

ASUG SAP BusinessObjects **USER CONFERENCE**

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Business Intelligence
for a **PASSIONATE**
COMMUNITY



Session 1309: Audit Thyself Using BusinessObjects 4.0

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Learning Points

- Understand the new auditing technology behind BusinessObjects 4.0
- Learn how to initialize and configure the auditing system to suit your purposes
- Discover the differences between Audit 4.0 and past versions

Agenda

- **Introduction**
- Architecture
- Configuring Audit
- Reporting
- Wrapping Up

Introduction

- Founded Integra Solutions in 1993
 - Used BusinessObjects since 1992 (Version 2.2)
 - Wrote the first BusinessObjects training manuals
 - Over 75 Fortune 5000 customers before company was sold in 2007
- Presented at every national conference since 1995
- Founded Solid Ground Technologies in 2009
 - Different company – same principles
 - Specialize in BusinessObjects consulting and training

SolidGround
Technologies

Why Audit?

- Tracking past and current activities
 - Troubleshooting (The Sherlock Holmes Effect)
 - Who did it?
 - When?
 - What was the impact?
 - Liability
 - Measuring current activity
 - Tuning system based on that activity
 - Uneven usage will stick out
- Same information used for future trending
 - How many schedules, publications per week, month?
 - What's the rate of increase?



The Nature of Audited Information

- Auditing requires both Detailed and Summarized information
 - Detailed information required for many troubleshooting situations
 - Summarized information required to measure activity over time
 - Number of schedules
 - Number of publications
 - Number of logins
- Urgency over time differ from most other BI applications
 - Aggregated information not checked every hour (or day or week)
 - Building dashboards on this information may not justify the frequency of requests



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- **Architecture**
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Architecture – Then and Now

- Auditing depends on recording **Events**
 - Logon
 - Logout
 - Refresh
 - Send
 - ...
- Each event has **Details** associated with it
 - **Refresh** details:
 - Duration
 - Size of object in bytes
 - Number of rows
 - SQL query used to refresh data
 - Universe used
 - User ...



Auditing Pieces



Auditor:
The first CMS server to start in a cluster. If one machine, the only CMS available



Auditee:
Other servers in the cluster. The CMS is the auditee for server-based events. Other servers play this role too.

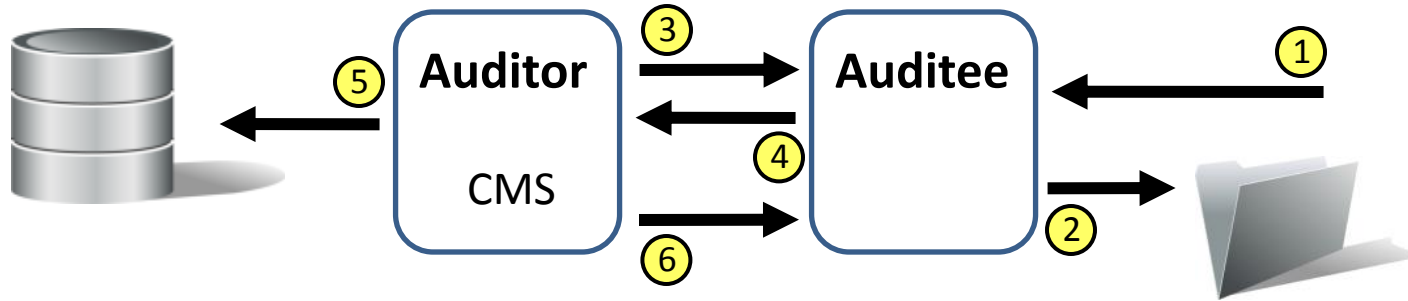


Audit Data Store (ADS):
The Audit relational database that stores the collected audit information.



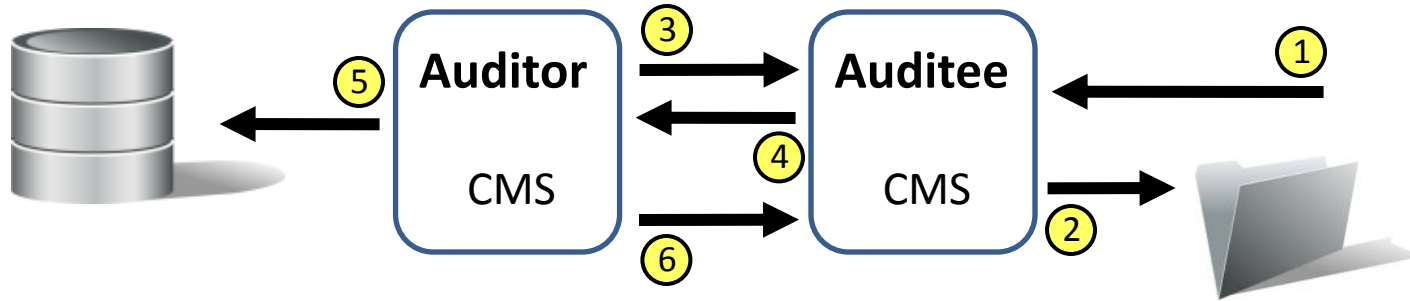
Temporary Storage
Directory where audit information is kept in flat files

Collecting Audit Data – The Big Picture



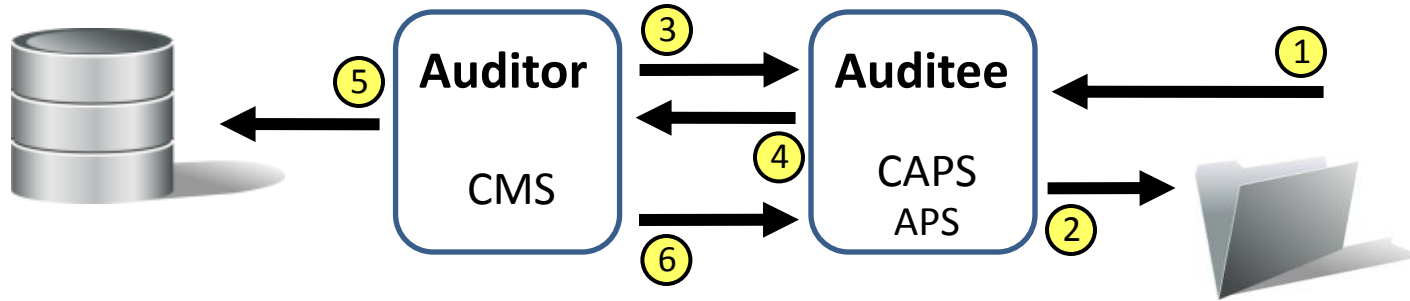
- ① A BusinessObjects server performs an action that can be audited (event)
- ② The auditee records this action in a temporary flat file
- ③ The auditor polls all auditees at specified intervals for events
- ④ Auditee sends the recorded events to the auditor
- ⑤ Auditor commits that information to the Audit Database (ADS)
- ⑥ Auditor tells auditee that event can be deleted from file

Case #1: Logging in



- 1 A user logs into BusinessObjects from the web or a standalone app
- 2 The CMS is contacted. It acts as the auditee since it handles authentication
- 3 The CMS as auditor polls itself and other audited servers for events
- 4 Events are streamed to the CMS as auditor
- 5 Auditor commits that information to the Audit Database (ADS)
- 6 Auditor tells itself that committed events can be deleted from file

Case #2: Doing Anything Else



- ① Client gains permission via CMS then sends event info to auditee
- ② Auditee = Client Audit Proxy Server, part of Adaptive Processing Server
- ③ The CMS polls the proxy server for events
- ④ Events are streamed to the CMS as auditor
- ⑤ Auditor commits that information to the Audit Database (ADS)
- ⑥ Auditor tells proxy server that committed events can be deleted from file

Fine-Tuning the Process

- In XI 3.1, many auditing metrics were adjustable
 - Done via command line arguments
 - Among the most commonly adjusted:
 - Polling time (interval to wait before asking for events)
 - Batch size (number of events to record in a file)
- This has been eliminated in BI 4.0
 - Automatically configured and adjusted based on usage
 - Why?
 - Bad guesses could lead to events that never get recorded
 - Not enough to audit, too much time between polling ...

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- **Configuring Audit**
- Reporting
- Wrapping Up

Initializing 4.0 Audit

- Use the Central Management Console after installation
 - Manage > Auditing
 - Save changes then restart SIA
- Audit can also be initialized during installation



Configuration

ADS Database

Connection Name: BusinessObjects Audit Server 140

Type: Microsoft SQL Server

Use Windows Authentication:

User Name: boeuser

Password: ●●●●●●

Delete Events Older than (days): 36500

ADS Auto Reconnect

Oracle:
Set this to the desired service name

SQL Server:
Use the ODBC Data Source Name

Selecting What to Audit in 4.0

- Much easier to configure than XI 3.1
 - CMC > Manage > Auditing
 - All settings are now centralized

Set Events

Off Minimal Default Complete Custom

Common Events

- View
- Refresh
- Prompt
- Create
- Delete
- Modify
- Save
- Search
- Edit
- Run
- Deliver
- Retrieve
- Logon
- Logout
- Trigger

Platform Events

- Auditing Modification
- Custom Access Level Modified
- Rights Modification

Analysis Events

- Cube Connection
- MDAS Session

Lifecycle management Events

- LCM Configuration
- Rollback
- VMS Add
- VMS Checkin
- VMS Checkout
- VMS Delete
- VMS Export
- VMS Lock
- VMS Retrieve
- VMS Unlock

Web Intelligence Events

- Drill Out Of Scope
- Page Retrieved

Selecting Audit Details

- Selected details can be added for every event
 - Careful!
 - This will increase the amount of information stored
 - Query – Stores the SQL query for report refreshes
 - User Group Details – Group membership for audited user
 - ...

Set Event Details

- Query
- User Group Details
- Folder Path Details
- Rights Details
- Property Value Details

Viewing Audit Metrics

- Metrics can be viewed on the same CMC Audit Page

Status Summary

ADS Last Updated On	7/25/12 5:48:05 PM PDT	CMS Auditor	siaSG01.CentralManagementServer
Auditing Thread Utilization (%)	0	ADS Database Connection Name	BusinessObjects Audit Server 140
Last Polling Cycle Duration (seconds)	180	ADS Database User Name	boeuser

- Or at a server level

Metrics: siaSG01.CentralManagementServer

Hide Navigation

Properties	Auditing Metrics	
Translations	Current Number of Auditing Events in the Queue	0
User Security	Logging Service Metrics	
Metrics	Logging Directory	C:/Program Files (x86)/SAP BusinessObjects/SAP BusinessObjects Enterprise XI 4.0/logging/
Placeholders	Central Management Service Metrics	
Existing Server Group	Connection to Auditing Database is Established	1

Careful when disabling / stopping servers. Auditing Events in Queue should be 0

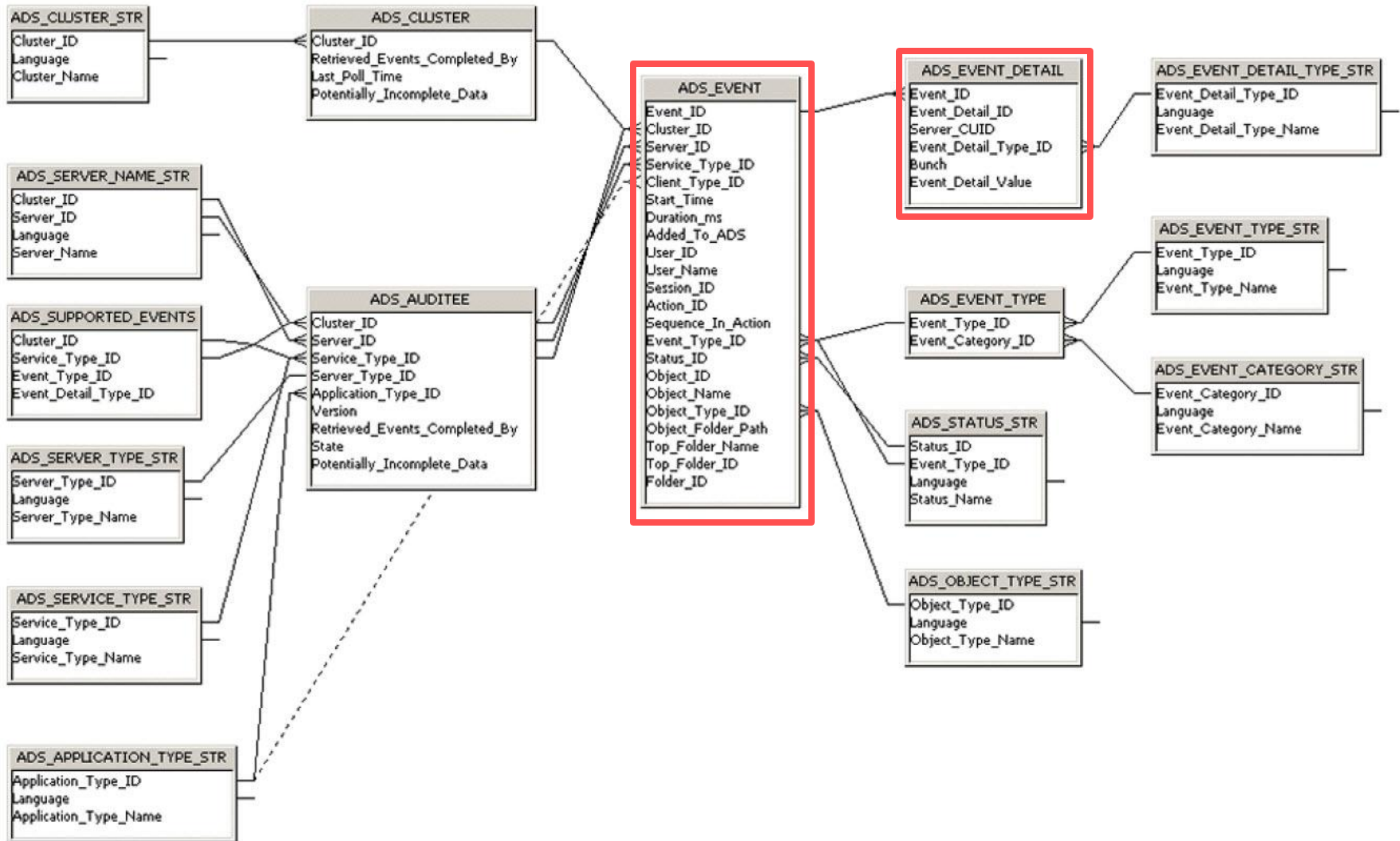
Agenda

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- **Reporting**
- Wrapping Up

The Audit 4.0 Universe

- Audit universe no longer installed with BusinessObjects
- You have to download the universe yourself
- A .UNX starter universe and sample reports is available from the SCN
 - <http://scn.sap.com/docs/DOC-6175>
- **WARNING!!**
 - Universe has been rewritten for a variety of databases but ...
 - Reports are written using Crystal Reports for Enterprise

The Audit 4.0 Database Schema



The Audit 4.0 Universe – Events

- Content is based on **EVENTS**
 - Recorded events are shown to the right
 - These are the same events that can be selected in the CMC Audit screen
- Events represent major actions
 - Actions caused by a user ...
 - A BusinessObjects process ...

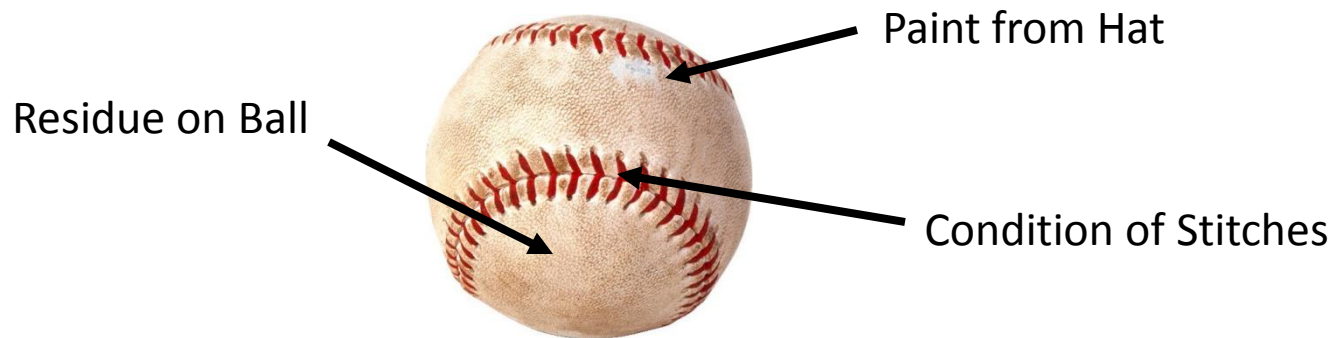
The HIT Event



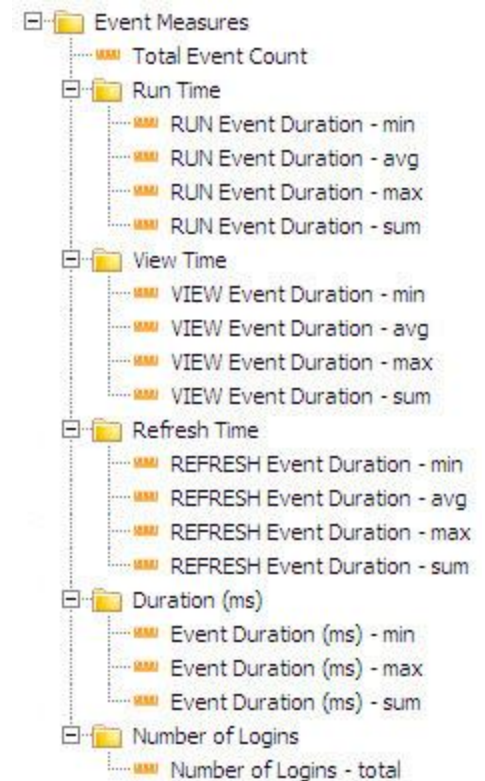
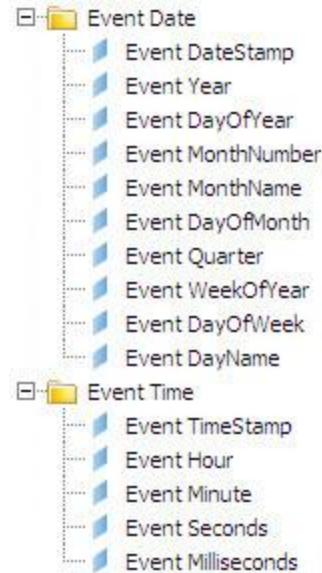
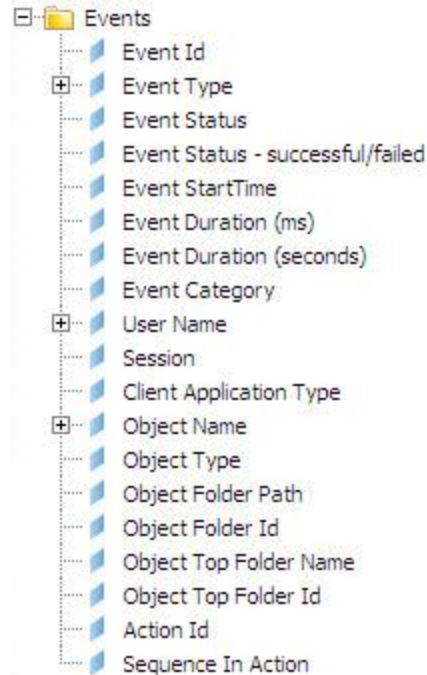
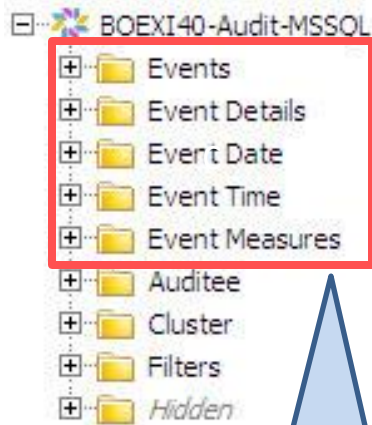
Event_Type_ID	RB	Language	RB	Event_Type_Name
1002		EN		View
1003		EN		Refresh
1004		EN		Prompt
1005		EN		Create
1006		EN		Delete
1007		EN		Modify
1008		EN		Save
1009		EN		Search
1010		EN		Edit
1011		EN		Run
1012		EN		Deliver
1013		EN		Retrieve
1014		EN		Logon
1015		EN		Logout
1016		EN		Trigger
10003		EN		Rights Modification
10004		EN		Custom Access Level Mo...
10006		EN		Auditing Modification
10201		EN		Drill Out Of Scope
10202		EN		Page Retrieved
10300		EN		MDAS Session
10301		EN		Cube Connection
10900		EN		LCM Configuration
10901		EN		Rollback
10902		EN		VMS Add
10903		EN		VMS Retrieve
10904		EN		VMS Checkin
10905		EN		VMS Checkout
10906		EN		VMS Export
10907		EN		VMS Lock
10908		EN		VMS Unlock
10909		EN		VMS Delete

The Audit 4.0 Universe - Details

- Every event has **DETAILS**
 - Additional information about the event
 - Often represents crucial information
- Example: Refreshing a report (Event) records these details
 - Size of the report
 - Number of rows retrieved
 - Universe used
 - Objects used (one detail per object)

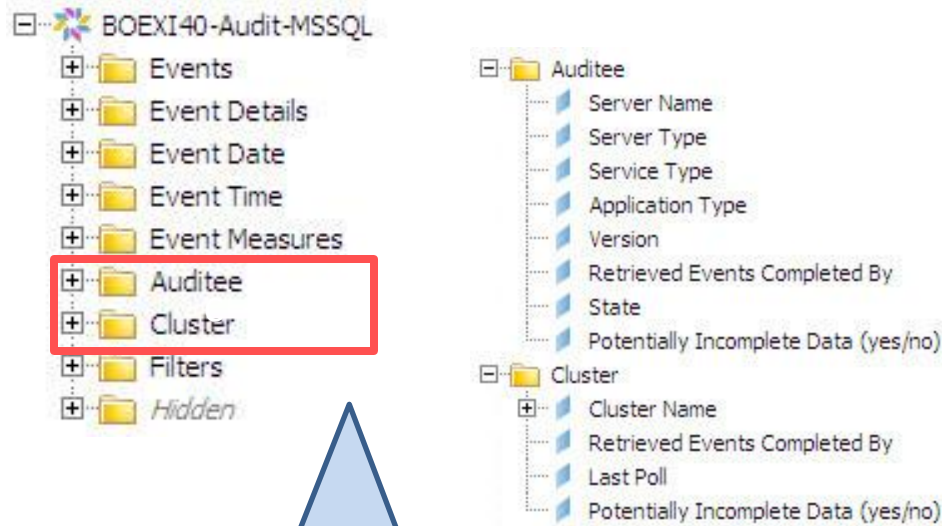


The Audit 4.0 Universe – Major Folders



Objects from these folders are commonly used in Audit queries

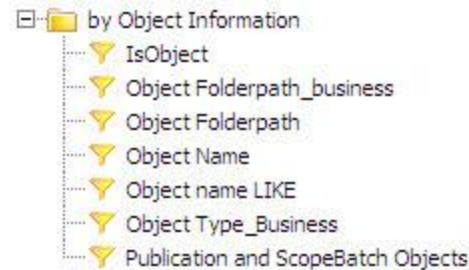
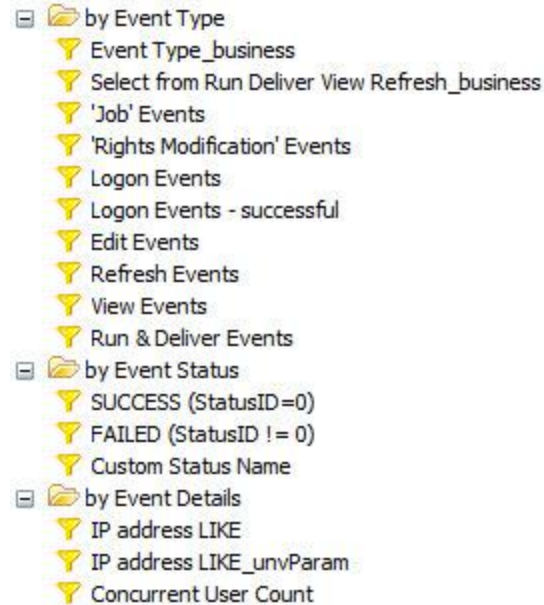
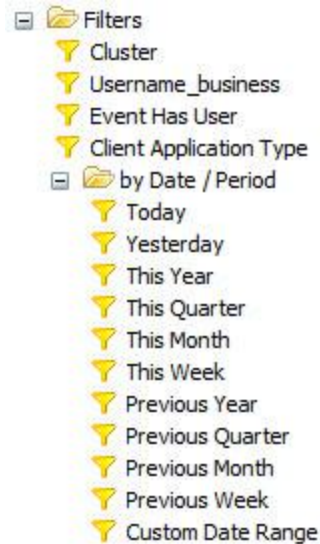
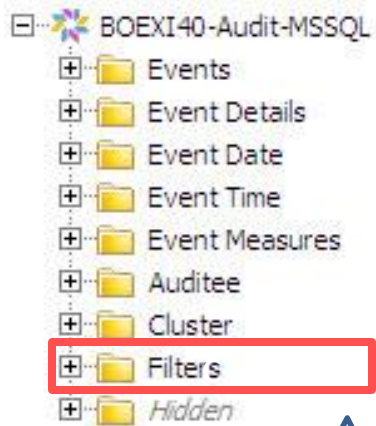
The Audit 4.0 Universe – Minor Folders



Objects from these folders are used for specialized queries:

- Server balancing
- Audit troubleshooting

The Audit 4.0 Universe – Filters



HINT:

Use the filters to create your own query conditions

Demo #1 – Explore (Refresh and Save)

- Create an Audit query that records user activity
 - Start simple at this point
 - Focus on logging in, refreshing, and saving
 - Show both summary and details

Demo #1: Refresh and Save

Server Name	Event Type	Event StartTime	Duration	Object Name	Object Type
siaSG01.CentralManagementServer	Logon	9/10/2012 1:03:01 AM	0.02		
siaSG01.CentralManagementServer	Modify	9/10/2012 1:03:22 AM	0	Audit1	User
siaSG01.CentralManagementServer	Create	9/10/2012 1:03:23 AM	0	~WebIntelligence	Folder
siaSG01.WebIntelligenceProcessingServer1	View	9/10/2012 1:03:23 AM	0	Formatting Sample	Web Intelligence
siaSG01.CentralManagementServer	Modify	9/10/2012 1:03:28 AM	0	Audit1	User
siaSG01.WebIntelligenceProcessingServer1	Refresh	9/10/2012 1:03:33 AM	0	Formatting Sample	Web Intelligence

Demo #2 – Schedules vs. Refreshes

- Find the number of schedules vs. ad-hoc requests
 - Event Type will tell the difference between the two
 - Use **Refresh** for ad-hoc documents
 - Use **Run** for scheduled documents
 - Find the number and average duration of each

Scheduled Runs vs. Adhoc Refreshes

Event Id	Action Id	Sequence	Server Name	Event Type
5837879308532613124	CmVGgxaNiklSmM_KU8EMGsc240b	0	siaSG01.JobServer	Run
15032259421067313161	CmVGgxaNiklSmM_KU8EMGsc2415	0	siaSG01.AdaptiveJobServer	Run
5837879308532613125	CmVGgxaNiklSmM_KU8EMGsc241f	0	siaSG01.JobServer	Run
15032259421067313162	CmVGgxaNiklSmM_KU8EMGsc242a	0	siaSG01.AdaptiveJobServer	Run
5837879308532613126	CmVGgxaNiklSmM_KU8EMGsc2435	0	siaSG01.JobServer	Run
Schedules Run	5			

Demo #3 – Root Cause

- Find out which user caused the issue
 - Look at the history for the report in question
 - Look at detailed stats before and after that period of time

Event StartTime	Event Id	Event Type	Duration	User	Event Detail Type	Event Detail Value
9/10/2012 2:38:24 PM	1245333591788257284	Refresh	1	Audit 3	Number of Rows	456
	1245333591788257284	Refresh	1	Audit 3	Object Instance	0
	1245333591788257284	Refresh	1	Audit 3	Parent Document ID	AZUEG7cGBgINp0MDEmp2Atw
	1245333591788257284	Refresh	1	Audit 3	Size	39636
	1245333591788257284	Refresh	1	Audit 3	Universe ID	AX3cE9nWhMBLXyWJ56OoDQ
	1245333591788257284	Refresh	1	Audit 3	Universe Name	eFashion
	1245333591788257284	Refresh	1	Audit 3	Universe Object Name	eFashion
9/10/2012 2:38:24 PM						

Demo #4 – Report Grading

- Grade reports based on duration, rows, and time
 - Create three distinct categories (GREEN, YELLOW, RED)
 - Define duration, row, and time limits for these categories

	Time (s)	Rows	Size (Kb)
Green	10	10,000	100
Yellow	30	20,000	200
Red	>30	>20,000	>200

Grade - Overall	Object Name	User Name	Refreshed / Ran	Time (s)	Report Rows	Report Size (Kb)
03 Red	eFashion Annual Product Revenues	Administrator	9/9/2012 4:57:37 PM	55	44,352	232.54

Grade - Overall	Object Name	User Name	Refreshed / Ran	Time (s)	Report Rows	Report Size (Kb)
02 Yellow	Audit Example 4 - Report Grading	Administrator	9/9/2012 4:49:25 PM	1	14,474	53.21
	Audit Example 4 - Report Grading	Administrator	9/9/2012 4:54:27 PM	1	14,488	53.21
	Audit Example 4 - Report Grading	Administrator	9/9/2012 4:58:04 PM	1	14,502	53.21

Demo #5 – Server Balancing

- Check how requests are being assigned to servers
 - Many job / processing servers in a large company
 - Audit can be used to check current settings

		siaSG01.Adaptive.Job Server	siaSG01.Job Server
Audit Example 1 - Refresh and Save	Administrator		
Audit Example 2 - Number of Schedules	Administrator		
Audit Example 4 - Report Grading	Administrator		
Audit Example 5 - Server Balancing	Administrator		
Charting Samples	Audit 2	1	
DOCID Test	Administrator	3	
DOCID Test	Audit 2	1	
eFashion Annual Product Revenues	Administrator	1	1

Agenda

- Introduction
- Architecture
- Configuring Audit
- Reporting
- **Wrapping Up**

Wrapping Up

- Audited information is extremely useful
 - Five common cases presented
 - Many more once you become better at querying the data
- Still – more improvements can be made
 - Many customers aggregate audited data in a mart / warehouse
 - Some are adding system database information as well
 - User and group information
 - Schedule / publication recurring instances
 - Events
- This talk focused on the following key points:
 - **WHAT** auditing looks like in BI 4.0
 - **HOW** to set it up
 - **HOW** to use audited information

Questions?

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