

HELLO, WORLD! ARCHER API ADVANCED LAB PARTS 1 & 2

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LAB GOALS

WHAT WILL WE ACCOMPLISH TODAY?

- Introductions
- Slides
 - RSA Archer APIs Overview
 - RSA Archer REST API Client Overview
- Coding
 - Building an Environment Synchronization Utility
 - REST Client Setup
 - Establishing Session Context
 - Move Internal Records, External
 - Move External Records, Internal
 - Logging Out
 - Watch it work!
- Questions

WHAT ARE APIS?

NOTHING TO BE AFRAID OF

- **API** stands for **A**pplication **P**rogramming **I**nterface
 - Set of routines, protocols, and tools
 - Specifies how you authenticate, and request / receive data from the system
- **SOAP** stands for **S**imple **O**bject **A**ccess **P**rotocol
 - Requests require programmatic envelope
 - Responses are automatically parsed by the SOAP **WSDL** (**W**eb **S**ervice **D**efinition **L**anguage)
- **REST** stands for **R**epresentational **S**tate **T**ransfer
 - Stateless protocol with standardized operations
 - Lends itself to performance, reliability, and scale
 - Responses parsed by the caller

WHAT'S THE DIFFERENCE?

THREE APIS – THREE USES

■ Web Services API (SOAP)

- ../Archer/ws virtual directory
- XML used for request/response
- Uses HTTP POSTs & GETs
- Values passed like Excel
- Focus on back office objects
- Includes search capability
- Available since the 4.x days

■ RESTful API

- ../Archer/platformapi IIS app
- JSON used for request/response
- Simpler alternative to SOAP
- Lighter load = better performance
- Values passed in HTTP Request header & body
- Focus on back office objects
- No search capability
- Available since 5.4.1.x

■ Content API

- ../Archer/contentapi IIS app
- JSON used for request/response
- Values passed in HTTP Request header & body
- Focus on front office objects; specifically content
- Data extraction from applications and solutions
- Available since 6.4.x
- Enhanced in 6.7

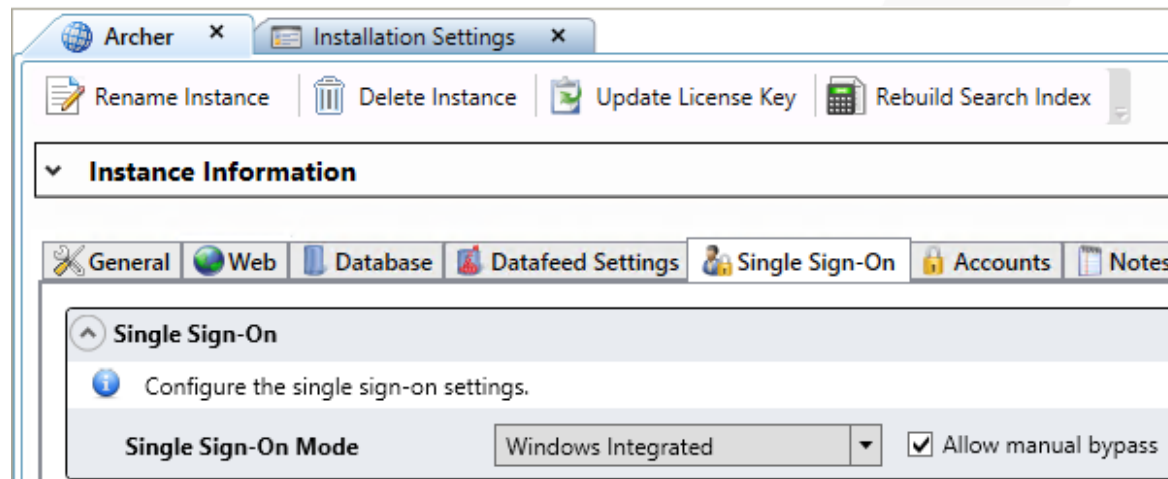
HOW ARE THEY THE SAME?

- Allow clients (users or applications) to access platform data and application content
- Every request must include a session token so permissions are respected
- Accessible via most programming languages (.NET, Java, PHP, PowerShell, Python, C#, etc)
- IIS Authentication set to Anonymous on API directories/applications
- For Single Sign-On (SSO), exclude the /ws, /platformapi, and /contentapi paths for authentication (SiteMinder, ClearTrust, etc)

ALLOW MANUAL BYPASS

THOU SHALL NOT PASS; UNLESS YOU HAVE A SESSION TOKEN

- To create a Session Token using the REST API with SSO enabled, the Allow Manual Bypass options must be enabled
- Web Services API can create a Session Token regardless of this setting, and afterwards the token can be used with REST API calls
- From the ACP, open the Instance settings and select the Single Sign-On tab to enable



REST API GUIDE

VERBS AND ACTIONS

Request Verb	Action	Example
GET	Select record 123456	GET /api/core/content/123456
GET	Select all applications	GET /api/core/system/application
POST	Insert a new record	POST /api/core/content
PUT	Update a record	PUT /api/core/content
DELETE	Delete user 123	DELETE /api/core/system/user/123

- The standard GET request is unencrypted
- To avoid this inherent vulnerability, the API watches for and responds to the X-HTTP-Method-Override header

SELECT, FILTER, & SORT IN REST

GIVE ME WHAT I WANT, THE WAY I WANT IT!

- Limit results with Odata (SQL-like statements)
 - Follow URL with a question mark (?) and combine actions using ampersands (&)
 - Refer to the REST API Guide to see which actions are supported
- \$select : return results for the given Property Names (fields)
 - `../api/core/system/user?$select=Id,UserName,FirstName,LastName,AccountStatus,DomainId`
- \$filter : filter the results using Logical, Arithmetic, and Grouping Operators
 - `../api/core/system/user$filter=Id gt 200`
- \$orderby : sort results in ascending (asc)(the default) or descending (desc) order
 - `../api/core/system/user?$orderby=LastName desc`
- \$top : sets the page size of the current request
 - `../api/core/system/user?$top=50`
- \$skip : selects the correct page
 - Get page 3: `../api/core/system/user?$top=50&$skip=100`

FILTER OPERATORS

Operator	Description	Example
Logical Operators		
eq	Equal	/application?\$filter=Alias eq 'Patches'
ne	Not equal	/application?\$filter=Alias ne 'Patches'
gt	Greater than	/user?\$filter=Id gt 300
ge	Greater than or equal	/user?\$filter=Id ge 300
lt	Less than	/user?\$filter=Id lt 300
le	Less than or equal	/user?\$filter=Id le 300
and	Logical and	/user?\$filter=Id le 300 and Id gt 500
or	Logical or	/user?\$filter=Id le 300 or Id gt 500
not	Logical negation	/application?\$filter=not endswith(Name,'App')
Arithmetic Operators		
add	Addition	/Products?\$filter=Price add 5 gt 10
sub	Subtraction	/Products?\$filter=Price sub 5 gt 10
mul	Multiplication	/Products?\$filter=Price mul 2 gt 2000
div	Division	/Products?\$filter=Price div 2 gt 4
mod	Modulo	/Products?\$filter=Price mod 2 eq 0
Grouping Operators		
()	Precedence grouping	/Products?\$filter=(Price sub 5) gt 10

RSA ARCHER REST API CLIENT

REST API PROGRAMMING – SIMPLIFIED & STREAMLINED

- Prior years we used a prototype version of this
- We have a NuGet package in alpha stage that's had some improvements from last year
- Work is being done as we speak to make this **OPEN SOURCE**
- Goal is to make API programming more accessible to all Archer customers
- RSA Archer retains merge authority; **anyone** is welcome to contribute code or file defects

**CRACK YOUR KNUCKLES –
LET'S GET CODING!**

LAB CORRECTION

MEA CULPA

- Please follow the steps on page 1 of the lab guide
- At the bottom of Program.cs, there is a series of collapsed regions
 - Expand the regions
 - Delete or Comment Out the first BASE_URL
 - Uncomment the second BASE_URL and add “api/” to the end of it
- FIELDS region should now look like this:

```
#region FIELDS

//private const string BASE_URL = "https://grc.partnersalescenter.com/api";
private const string BASE_URL = "http://archer.local/api/";
```

ENVIRONMENT CREDENTIALS

LET'S MOVE SOME DATA!

- Username
 - rsaLab
- Password
 - Charge2019!
- Instances
 - apilab_internal
 - apilab_external
- Application
 - Third Party Management > Third Party Risk Management > Engagement Risk Assessments

THANK YOU