



RSA Archer Weekly Free Friday Tech Huddle

Marcy Gaynes

Designated Support Engineer

Grady Roos

Technical Support Engineer

November 2013

Performance Tuning for Archer 5.3 and Beyond...

Who will benefit from this presentation?

- Archer Server Administrators
- Archer DBAs
- Customers considering upsizing
- Customers who feel they need system tweaking

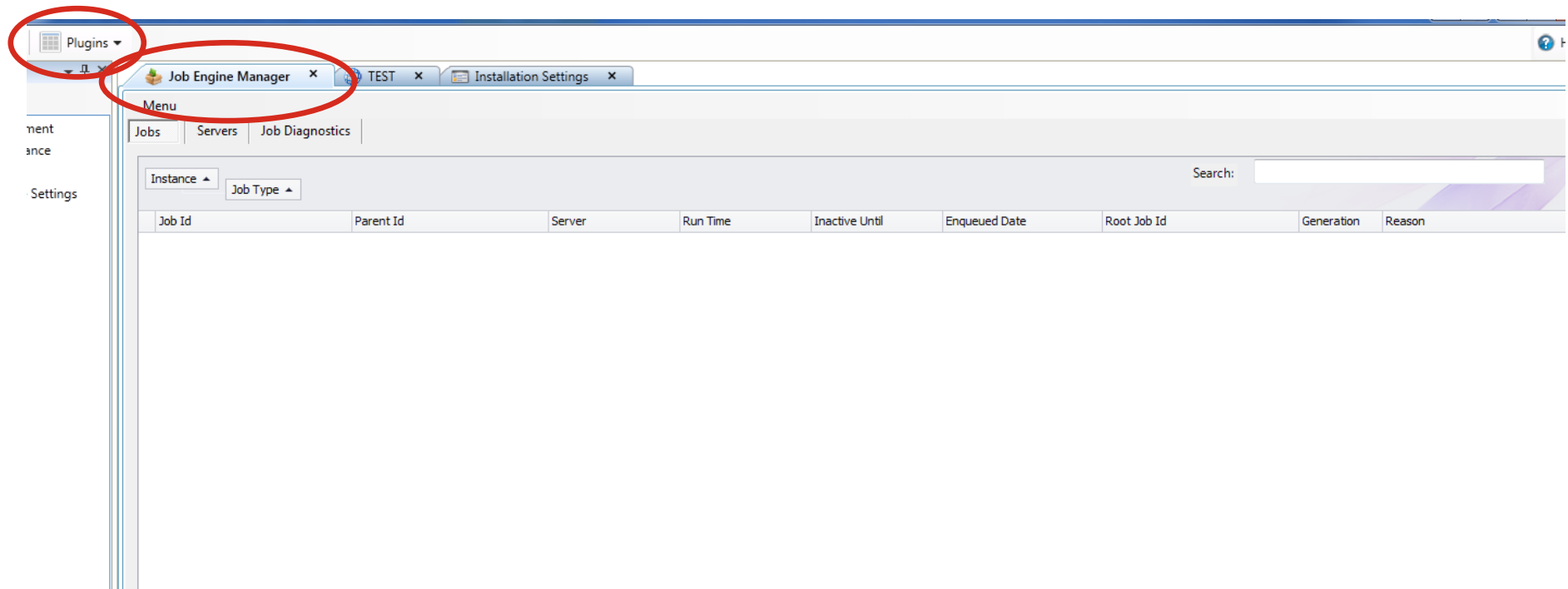
Where can I modify job settings
to improve performance?

ACP Control Panel Plug-ins

- Job Engine Manager
 - Control how jobs run, show jobs
- Monitoring Console
 - Services running

Job Management

The job tool is now in the ACP as a plug-in



Tuning and Troubleshooting Your Job Engine

The screenshot displays the Job Engine Manager interface with the following configuration details:

- Menu:** Jobs, **Servers** (highlighted with a red circle), Job Diagnostics
- Server:** USXXGAYNEML2C
- Thread Count:** 8 (red text indicates it is using the default thread count)
- Process Priority:** Normal
- Equal Instance Processing:** (Checking this box makes each instance get processed with equal priority.)
- Discontinue Job Processing:** (Checking this box causes the engine to finish processing in-progress jobs without picking up new jobs.)
- Performance Throttling:**
 - Max CPU (%): 100
 - Max RAM (%): 100
 - No jobs will be processed while server CPU or RAM values exceed this threshold.
- Filters:**
 - Instances: 2, Priorities: 0, Job Types: 3
 - Instances: 2, Priorities: 0, Job Types: 0
 - Instances list: S3TEST, BPROD, TEST, M5
 - Priorities list: SystemRealTime, SystemHigh, SystemLow, RealTime, VeryHigh, High, Medium, Low, VeryLow
 - Job Types list: GeneratePackageJobHandler, InstallPackageJobHandler, ProcessReturnReceiptsJob, SendMessagesJob, SendNotificationJob, EntityMigrationJob, LinkerMigrationJob, ReportingExportJob, DirectExecuteDataFeedWorkflow, ExecuteDataFeedWorkflow, ScheduledDataFeedWorkflow, DeleteContentMarkedAsDirtyWorkflow, PhysicalCalculationWorkflow
- Buttons:** Move Up, Move Down, +, -, Update

What is the Job Engine?

The following processes are handled by the job engine:

- Notifications
- Scheduled Calculations
- Asynchronous Calculations(as opposed to in-line calcs)
- Data Feeds
- System Maintenance Jobs
- Packaging – creation and install
- Findings Generation
- Questionnaire Campaigns

What is the Job Engine Manager?

The Job Engine Manager is the utility that is used to tune the Job Engine based on the server hardware at its disposal. It is a simple GUI that allows you to perform the following types of actions:

- Setting of thread count on a per server basis
- Enable/Disable of job processing entirely
- Equal thread distribution for multi-instance environments
- Performance-based throttling
- Job type filtering to tailor handling per server
- Simple job diagnostics
- Maintain visibility into currently running, queued, and scheduled jobs

What are the options of the utility?

Thread Count: (red means it is using the default thread count)

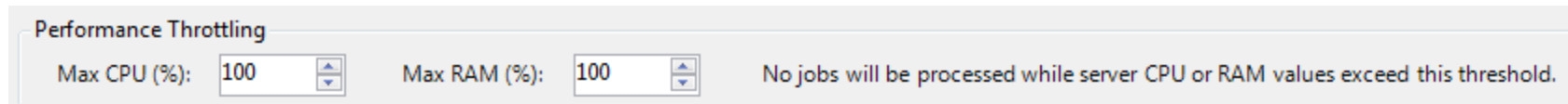
Process Priority:

Equal Instance Processing: Checking this box makes each instance get processed with equal priority.

Discontinue Job Processing: Checking this box causes the engine to finish processing in-progress jobs without picking up new jobs.

- **Thread Count**- This is the number of jobs that run at once. Many performance issues can be directly attributed to thread counts that are higher than the hardware can sufficiently handle. A good clue to lower or increase is CPU usage.
- **Process Priority** – allows for adjusting the priority of the individual job processes at the OS level. Does not alter the “Archer” priorities assigned to the specific job types.
- **Equal Instance Processing** – this initiates a round-robin approach to thread distribution for those environments running multiple instances. It prevents one instance from being choked out based on having lower priority jobs.
- **Discontinue Job Processing** – disables the engine from picking up new jobs while allowing it to complete those jobs that are currently processing

What are the options?(continued)



- **Performance Throttling** – allows for fine tuning the ability of additional threads to be started based on the current conditions of the servers resources.
 - **Max CPU (%)** will discontinue the processing of new jobs when the CPU utilization hits the designated threshold.
 - **Max RAM (%)** will discontinue the processing of new jobs when RAM utilization hits the designated threshold.

*Note that this is based on a calculation that averages utilization over a one minute period. Polling is done every half-second to generate this value, so it will not instantaneously start or stop processing of new jobs based on a relatively short-term spike.

Menu | **Jobs** | Servers | Job Diagnostics

Instance ▾ | Job Type ▾ | Search:

Job Id	Parent Id	Enqueued Date	Inactive Until	Root Job Id	Generation	Reason
Instance: 53TEST (Count=66)						
Job Type: ContentHistoryLogCleanupJobHandler (Count=1)						
7835b58d-b363-4ff0-b1...		3/25/2013 9:00:03 AM	3/26/2013 9:00:00 AM	7835b58d-b363-4ff0-b144-ff746...	0	
Job Type: DeleteContentMarkedAsDirtyWorkflow (Count=1)						
Job Type: DeletedMetaDataCleanupJobHandler (Count=1)						
Job Type: DiscussionForumExpirationJobHandler (Count=1)						
Job Type: ManualCampaignGenerationJobHandler (Count=2)						
Job Type: OrphanSubformContentCleanupJobHandler (Count=1)						
Job Type: PrecomputeTaskPermissionsCleanupJobHandler (Count=1)						
Job Type: RepositoryFileCleanupJobHandler (Count=1)						
Job Type: ScheduleRecalculateWorkflow (Count=17)						
Job Type: SendNotificationJob (Count=37)						
Job Type: SessionCleanupJobHandler (Count=1)						
Job Type: SystemCleanupJob (Count=1)						
Job Type: UpdateContentStatisticsJobHandler (Count=1)						

Job Queue | Instrumentation | Expand Grid By Default

Running Jobs | Completed Jobs
 Available Jobs | Failed Jobs
 All Jobs | All Jobs

Refresh

This tab shows

- The engine that is processing the job
- The time that the job was inserted into the queue
- The parent job(if applicable) that forced the creation
- The runtime
- The type of job
- The job ID

Historical information for jobs that ran successfully or failed is here under Instrumentation. These different options are essentially adhoc reports pulled directly from the database

Filtering allows you to:







- Set filters on a per instance and per server basis
- Filter jobs by priority
- Filter jobs by type
- Create job prioritization by adjusting filter order


***Note that the Priorities column does not relate to the Job Types column in the utility. Archer has preset priorities for certain job types.

Jobs | Servers | **Job Diagnostics**

Job Id: 3c357bf7-644f-4325-b81e-6dd3caf2698a Run Diagnostics

Instance Name: TEST

- Dequeuing Is Not Disabled? 
- Job Is First In Queue?  The job is not the first job in the queue. The job is currently marked as running. Run the stored procedure 'usp_async_job_queue_distributed_get_jobs' to see the job queue in order.
- Job Is Active? 
- Job Is Not On Hold? 
- Job Has Null process_id?  The job's process_id column is not null. If it's zero for more than a minute, null the process_id column.
- Job Has Workflow Instance? 

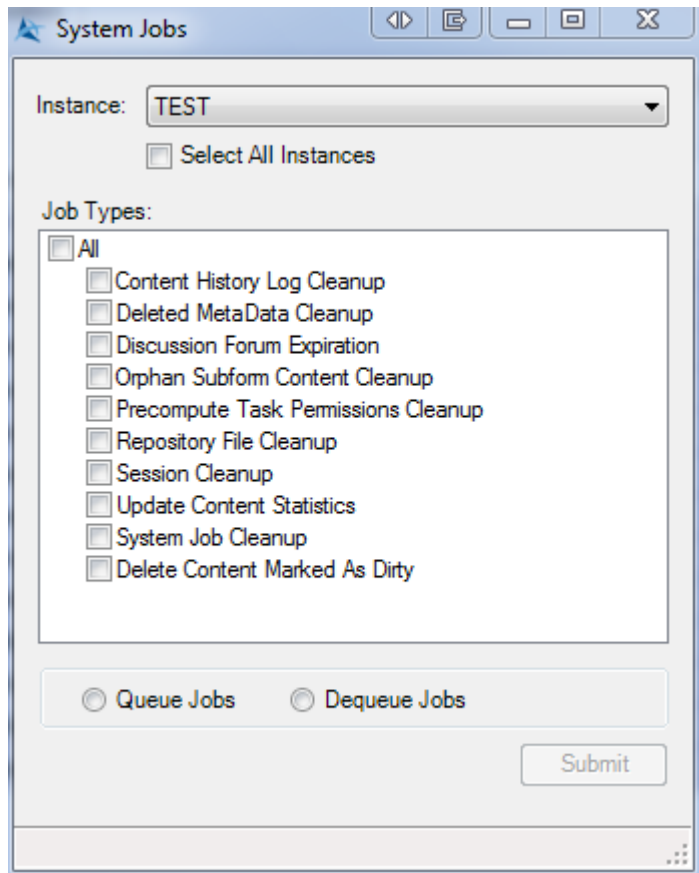
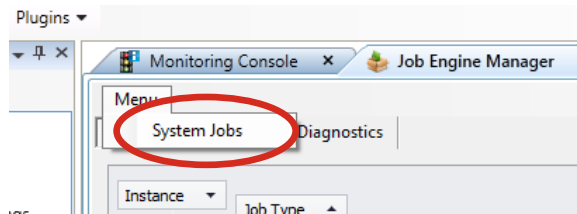
 This job is marked as running the database. If it is not actually running on any job engine server, the job needs to be manually removed. See below for more information on removing a job from the database.

If it is determined that the job needs to be removed from the database, you may either execute the below command to remove the job or click the Remove Job button.

```
exec usp_async_job_queue_remove_running_job '3c357bf7-644f-4325-b81e-6dd3caf2698a', 'USXXGAYNEML2C'
```

[Copy to clipboard](#) Remove Job

The Job Diagnostics component gives additional information about the current status of a particular job. It also gives you a script to copy and paste in SQL to remove the job or you can click the button to remove it.



Provides the ability to queue or dequeue the maintenance jobs that are included with every install. This is helpful if you have a need to redeploy a job that has been removed from the queue for any reason. It also grants you the ability to stop any system job that you do not want to process, though these are primarily centered around keeping the database clean.

Where do I find the optimal database settings?

The Performance and
Troubleshooting Guide Version 5.x
(request from CS)

DB Server Settings

- Hardware gives best performance vs VM
- Archer Database Server **MUST** have Maximum degrees of Paralellism set to 1
- Archer Database Server should be configured for one tempdb datafile per physical core (MS says no gain after 8)
- Recovery database mode should be set to Simple
- Autoshrink set to FALSE

Right-click Server name, properties

The screenshot shows the 'Server Properties' dialog box for server 'USXXGAYNEML2C'. The 'Advanced' page is selected in the left-hand pane. The main area displays a list of server properties grouped into sections: Filestream, Miscellaneous, Network, and Parallelism. A red arrow points to the 'Max Degree of Parallelism' property, which is set to 1. Below the list, there is a section for 'Allow Triggers to Fire Others' with a descriptive text and a radio button for 'Configured values' (which is selected). At the bottom, there are 'OK' and 'Cancel' buttons.

Property	Value
Filestream	
Filestream Access Level	Disabled
Miscellaneous	
Allow Triggers to Fire Others	True
Blocked Process Threshold	0
Cursor Threshold	-1
Default Full-Text Language	1033
Default Language	English
Full-Text Upgrade Option	Rebuild
Max Text Replication Size	65536
Optimize for Ad hoc Workloads	False
Scan for Startup Procs	False
Two Digit Year Cutoff	2049
Network	
Network Packet Size	4096
Remote Login Timeout	20
Parallelism	
Cost Threshold for Parallelism	5
Locks	0
Max Degree of Parallelism	1
Query Wait	-1

Allow Triggers to Fire Others
Controls whether a trigger can perform an action that initiates another trigger. When cleared, triggers cannot be fired by another trigger.

Configured values Running values

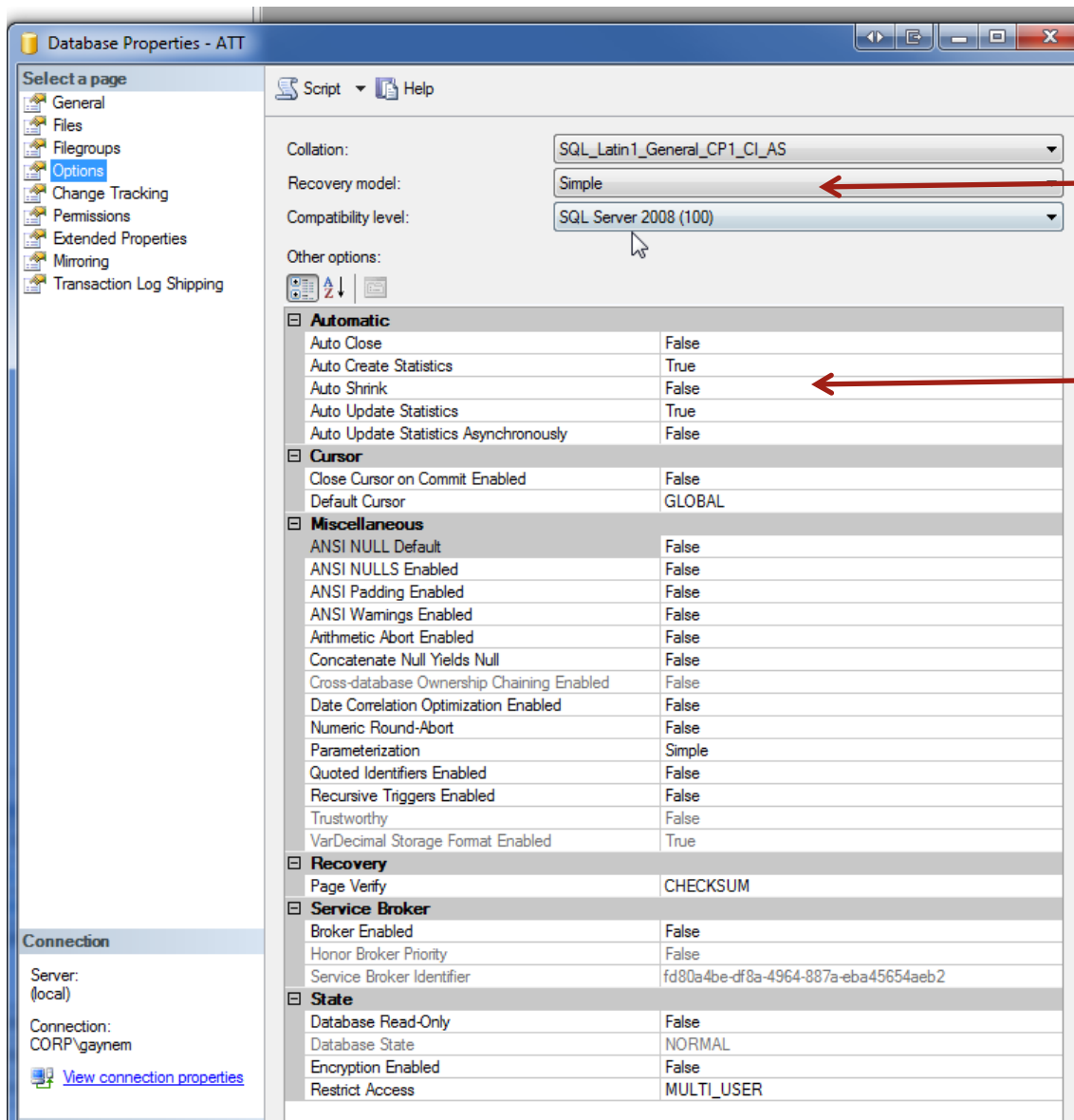
Right-click tempdb under System Databases , properties

The screenshot displays the SQL Server Enterprise Manager interface. On the left, the 'System Databases' folder is expanded, showing 'tempdb'. The 'Database Properties - tempdb' dialog box is open, showing the 'Files' page. The 'Database name' field is set to 'tempdb' and the 'Owner' is 'sa'. A table lists the database files:

Logical Name	File Type	Filegroup	Initial Size (MB)	Autogrowth	Path
tempdev	Rows ...	PRIMARY	8	By 10 percent, unrestricted growth	C:\
templog	Log	Not Applicable	1	By 10 percent, unrestricted growth	C:\

At the bottom of the dialog, there are 'Add' and 'Remove' buttons. A red arrow points to the 'Add' button.

Right-click Archer database, properties



Database Properties - ATT

Select a page

- General
- Files
- Filegroups
- Options
- Change Tracking
- Permissions
- Extended Properties
- Mirroring
- Transaction Log Shipping

Script Help

Collation: SQL_Latin1_General_CP1_CI_AS

Recovery model: Simple

Compatibility level: SQL Server 2008 (100)

Other options:

Automatic	
Auto Close	False
Auto Create Statistics	True
Auto Shrink	False
Auto Update Statistics	True
Auto Update Statistics Asynchronously	False

Cursor	
Close Cursor on Commit Enabled	False
Default Cursor	GLOBAL

Miscellaneous	
ANSI NULL Default	False
ANSI NULLS Enabled	False
ANSI Padding Enabled	False
ANSI Warnings Enabled	False
Arithmetic Abort Enabled	False
Concatenate Null Yields Null	False
Cross-database Ownership Chaining Enabled	False
Date Correlation Optimization Enabled	False
Numeric Round-Abort	False
Parameterization	Simple
Quoted Identifiers Enabled	False
Recursive Triggers Enabled	False
Trustworthy	False
VarDecimal Storage Format Enabled	True

Recovery	
Page Verify	CHECKSUM

Service Broker	
Broker Enabled	False
Honor Broker Priority	False
Service Broker Identifier	fd80a4be-df8a-4964-887a-eba45654aeb2

State	
Database Read-Only	False
Database State	NORMAL
Encryption Enabled	False
Restrict Access	MULTI_USER

Connection

Server: (local)

Connection: CORP\gaynem

[View connection properties](#)

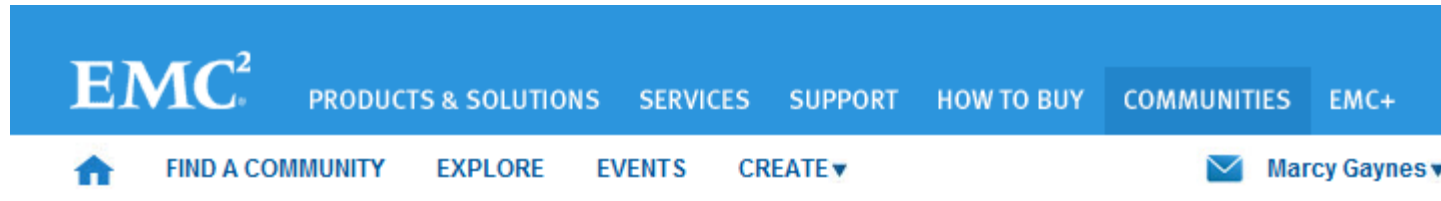
How should I size my system for optimal performance?

Look in the Sizing and Performance Guide document for your Version

What software versions including SQL, Windows, browsers, etc., are supported?

Look in the Qualified and Supported Environments document for your Version

Where do I find these and other helpful documents?



All Places > Connect > RSA Archer GRC

 **RSA Archer GRC**

The Archer Community – of course!!

https://community.emc.com/community/connect/grc_ecosystem



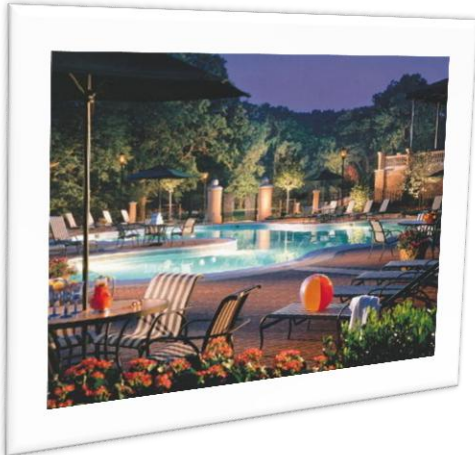
The Archer Community – helpful links

- Everything 5.3
<https://community.emc.com/docs/DOC-19563>
- Everything 5.4
<https://community.emc.com/docs/DOC-24866>
- Everything 5.4.1
<https://community.emc.com/docs/DOC-28037>
- Free Friday Trainings
<https://community.emc.com/docs/DOC-19083>

Let's take a look..

Questions?





- Over 800 GRC professionals to network with
- Keynotes: Bruce Bueno de Mesquita, Predictioneer, and Dr. Patrick Gallagher of NIST
- 30+ client led presentations
- 15+ technical breakout sessions
- Industry roundtables, working groups and executive-level breakouts
- Entertainment: Will Durst

OMNI HOTELS[®]
shoreham | washington dc



RSA Archer Course Offerings



System Administrator

elearning

- Introduction to GRC
- Getting Started with the RSA Archer Platform
- Navigating the RSA Archer Platform

Instructor-Led

- RSA Archer Administration
- RSA Archer Advanced Administration



Business Owner

elearning

- Introduction to GRC
- Getting Started with the RSA Archer Platform
- Navigating the RSA Archer Platform
- Archer Solution Fundamentals

Instructor-Led

- RSA Archer Administration
- Getting Started with Enterprise Risk Management
- Getting Started with Policy & Compliance Management



End User

elearning

- Introduction to GRC
- Getting Started with the RSA Archer Platform
- Navigating the RSA Archer Platform

Customized RSA Archer End User training is available upon request

www.emc.com/rsa-training



Welcome to the RSA Archer Community



- **RSA Archer Community Newsletter**
 - The monthly RSA Archer Community Newsletter is packed with everything you want to know for RSA products, services, events and GRC industry trends. Never miss an issue and receive the Community Newsletter each month, delivered to your Inbox!
- **RSA SecurCare Online**
 - SecurCare Online, a state-of-the-art e-support system, is now available to RSA Archer customers. With SecurCare Online you'll be able to plan an installation, upgrade or migration, diagnose and repair problems, find answers to support questions, download current platform patches and bug fixes, manage your support cases, and more – 24 hours a day.
- **RSA Archer Live Webcasts, for the public**
 - Live product webcasts are held on Thursdays at 2:00 ET. Also, these webcasts are recorded and placed on the Archer Community.

Contacting Support

- Email:

archersupport@rsa.com

- Phone:

USA: 1-800-995-5095 (option 5 for Archer)

Global numbers:

<http://www.emc.com/support/rsa/contact/phone-numbers.htm>

THANK YOU