Scripting for Non-Scripters
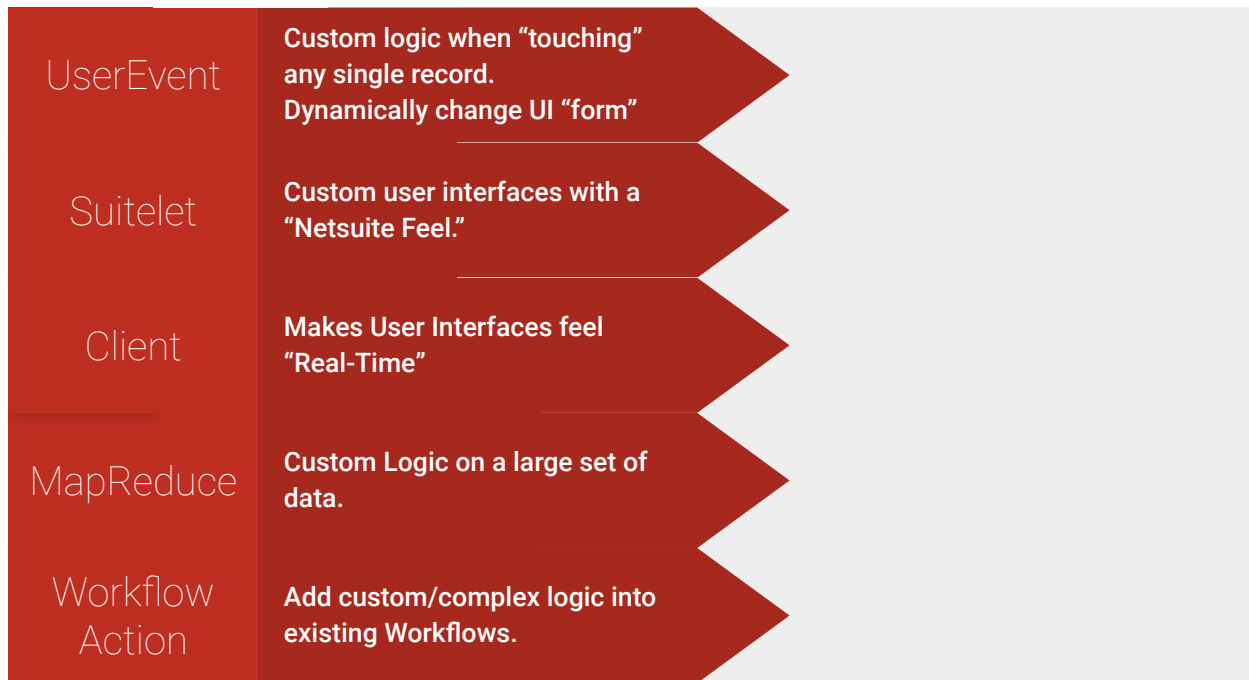
Rocky Mountain Netsuite User Group

Agenda

- Why use SuiteScript?
- Where are Netsuite "Scripts"?
- Script Execution
  - Enable/Disable Scripts
  - Starting/Stopping Scripts
  - What's Running?
- Script Permissions
- Script Performance

Why use SuiteScript?

UserEvent — **Custom logic when "touching" any single record. Dynamically change UI "form"**

Suitelet — **Custom user interfaces with a "Netsuite Feel."**

Client — **Makes User Interfaces feel "Real-Time"**

MapReduce — **Custom Logic on a large set of data.**

Workflow Action — **Add custom/complex logic into existing Workflows.**

Above are most common. There are others too.

Why use SuiteScript? - User Events

UserEvent	Custom logic when "touching" any single record. Dynamically change UI "form"

Example Uses:
- Validating fields prior to saving.
- Send Email after save.
- Custom sublists on forms.
- Added PDF Render capabilities

Why use SuiteScript? - Suitelets

Suitelet	Custom user interfaces with a "Netsuite Feel."

Example Uses:
- Customer Refunds
- Create, Approve and Send ACH Batches

Why use SuiteScript? - Client Scripts

Client	Makes User Interfaces feel "Real-Time"

Example Uses:
- Enable/Display a field only when another field is populated.
- Instant feedback for incorrect field values.
- Dynamically populate screen fields based on a user action.

Why use SuiteScript? - Map/Reduce

MapReduce | **Custom Logic on a large set of data.**

Example Uses:
- Small-Balance Write-Off
- Invoice Email Delivery
- Call a web service, import results into Netsuite.

Why use SuiteScript? - Workflow Action

| Workflow Action | Add custom/complex logic into existing Workflows. | |

Used to enhance workflows by creating custom "Actions".

Example Uses:
- Role-Based Approval Workflows
- Call Remote Web Services.

Why use SuiteScript? - Others

Scheduled Script

Perform logic on a set of data. Also-used to 'task out' work from UserEvent or Suitelets.

- Superceded by Map/Reduce
- Single Threaded
- Uses "Queues"

Mass Update

Perform logic on a set of data.

- Superceded by Map/Reduce
- Single Threaded
- Page: Mass Updates

Portlets

Create custom Portlets/Dashboards. Worth considering if you are a heavy user of Portlets today.

- "Personalize Dashboard" | "Custom Portlet

Restlets

Custom "API Endpoint" for remote systems to interface with.

- "REST" Web Service

CPE Questions - Why use SuiteScript?

Of the options presented, which script type runs as a "trigger" when a record is viewed/updated/created or deleted?

1. Map/Reduce
2. * User Event
3. Suitelet

CPE Questions - Why use SuiteScript?

Can custom scripts be used to enhance Netsuite Workflows?

1. * Yes
2. No

CPE Questions - Why use SuiteScript?

Could a script change one record after a different script is updated (eg. Updating SalesOrder after Invoice has been modified.)

1. * Yes
2. No

Where are Netsuite "Scripts"?

| SuiteScript "Code" | Script Record | Script Deployment |

Where? - "Code"

- Page: File Cabinet
  - Typically "SuiteScripts" folder.
  - Sub-folders allowed (and encouraged)
- Text Files
- Javascript
  - Versions "1.0", "2.0", "2.1", "2.x"
- Shared-Code "Libraries" are possible.

File

MassDeleteJournalEntry_mu2.js

[Save] [Cancel]

CONTENT

```
1  /**
2   * @NApiVersion 2.x
3   * @NScriptType MassUpdateScript
4   * @NModuleScope SameAccount
5   */
6  define(['/SuiteScripts/VF 2.0 Scripts/VFDelete_lib'],
7  function(vfdelete) {
8
9      function each(params) {
10         try {
11             if (vfdelete.canDeleteJournalEntry(params)) {
12                 vfdelete.deleteJournalEntry(params);
13             } else {
14                 log.audit({title:"JournalEntry can NOT be deleted
     details:params});
15             }
16         } catch(e) {
17             log.audit({title:"canDeleteJournalEntry() exception:
     details:[e.message, e.stack, params]});
18         }
19     }
20
```

Where? - "Script Record"

Scripts

View Deployments

Submit | New Script

☐ FILTERS

| TYPE | - All - ▼ | API VERSION | - All - ▼ | SCRIPT FILE | - All - ▼ | FROM BUNDLE | ▼ |

☑ SHOW INACTIVES

Add — Apm Spd Sl Main ▼ ◁ ▷   TOTAL: 227

INACTIVE	EDIT | VIEW	NAME ▲	FROM BUNDLE	ID	TYPE	API VERSION	DEPLOYMENTS	SCRIPT	LIBRARY SCRIPT	INTERNAL ID
☐	Edit | View	Add Event Sponsor		customscript_sponsor_associateevent	Workflow Action	2.0	Deployments	sponsorship-wa-associateevent.js		47
☐	Edit | View	Add Sponsorship Presenter		customscript_sponsor_createpresenter	Workflow Action	2.0	Deployments	sponsorship-wa-addpresenter.js		45
☐	View	APM AH SL Account Overview 🔒	67350	customscript_apm_ah_sl_accountoverview	Suitelet	2.0	Deployments	apm_ah_sl_accountoverview.js		192
☐	View	APM AH SL Lists 🔒	67350	customscript_apm_ah_sl_lists	Suitelet	1.0	Deployments	apm_ah_sl_lists.js	apm_ss_library.js	193
☐	View	APM AH SL Main 🔒	67350	customscript_apm_ah_sl_main	Suitelet	2.0	Deployments	apm_ah_sl_main.js		191

Script 🔒

Deploy Script | Actions

TYPE User Event
NAME SAS Supported Records UE
ID customscript_sas_ue_supportedrectypes
API VERSION 2.0

Scripts | Parameters | Unhandled Errors | Execution Log | Deployments | History | System Notes

SCRIPT FILE WD_SAP_UE_ForSupportedRecordTypes.js
BEFORE LOAD FUNCTION ☑
BEFORE SUBMIT FUNCTION ☑
AFTER SUBMIT FUNCTION ☑

Custom Plug-In Types

CUSTOM PLUG-IN TYPE
No records to show.

Deploy Script | Actions

- Page: Scripts
- Requires a single "SuiteScript Code" file.
- Defines a formal "structure" to what the code intends to be/do
- Best place to get to "everything" about this script.

Where? - "Script Deployment Record"

| SuiteScript "Code" | Script Record | Script Deployment |

Script Deployments

FILTERS

| TYPE | - All - | STATUS | - All - | RECORD TYPE | - All - | API VERSION | - All - | SCRIPT | - All - |

SHOW UNDEPLOYED

Add — Apm Spd Sl Main ▾ ‹ ›

INTERNAL ID	EDIT | VIEW	ID	SCRIPT ▲	API VERSION	STATUS	TYPE	LAST MODIFIED
60	Edit | View	customdeploy_sponsor_associateevent	Add Event Sponsor	2.0	Released	Workflow Action	5/14/2018 5:19 pm
56	Edit | View	customdeploy_sponsor_createpresenter	Add Sponsorship Presenter	2.0	Released	Workflow Action	11/29/2017 1:48 pm
392	Edit | View	customdeploy_apm_ah_sl_accountoverview	APM AH SL Account Overview	2.0	Released	Suitelet	5/3/2020 8:18 pm
393	Edit | View	customdeploy_apm_ah_sl_lists	APM AH SL Lists	1.0	Released		
391	Edit | View	customdeploy_apm_ah_sl_main	APM AH SL Main	2.0	Released		

Script Deployment

Edit Back Actions

← → List

SCRIPT Bank Feeds Audit Trail Cleanup
TITLE Bank Feeds Audit Trail Cleanup
ID customdeploy_bf_model_ns_audittrailclean
DEPLOYED ✔

STATUS Scheduled
SEE INSTANCES Status Page
LOG LEVEL Audit
EXECUTE AS ROLE Administrator
PRIORITY Standard
CONCURRENCY LIMIT
SUBMIT ALL STAGES AT ✔
ONCE
YIELD AFTER MINUTES 60
BUFFER SIZE 1

Schedule • Execution Log System Notes

SINGLE EVENT
DAILY EVENT X x
Repeat every 1 day(s)
WEEKLY EVENT
Repeat every weekday
MONTHLY EVENT
YEARLY EVENT
START DATE 10/4/2020
START TIME 8:00 pm
REPEAT
END BY
NO END DATE ✔

- Page: Script Deployments
- "Deployments" subtab of "Script" record.
- Defines "when" this script should run.
- Defines Priority and CPU usage.
- Defines Permission Capabilities of this script.

CPE Questions - Where?

Of the choices given, what is the best "starting place" to find details about any script?

1. Page: File Cabinet
2. Page: Script Records
3. Page:Map/Reduce Status

CPE Questions - Where?

What programming language does SuiteScript Use?

1. Java
2. Javascript
3. Python
4. HTML

Script Execution

- Enable and Disable Scripts
- Starting and Stopping Scripts
- Script Permissions
- Script Execution Limits

Enable/Disable - Script Deployment : "Deployed"

1. Recommended way to disable for any/all script types.
2. "Edit" any Script Deployment Record
3. Uncheck "Deployed" checkbox
4. Save

Enable/Disable - Page: Scripted Records : "Deployed"

UserEvent and Client Scripts only ….

1. Page: Scripted Records
2. Click "Edit" on your record type.
3. Uncheck "Deployed" checkbox
4. Click "Save"

Noteworthy - Page: Scripted Records : Sequencing

UserEvent and Client Scripts only ….

1. Page: Scripted Records
2. Click "Edit" on your record type.
3. Click and drag "Grab Dots" on left of each script.
4. Click "Save"

Enable/Disable - Script Deployment : "Status"

- "Status" field on "Script Deployment" record
  - "Testing" vs "Released"
  - "Scheduled" vs "Not Scheduled"
- Not Recommend for "Enable/Disable". Use "Deployed" checkbox.

Starting and Stopping Scripts

Scripts are commonly run any of …

- Manually, On Demand
- On a Schedule
- Anytime a Record is saved or loaded.
- Other Record Triggers (eg. When a PDF is printed)
- Listen for inbound API calls

Starting/Stopping - UserEvent Scripts

- "Specific Triggers" are found on Script Record

- Earlier notes on "Deployment" of UserEvent scripts.

- Noteworthy: CSV Import "Scripts and Workflows"

  - Found under Import Options | "Advanced Options"

  - Special permission to use this checkbox.

- User Events being triggered from Scheduled or Map/Reduce scripts.

Script 🔒

Deploy Script | Actions

TYPE User Event
NAME SAS Mapping Setup UE
ID customscript_sas_ue_mapsetup
API VERSION 2.0

Scripts   Parameters   Unhandled Errors   Execution

SCRIPT FILE WD_SAP_UE_MapSetup.js
BEFORE LOAD FUNCTION ☑
BEFORE SUBMIT FUNCTION ☑
AFTER SUBMIT FUNCTION ☑

RUN SERVER SUITESCRIPT
AND TRIGGER WORKFLOWS ☐

Check to specify that any server-side SuiteScrip
save p... more

Starting/Stopping - Map/Reduce Scripts

- ● Starting …
  - ○ Script Deployment: "Save and Execute"
  - ○ Script Deployment: Scheduled

- ● Stopping …
  - ○ Terrible! But works… File Cabinet | Type junk into source-code file
  - ○ Custom "Stop Flags"

Starting/Stopping - Map/Reduce Scripts

- Stopping …
  - Page: Map/Reduce Status | "Cancel"

Starting/Stopping - Scheduled Scripts

- **Starting …**
  - Script Deployment: "Save and Execute"
  - Script Deployment: Schedule

- **Stopping …**
  - "Deployed" checkbox
  - Custom "Stop Flags"

Starting/Stopping - Scheduled Scripts

- Stopping …
    - Page: Scheduled Script Status | "Cancel"

Starting/Stopping - Mass Update Scripts

Like any other "normal" Mass Update, except, custom logic.

- Starting …
  - Page: Mass Updates
    - "Custom Updates"
  - Page: Saved Mass Updates
- Stopping …
  - "Deployed" checkbox.
  - Page: Mass Updates
  - Click "Running Mass Update"

Mass Updates

ACTION
⊞ General Updates
⊞ Sales Force Automation
⊞ Contact Management
⊞ Activities
⊞ Files
⊞ Group Records
⊞ Member/Sponsor Support and Service
⊞ Transactions
⊞ Opportunities
⊞ Marketing
⊞ Reports
⊞ Items
⊞ Special Transaction Updates
⊞ Individuals
⊞ Roles & Permissions
⊞ Web Site Redirects
⊞ Templates
⊞ Duplicate Resolution
⊞ Member/Sponsor Web Site Assignment
⊞ Item Collection
⊞ Custom Updates
⊞ Workflows

Starting/Stopping - Suitelet

- ● Starting …
  - ○ Script Deployment: Links

- ● Stopping …
  - ○ "Deployed" checkbox.
  - ○ Terrible! But works… File Cabinet | Type junk into source-code file
  - ○ Custom "Stop Flags"

CPE Question - Starting / Stopping

What is the <u>cleanest</u>, most effective way to stop any script type from running in the future?

1. * Uncheck "Deployed" on Script Deployment Record
2. Edit Code in FileCabinet, and add junk.
3. Click "Cancel" on either Page:Map/Reduce Status or Page: Scheduled Script Status

CPE Question - Starting / Stopping

Where can you find and change the sequence in which UserEvent or Client scripts run for a given record?

1. Page: Scripts
2. Page: Script Deployments
3. * Page: Scripted Records

Coffee Break!

What's Running?

- Script Logs
- "Status" pages

What's Running? - Script Logs

- Page: Script Execution Logs
- "Execution Logs" from Script Record
- "Execution Logs" from Script Deployment Record
- Searches & Datasets: "Server Script Log"
- Noteworthy: Script Deployment "Log Level"

Favorite Logging Search: "Recent Script Errors"

Most developers use log files to "follow" how their script is doing and log cases where the script experienced an error. These errors can easily be lost. Here, we show a way to surface up script errors.

- Type: Server Script Logs
- Criteria: "Type=Error"
- Results: Sort by date, desc
- Results can go back approximately 30 days.

What's Running? - Map/Reduce

Page: Map/Reduce Script Status

- Shows active and recently finished scripts.
- Allows cancelling "queued up / not yet started" scripts.
- You CANNOT stop an already started script here.

What's Running? - Scheduled Status

Page: Scheduled Script Status

- Shows active and recently finished scripts.
- Allows cancelling "queued up / not yet started" scripts.

CPE Questions - What's Running?

Is it possible for a script to run, and log nothing?

1. * Yes
2. No

Script Permissions

- "Execute as Role"
  - As User, As Admin
  - Always "Admin" for Map/Reduce, Scheduled
- "Audience"
- System Information Fingerprints
  - "Bulk Processing"
  - "Script"

CPE Questions - Permissions

Can scripts modify records on behalf of a user, even if that user does not have edit permission to that record type?

1. * Yes
2. No

Performance - Script Execution Limits

- Time Limits
  - NS Help: "Script Execution Time Limits"
- "Units" Limits
  - NS Help: "Script Type Usage Unit Limits"
- Map/Reduce is the closest to "limit-less"
- UserEvent is quite limited

Script Type Usage Unit Limits

The following table lists the maximum allowable usage units for each SuiteScript (1.0 and 2.x) script type. You can method to see how many usage units you have remaining for a particular script.

Script Type	Total usage units Allowed per Script	Notes
Bundle Installation Scripts (SuiteScript 1.0) SuiteScript 2.x Bundle Installation Script Type	10,000	The limit is 10,000 usage units per execution.
Client Scripts (SuiteScript 1.0) SuiteScript 2.x Client Script Type	1,000	Client scripts are metered on a per-script basis. If an account has one form-level client script attached to a fo form), each client script can total 1,000 usage units. Usage u For information about record- and form-level client scripts, s
SuiteScript 2.x Map/Reduce Script Type	—	Map/reduce scripts are available only in SuiteScript 2.x. There are no limits imposed on the full duration of a map/re usage units used by a single method invocation, are regulat
Mass Update Scripts (SuiteScript 1.0) SuiteScript 2.x Mass Update Script Type	1,000	The limit is 1,000 usage units per record or execution of the
Portlet Scripts (SuiteScript 1.0) SuiteScript 2.x Portlet Script Type	1,000	—
RESTlets (SuiteScript 1.0) SuiteScript 2.x RESTlet Script Type	5,000	The SuiteScript governance model for RESTlets tracks usage Governance and Security
Scheduled Scripts (SuiteScript 1.0) SuiteScript 2.x Scheduled Script Type	10,000	Within one scheduled script, all actions combined cannot ex record.transform(options) and one call to email.send(option record.transform(options)) out of a possible 10,000 usage u If you have a scheduled script with potentially long executio method to allow you to set recovery points or provide a yiel built-in yielding and can be submitted for processing in the s

Performance - Map/Reduce Concurrency

- Map/Reduce run in parallel!
- Use "SuiteCloud Plus" Processors
- Script Deployment "Priority"
- Script Deployment "Concurrency Limit"

Performance - Netsuite "APM" SuiteApp

- Gives decent "summary level" performance metrics.
- Covers scripts and searches
- Difficult to "dive into details."
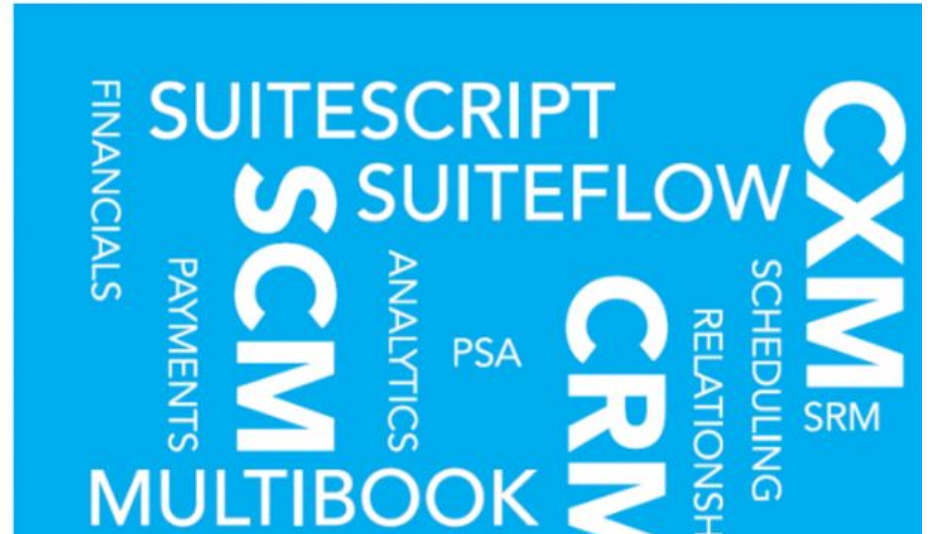
Performance - Netsuite "APM" SuiteApp
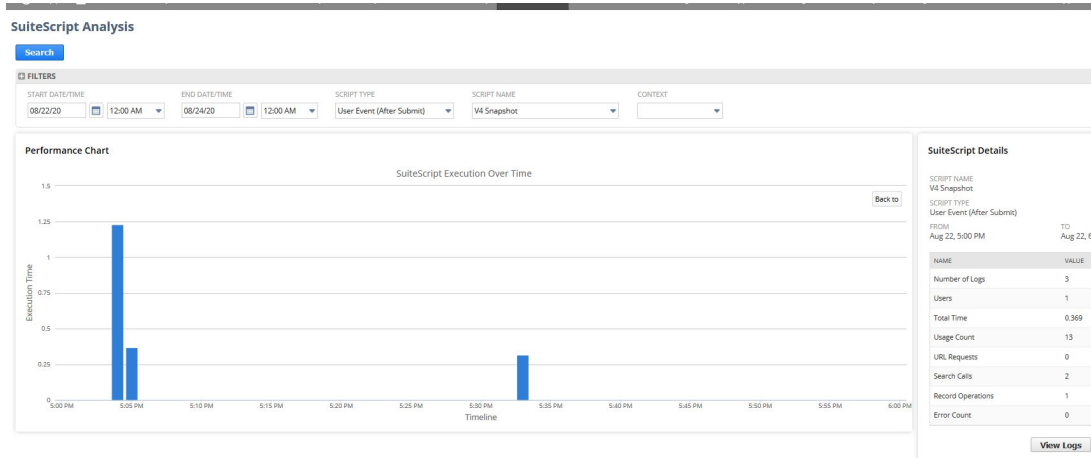
- Free Netsuite bundle ID=67350 "Application Performance Management"
- Identify which scripts are running slow, and why.
- Gives good high level summaries.
- Includes Searches as well as Scripts

Learning More

- Netsuite User Guide: "SuiteScript Developer 2.0 Guide"
- Netsuite Help "SuiteScript 2.1"

SuiteScript Developer Guide

FINANCIALS SUITESCRIPT SUITEFLOW CXM

PAYMENTS SCM ANALYTICS PSA CRM SCHEDULING RELATIONSH SRM

MULTIBOOK

Learning More - "Recently Changed Scripts" Search

Netsuite does not have a good "change control" process for scripts.
However, this search trick is very useful in notifying you if any of
your scripts have changed.

- "System Note" Search
- Criteria: "Field is 'File Content Hash'" / Date is today.
- Tells which script files have changed in the past day.

Learning More - Script Debugger

Useful developer tool which allows devs to "step through" code as it is running real-time.

- Page: Script Debugger
- Offers standard debugger functionality (step in/over, viewing of variables real-time.)
- Does NOT work with Map/Reduce scripts.
- Can be used for "Ad-Hoc" scripts.
- "Existing" scripts must be in "Testing" status.
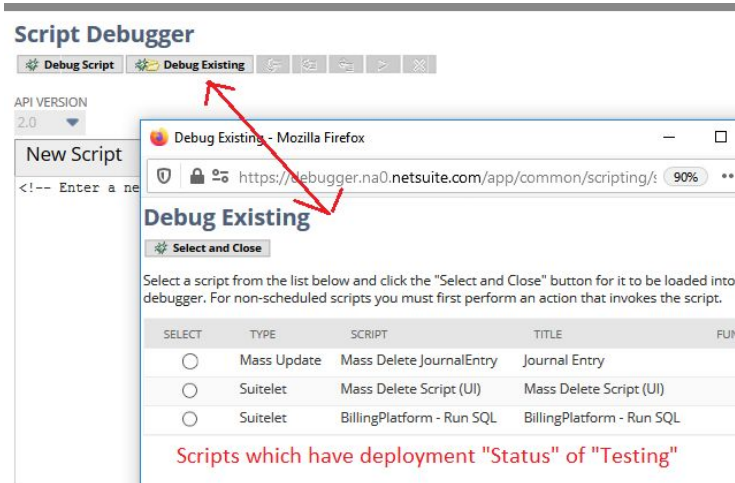
Thank You! - Questions?

RMNSUG - Scripting for Non-Scripters

CPE Credits?