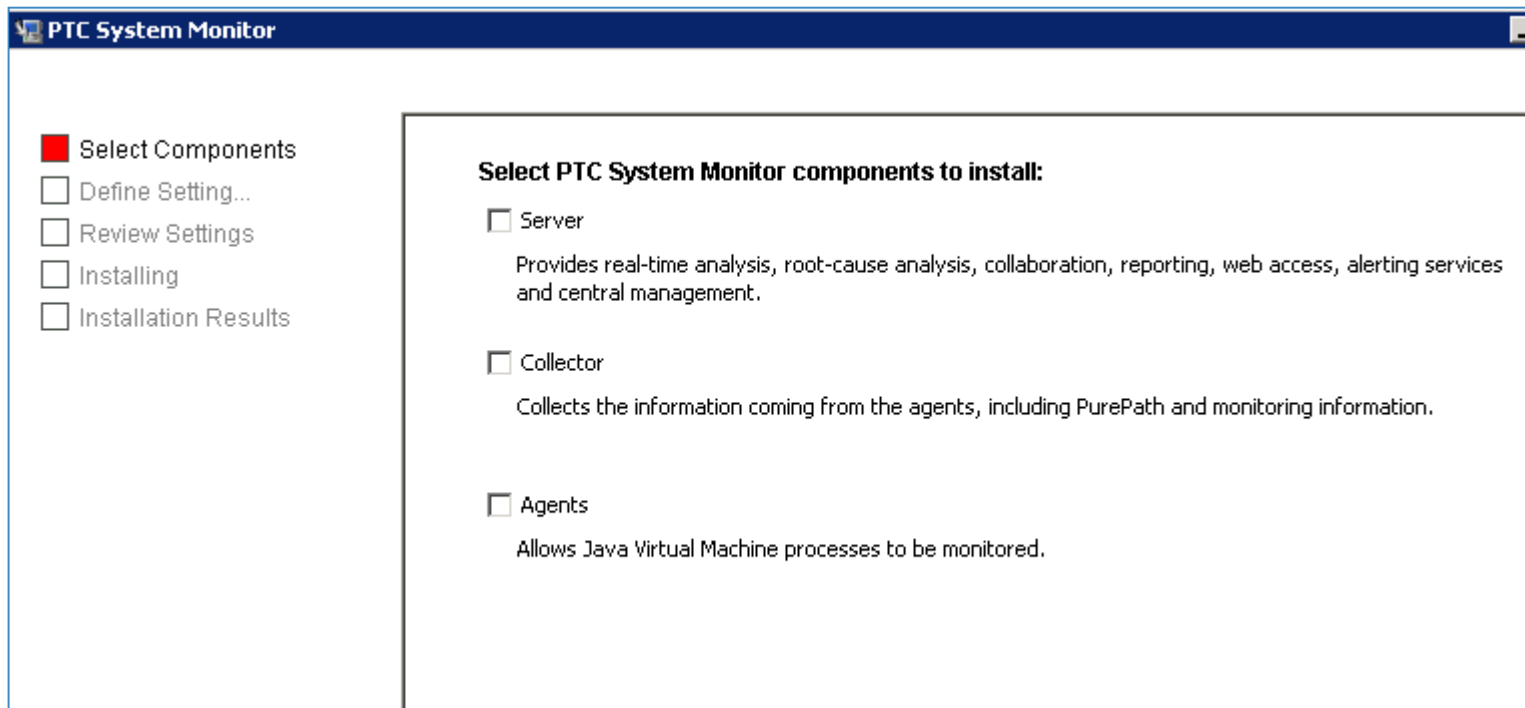
- Installation of non-agent PSM components on **separate hardware** from Windchill is recommended on production systems. This allows PSM to operate when Windchill hardware is down.
- Disk space requirement over 2 year window for Performance Warehouse (or Repository) database is estimated as 20 Gb using default configuration of subscribed measures.
- It is recommended use one or more standalone collector processes rather than using the built-in (embedded) collector in the Server process.

Sizing CPU, Memory and Storage space

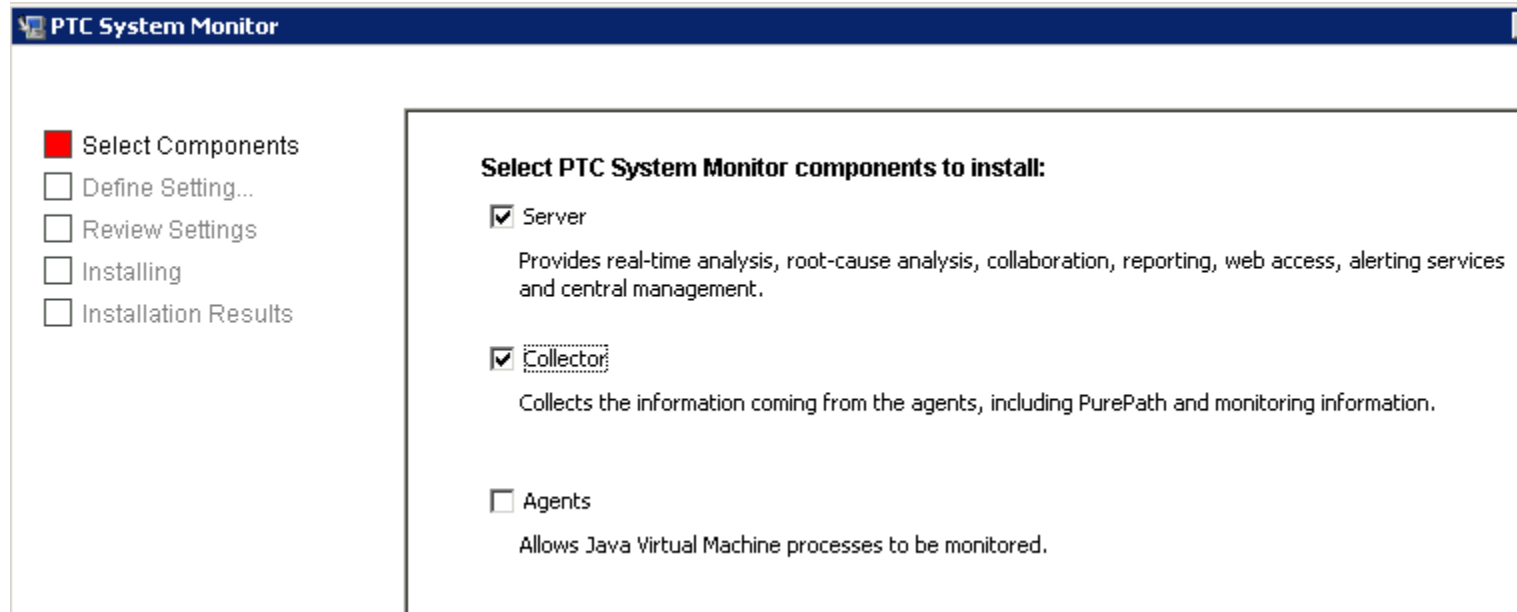
- **CPU: recommend 4 cores or more dedicated to Server**
- **Memory:**
 - Server JVM Heap size: 8 to 16 Gb
- **Storage Space:**
 - Varies widely. Start with 100 Gb, depending on frequency of stored session creation.
 - Session storage can take significant disk space over time.
 - **Note:** Sessions are not stored in the Performance Warehouse database.
 - Sizing for the Performance Warehouse datafiles is addressed separately because the Performance Warehouse is often located on a separate host.
- **In default deployments, the main site Collector JVM (heap size 1 to 2 Gb) is usually running as a separate process on the same host as the PSM Server, so add this to memory requirement when needed.**
- **If optional Analysis Server is located on Server host, additional CPU and memory resources must be added**

Installation Step 1: Download and Start the Installer

- Download PSMInstaller.jar and the fastpack (*.dtp) file to hosts that will run components of the PSM or Windchill.
- Start a Cmd Shell (using “run as administrator” option on windows 7)
- Execute “java -jar PSMInstaller.jar” to start the Installer GUI



- Select the Component(s) to install on the host. Repeat steps 1 and 2 on each host containing either the Server, Collector, Agent (Windchill) or Analysis Server.



■ Options for the Server:

- Installation directory
- Bind Address
- Port for Web Start Client
- Port for Collector
- “admin” password

■ Options for Collector:

- Installation directory
- Bind Address
- Port for Agent
- Server host and port

■ Options for Agents

- Windchill component directories
- Collector host and port

- **Hint:** Keep default values for ports and the “open” Bind Address (0.0.0.0) unless required to change them by your IT department.

The following list shows the default communication ports for dynaTrace. Firewalls between components must be configured to allow communication to pass through.

- Client-to-Server Port 2020 (ssl 2021) TCP
- Collector-to-Server Port 6698 (ssl 6699) TCP (**Note: this must be open prior to collector installation for validation purposes**)
- Agent-to-Collector Port 9999 TCP
- Server Default Webpage Port 8020 (ssl 8021) TCP

- Installation Directory will be shared with Collector if both are being installed.
- Set password for the “admin” user account.

The screenshot shows the 'PTC System Monitor' installation wizard. On the left, a progress indicator shows the current step: 'Define Setting...' (red square), with other steps like 'Select Components', 'Review Settings', 'Installing', and 'Installation Results' marked as complete (grey squares). The main window is titled 'Server Configuration Parameters:' and contains the following fields:

- *Installation Directory:** A text box containing 'C:\PTCSystemMonitor' and a 'Browse...' button.
- Server Bind Address:** A section with two input fields: 'Bind Address:' (0.0.0.0) and 'Port:' (6698).
- HTTP Bind Addresses:** A section with two checked checkboxes: 'Enable HTTP Server:' and 'Enable HTTPs Server:'. Each has two input fields: 'Bind Address:' (0.0.0.0) and 'Port:' (8020 for HTTP, 8021 for HTTPs).
- PTC System Monitor Administrative Credentials:** A section with three input fields: 'Username:' (admin), 'Password:' (masked with asterisks), and 'Confirm Password:' (masked with asterisks).

At the bottom of the window, there are four buttons: 'Cancel', 'Help', 'Previous', and 'Next'.

- Installation Directory will be shared with Server if both are being installed.
- Set hostname/IP address or “localhost” for the Server
- Set Port to match the Server if that was changed.

The screenshot shows the 'Collector Configuration Parameters' dialog box within the 'PTC System Monitor' application. On the left, a vertical sidebar contains five checkboxes: 'Select Components' (checked), 'Define Setting...' (checked), 'Review Settings' (unchecked), 'Installing' (unchecked), and 'Installation Results' (unchecked). The main area of the dialog is titled 'Collector Configuration Parameters:' and contains the following fields:

- *Installation Directory:** A text box containing 'D:\ptc\psm' with a 'Browse...' button to its right.
- Bind Address:** A text box containing '0.0.0.0'.
- Port:** A text box containing '9999'.
- Server Information:** A section containing two text boxes:
 - Hostname/IP Address:** A text box containing 'localhost'.
 - Port:** A text box containing '6698'.

- Set Host and Port to match the Collector for this location
- Separate Tomcat Home is only required for Windchill 9.1

The screenshot shows the 'PTC System Monitor' configuration window. On the left, a vertical sidebar contains five steps: 'Select Components' (selected), 'Define Setting...' (highlighted in red), 'Review Settings', 'Installing', and 'Installation Results'. The main area is titled 'Select products to monitor:' and includes the following options and fields:

- Windchill
Windchill Home:
- Tomcat
Tomcat Home:
- Windchill Directory Server
Windchill Directory Server Home:

Below this is a section titled 'Collector Information' with the following fields:

- Hostname/IP Address:
- Port:

Use the commands below to start (or stop) components

■ Windows

- Services: dynaTrace Server, dynaTrace Analysis Server, dynaTrace Collector
- Client: web start command: <http://<host>:8020/webstart/Client/client.jnlp>

■ Linux/Unix

- Note: Installing or running as root is not recommended.
- Server: In <DTHOME>, execute `./dtserver`
- Analysis Server: In <DTHOME>, execute `./dtanalysisserver`
- Collector: In <DTHOME>, execute `./dtcollector`
- Stop server: `./dtcmd –shutdown`
- Stop collector: `./dtcmd –shutdown -collector <name of collector>`
- Client (Linux): web start command: <http://<host>:8020/webstart/Client/client.jnlp>

<http://<host>:8020/> or <https://<host>:8021/> gives access to server tools and Client



Home



View Dashboards & Reports

View and report your dashboards within your browser. Webbased reports allow quick viewing of recent tracing data and are easily integrated into existing websites.



Launch dynaTrace Client

Start the dynaTrace client using Java Webstart. Webstart is a maintenance-free and easy way to start java applications without the need to explicitly install them. You can even create a bookmark that starts the dynaTrace client.

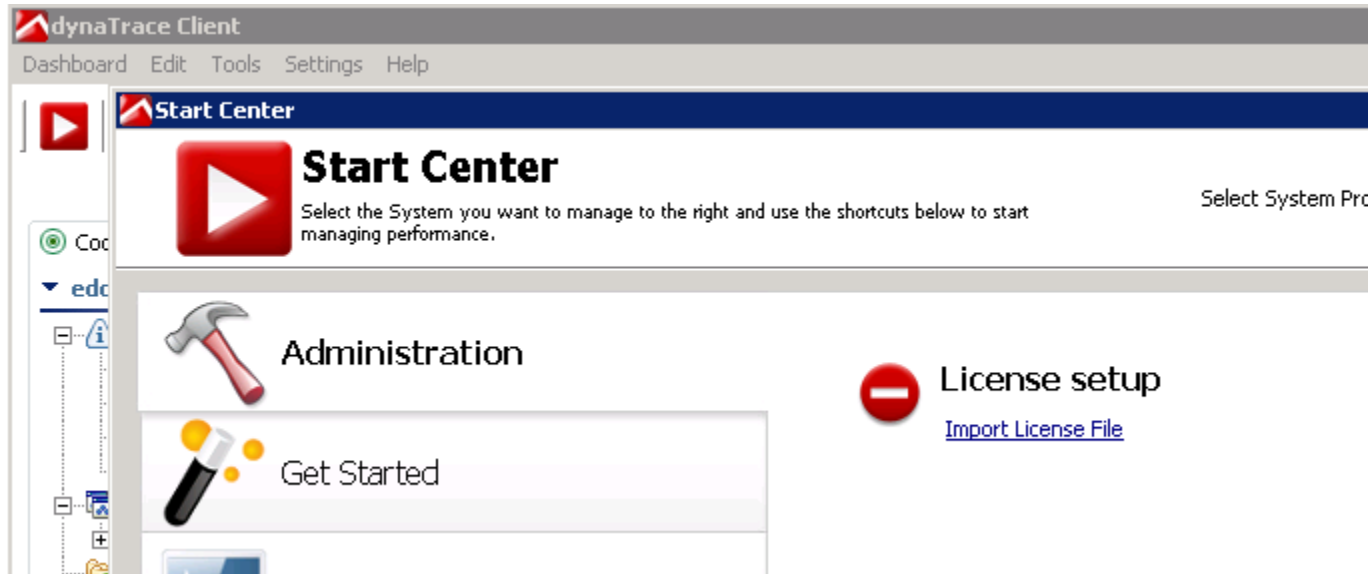


Automate & Manage

Many services of the dynaTrace server are also available as REST services. This includes access to System Profiles, Collectors, Agents and more...

The **Start Center** screen is given on initial startup of the client.

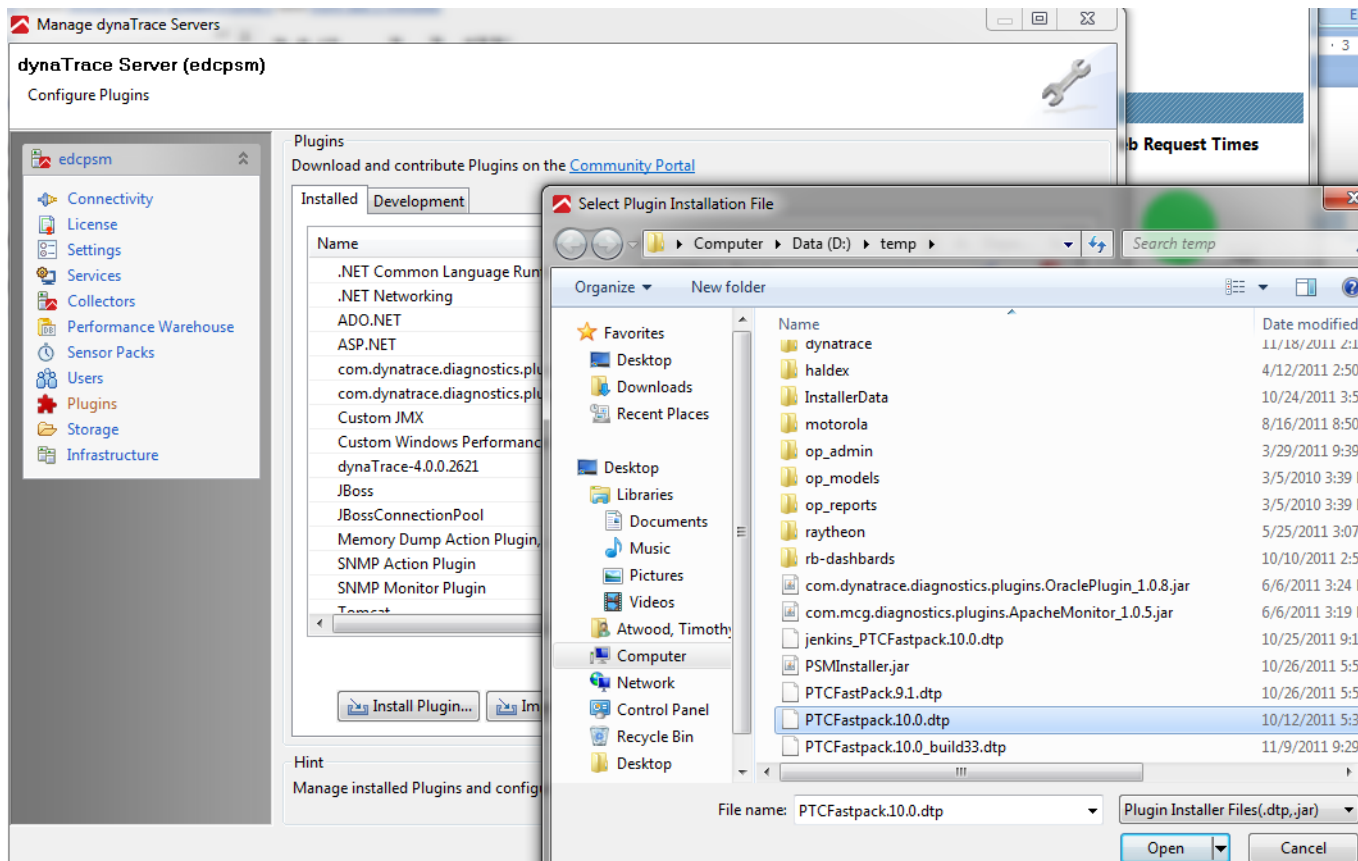
- Initially the License key is not set, but do not select **Import License File**. The license is contained in the FastPack plugin instead.



- Close the Start Center and select **Settings/dynaTrace Server** .

Initial Configuration: Install FastPack (and License)

- The **License** key is included in the “FastPack” file (**Windchill_9_1.dtp** or **PTCFastpack.10.0.dtp**).
- Go to **Settings/dynaTrace Server/Plugins/Install Plugin** and import the <fastpack>.dtp file.



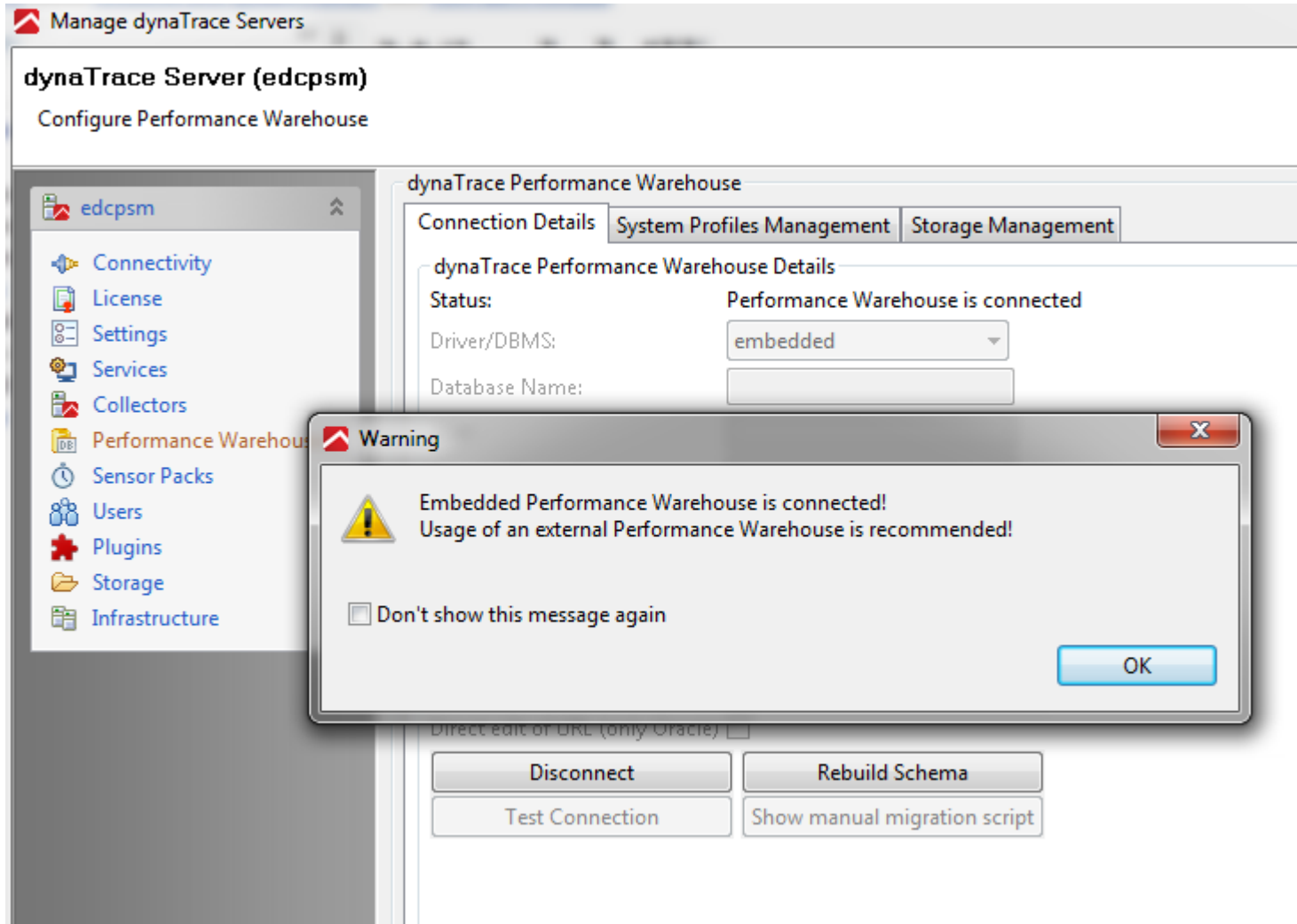
Initial Configuration: Install FastPack (and License)

Verify under **License** that Status is “ok”:

The screenshot shows the 'Manage dynaTrace Servers' interface. The main heading is 'dynaTrace Server (edcpmsm)' with a sub-link 'Configure License'. A left-hand navigation pane lists various server management options: Connectivity, License, Settings, Services, Collectors, Performance Warehouse, Sensor Packs, Users, Plugins, Storage, and Infrastructure. The 'License' option is selected. The main content area displays 'Server License Information' with the following details:

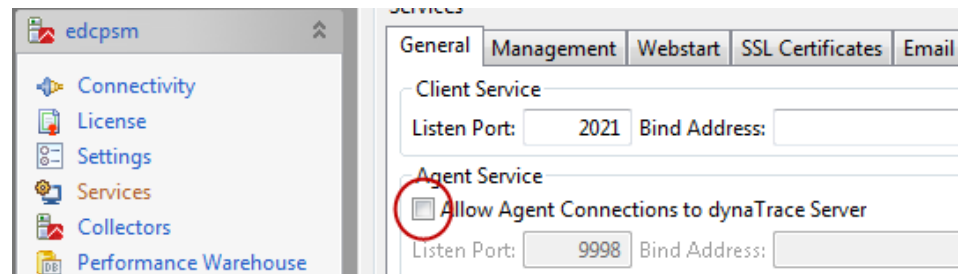
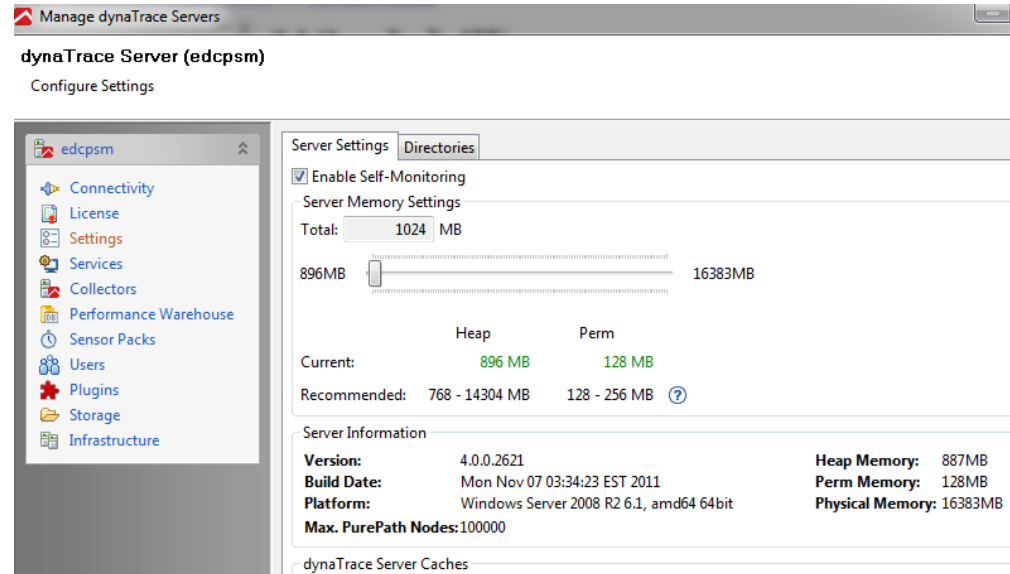
Status:	license ok
Licensed to:	PTC - PDS
License Number:	201109161019
Edition:	Independent Software Vendor Edition
ISV:	PTC - PDS
Active (automation) Java agents:	360
Active (automation) ADK agents:	20
Max. (automation) Windows Enterprise Editions:	20
Valid from:	2011-09-15
Expires on:	never
External Id:	001500000J6xWoAAJ

An embedded performance warehouse database is configured by default, but a production database such as SQL Server or Oracle is recommended.



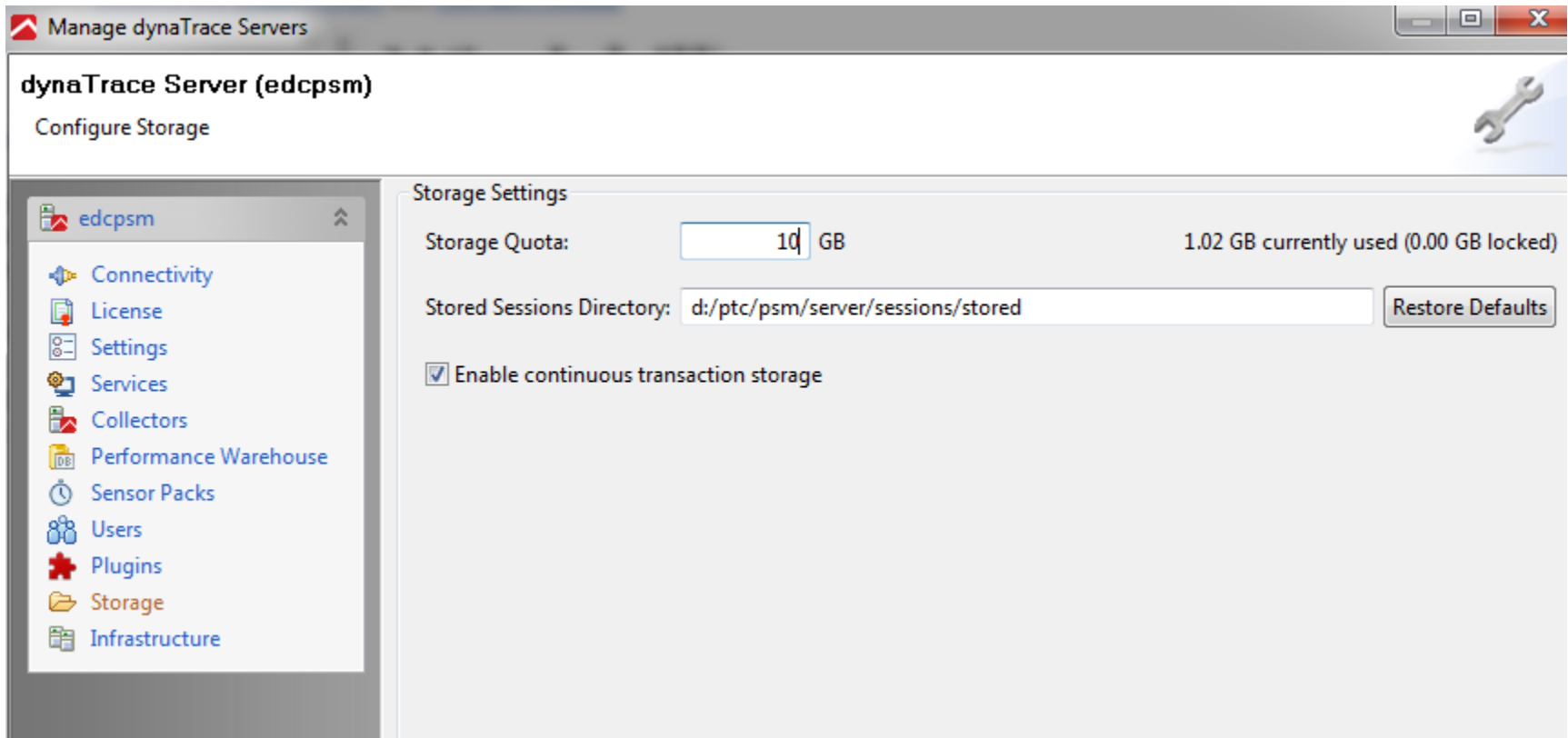
Accessed through **Settings/dynaTrace Server settings**

- Set memory size for dynaTrace server. Production recommendation is 6 to 18 Gb, but demo can be 1 Gb.
- Set administrator alerts email address.
- Enable Self-Monitoring in order to track the impact of different dynaTrace sensor configurations on overall performance.
- Set smtp server hostname.
- Deselect the Agent Service under **Services** in order to just run a standalone collector.

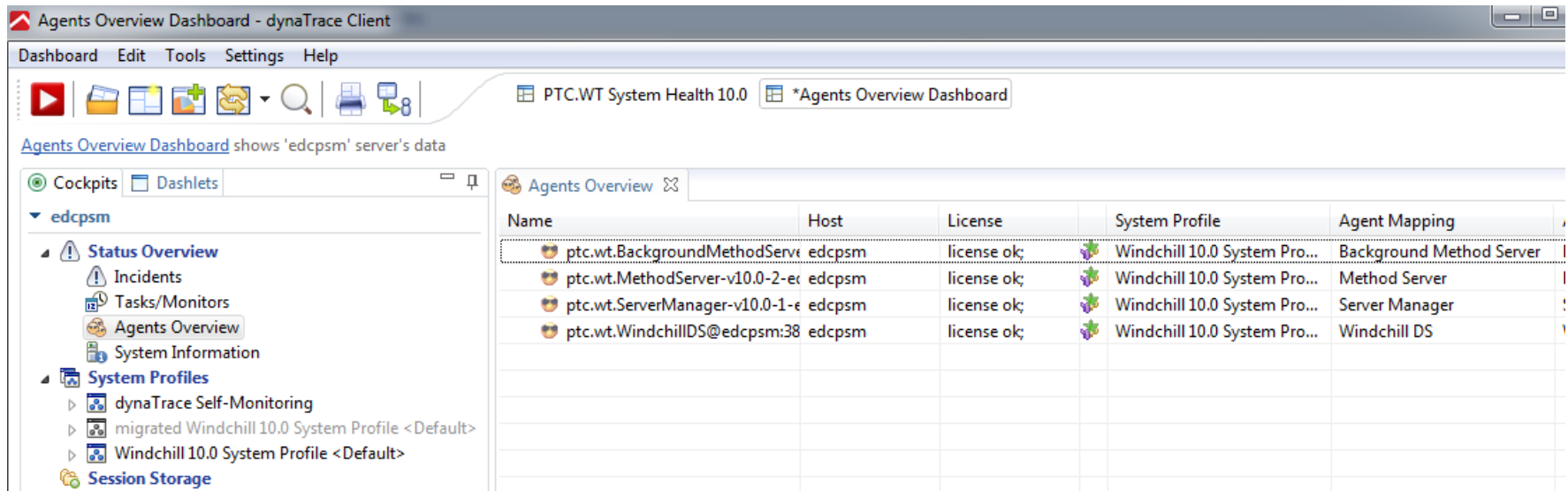


Accessed through **Settings/dynaTrace Server settings**

- Enable continuous transaction storage and set the directory and disk quota for the rotating Stored Sessions (this will allow X days of automatic storage, dependent on the quota and the size of your deployment)



- Restart Windchill after applying the Agents.
- Check in **Cockpit/Status Overview/Agents Overview** to see that the list contains agents from all Windchill JVMs with “license ok”



Agents Overview Dashboard - dynaTrace Client

Dashboard Edit Tools Settings Help

Agents Overview Dashboard shows 'edcpsm' server's data

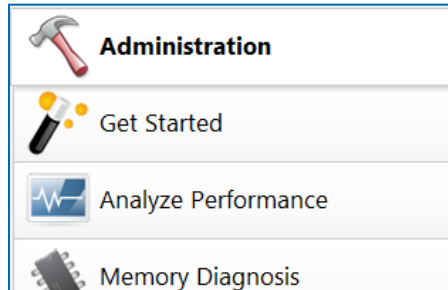
Cockpits Dashlets

edcpsm

- Status Overview
 - Incidents
 - Tasks/Monitors
 - Agents Overview
 - System Information
- System Profiles
 - dynaTrace Self-Monitoring
 - migrated Windchill 10.0 System Profile <Default>
 - Windchill 10.0 System Profile <Default>
- Session Storage

Name	Host	License	System Profile	Agent Mapping
ptc.wt.BackgroundMethodServ	edcpsm	license ok;	Windchill 10.0 System Pro...	Background Method Server
ptc.wt.MethodServer-v10.0-2-e	edcpsm	license ok;	Windchill 10.0 System Pro...	Method Server
ptc.wt.ServerManager-v10.0-1-e	edcpsm	license ok;	Windchill 10.0 System Pro...	Server Manager
ptc.wt.WindchillDS@edcpsm:38	edcpsm	license ok;	Windchill 10.0 System Pro...	Windchill DS

When correctly configured, the **Start Center/ Administration** page should look like this (optional Analysis Server is not installed and the Geographical Locations Database is not relevant without UEM)



- ✓ **Administrative email address**
The administrative account uses the following email address: atwood@ptc.com
- ✓ **User Management**
Manage [users](#), [groups](#), [roles](#) and control [LDAP integration](#).
- ✓ **Performance Warehouse setup**
Performance Warehouse is connected.

The dynaTrace Server is using the Performance Warehouse database, [wind9 \(Oracle\)](#) on 'localhost'.

You can configure settings and connect to the Performance Warehouse [here](#).
- ✓ **Continuous Transaction Store**
The dynaTrace continuous transaction store is enabled with a storage size of 10GB. You can configure these settings [here](#).
- ✓ **Services configuration**
The server listens for [connections](#) from clients.
The server allows [non-SSL](#) and [SSL secured](#) connections from Collectors.
Direct agent connections to the server are [disabled](#).
HTTP Tunnel Service is [enabled](#).

You can adjust these settings [here](#).
- ✓ **Management configuration**
Web Server allows [non-SSL](#) and [SSL secured](#) connections.
Web Services (REST/SOAP) are [enabled](#).
Webstart is [enabled](#).

You can adjust these settings [here](#)

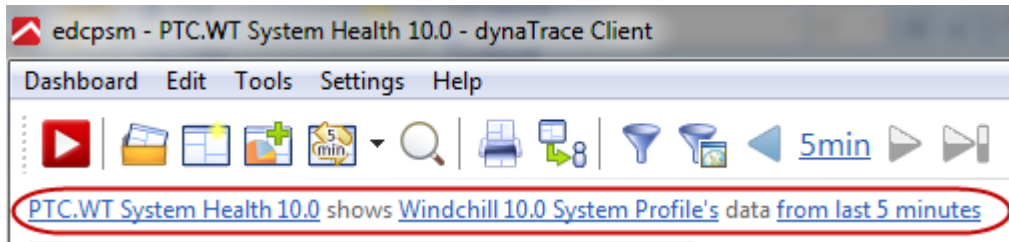
- ⚠ **Analysis Server**
The external Analysis Server is not configured or cannot be reached, post-processing of memory snapshot information will use server memory and may degrade PurePath buffers.

The dynaTrace Server is trying to reach the Analysis Server at localhost: 7788.

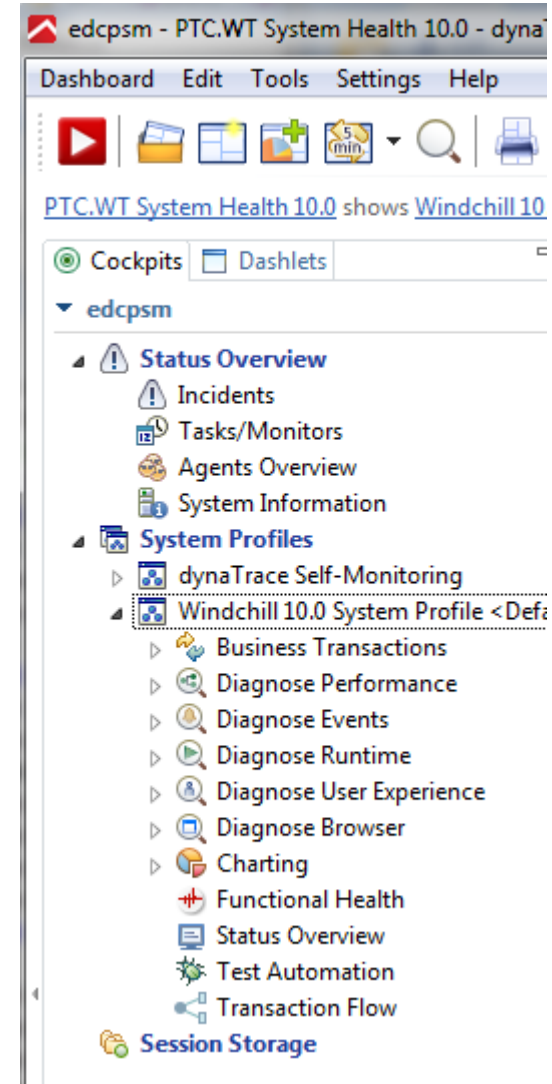
Adjust the [configuration](#) and verify that the process is started correctly to enable the full functionality of memory analysis.
- ⚠ **Geographical Locations Database**
The database used to translate IP addresses to geographical locations is older than 40 days. Please [update](#) to ensure that continents, countries and regions are shown correctly, even if IP addresses have changed. The new database is applied right away, restarting any dynaTrace component is not required.
- ✓ **License setup**
Valid License found, details are available [here](#).
- ✓ **Collector Status**
All Collectors are connected.
Investigate detailed Collector status [here](#).
- ✓ **Mail server configuration**
Sending email is configured to use the SMTP server at [int-mail.ptc.com: 25](mailto:int-mail.ptc.com:25).

- Check for creation of <windchill>/opt/psm directory
- Check for additional href in <windchill>/declarations.xconf:
<ConfigurationRef xlink:href="opt/psm/psm-override.xconf"/>
- Check for “psm” settings in wt.properties:
 - psm.home=\$(wt.home)\$(dir.sep)opt\$(dir.sep)psm\$(dir.sep)agent
 - psm.lib.bit.dir=64
 - psm.lib.dir=lib64
 - psm.log.level=info
 - psm.name=ptc.wt
 - psm.profile.instance.name=\$(psm.name).{1}-(psm.windchill.version) -(wt.httpgw.hostname)-\$(wt.webserver.port)-\$(wt.webapp.name)-{0}
 - psm.server.hostname=myhost.ptcnet.ptc.com
 - psm.server.port=9999
 - psm.startup.library=dtagent.dll
 - psm.windchill.version=v10.0

- **Cockpit** - used to select Profile, Session, live “Diagnose” dashlets
- **Status Line** - “breadcrumb” trail shows source and time frame for the currently selected object.



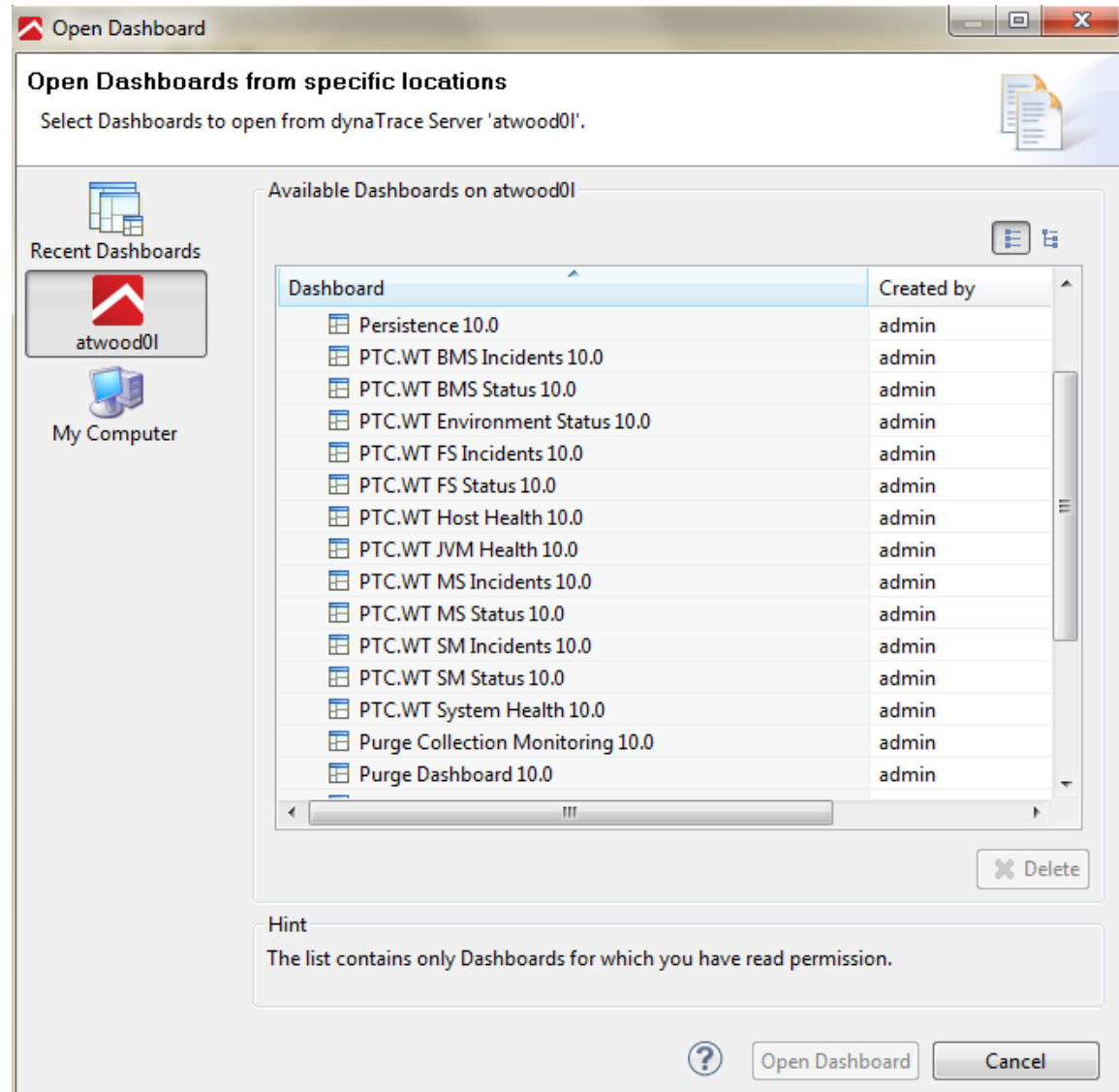
- **Menus** - give access to dashboards and server/client settings. Many of these are accessible as right-click context picks from the Cockpit or Dashlets.



- Dashlet: Graphical or Tabular object to display captured data
- Dashboards: A collection of dashlets configured and saved for reuse
- Drilldowns and Details available (varies depending on dashlet/dashboard)
- Dashboards accessible via services URL when saved to Server
 - 1) Use `http://<dtServer>:8020/rest/management/reports/create/<dashboardName>` or
 - 2) Select from full list at `http://<dtServer>:8020/rest/html/management/dashboards`
- Dashlets are customizable in many ways
- Can be configured with multiple sources to monitor many systems

Dashboards menu

- The lists depend on user permissions.
- 3 sources:
 - Recent
 - <server>
 - computer (xml files)
- Most used:
 - PTC.WT System Health
 - PTC.WT MS Status
 - PTC.WT Environment Status
 - PTC.WT JVM Health
 - Common Operations
 - Workspace Operations

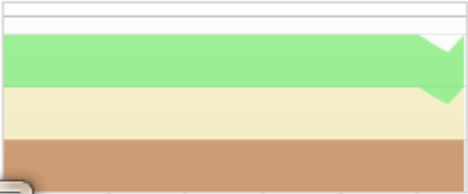


Indicators are driven from a set of incidents unique to each JVM group.

Windchill®

System Health

MS SM BMS Tomcat FS Available Method Servers

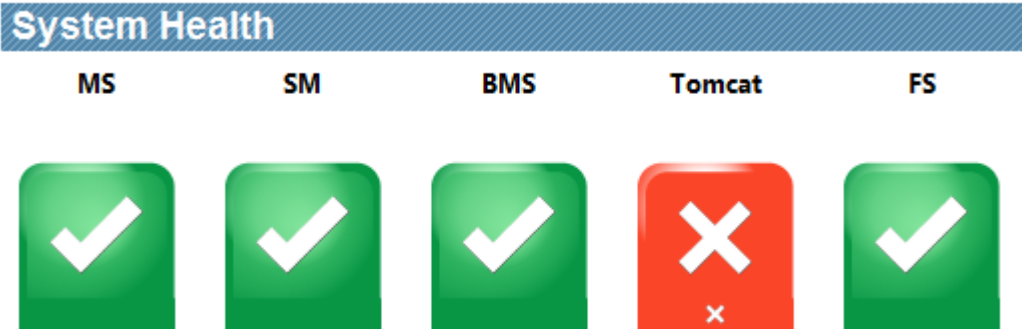


Incident Rule	Overall State	Current State
Application Process Unavailable (unexpected)	⚠️	⚠️
MS Unavailable - PTC.WT	✅	✅
MS Active Contexts Health Indicator - severe - PTC.WT	✅	✅
MS GC Utilization - severe - PTC.WT	✅	✅
MS Memory Utilization Health Indicator - severe - PTC.WT	✅	✅
MS Active Contexts Health Indicator - PTC.WT	✅	✅
MS GC Utilization - PTC.WT	✅	✅
MS Request Health Indicator - PTC.WT	✅	✅
MS Memory Utilization Health Indicator - PTC.WT	✅	✅

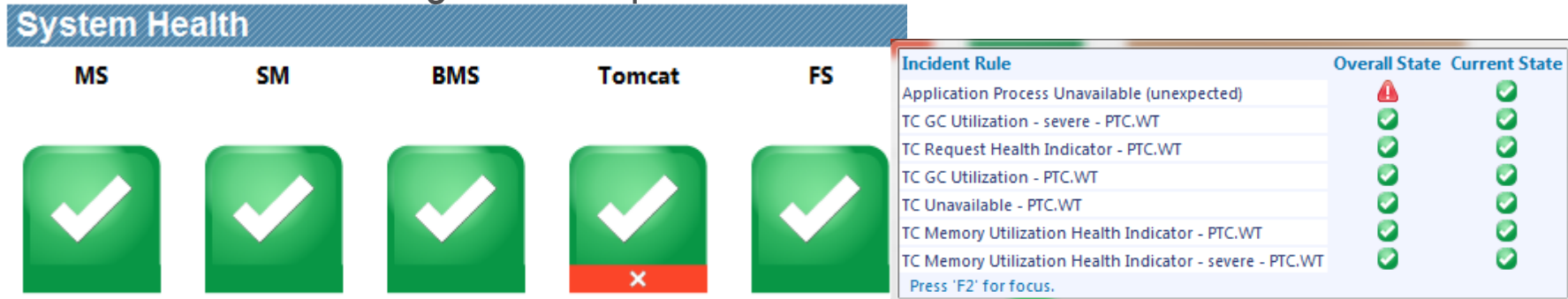
number

Press 'F2' for focus.

1) Initial occurrence show full red (or yellow, depending)



2) Incident has ended because a new tomcat was started, but red bar indicates it is still in the incidents list for the given time period. Either wait it out or **delete** it.



Note: Confirmation of the incident doesn't affect the indicator.



Due to agent name iteration, MS/SM/BMS Availability incidents must be deleted.

System Health

MS SM BMS FS Available Method Servers

MS SM BMS FS

Incidents

Name	History (last 30 minutes)	Start Time	Duration	End Time	S...	Confirmed By
ptc.wt.MethodServer-v10.0-1-edcpsm.ptc.com-80-Windchill@edcsm_connection_lost		2011-11-28 13:25:29	-	-	-	-

MS, SM and BMS have iterated agent names because **multiple JVMs of the same name** can be running at the same time in Windchill.

System Health

MS SM BMS FS Available Method Servers

Default Incidents display includes configured incidents as well as current ones.

Incidents

Name	History (last 30 minutes)	Start Time	Duration	End Time	Source	Cor
Windchill 9.1 System Profile (1)	[Progress Bar]					
Active Contexts - severe - PTC.WT						
Agent Connected	[Progress Bar]					
Agent CPU Time Capturing						
Agent Hot Sensor Plac						
Agent Instrumentation						
Agent Timer						
Application Process U						
ptc.wt.MethodSer						
BMS Active Contexts H						
BMS Active Contexts H						
BMS GC Utilization - P						
BMS GC Utilization - se						
BMS Memory Utilizati						
BMS Memory Utilizati						
BMS Unavailable - PTC						
BMS Wf Queues Waitir						
BMS Wf Queues Waitir						
Component Resource						

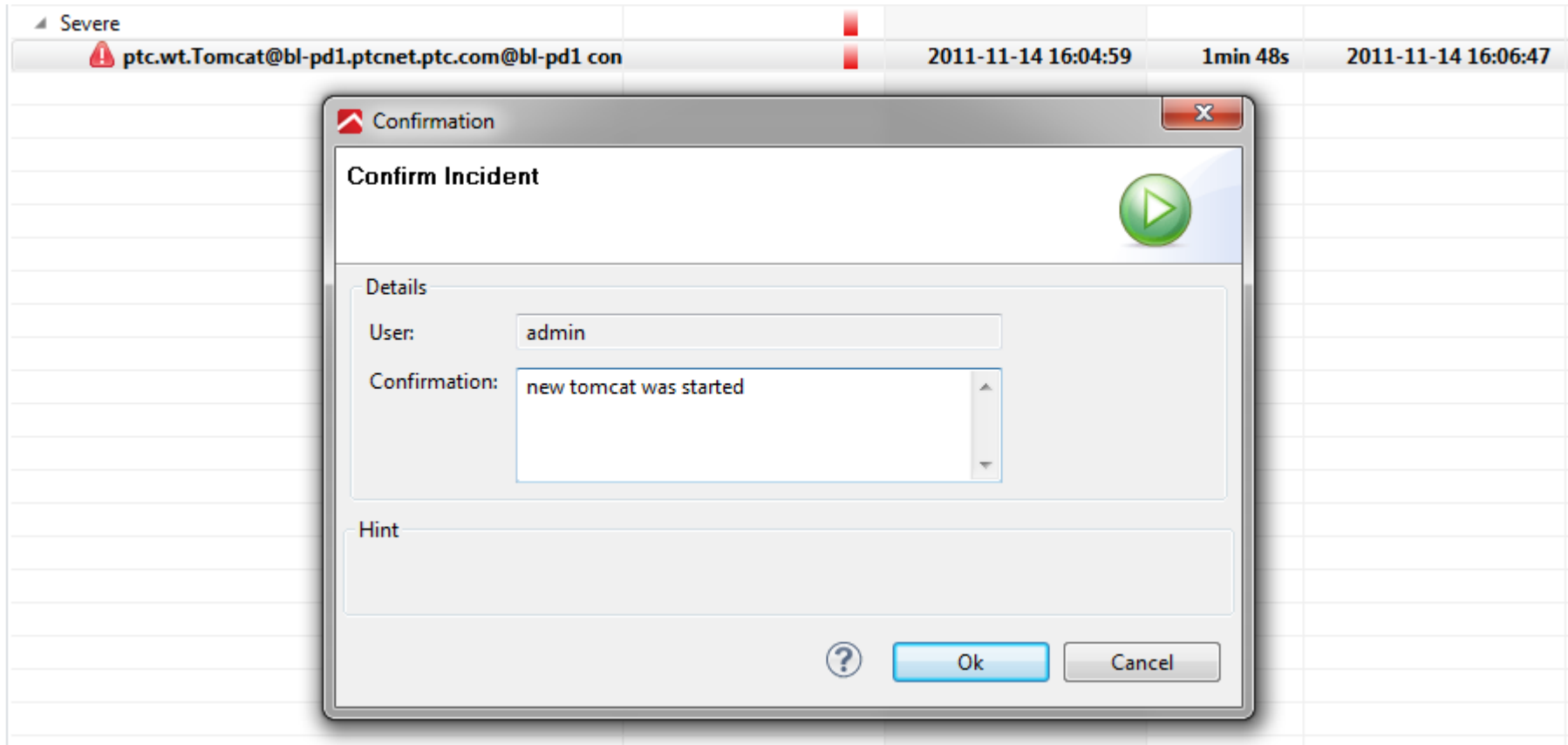
Structure Mode/Group by Severity

Incidents

Name	History (last 30 minutes)	Start Time	Duration	End Time	Sou
Informational	[Progress Bar]				
Severe	[Progress Bar]				
ptc.wt.MethodServer-v9.1-4-bl-pd3.ptcnet.ptc.com-81	[Progress Bar]	2011-11-14 15:53:02	-	-	-

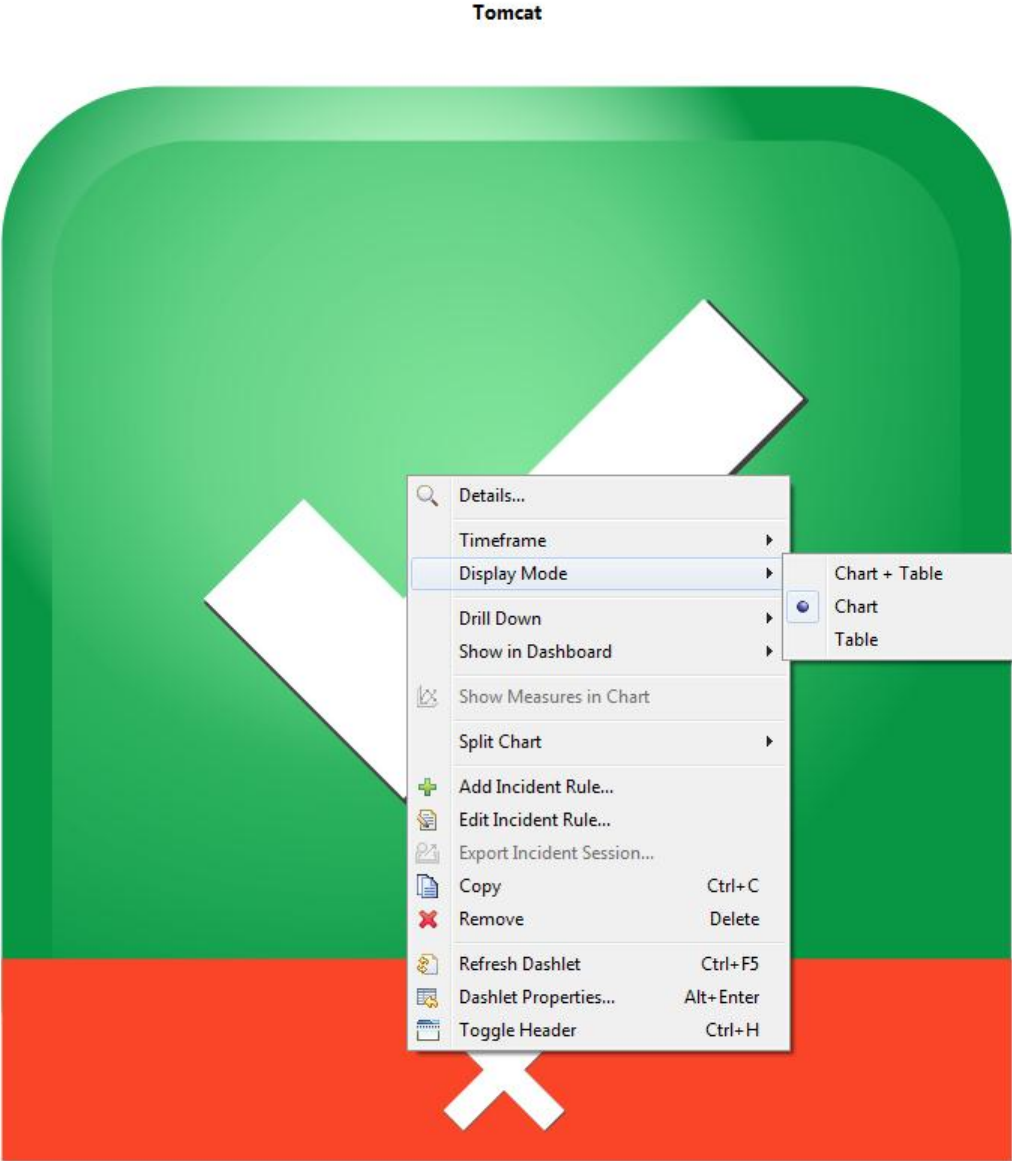
Confirm greys out the incident, but does not remove it from incident list or set the end time.

Mostly relevant to Smart Alerting, which we don't currently have configured.



Double-click on the header of the dashlet to expand it (if header is not displayed, first use Right-click/Toggle Header).

Next select Display Mode/Chart + Table to see the Tabular values as well.

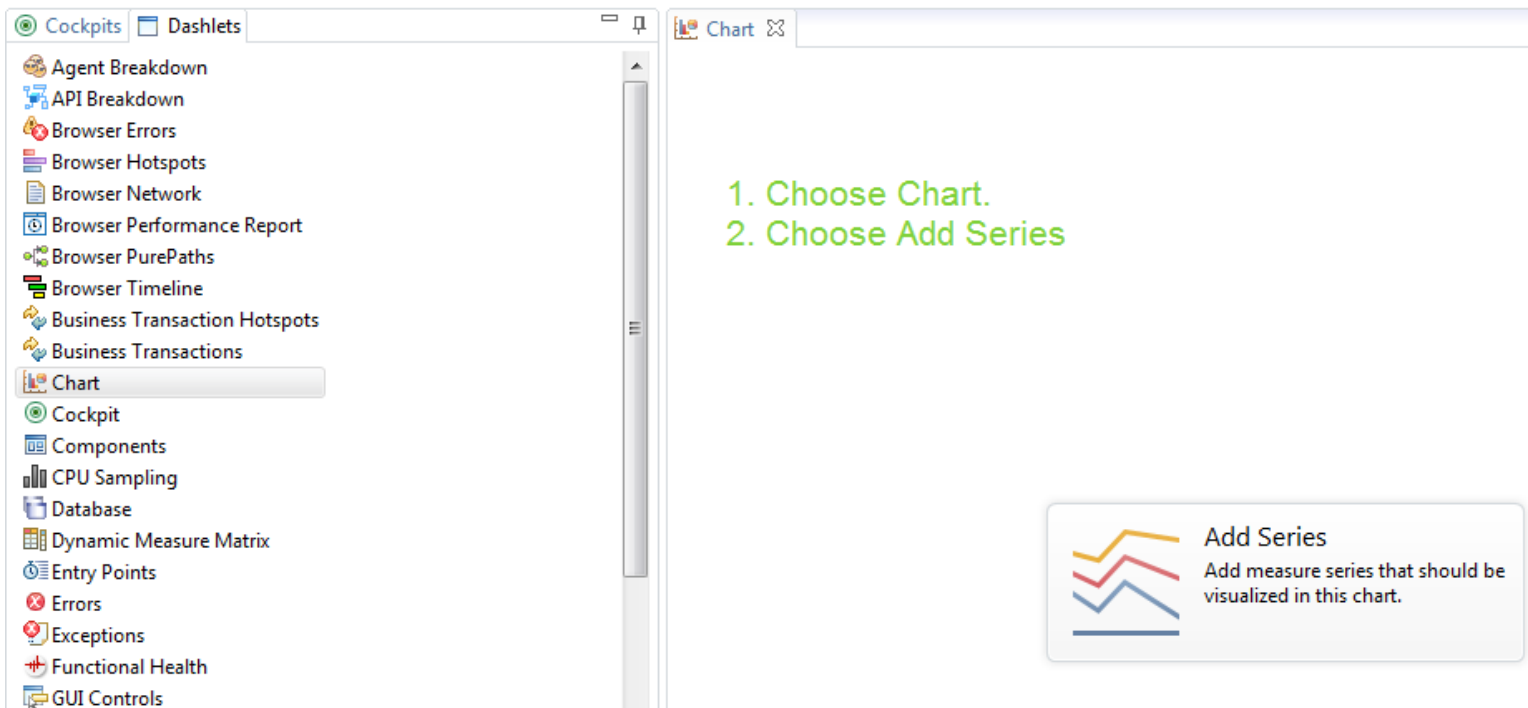


Tomcat

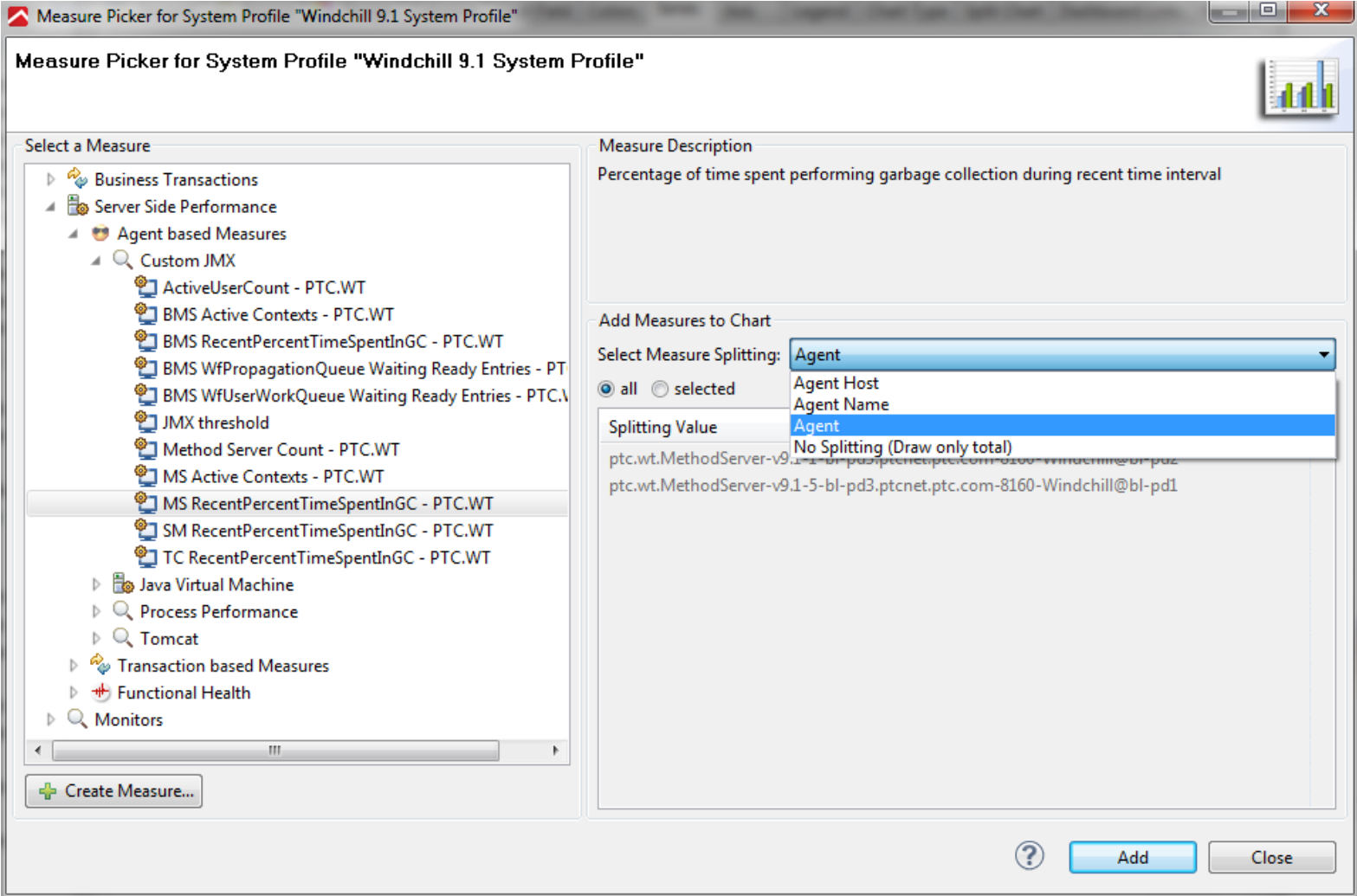


Incident Rule/Incidents		Start Time	End Time	Duration	System Profile	Message
TC GC Utilization - severe - PTC.WT	●	-	-	-	Windchill 9.1 S...	
TC Request Health Indicator - PTC.WT	●	-	-	-	Windchill 9.1 S...	
TC GC Utilization - PTC.WT	●	-	-	-	Windchill 9.1 S...	
TC Unavailable - PTC.WT	●	-	-	-	Windchill 9.1 S...	
Application Process Unavailable (unexpected)	!	-	-	-	Windchill 9.1 S...	
Application Process Unavailable (unexpected)	!	2011-11-14 16:04:59	2011-11-14 16:06:47	1min 4...	Windchill 9.1 S...	ptc.wt.Tomcat@bl-pd1.ptcnet.ptc.com@bl-pd1 con...
TC Memory Utilization Health Indicator - PTC.WT	●	-	-	-	Windchill 9.1 S...	
TC Memory Utilization Health Indicator - severe - PTC.WT	●	-	-	-	Windchill 9.1 S...	

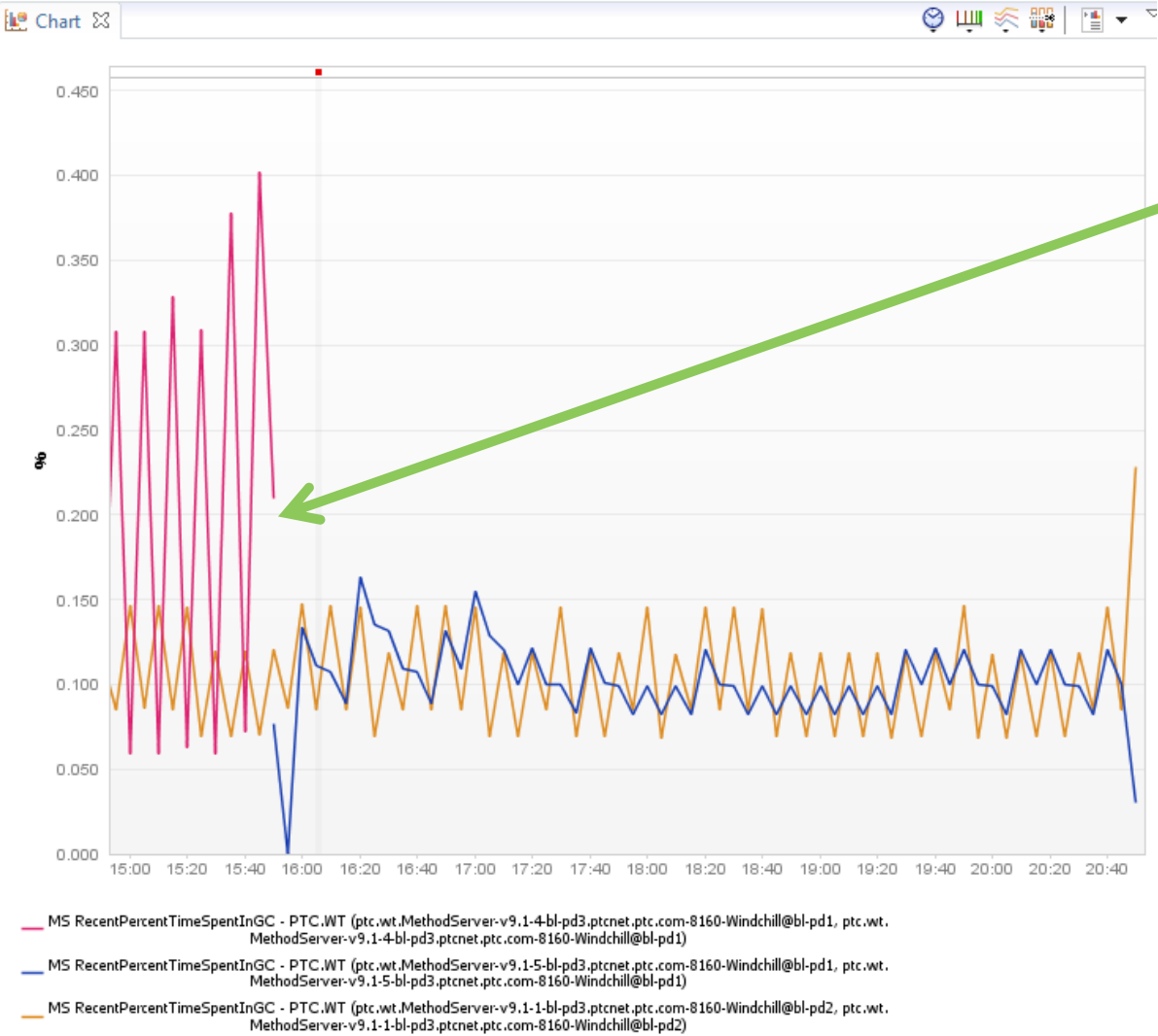
Select the **Chart** dashlet to add it to a new or existing dashboard. The **Add Series** button allows you to add Measures to the chart.



Select from any existing measures.



The chart will show all data from within the selected time window.



Note: This chart shows 3 traces for 2 method servers. One MS process stopped and restarted within the time window.

Hold cursor on edge until double arrow appears, then click and drag

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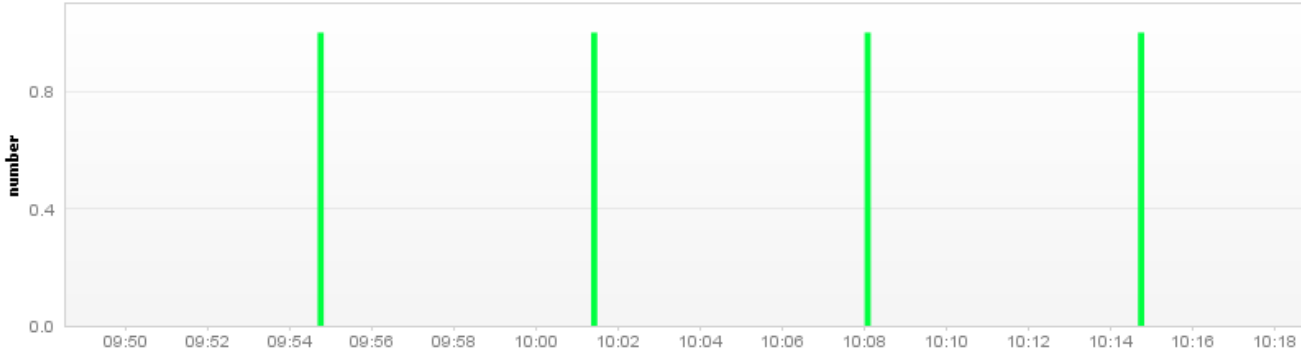
System Health

MS SM BMS Tomcat FS Available Method Servers Web Request Times

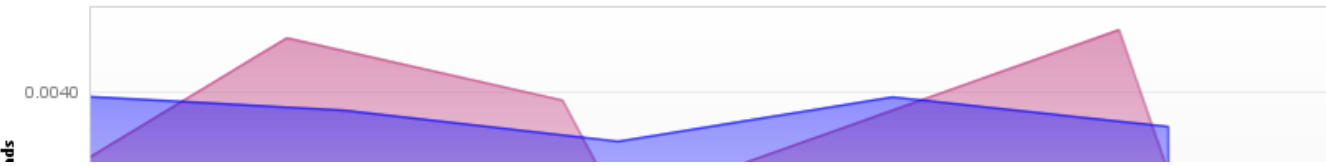
The dashboard displays five green checkmark icons for MS, SM, BMS, Tomcat, and FS. To the right is a stacked bar chart for 'Available Method Servers' with three segments (green, yellow, brown) over a time range from 09:50 to 10:10. Further right is a gauge for 'Web Request Times' showing a green circle and a value of 100. A legend below the gauge indicates 'Web Requests 5s - PTC.WT'.



Transaction Count



Total Time Spent for Transactions



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Method Server Status

Method Server KPIs

Aggregated View on Key Performance Indicators for all Method Servers

Agent/Monitor	Web Request Ti...	MS Memory Utilization - PTC....	MS A
bl-pd1		✓	
ptc.wt.Met		✓	
ptc.wt.Met		✓	
bl-pd2		✓	
ptc.wt.Met		✓	

Web Request Duration Breakdown

Name	Count	Failed %
Web Requests 5s - PTC.WT	1560	1.47 %
Web Requests 5to30s - PTC.WT	1	0 %

User Activity Breakdown

Group	Count	Time [ms] Sum	Cpu Time [ms] Sum	Fa
demo	1430	301949.45	38567.73	✓
null	100	743.69	289.80	✗
user2	24	15557.04	1499.06	✓
user1	7	2397.98	281.01	✓

Response Time Hotspots

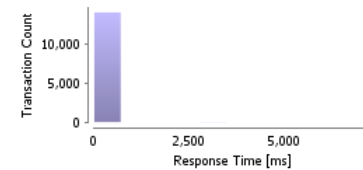
Windchill 9.1 System Profile

Analyze the transaction response time and its distribution across tiers and APIs to isolate performance problem

Server Transaction Statistics

[Show Method Hotspots](#)

Transaction Count: 14122
 Average Response Time: 34.65 ms
 Failed Transactions: [23 \(0.1\)](#)

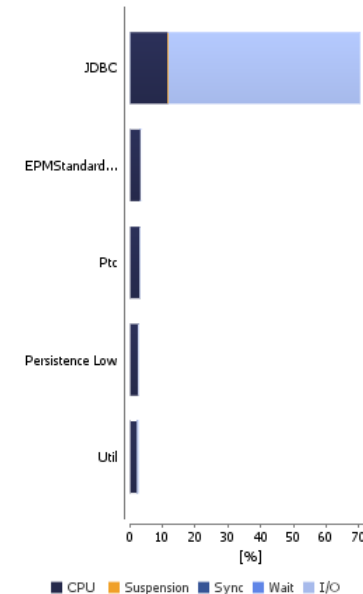
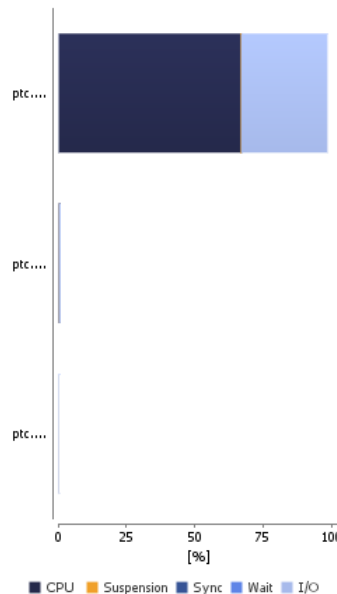


Hotspots by Tier

show by Agent ▾

Hotspots by API

[Show API Breakdown](#)

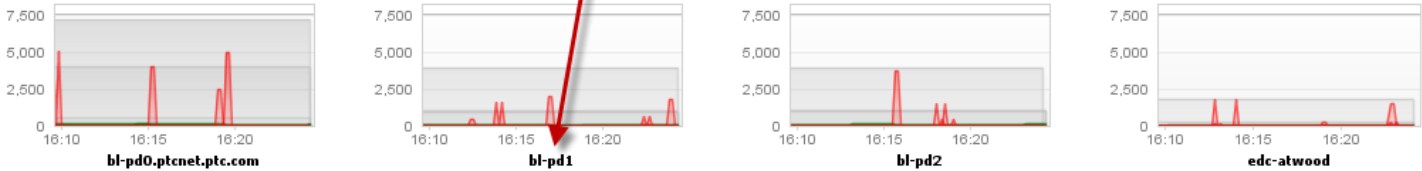




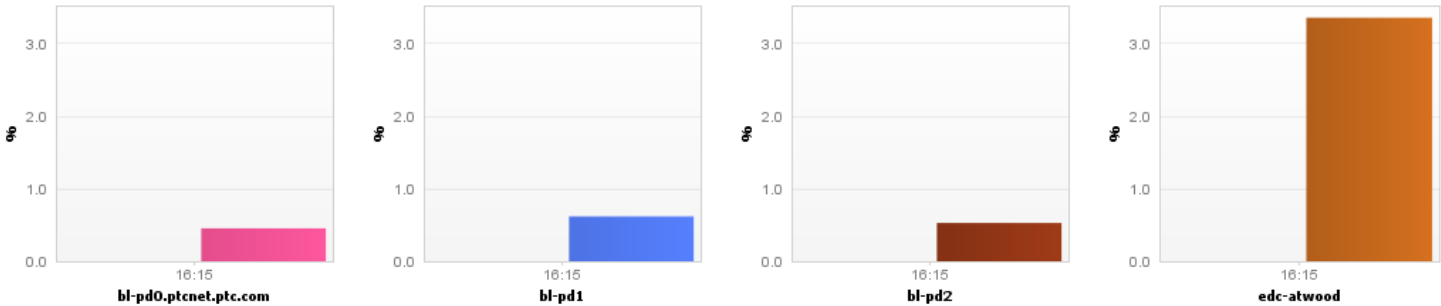
Split by Hosts in the Cluster and remote File Server (edc-atwood); can also be split by Agent Group, etc.

JVM Health

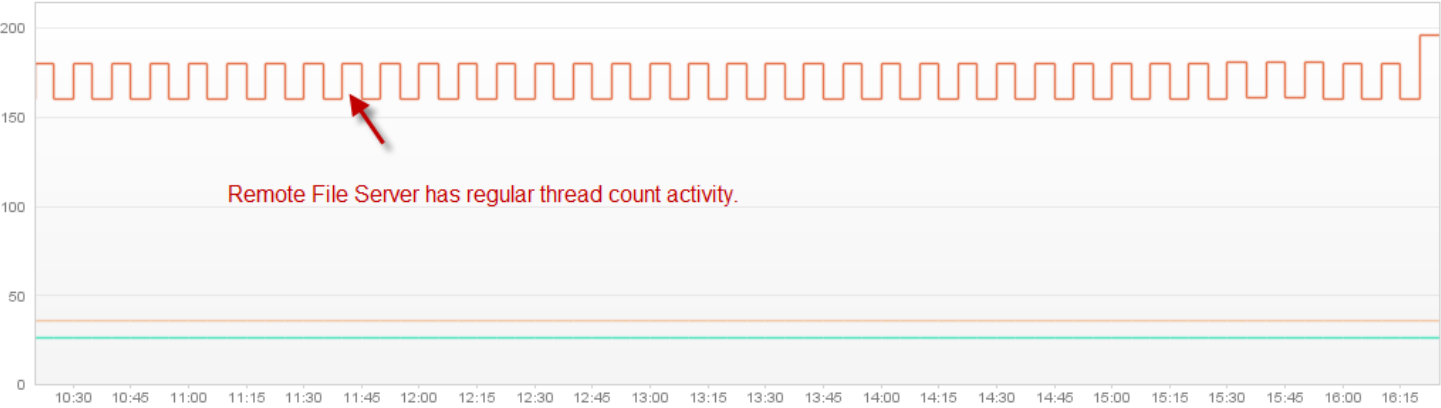
JVM Memory Usage



CPU Usage

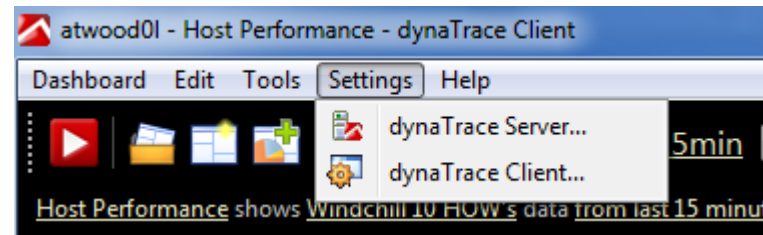
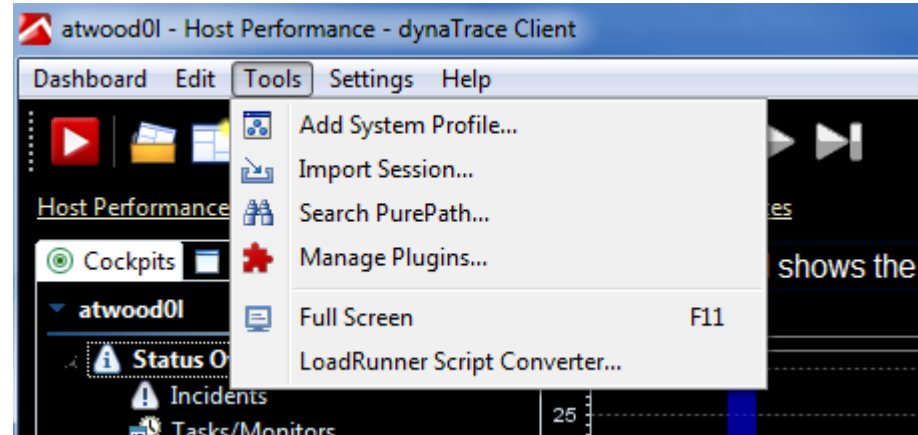


JVM Thread Count

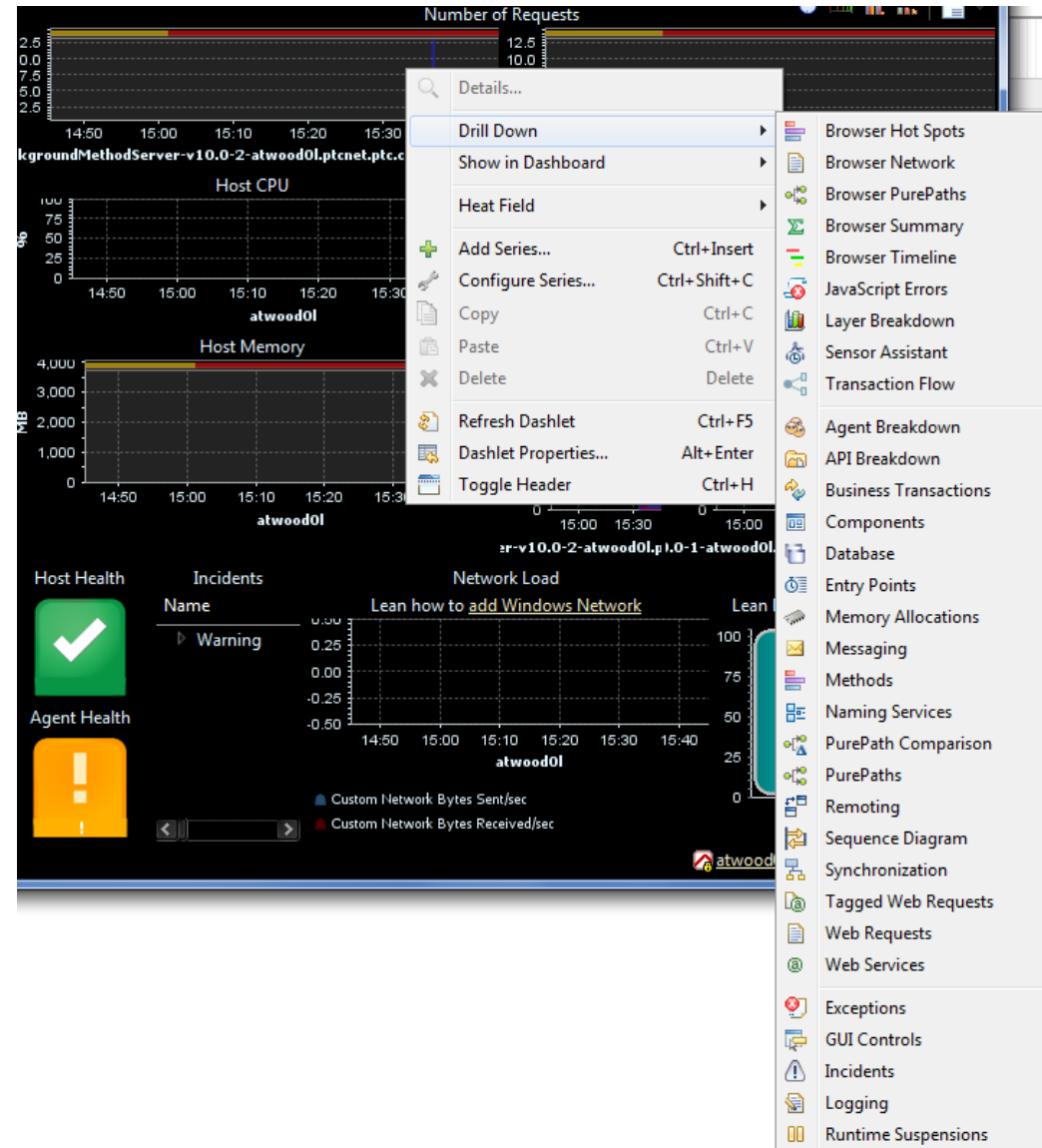


Tools and Settings menu

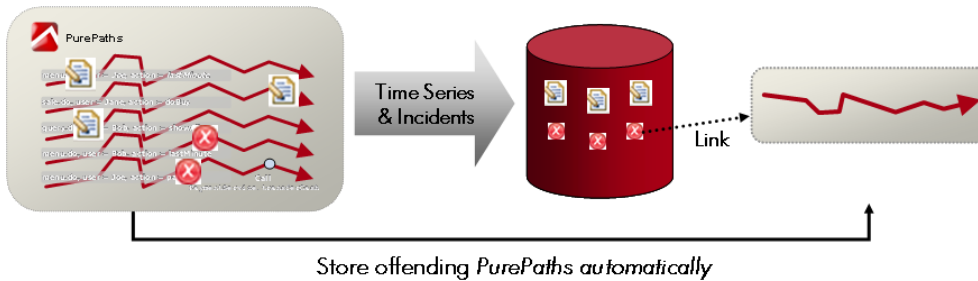
- Profiles, Sessions, Plugins
- Access dynaTrace Server settings



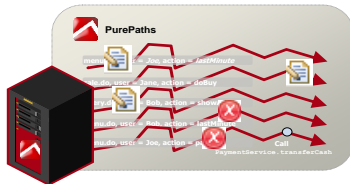
- There are drill down menus available by right-clicking on most places in the client.
- Some often accessed include the following: Details, Purepaths, Layer Breakdown, API Breakdown, Sequence Diagram, Database, Exceptions, Incidents



- A “session” in PSM is a set of diagnostic data captured from a system profile.
- Sessions **are not stored** in the Performance Warehouse, but are **locally stored** on the Server or web-start client.
- Information types contained in a sessions can include:
 - **PurePath Session**: represents the combined information about PurePaths and Time Series (sampled data) within a given time period
 - **Memory Dump**: contains analysis data about the number, size and class of allocated objects and their references
 - **Thread Dump**: is a collection of data for thread analysis including CPU time information
 - **Sampling (CPU)**: provides statistical data of all threads currently being serviced by the CPU
- There are 3 types of session:
 - **Live**: a Purepath session performed on live data in the server cache
 - **Stored**: any of the 4 information types above, stored on the client or Server
 - **Offline**: A session that was stored on the client, and can be accessed without the server.



Manual and/or automatic session storage



Live Session (Continuous Transaction Storage):
Latest N PurePaths & 1 hour measures for X days



Stored Session: PurePaths + Measures persistently stored on Server



Offline Session: PurePaths + Measures persistently stored on Client; no Server needed



Exported Session: A zipped stored/offline session

Each stored session contains a copy of the System Profile active at the time.

■ Dump – create a snapshot

- Live (or continuously recorded) PurePath Session can be transferred to a specific Stored Session file by selecting **Store Session** (or Export Session) out of the live session's context menu (submenu Session Storage)
- A Memory Dump or a Thread Dump can be manually created via **Total Memory**, **Selective Memory** or **Threads** dashlets, or created automatically using an Incident action.

■ Download

- A Stored Session can be downloaded from dynaTrace Server to a dynaTrace Client by the command **Make Available Offline** which can be found within the context menu of a Stored Session.

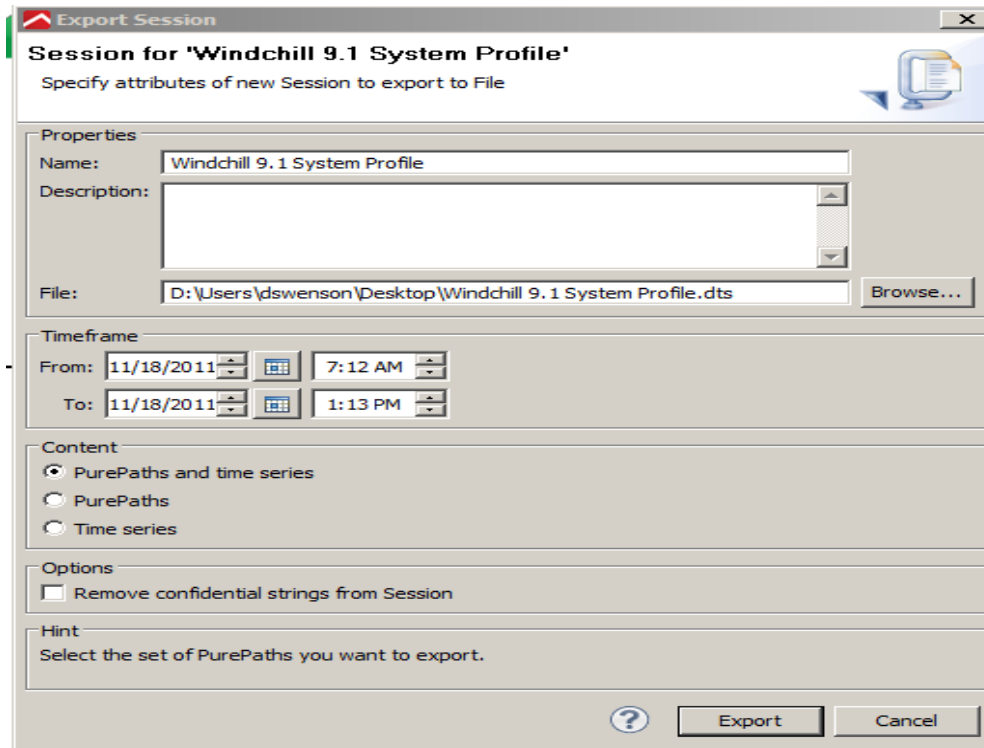
■ Task

- A schedule task can be set to create a stored session.

Note: File type created is *.dts

Method 1: Sending the entire session over a period of time

- **Pros:** All session data is collected for all PurePath's for the given time as well.
- **Cons:** Export can be very large depending on how long of a time frame is specified. Best to use a 4 hour window around a time of interest.



Method 2: Exporting a specific PurePath

- **Pros:** allows the export of a single PurePath for Analysis. Usually very small export file
- **Cons:** No other data collected about any other transaction.

● UnicastServerRef.dispatch(Remote, RemoteCall)	ptc.wt.MethodServer-v9.1-2-serenity.ptcnet...	?
● UnicastServerRef.dispatch(Remote, RemoteCall)	ptc.wt.MethodServer-v9.1-2-serenity.ptcnet...	
● CacheManager_Stub.removeEntry(Object, int)	ptc.wt.MethodServer-v9.1-3-serenity.ptcnet...	
● UnicastServerRef.dispatch(Remote, RemoteCall)	ptc.wt.MethodServer-v9.1-2-serenity.ptcnet...	
● CacheManager_Stub.putEntry(Object, Object, int)	ptc.wt.MethodServer-v9.1-3-serenity.ptcnet...	
● CacheManager_Stub.putEntry(Object, Object, int)	ptc.wt.MethodServer-v9.1-3-serenity.ptcnet...	
● UnicastServerRef.dispatch(Remote, RemoteCall)	ptc.wt.MethodServer-v9.1-2-serenity.ptcnet...	
● /Windchill/servlet/WindchillGW/wt.httpgw.HTTPServer/ping	ptc.wt.TOMCAT@mal:2776	
● CacheManager_Stub.putEntry(Object, Object, int)	ptc.wt.MethodServer-v9.1-3-serenity.ptcnet...	
● CacheManager_Stub.getEntry(Object)	ptc.wt.MethodServer-v9.1-3-serenity.ptcnet...	
● UnicastServerRef.dispatch(Remote, RemoteCall)	ptc.wt.MethodServer-v9.1-3-serenity.ptcnet...	
● LDAPClientConnection.processLDAPMessage(LDAPMessa...	ptc.wt.WindchillDS@mal:3164	
● LDAPClientConnection.processLDAPMessage(LDAPMessa...	ptc.wt.WindchillDS@mal:3164	
● LDAPClientConnection.processLDAPMessage(LDAPMessa...	ptc.wt.WindchillDS@mal:3164	

Details...

Drill Down

Show in Dashboard

Export...

Store Session...

Result Limit (PurePath:

Select PurePath for co

Compare PurePaths

Find...

Select all

Deselect all

Method 3: Exporting on a specific incident

- **Pros:** Allows a finite session around the time an incident occurred
- **Cons:** Since it only collects data around an incident, it may not show the root cause of the incident occurring for certain types.

The screenshot displays a monitoring dashboard with a list of incidents on the left and a context menu on the right. The incident list includes several 'Web Requests/Time : Windchill URLs upper bound exceeded' entries, followed by various system health indicators like 'Excessive CPU', 'Excessive System CPU Time', and 'FS GC Utilization'. A 'Long Queue Operation - PTC.WT (1)' incident is highlighted. The context menu for this incident offers options such as 'Details...', 'Drill Down', 'Show in Dashboard', 'Export Incident Session...', 'Show Measures in Chart', 'Confirm Incident', 'Set Incident in Progress', 'Edit Incident...', 'Find...', 'Select all', 'Deselect all', 'Expand All', 'Collapse All', 'Structure Mode', 'Copy', 'Delete', 'Refresh Dashlet', 'Dashlet Properties...', and 'Toggle Header'.

Incident Description	Time
Web Requests/Time : Windchill URLs upper bound exceeded	2011-11-28 13:12:00
Web Requests/Time : Windchill URLs upper bound exceeded	13:04:20
Web Requests/Time : Windchill URLs upper bound exceeded	12:33:10
Web Requests/Time : Windchill URLs upper bound exceeded	15:21:30
Web Requests/Time : Windchill URLs upper bound exceeded	15:17:10
Excessive CPU	
Excessive System CPU Time	
Excessive Web Response Time	
FS GC Utilization - PTC.WT	
FS GC Utilization - severe - PTC.WT	
FS Memory Utilization Health Indicator - PTC.WT	
FS Memory Utilization Health Indicator - severe - PTC.WT	
FS Request Health Indicator - PTC.WT	
FS Unavailable - PTC.WT	
High Overall Failed Page Action Rate	
High Overall Failed Transaction Rate	
Incident Rule (type=Availability,name=Connected Agents) - severe#00	
Incident Rule (type=Availability,name=Connected Agents) - severe#00	
Incident Rule (type=Availability,name=Connected Agents) - severe#00	
Incident Rule (type=Availability,name=Connected Agents) - severe#00	
Incident Rule (type=Business Transaction Results,name=Value,key=W	
Incident Rule (type=Business Transaction Results,name=Value,key=W	
Long Queue Operation - PTC.WT (1)	
Low Physical Memory	
Low Root Disk space	
Low Total Memory	
Memory Utilization - severe - PTC.WT	

Exercise 3: Create and Export a Stored Session (5 min)

Collect cyclic measures from hosts (performance and resources) or URLs

- Infrastructure Monitoring requires configuration of O/S specific Monitors and Measures.
- Can monitor Unix or Windows system performance
- URL monitoring (availability) and Web Transaction monitoring (automatic performance check) can be configured
- VMware
 - Compute Resource
 - Host System Performance
 - Resource Pool
 - Virtual Machine Performance

- Configured per System Profile
- Based on **thresholds** for subscribed Measures or Business Transactions
- Single or multiple **conditions**
- Can execute **actions** for incident
- Can have **Linked Dashboard** (default is **Incident Dashboard**)

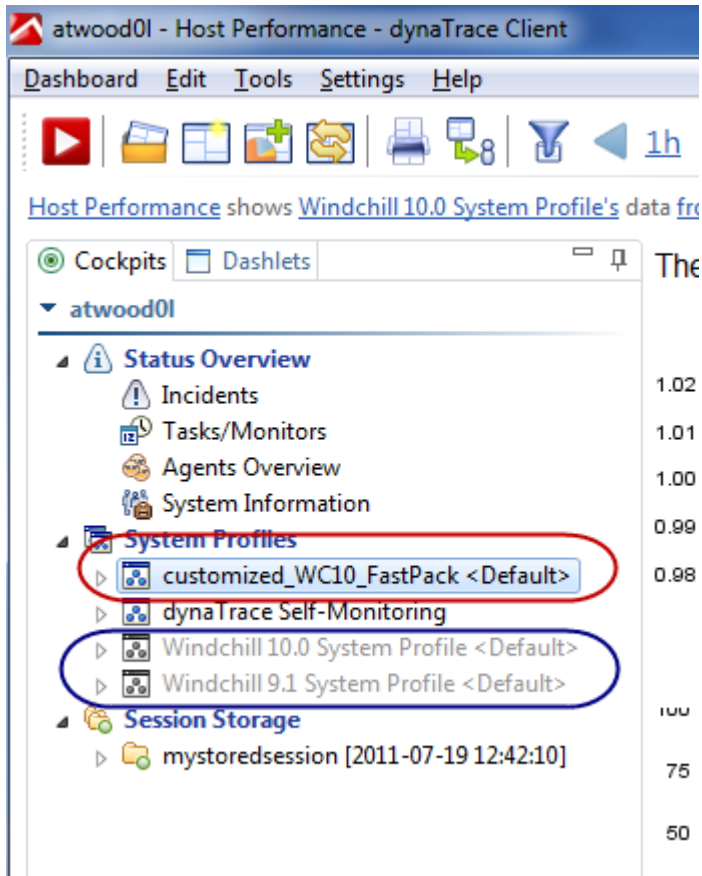
The following Advanced actions can be configured for an incident

- Can configure Smart Alerting (confirmation required), Severity and Execution time (delayed or not) for each action listed.
- Activate Configuration Action: select from predefined sensor configurations
- Email Notification: notifications are sent via SMTP to configured users.
- Sampling Action: triggers CPU Sampling session.
- Memory Dump Action: triggers memory dump(s) for configured agent(s).
- Thread Dump Action: triggers thread dump(s) for the configured agent(s).

- A “FastPack” is a dynaTrace transferrable archive of the following server information:
 - Dashboards
 - License
 - System Profiles
 - Sensor Packs
- Use the Plugins menu to apply (**import**) a FastPack
 - Note that the FastPack is NOT listed separately in plugins list
 - For this reason, FastPacks can not be used to do version management for configurations
- Patches from dynaTrace are a plugin (subset of FastPack)

- We recommend copying the default profile created by the FastPack to a new name, then apply your customizations to the new profile while disabling the default profile (to allow duplicate agent definitions).
 - This will allow you to install new fastpacks without overwriting your existing, customized profile.

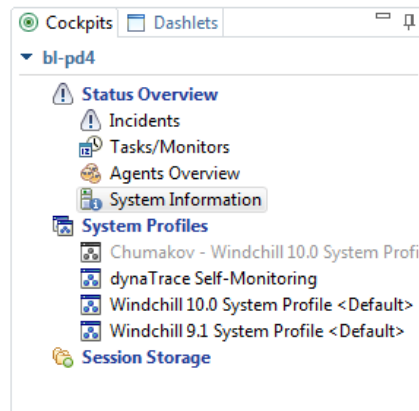
- Use the commands below to move information between profiles.
 - Sensor Packs
 - Use Export/Import commands
 - System Profiles
 - Use Export (right-click on a profile) and Import (right-click on **System Profiles** in **Cockpit**)
 - Dashboards
 - Use **Dashboard/Save As** command and select the My Computer icon to save locally as xml file.
 - Use **Dashboard/Open** command and select the My Computer icon to open from local xml file.
 - Measures & Business Transactions
 - Use **Copy** in the **Edit System Profile/Measures (or Business Transactions)** UI to copy and paste between profiles.



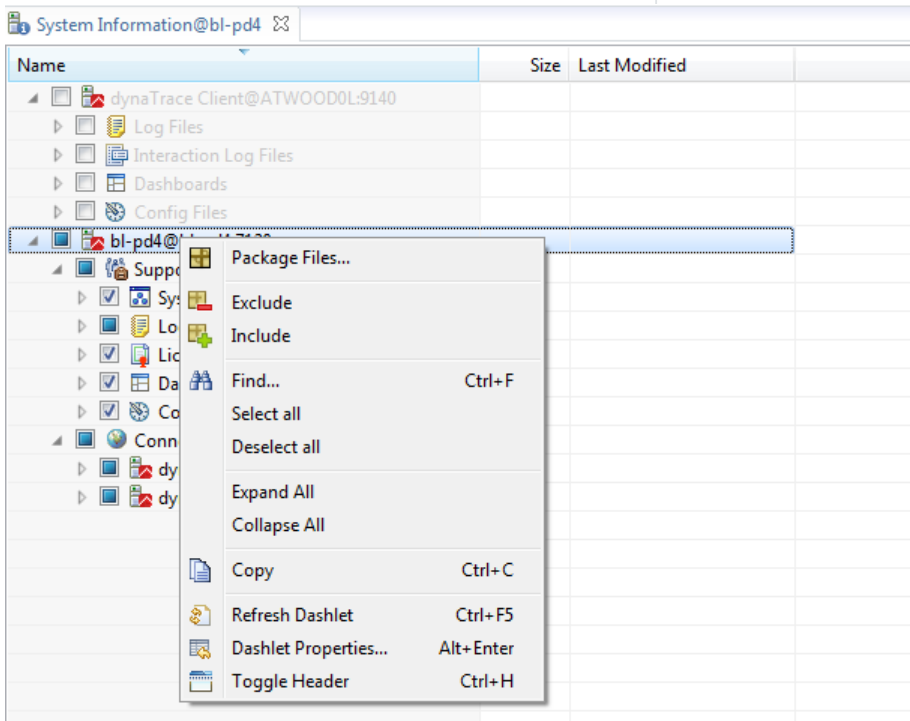
- Active Profile with new name will not be overwritten by a FastPack
- Inactive Profiles can be overwritten by a FastPack.

Use checkboxes to pick and choose the information, then right-click and **Package Files**

System Information Dashboard shows 'bl-pd4' server's data



Name	Size	Last Modified
dynaTrace Client@ATWOOD0L:9140		
Log Files		
Interaction Log Files		
Dashboards		
Config Files		
bl-pd4@bl-pd4:7120		
Support Information		
System Profiles		
Log Files		
Licensing		
Dashboards		
Config Files		
Connected Systems		
dynaTrace Collector@edc-atwood:166		
dynaTrace Collector@bl-pd4:1184		
Support Information		
Connected Systems		
ptc.wt.WindchillIDS@bl-pd0.ptc		
ptc.wt.Tomcat@bl-pd2.ptcnet.p		
ptc.wt.Tomcat@bl-pd1.ptcnet.p		
ptc.wt.ServerManager-v9.1-1-bl		
ptc.wt.ServerManager-v9.1-1-bl		



PSM has several advanced diagnostic capabilities. PTC Technical Support will guide customers regarding when these are recommended for use in response to any given issue.

- CPU Profiling
- Thread Dumps
- Memory Trending Dumps
- Memory Leak Dumps
- Purepath Comparison
- Session Comparison

Although customers are not required to become proficient in using these features, we will quickly review them in order to further show the value of the new monitoring tool.

Be an Engineering Superhero

■ Featured Products

- Best Practice Academy
- LearningConnector
- LearningExchange
- Precision LMS 3.0
- Expert Model Analysis (XMA)

■ At the Conference

- eLearning Lab (St. John's 24)
- Usability Lab (St. John's 33-34)
- PTC University Booth (Solutions Expo)



⚡ WARNING ⚡

PTC University is a very powerful, highly volatile resource. Contact of any kind with PTC University may result in an explosion of knowledge. Super-human effects have been observed in individuals interacting with PTC University for even brief lengths of time.

This course is a subset of content from:

- TRN-3171 Monitoring Windchill Performance using the PTC System Monitor

Thank You