# Precise 10.0.0 Release Information

Precise Application Performance Platform 10.0.x



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# Introduction to Precise 10.0.0

## Introducing Precise 10.0.0

Precise 10.0.0 is a complete Precise version, which includes and provides enhancements and fixes for Precise version 9.9.x. This document describes the new features introduced, the technologies supported, and the issues resolved by this version.

## Installing Precise 10.0.0

Precise 10.0 can be installed in the following ways, depending on the currently installed Precise version:

- If this is the first time you are installing Precise, install Precise 10.0 as described in Clean installation of the Precise Framework.
- If Precise version 9.9.x is currently installed, upgrade directly to version 10.0 as described in Upgrading Precise.

# New Features and Enhancements for Precise 10.0.0

## Supported monitoring platforms

Support is added for the following monitoring platforms:

- IIS 10.0
- SAP ECC 6 EHP 8
- .NET 4.62 and .NET 4.7

## Improved user interface

Precise 10.0 extends the new user interface based on modern UI technologies to the Applications side of Precise. For more information about these updates, see Precise new user interface.

## Improved TLS support

This release includes the following improvements to TLS support:

- Allows users to monitor SQL Server instances with TLS 1.2 without requiring enablement of FIPS
- Allows you to use TLS 1.2-enabled instances as the PMDB database

For more information about TLS support, see Monitoring SQL Server instances with TLS 1.2 enabled (Precise 10.0.x).

## Adds Always On support

Users now can monitor SQL Server instances configured in an Always On environment. For more information about this feature, see Monitoring SQL Server instances in Always On.

## Adds new In-Memory metrics

This release includes additional metrics related to In-Memory capability when monitoring Oracle 12.2 databases. For more information about this feature, see Oracle 12c additional metrics.

## Removed .NET 2.0 requirement

This release does not require Microsoft .NET 2.0 on the machine where you run the Precise installer.

## Updated Precise for SQL Server driver requirements

Precise for SQL Server now uses the SQL Server Native Client 11.0 driver by default. This is an update from previous versions that required legacy SQL Server and OLEDB drivers.

This change now requires the SQL Server Native Client 11.0 driver be available on the following machines:

- servers from which SQL Server instances are monitored
- the machine from where the framework installation is run
- machines on which Precise focal point, PMDB focal point, and Precise for SQL Server focal points are installed

# **Resolved Issues**

- Support file creation using new Admin Point GUI creates invalid archive (PRECISE-19035)
- Precise for Oracle Current tab Locks data does not appear (PRECISE-19046)
- psdn\_ba\_WIN.zip is considered potential malware (PRECISE-19053)
- Incorrect Oracle container name appears in Application dashboard and Activity tab for Oracle 12.2.0.1.0 (PRECISE-19055)
- Running the manual schema script is asking for additional parameters in Precise FW installation with manual schema creation (PRECISE-19057)
- Oracle event mapping change (PRECISE-19065)
- Some of the required files for listener/instance installation in HP UX machine are missing in Precise 9.9.0 build. (PRECISE-19069)
- Precise Manual Schema Installation Error. (PRECISE-18985)
- Precise for Oracle Container name captured as NA when container number is not continuous on a monitored instance. (PRECISE-19044)
- AIX OS agent fails due to missing binaries. (PRECISE-19045)
- Load Processes showing GMT time on new Admin Point GUI. (PRECISE-19036)
- Running the manual schema script is asking for additional parameter in Precise FW installation with manual schema creation. (PRECISE-19057)

## **Known Issues**

#### (i) Precise 10.0.0 GUI Issues

Issues specific to the Precise 10.0.0 GUI are available in Precise new user interface.

- You must restart the Precise Focal Point after an upgrade if using remote instances. You also must start the SQL agents after the Focal Point restart.
- When an Oracle monitoring instance is created immediately after framework installation, errors
  occasionally occur in Oracle warehouse processes, available at Adminpoint > Warehouse Processes. If you
  see such errors, restart the Oracle Focal Point and PMDB focal point.
- After a fresh install or upgrade, you must restart the Precise GUI service before using the Custom Portal.
- There is an issue with injdn.dll and injdn\_x64.dll on Windows Server 2008 R2 with .NET monitoring. When a .NET instance is installed on Windows Server 2008 R2, a "Bad Image" error may occur. You can resolve this issue by installing a Windows security update on the machine. You can download the update from http://technet.microsoft.com/en-us/library/security/3033929.aspx.
- Some binaries from the Precise 10.0.0 installer show up as a threat under AVG antivirus. This is a false positive with AVG and does not cause any problems. You may have to whitelist these binaries when using AVG as antivirus.

# Precise new user interface

Precise 10.0 introduces a new graphical user interface based on a more modern web framework. This new UI works with most browsers and does not rely on Flash on ActiveX.

The new Precise 10.0 user interface co-exists with your existing interface and is available at:

http://<hostname>:<port>/precise

This new UI is fully supported on Chrome and Firefox web browsers. Internet Explorer and Edge browser use is supported but do experience some known issues and limitations.

#### (i) Using Report Manager

Report Manager users still must use the original Precise GUI based on Internet Explorer.

## Known issues with the new GUI

- When logging into the application, the left Apptiers graph is not expanded for the first application by default, and clicking on the row does not expand it. As a workaround, click one of the other rows, and then click back on the first row.
- The Favorites feature is not available.
- In the SQL tab, the Compare Plans functionality is not available.
- In the Dashboard, the Orientation graph does not appear for any technology.
- In the Database explain plan tree, the locate and stepping functions are not available. These features still are available with the previous GUI.
- In grids, the Copy to Clipboard feature is not available. This feature still is available with the previous GUI.
- In the Activity tab, the name in the heaviest transactions section is not an active link. This feature still is available with the previous GUI.
- In the Current and Objects tabs, the **Save As** button does not appear. This feature still is available with the previous GUI.
- In the left grid of the Infrastructure tab, the **Search** box is not available. This feature still is available with the previous GUI.
- In the SQL Server Current tab, the **Sessions Holding Locks** option does not display data.
- In the Active Session, selecting the Statistics tab does not display the message, "No Sessions Found." This issue does not affect functionality.
- In the Time Frame, the start data and end date do not appear.
- In the Applications, the **Settings** button does not appear. This feature still is available with the previous GUI.
- If you export a custom portlet from the new GUI, and then import it into the custom portal, the **Analyze** button to return to the Precise GUI does not take you to the specific content.
- In the J2EE tier's Activity tab, the **Search** box is not available. This feature still is available with the previous GUI.
- In the Network tier, the **Hour Group** list does not appear. This feature still is available with the previous GUI.
- In the Oracle tier's Current tab, the **Kill session** is not supported.
- In the Oracle tier's Activity tab, the **Define Extended Collection** and **Import Statements** do not appear. These features still are available with the previous GUI.
- In the Sybase tier's SQL tab, the **New**, **Open**, **Re-explain**, and **Plan** buttons do not appear. These features still are available with the previous GUI.
- In the Tuxedo tier, the **Hour Group** list and **Filter** icon do not appear. These features still are available with the previous GUI.
- In the Web tier's Activity tab, the **Filter By** button and **Search** box do not appear. These features still are available with the previous GUI.

# Monitoring SQL Server instances with TLS 1.2 enabled (Precise 10.0.x)

Precise 10.0 includes enhancements to enable monitoring of SQL Server instances using TLS 1.2 protocol without the need to enable FIPS.

## Prerequisites

The default driver SQL Server Native Client 11.0 must be installed on the monitoring instance, Precise for SQL Server Focal Point, and Precise for SQL Server PMDB machines.

#### (i) Monitoring TLS-Enabled Instances

When monitoring TLS 1.2-enabled SQL Server instances, the corresponding PMDB instance also must use TLS 1.2 and vice versa.

# Monitoring SQL Server instances in Always On

Precise 10.0 supports monitoring of SQL Server instances in an Always On configuration. This topic illustrates some of these supported features.

- Always On Dashboard tab
- Always On Activity tab
- Always On Objects tab

## Always On - Dashboard tab

In the Dashboard tab, the right Applications tab has a new **Alwayson Groups** section. This section displays the availability group name, In MS-SQL time, and number of sessions under each group. Databases which are not part of any group appear under **N/A**.

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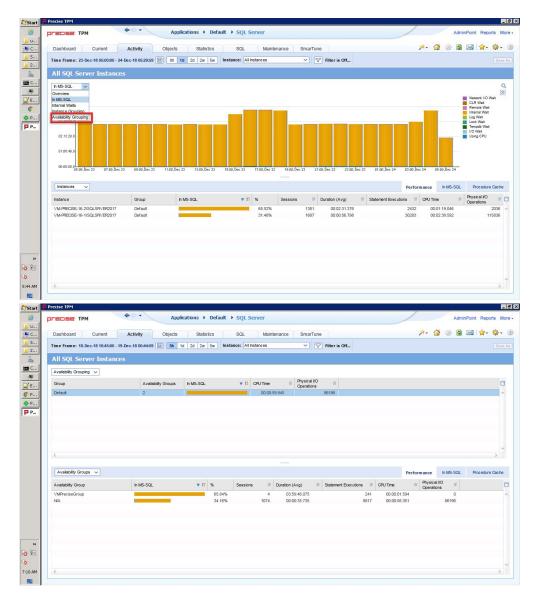
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## Always On - Activity tab

In the Activity tab, at app tier level, the top drop-down has a new **Availability Grouping** option. Choosing this shoes data for all instances grouped by availability group. Activity for databases that are not part of any availability group go under **Default**.

#### **Previous Precise versions**

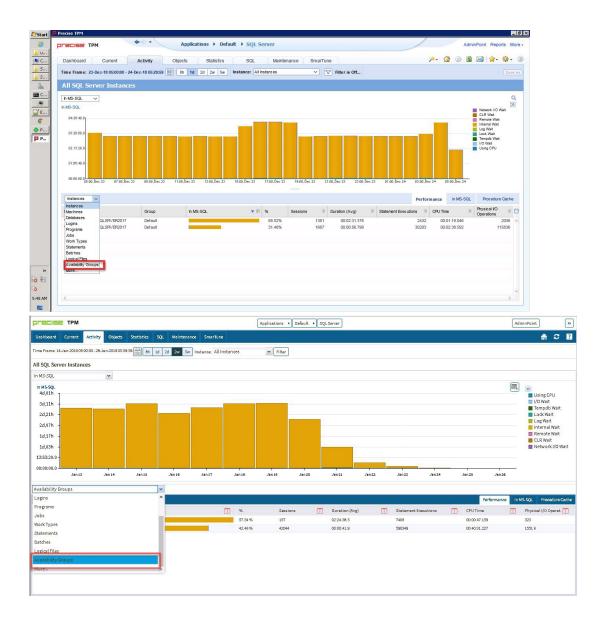


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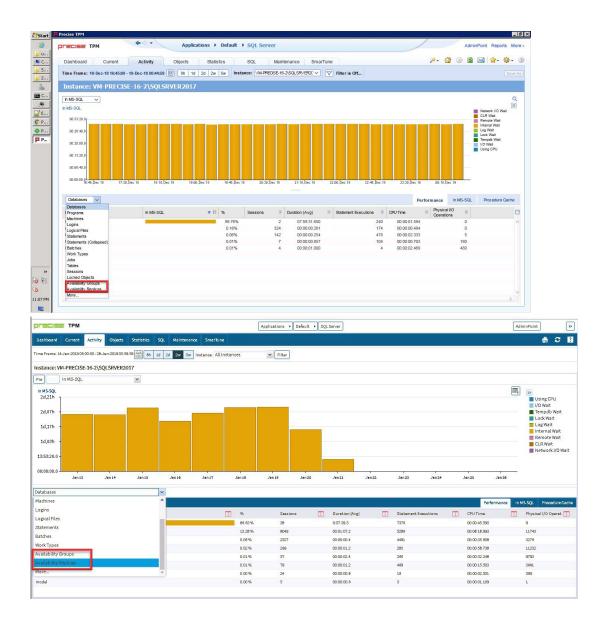
# Activity tab - Associate

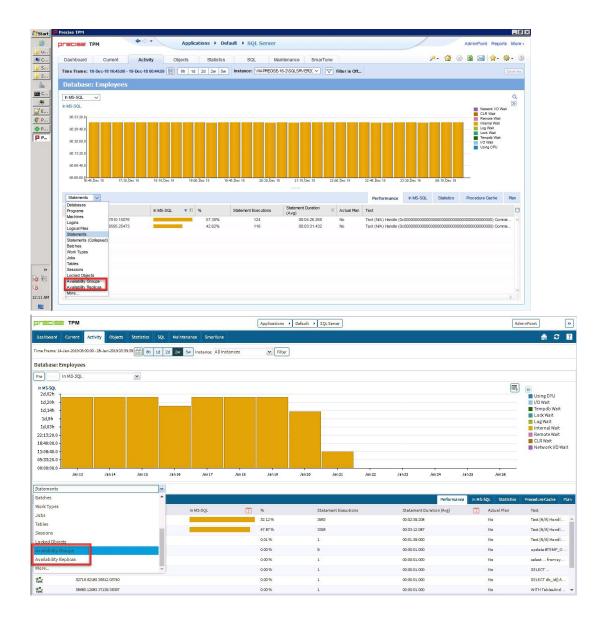
The bottom **Associate** drop-down has a new **Availability Groups** option, as shown below in comparison of the previous Precise versions and Precise 10.0:

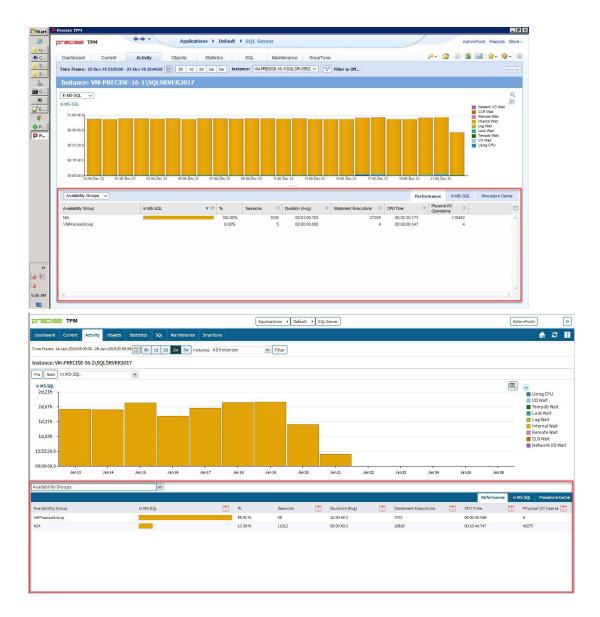


### Activity tab - Instance and Database context

At the instance and database context level, **Availability Groups** and **Availability Replicas** have been added. Selecting one of these options lists Availability Groups and replicas, respectively. Click one of these options to launch into the appropriate Availability Group or Replica context, as shown below in comparison of the previous Precise versions and Precise 10.0:



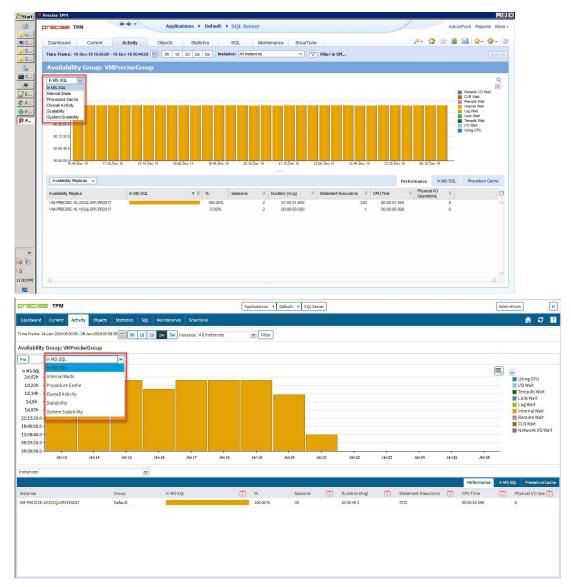




## Activity tab - Availability Group context

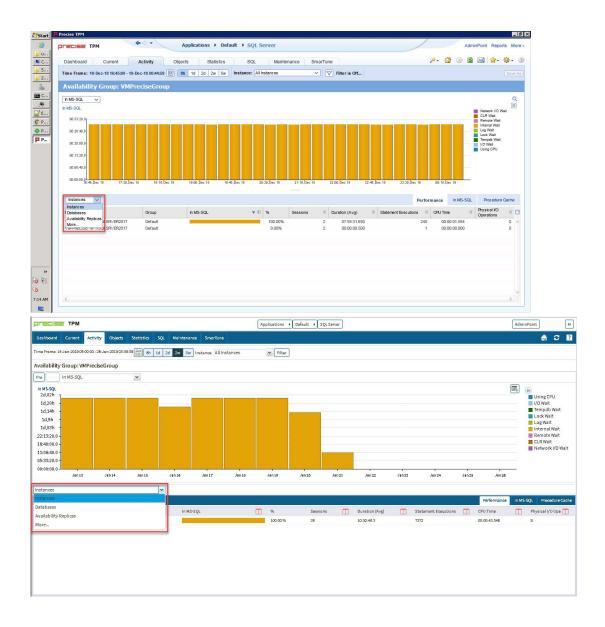
At an Availability Group context, the top drop-down includes the following options:

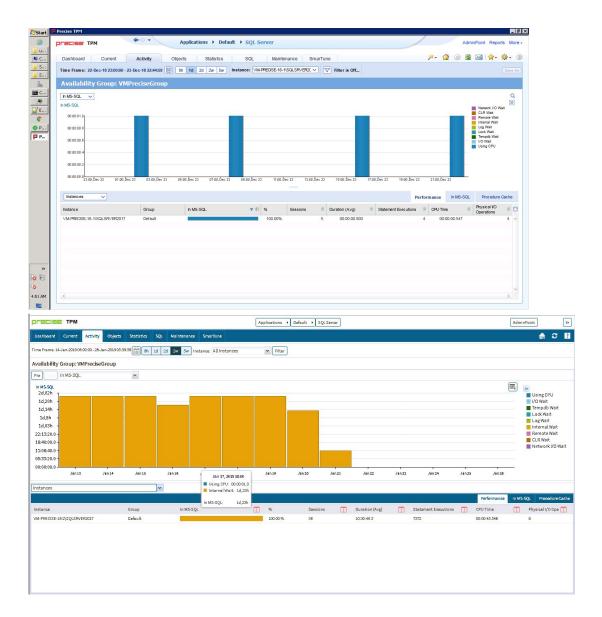
- Internal Waits
- Procedure Cache
- Overall Availability
- Scalability
- System Scalability



The bottom associate drop-down includes the following options:

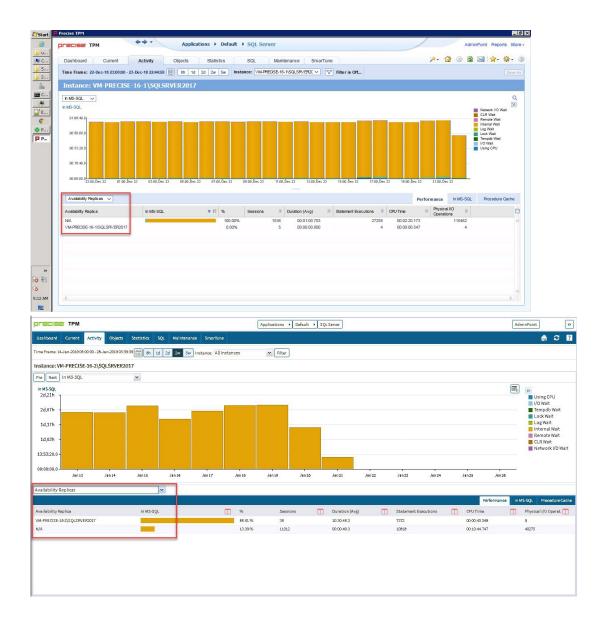
- Instances
- Databases
- Availability Replicas

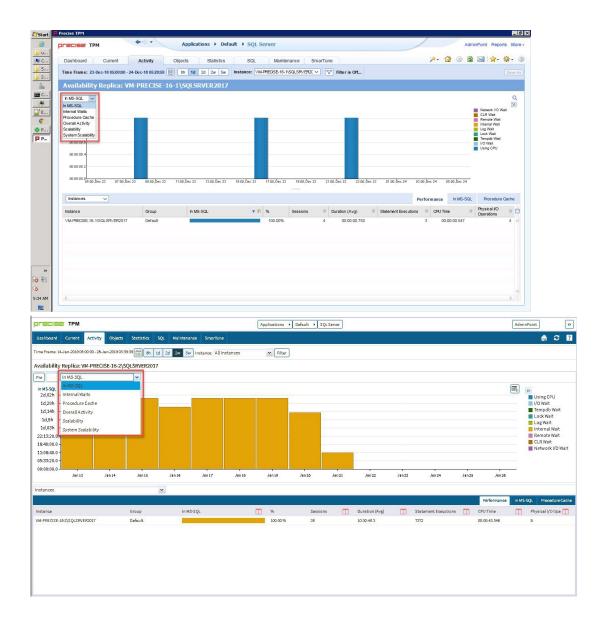


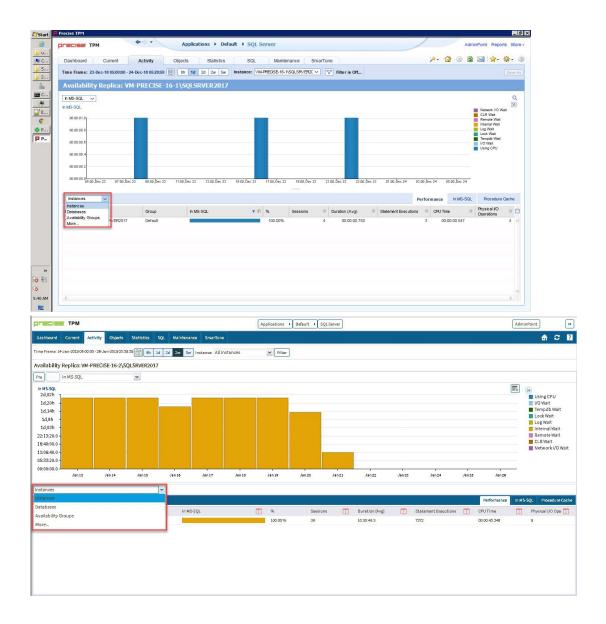


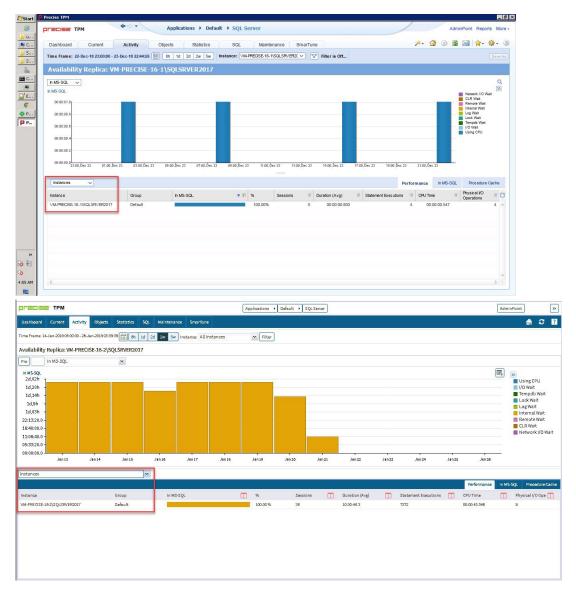
## Activity tab - Availability Replica context

At the Availability replica context, similar options are available at the top and bottom drop-downs, as shown below in comparison of the previous Precise versions and Precise 10.0:









## Always On - Objects tab

In the Objects tab, under the Instance and Database context, **Availability Group** and **Availability Replicas** have been added to the bottom associate drop-down.

#### **Previous Precise Versions**

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Spece Zendal Server Zendal Server Zendal Server Zendal Server Zendal Server Zendal Server Zendal Server Zendal Server Zendal Physica Memory (MB):         S 2 Server 2017 (RTM GOR 4 20,159 Hold Server Zendal Server Zendal Hold Server Zendal Hold Se	Recomm
Availability Group A Fature Condition	at Wait Wait t alt Wait L PU ace
Availability Group Latel	
VMPecisicSoup 3	

Precise 10.0

PRECISE TPM	Applications   Default  SQLServer	AdminPoint >>
Dashboard Current Activity Objects Statistics SQL Maintenance	e SmarTune	A C 🛙
Time Frame: 14-Jan-2019:06:00:00-28-Jan-2019:05:59:59 11 Ld 2d 2w 5w 9w 1	Instance: VM-PRECISE-16-1\SQLSE *	
Instance: VM-PRECISE-16-1\SQLSRVER2017		
		Explore Objects Recommend
Overview 👻		Explore objects Recommento
Server Details	in MS-SQL Space Allocation	
Version: 0.3 (14383)	1d,01h 22-12/20 0	Using CPU
Service Peck: SP Server 2017 (RTM-GDR CPUs: 4		Tempdb Wait
Physical Memory (MB): 16896 (17716289056)	18:40:00.0 - 8 GB - 6 GB - 6 GB -	📕 Log Wait
Instance Details	11:06:40.0 - 4 GB - 4 GB -	Internal Wait
Instance: VM-PRECISE-18-1),SQLSRVER2017 Version: 14.0.2002.14	05:33:20.0 - 2 GB -	CLR Wait
Service Peck: RTM		Used Space
Start Time: Jan 25, 2019 04:47	Janis Janis Janis Janis Janis Janzi Janzs Janis Janis Janis Janis Janis	9 Jan2i Jan2i Jan25
Active Objects (Tables including their indexes statistics)		
Active Objects (Tables including their indexes statistics) Databases	In MS-SQL 👖 VO Operations 👖 VO Operation Weits 👖 Contentions 👖 Contention V	
Logical Files		21.MB
Availability Groups		32 KB
Availability Replicas More		48 KB
P990Upgrd.dba.PW_PWJG_JOB_GROUP		848 KB
P990Upgrd.dba.PW_SQWC_WAIT_COUNTERS_T		1 GB
P390Upgrd.dbo.PS_PWTR_TABLE_RANGE     mesqlsystemresource.sys.syscolpars		72 KB
masqueyatemresource.sys.syscolpers		
Drecise TPM	Applications   Default  SQLServer	AdminPaint >>
	e SmarTune	A C 🖬
Time Frame: 14-Jan-2013 06:00:00 - 28-Jan-2013 05:58:59 11 2d 2w Sw 9w 1	Instance: VM-PRECISE-16-2\SQLSR 💌	
Database: Employees		
		Explore Objects Recommend
Pre Overview		
Properties	In M5-SQL Example Space Allocation	<b>•</b>
Database:		Using CPU I/O Wait
DetebeselD: NeN Status:		Tempdb Wait
Calletion: Creation Date:	Janii Janie Janiu Janii Janii Janii Janii Janii Janii Janii Janii Janii	1 Jan23 Jan25 📕 Log Wait
Default Filegroup:	Schema Changes End Tota tos. Log	Remote Wait
Campatibility Level: NaN Version: NaN	50 MB -	Network I/O Wait
100000 0000 - 0000		Used Space
	Jenis	a Jan 23 Jan 25 📕 database-changes-made 🖷 object-changes-made
Availability Replicas		
Availability Replice VM-PRE CISE-18-1\SQLSRVER2017	Availability Group Availability Made VMPreciseGroup SYNCHRONOUS_COMMIT	
VM-PRECISE-16-2(SQLSRVER2017	VMPresixeGroup SYNCHRONOUS_COMMIT	
PRECISE TPM	Applications   Dafault  SQL Server	AdminPaint >>
Dashboand Current Activity Objects Statistics SQL Maintenance		th C 🖬
Time Frame: 14-Jan-2019 06:00:00 - 28-Jan-2019 05:58:59 11 2d 2d 2w 5w 9w 1	Instance: VM-PRECISE-16-2\SQLSR 💌	
Instance: VM-PRECISE-16-2\SQLSRVER2017		
		Explore Objects Recommend
Overview Y		_
Server Details	In MS-SQL Espece Allocation	Using CPU
Version: 6.3 (14333) Service Peck: SP Server 2017 (RTM-GDR	3 GB -	USING CPU
CPUs: 4	2d,07h - 36B - 36B - 26B	<ul> <li>Tempdb Wait</li> <li>Lock Wait</li> </ul>
Physical Memory (MB): 16896 (17716269056)	2 GB -	E Log Wait Internal Wait
Instance Details Instance: VM-PRECISE-16-2\SQLSRVER2017	1d,03h - 1GB -	Remote Wait
Version: 14.0.2002.14	13:53:20.0 - 500 MB - 500 MB -	Network I/O Walt
Service Peck: RTM Start Time: Jan 24, 2019 07:17	00:00:00.0 0 B 0 B	Free Space
	Janis Janis Janis Janis Janis Janzi Janzi Janzi Janzi Janis Janis Janis Janis Janis Janis Janis Janis Janis Jan	ile Jenzi Jenza Jenza
Availability Groups		and found
Aveilebility Group VMPresiseGroup	Feilure Canditio 3	an sever
(		

When an Availability group is clicked on the bottom grid, it launches to the Availability Group context. By default, an overview appears in the upper dropdown and a list of databases under this availability group appears in the lower dropdown. See the following images for more information.

#### **Previous Precise versions**

Application	s > Default > SQL Server		AdminPoint Reports More -
Dashboard Current Activity Objects	Statistics SQL Maintenance SmarTune	» 🥕	🟠 🛞 🗟 🖂 😭 🕸 - 🔞
Time Frame: 16-Nov-18 00:00:00 - 19-Dec-18 23:59:59 11 1d 2d 2w	5w 9w Instance: VM-PRECISE-16-2(SQLSRVER2C V		Save As
Availability Group: VMPreciseGroup			Explore Objects Recommend
Overview	In MS-SQL 2420 16559 1890 200 Park 239 Del 91 Del 80 Del 65 Space A Bocation 9 9 9 1607 20 Del 91 Del 83 Del 84		U VeAt Using CPU Free Space Used Space
Databases	TI Detabase D Status	Collection	0
More	7 ONLINE		
C			v
	Sover Datase         5.3 (1638)           Version Role:         6.3 (1638)           CPA:         4           Physical Memory (MB):         16886 (177.16286266)           Materice:         VA-PREDEE-16-250.158/VEPC017           Version:         14.0 2002.14           Sonor Rol:         RR0 - 2019 (RTM-PC017           Sonor Rol:         RR0 - 2019 (RTM-PC017           Sonor Rol:         RR0 - 2019 (RTM-PC017           Sonor Rol:         RR0 - 2019 (RTM-PC017)           Availability Registers         Registers           Marchander Role:         Registers           Marchander Role:         Registers           <	Overview         Version         6.3 (1438)           Service Datal         6.3 (1438)         In MS SQL           Service Fach:         SP Service 2017 (RTM ACK)         In MS SQL           Material Database         Material Database         In MS SQL           Material Databases         Version:         16.05 (171/4269050)           Material Database         Version:         14.0 200.14           Service Fack:         RTM         New 27, 2016 06.48           Databases         Version:         New 27, 2016 06.48           Databases         Version:         Service Fack as More Advances           Variability Replica as         Service         Yes           More, way and the replication of the service         Service Fack as More Advances         Yes	Overview         In MS-502.           Service Datability         6.3 (14393)           Service Tables         Service Tables           Physical Behrery (MD):         1566 (17716260560)           Interse Cells         Visit PREDOB-16-2502.50(570)           Interse Cells         Visit PREDOB-16-2502.50(570)           Interse Cells         Visit PREDOB-16-2502.50(570)           Interse Cells         Visit PREDOB-16-2502.50(570)           Service Field:         RTM           Service Field:         RTM           Service Field:         RTM           Service Field:         RTM           More and and an analysis         Decide D

#### Precise 10.0

PRESE TPM	Applications   Default   SQLServer		AdminPoint >>>
Dashboard Current Activity Objects Statistics SQL Maintenance SmarTune			A C 🛙
Time Frame: 14-Jan-2019 06:00:00 - 28-Jan-2019 05:39:39 11d 2d 2w 5w 9w Instance: VM-PRECISE-1	8-2\SQLSR 🐱		
Availability Group: VMPreciseGroup			
			Explore Objects Recommend
Pre Overview 🛩			
Server Details	1n M5-SQL 2d,02h	Space Allocation	Using CPU
Version: 0.3 (14380) Service Pesk: SP-Server 2017 (RTM-0.D.R CPUs: 4	1d,17h -	80 MB -	I/O Walt Lock Wait
Physical Mamory (M8): 18896 (17716299006) Instance Details	1d,03h -	60 MB -	Log Wait Internal Wait Remote Wait
Instance: VM-PRECISE-18-2/SQLSRVER2017 Version: 14.0.2022.14	13:53:20.0 -	20 MB -	CLR Wait Network I/O Wait Used Space
Service Pesic: RTM Start Time: Jan 24,2019/7:17	00:00:00.0 Janis J	- 0B Janis Janis Janir Janie Janis J	Free Space
Databases			
Databases Size Availability Replicas	Database ID	Stetus Colletion	
More	7	SUSPECT SQL_Latin1_General_CP1_Cl_AS	

When Availability Replicas is selected in the bottom dropdown, it displays the list of Availability replicas.

#### **Previous Precise Versions**

art 📕	Precise TPM		- 8
		oplications + Default + SQL Server	AdminPoint Reports More
	Dashboard Current Activity Object	s Statistics SQL Maintenance SmarTune	洚 🍲 🛞 🖻 🖂 🚖 🖗 🔞
	Time Frame: 17-Nov-18 00:00:00 - 19-Dec-18 23:59:59 [31] 1d	2d 2w 5w 9w Instance: VM-PRECISE-16-2/SQLSR/ER2( ~	
	Instance: VM-PRECISE-16-2\SQLSRVER20	017	Explore Objects Recommend
	Overview         V           Server Data         53 (14350)           Server Dek         59 Server 2017 (RTM-GOR CR)           Opa-         Herory (MB):           Hysical Memory (MB):         15856 (17716258056)           Instance Data         Historice 16420           Instance :         VMLPREDSE 16-250L SRVEPD017           Version:         140.2020 14           Service Pack:         RTM           Service Pack:         RTM           Start Time:         Nev 27, 2018 08:48	Space Allocation	Names i construir de la constr
	Availability Replicas V		
	Availability Replica 🔺 Availa	ability Group Availability Mode	0
		ecimeGroup SYNDHRONOUS_COMMT ecimeGroup SYNDHRONOUS_COMMT	¢
»			

#### Precise 10.0

ime Frame: 14-Jan-2019:06:00:00-28-Jan-2019:05:59:39 🛗 1d 2d 2w 5w 3	ance SmarTune w Instance: VM-PRECISE-16-2\SQLSR 💌		.ah C
Istance: VM-PRECISE-16-2\SQLSRVER2017			Explore Objects Recomme
Uroniow ▲ Servir Genzi → Service Park 42 Fabruer 2017 (ITM-4DR CPUI: 4 4 Physical Mamazy (MB): 16996 (IT741639004) Interawa W-PHPEICOL-14-3/3(21.5197410017 Venice: 140.2002 14 Servir Park 77 Venice: 140.2002 14 Servir Park 77 Jacob 2002 14 Jacob 200	1495-590 24.207h 14.17h 15.55220.0 0000000.0 4000000.0	Save Macriton 406 302 206 206 200 200 500 400 206 200 200 200 200 200 200 200 200 2	Definition of the second
vailability Replicas			
wailability Replice	Availability Group	Availability Mode	
/M-PRECISE-L8-1/SQLSRVER2017	VMPreciseGroup	SYNCHRONOUS_COMMIT	
/M-PRECISE-10-2\SQLSRVER2017	VMPresiseGroup	SYNCHRONOUS_COMMIT	

Clicking on an Availability Replica row launches to the Availability Replica context.

#### **Previous Precise Versions**

Start Precise TPM			- 8
	Applications	Default      SQL Server	AdminPoint Reports More -
Dashboard Cu		tistics SQL Maintenance SmarTune	🎢 🖓 🛞 📓 🖂 🚖 🏶
1 Ime Frame: 16-NOV-18	0000000 - 49-Uec-19 235959 (E) 16 2d 2w 5 16rca: VM-PRECISE-16-2\\$QL\$RVER 0.3 (14593) 55 Serve 2017 (RTM-GOR 4 16565 (1771626055) VM-PREDSE-16-35GL\$RVER2017 162 2020 14 RTM Nev 27, 2018 08-88		Uo Vaa Uong C/Bu Uong C/Bu Uong C/Bu Uong C/Bu Uong C/Bu Uong C/Bu
>>         Contracts           Actionality Groups         Actionality Groups           >>         Contracts           Contracts         Contracts		▼ 11 Detabase D Status Collation 7 ONLINE SOL_Latint,	General CP1_Q_AS

#### Precise 10.0

PRECISE TPM	Applications   Default   SQLServ	ar	AdminPoint
Dashboard Current Activity Objects Statistics SQL	Maintenance SmarTune		A C B
Time Frame: 14-Jan-2013 08:00:00 - 28-Jan-2019 05:58:59 🛗 1d 2d	w Sw Sw Instance: VM-PRECISE-16-2\SQLSR v		
Availability Replica: VM-PRECISE-16-2\SQLSRVER2017			
			Explore Objects Recommend
Pre Overview			
Server Details         50 (4000)           Version         6.0 (4000)           Saniva Frakk         57 Server 2007 (1974-0309)           CPUA:         4           Physical Herrory (Version)         1006 (1716-0305)           Instance Oddlik         100 - 2000 (140-030)           Version         100 2000 (140-030)           Saniva Frakk         mH           Saniva Frakk         mH           Saniva Frakk         mH	00000000 00000000 00000000000000000000	Image: Control of the second	(a)     (b)     (c)     (
Databases			
Databases	Size 🔲 Dat	abase ID Status Colla	itian
Availability Groups More	7	SUSPECT SQL	Latin1_General_CP1_CI_AS

# Oracle 12c additional metrics

Precise 10.0 supports certain additional metrics for Oracle 12c databases like In-Memory support-related information, UNDO tablespaces and activity with respect to each pluggable database, etc.

## Statistics tab

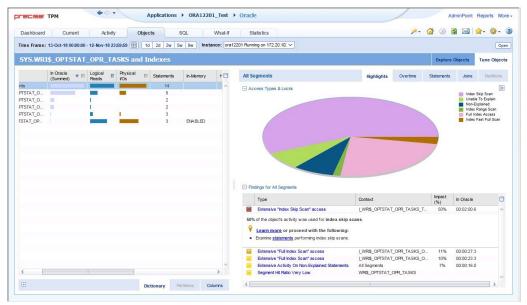
The Statistics tab now displays the size of In-Memory pools.

TECISE TPM					Applications	Oracle	Oracle	]						Admini	Point
Dashboard Current Activit	ty Objects SQL What-If	Statistics												n 2	?
fime Frame: 12-Dec-2018 00:00:00 -	- 01-Jan-2019 23:59:59 🛗 8h	1d 2d 2w	5w Instance: Of	a12201 Running	on 172 🕶										
nstance: ora12201 Running	on 172.20.102.176														
Memory	*														
SGA Size 4 GB 3 GB 3 GB 3 GB 3 GB 3 GB 4 GB 3 GB 4 GB 3 GB 4 GB 5 GA 4 GB 5 GA 5 G	Dec 15, 2018 12:00 Field 504: Buffer Cache: Baref Pool (Free): Sharef Pool (Free): Large Pool (Free): Large Pool (Cache): Jana Noti (Free): Jana Noti (Free): Innemeroy Pool (Data):	8 MB 2 GB 8 MB 586 MB 1 GB 17 MB 16 MB 160 MB 160 MB	2018 Dec 28,2018	9 Dec 31,2018	PGA Size 954 MB 763 MB 572 MB 381 MB 191 MB 0 B 0 C	11 Dec 13	Dec 15	Dec 17	Deci9 D	ec 21 Dec 25 Dec 25,2018	Dec 28,2018	Dec 31,2018	Total PG	che r ool (Free) ool (Used) ol (Free) ol (Used) 1 (Free) 1 (Used) ry Pool (Data) ry Pool (Metadata)	
Nait Event	SGA Size:	4 GR scle Sub	o-State			Waits			Π	Timeouts	Π	Times Waited (S	lummed)	Times Waited (S.	
gwr worker group idle	- Controle:	Background	Process Walt			503935				0		5d,23h		5d,23h	
adr block file read		Other Wait				2806 K				0		07:14:10.8		07:14:10.8	
db file async i/o submit		I/O Wait				78318				0		03:19:04.1		03:19:04.1	
control file parallel write		I/O Wait				132285				0		01:59:48.8		01:59:48.8	
og file parallel write		I/O Wait				527546				0		01:58:35.7		01:58:35.7	
og file sync		Redo Log Bu	ffer Walt			182931				0		00:39:42.3		00:39:42.3	
ib file sequential read		I/O Walt				3915 K				0		00:18:04.3		00:18:04.3	
gwr any worker group		Background	Process Wait			71271				0		00:15:52.1		00:15:52.1	
						163497				0		00:10:57.6		00:10:57.6	
db file scattered read		I/O Wait				163497				U		00.10.31.0		00:10:21/0	

## Objects tab

## In-Memory flag for objects

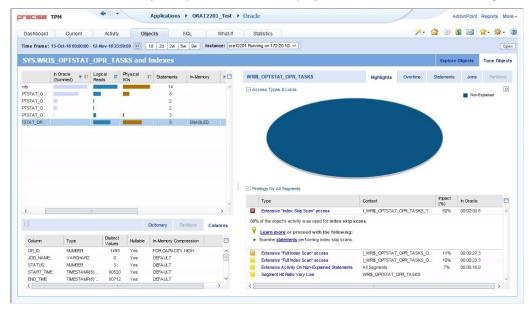
In the Objects tab, the In-Memory column displays ENABLED if an active object is in the In-Memory area for tables and indexes.



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## In-Memory information for columns of an object

In addition, the In-Memory Compression value is displayed for columns of the Active Object in the context.



## In-Memory usage graph

For the object in the left top table, we now show the In-Memory usage chart in the Overtime tab for the time frame selected.

ime	e Frame: 08-Oct-18 00:00:	00 - 12-Nov-18	3 23:59:1	59 [31]	1d 2	d 2w 5w 8	w Instanc	e: ora12201 F	tunning on 172.20.10; 🗸					0
СВ	LR3_AUG.PS_OF	RSE_V_SY	/STE	M_EVE	NT_	PREV and	Indexes				8	Explore O	bjects	Tune Objec
	Name	In Oracle (Summed)	• П	Logical Reads		Physical VOs 11	Statements	In- 🗖	All Segments	Highlights Overtin	ne Stat	ements	Joins	Partition
	All Segments PS_ORSE_V_SYSTEM V_SYSTEM_EVENT_P							EN	Changes	24 Oct.28 Nov'91 Nov'95 Nov'	s	tatistics chema		ss Changes I Changes sk Changes
									Physical ID vs. Logical Reads (right axis)	24 Oci 25 Nov 01 Nov 05 Nov 0	2	000	Logical Direct V Physics Direct F	Vrites al Writes Reads
								~	In-memory     00:53:20.0     00:28:40.0				im-bik-c	-sum

## In-Memory Access Type

For the object in the left top table, we now show the In-Memory Access Type and statements using the In-Memory Access Type in the Statements tab for the time frame selected.

Dashl	board Current	Activi	ty	Objec	ts:	SQL	What-I	f	Statistics						* 🖓 🛞		<b>☆</b> - 祭-
me F	rame: 12-Dec-18 00:00:00	) - 14-Jan-19 :	23:59:59	<b>31</b> 1d	2d	2w 5w 9w	Instance: 0	ra12201	Running on 1	72.20.10: 🗸							
YS.	WRI\$_OPTSTAT	_OPR_T	ASKS	and Ir	ndexe	15									Explor	re Objects	Tune Obje
	Name	In Oracle (Summed)	<b>v</b> II	Logical Reads	E P	hysical VOs II	Statements		All Seg	ments			Highlights	Over	ine Statemen	ts Joins	Partition
	All Segments						11	1	E Acce	ss Types & Locks							
8	LWRIS_OPTSTAT_OP						5										
冒	LWRIS_OPTSTAT_OP			1			3			Access Type	In Oracle (Summed	1)	▼ [1] St	atements	In Oracle	E Statemer	nts
	LWRIS_OPTSTAT_OP			1			3			Full Index Access					00:02:43.3		3
<b>a</b>	LWRIS_OPTSTAT_OP WRIS_OPTSTAT_OPR			-			3			Index Overhead					00:00:52.2		2
	WRIS_OFISTAT_OPR						0			Index Range Scan					00:00:22.2		1
										In-Memory Access					00:13:37.3		2
									<								>
									🖻 State	ments using In-Memory Access							
										Text	In Oracle (Summed)	<b>v</b> II	Statements I Oracle	n 🗊	Executions	Duration (Avg	i) Pr
									24	/"SQL Analyze(1)"/ select /"+full(t	) no		00:00:0	6.1	6	00:00:01.010	
									24	select * from WRI\$_OPTSTAT_OP	R		00:13:3	1.2	2	00:07:03.105	
									<								>
									- Colur	nns Usage in Statement 27680.0064	3.23370.21793						
									Column	n la	n Clause	Equi		stinct	Position In Partition		1
									OP_ID				0	1150			
								6	SPARE	6			0	0			[
									STATU	S			0	4			
								>	START					118960			

## Init parameters related to In-Memory Area support

In-Memory parameters are shown in the Init Parameters list.

precise	TPM			Applica	tions • Oracle •	Oracle				
Dashboard	Current Activity	Objects SQL What-If Statistics								
Time Frame: 12	2-Dec-2018 00:00:00 - (	01-Jan-2019 23:59:59 1d 2d 2w 5	w 9w Instance: Ora	a12201 Running on 172 🗸						
Instance: or	a12201 Running	on 172.20.102.176								
										Explore 0
Init Paramete	ers	~								
Parameter		Value	Is Default	Is Session Modifi	Is System Modifi	Is Modified	Is Adjusted	Description		
db_securefile		PREFERRED	TRUE	TRUE	IMMEDIATE	FALSE	FALSE	permit securefile sto	rage during lob creatio	n
inmemory_cla	ause_default		TRUE	TRUE	IMMEDIATE	FALSE	FALSE	Default in-memory c	lause for new tables	
inmemory_for	rce	DEFAULT	TRUE	FALSE	IMMEDIATE	FALSE	FALSE	Force tables to be in-	memory or not	
inmemory_qu	Jery	ENABLE	TRUE	TRUE	IMMEDIATE	FALSE	FALSE	Specifies whether in-	memory queries are al	lowed
inmemory_ex	pressions_usage	ENABLE	TRUE	FALSE	IMMEDIATE	FALSE	FALSE	Controls which In-Me	mory Expressions are	oopulated in-memory
inmemory_vir	rtual_columns	MANUAL	TRUE	FALSE	IMMEDIATE	FALSE	FALSE	Controls which user-	defined virtual column	s are stored in-memory
inmemory_m	ax_populate_serv	2	TRUE	FALSE	IMMEDIATE	FALSE	FALSE	maximum inmemory	populate servers	
inmemory_tri	ickle_repopulate	1	TRUE	FALSE	IMMEDIATE	FALSE	FALSE	inmemory trickle rep	opulate servers percer	t
create_stored	_outlines		TRUE	TRUE	IMMEDIATE	FALSE	FALSE	create stored outline	s for DML statements	
Active Object	ts (Tables including t	the 🕶								
	Container	Name	Owner	In Oracle (Summ 🛄	Blocks	Logical Reads 🋄	Physical Read 🛄	Direct Reads	Physical Write 🋄	Direct Writes
TUNE	CDB\$ROOT	WRI\$_OPTSTAT_HISTGRM_HIST	SYS		22080		70703	0	12521	0
-	ORCI PDB	WRIS OPTSTAT HISTORM HIST	SVS		12903		54768	0	21036	0

## Undo tablespaces for each PDB

Oracle 12c R2 includes the capability to have a Local UNDO tablespace for each pluggable database (PDB). In the Objects workspace, the UNDO tablespace for each PDB appears in the Tablespaces associate dropdown option.

Tablespaces	~					Dictionary	Storage Physi	Cil IIO
Container	Tablespace	*	Status	Contents	Logging	Extent Management	Allocation Type	P.C
CDB\$ROOT	USERS		ONLINE	PERMANENT	YES	LOCAL	SYSTEM	N. 4
ORCLPDB	USERS		ONLINE	PERMANENT	YES	LOCAL	SYSTEM	N
CDBSROOT	UNDOT852		ONLINE	UNDO	YES	LOGAL	SYSTEM	N.
PD83	UNDOTES1		ONLINE	UNDO	YES	LOCAL	SYSTEM	N.
ORCLPDB	UNDOTBS02		ONLINE	UNDO	YES	LOCAL	SYSTEM	NL.
CDB\$ROOT	TEST3_TMP		ONLINE	TEMPORARY	NO	LOCAL	UNFORM	N.
COBSROOT	TEST3		ONLINE	PERMANENT	YES	LOCAL	SYSTEM	Ν.
CDB\$ROOT	TEST123_TMP		ONLINE	TEMPORARY	NO	LOCAL	UNFORM	Ν.
ORCLPD8	TEST123		ONLINE	PERMANENT	YES	LOCAL	UNFORM	N.
COBSROOT	TEST123		ONLINE	PERMANENT	YES	LOCAL	UNFORM	N
(								>

## In-Memory for tablespaces

At the tablespace context in the Objects tab, the In-Memory flag for the tablespace in context is shown.

PECISE TPM	<b>4</b> \$+\	Application	s 🕨 ORA122	01 Test 🕨	Precise Oracle	
				-		
Dashboard C	urrent Activity	Objects	SQL	What-If	Statistics	
Time Frame: 14-Oct-1	8 00:00:00 - 15-Nov-18 23:59:5	9 31 1d 2d 2w	5w 9w Inst	ance: ora122	)1 Running on 172.20.	.10: 🗸
Tablespace: Cl	BLR3_AUG					
Overview	~					
oronion	1.772					
Status:	ONLINE	Physical I/O Open	ations			
Status.	UNLINE	9000				
Datafiles:	1	8000				
Contents:	PERMANENT	7000				
Logging:	YES	6000				
Extent Management:	LOCAL	5000				
Allocation Type:	UNIFORM	4000				
Plugged In:	NO					
Inmemory:	DISABLED	3000				
		2000				
Block Size:	8 KB	1000				
who who who who who		0				

## In-Memory details for the tables

In the Objects tab, at the Table context, In-Memory details related to the table in context are shown.

Dashboard Curre	nt Activity	Objects	SQL	What-If Statistic	s				🔂 🛞 🖬	🔹 🖂 😭	- 🍄 -
me Frame: 19-Oct-18 00:	:00:00 - 21-Nov-18 23:59:59	31 1d 2d 2v	w 5w 9w Instan	ce: ora12201 Running on	172.20.10: ~						
able: SYS.WRI\$	_OPTSTAT_OPR_	TASKS							Explore	Objects Tu	une Object
Overview	~										
Created On:	Jan 26, 2017 13:53	In Oracle	(Summed)			Chan	iges				
tatus:	VALID										
artitioned:	No										
ested:	No										
mporary:	No										
lex Organized: uster:	No Not clustered										
Memory:	ENABLED	Blocks				Rows					
Memory Priority:	NONE	DIOCKS				Rows	9				
Memory Distribute:	AUTO		1				1				
-Memory Compression:	FOR QUERY LOW		0.6				0.6				
	NO DUPLICATE		0.6				0.6				
-Memory Duplicate:			200	Oci 29 Nov 03 N	lov 08 Nov 13 Nov 18	_	100	Oci 24 Oci 29	Nov 03 Nov 08	Nov 13 No	v 18
-Memory Duplicate:	NO DUPLICATE		0.2	Oci 29 Nov 03 N	ov 08 Nov 13 Nov 18	_	0.2	Oci 24 Oci 29	Nov 03 Nov 08	Nov 13 No	v 18
Memory Duplicate:	NO DUPLICATE	~	0.2	Oci 29 Nov 03 N	ού 08 Νού 13 Νού 18 		0.2	Oci 24 Oci 29	Nov 03 Nov 08 Dictionary	Nov 13 No Statistics	
Memory Duplicate:	NO DUPLICATE	~	0.2	Oci 29 Nov 03 N	ov 08 Nov 13 Nov 18	Length	0.2	Oci 24 Oci 29 Scale			Usage
Memory Duplicate: Columns ontainer DBSROOT	NO DUPLICATE	v	0.2 Oct 19 Oct 24 Position 1	Predefined Type     YES		22	0.2 Oct 19		Dictionary		Usage
Memory Duplicate: Columns ontainer DBSROOT	NO DUPLICATE Column OP_D JOB_NAME	v	0.2 Oct 19 Oct 24 Position 1 2	Predefined Type     YES     YES	Type NUMBER VARCHAR2	22 50	0.2 Oct 19		Dictionary Nullable Yes Yes		Usage
Memory Duplicate: Columns ontainer DBSROOT DBSROOT	NO DUPLICATE Column OP_D JOB_NAME STATUS	~	0.2 Oct 19 Oct 24 Position 1	Predefined Type     YES	Type NUMBER VARCHAR2 NUMBER	22	0.2 Oct 19		Dictionary Nullable Yes		Usage
Memory Duplicate: Columns ontainer DBSROOT DBSROOT DBSROOT	NO DUPLICATE Column OP_D JOB_NAME	~	0.2 Oct 19 Oct 24 Position 1 2	Predefined Type     YES     YES	Type NUMBER VARCHAR2	22 50	0.2 Oct 19		Dictionary Nullable Yes Yes		Usage
Memory Duplicate: Columns ontainer DBSROOT DBSROOT DBSROOT DBSROOT DBSROOT	NO DUPLICATE Column OP_D JOB_NAME STATUS	×	0.2 Oct 19 Oct 24 Position 1 2 3	Predefined Type     YES     YES     YES	Type NUMBER VARCHAR2 NUMBER	22 50 22	0.2 Oct 19	Scale	Dictionary Nullable Yes Yes Yes		Usage
Memory Duplicate: Columns ontainer DBSROOT DBSROOT DBSROOT DBSROOT DBSROOT	NO DUPLICATE Column OP_ID JOB_NAME STATUS START_TIME	~	0.2 Oct 19 Oct 24 Position 1 2 3 4	Predefined Type     YES     YES     YES     YES	Type NUMBER VARCHAR2 NUMBER TIMESTAMP(6) WITH	22 50 22 13	0.2 Oct 19	Scale	Dictionary Nullable Yes Yes Yes Yes		Usage
Memory Duplicate: Columns ontainer DBSROOT DBSROOT DBSROOT DBSROOT DBSROOT DBSROOT DBSROOT	NO DUPLICATE Column OP_D JOB_IAME STATUS START_THE END_THE	~	0.2 Oct 19 Oct 24 Position 1 2 3 4 5	Predefined Type     YES     YES     YES     YES     YES	Type NUMBER VARCHAR2 NUMBER TIMESTAMP(6) WITH TIMESTAMP(6) WITH	22 50 22 13 13	0.2 Oct 19	Scale	Dictionary Nullable Yes Yes Yes Yes Yes		Usage
Memory Duplicate: Columns ontainer DBSROOT DBSROOT DBSROOT DBSROOT DBSROOT DBSROOT DBSROOT	NO DUPLICATE Column OP_D JOB_IAME STATUS STATUS STATUS STATUS TARGET	~	0.2 Oct 19 Oct 24 Position 1 2 3 4 5 6	Predefined Type     YES     YES     YES     YES     YES     YES     YES	Type NUMBER VARCHAR2 NUMBER TIMESTAMP(6) WITH VARCHAR2	22 50 22 13 13 512	0.2 Oct 19	Scale	Dictionary           Nullable           Yes           Yes           Yes           Yes           Yes           Yes           Yes           Yes           Yes		Usage
Memory Duplicate: Columns entainer DBSROOT DBSROOT DBSROOT DBSROOT DBSROOT DBSROOT DBSROOT DBSROOT DBSROOT	Column           OP_D           JOB_NAME           STATUS           STATUS           STAT_THE           END_THE           TARGET_DAINE	~	0 2 Oct 19 Oct 24 Position 1 2 3 4 5 6 7	▲ Predefined Type YES YES YES YES YES YES YES YES	Type NUMBER VARCHAR2 NUMBER TIMESTAJMP(6) WITH VARCHAR2 NUMBER	22 50 22 13 13 512 22	0.2 Oct 19	Scale	Dictionary Yes Yes Yes Yes Yes Yes Yes		Usage
-Memory Compression: -Memory Duplicate: 	NO DUPLICATE Column OP_D JOB_NAME STATUS STATUS STATUS STATUS STATUS TARGET TARGET_DIME TARGET_TYPE	~	Position 1 Position 1 1 2 3 4 5 6 7 8	Predefined Type     YES     YES	Type NUMBER VARCHAR2 NUMBER TIMESTAMP(6) WITH VARCHAR2 NUMBER NUMBER	22 50 22 13 13 512 22 22 22	0.2 Oct 19	Scale	Dictionary           Nullable           Yes           Yes		Vsage