ServiceNow 201:

9 - Becoming A Scripting Master

Course Outline

1. Course Introduction
2. Development Overview
3. Scripting Locations
4. GlideRecord
5. GlideSystem
6. GlideForm & GlideUser
7. GlideAjax
8. Exploring Other APIs
9. Becoming A Scripting Master
10. Creating A Custom App

Section Outline

1. General Best Practices
2. Server-Side Best Practices
3. Client-Side Best Practices
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5. Validating JavaScript
6. Additional JavaScript Tools
7. Debugging Demo
8. Version Control
9. Tips
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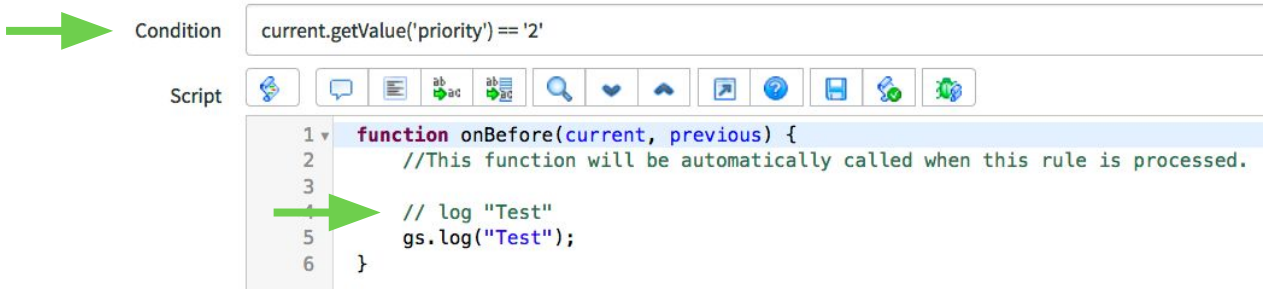
11. Version Control Demo

Best Practices: General Scripting

- Add a short description to scripts when available
- Use condition statements if condition field is available depending on scripting location
- Comment your code! (source)
- Follow a convention - especially for debugging
- Wrap code in functions to prevent polluting the global namespace (source)



Best Practices: General Scripting (cont.)

- Do not use hardcoded values (source)
- Use descriptive variables and function names (source)
- Verify a value exists before using it (source)
- Let the database do the work (source)

```
116 SPCart.prototype.getItem = function(cartItemID) {
117     function showQuantity() {
118         var roles = gs.getProperty('glide.sc.allow.quantity');
119         var showItemQuantityByRole = true;
120         if (roles == null || roles == '')
121             ;
122         else {
123             var hasRole = gs.hasRole(roles);
124             if (hasRole == false)
125                 showItemQuantityByRole = false;
126         }
```

```
220
221     if (gr.active == true) {
222         if (!gr.end_text.nil())
223             current.setValue("state", gr.end_text);
224         if (type != 'automatic' && type != 'manual')
225             return;
226
227         var executedScript = this._executeScript(gr, type + "_script", current);
228         if (this._needsUpdate(gr, type, executedScript, gr.end_text.nil())) {
229             if ((!this._isNewRecord(current, type)) || (type == "manual")) {
230                 current.update();
231             }
```

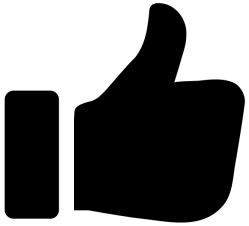
Best Practices: Server-Side

- Use GlideAggregate over GlideRecord when dealing with aggregates like *counts*
- Log records before deleting
- Use GlideRecordSecure where appropriate
- Use Script Includes over global Business Rules

```
102         var count = new GlideAggregate(tableName);
103         count.addQuery('sys_created_by', userName);
104         count.addQuery('sys_created_on','>=', gs.hoursAgo(24));   // check for # records
    created in last 24 hours
105         count.addAggregate('COUNT');
106         count.query();
107
108         var totalCount = 0;
109         if (count.next())
110             totalCount = parseInt(count.getAggregate('COUNT'));
```

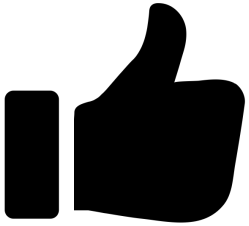
Best Practices: Client-Side

- Make as few calls as possible
- Do not make synchronous calls
  - `GlideRecord` on client-side
  - `g_form.getReference` w/o callback
- Use GlideAjax when passing data between server-side & client-side
  - Use JSON when passing data from server-side to client-side
- Debug using `console.log`
- Avoid direct DOM manipulation
- Use UI Policies over Client Scripts when available



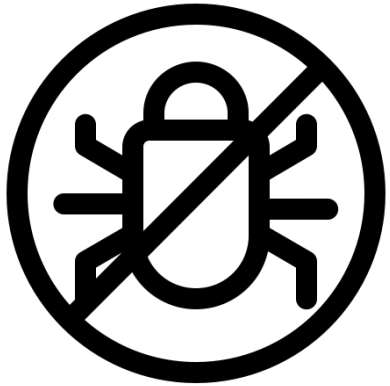
Best Practice Resources

- ServiceNow
  - Coding Best Practices
  - Client Script Best Practices
  - Business Rule Best Practices
  - Commenting Best Practices
  - Update Set Best Practices
- Other
  - servicenowguru.com
  - servicenowelite.com
  - More...



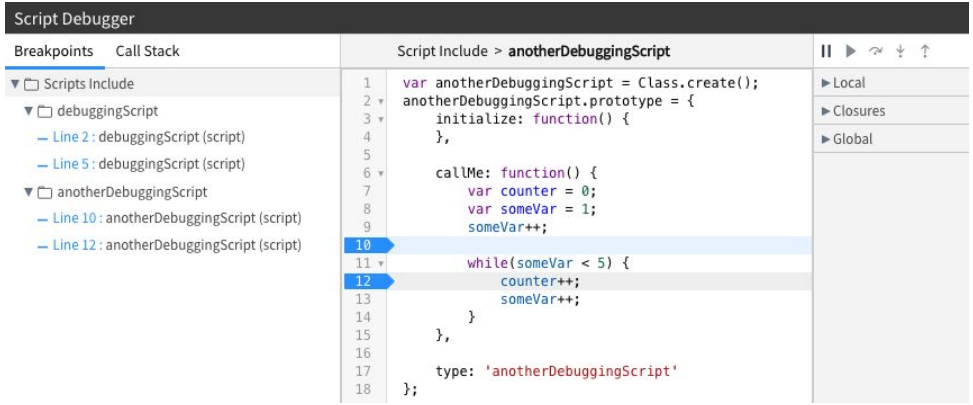
Debugging

- You will run into bugs, it’s ok
- Is the issue reproducible? Why not?
- Debug the smart way, know your tools
- Is the error/bug due to:
  - ServiceNow API
  - JavaScript problem
  - Scoping issue
  - Etc.
- Oftentimes simply logging values will be enough



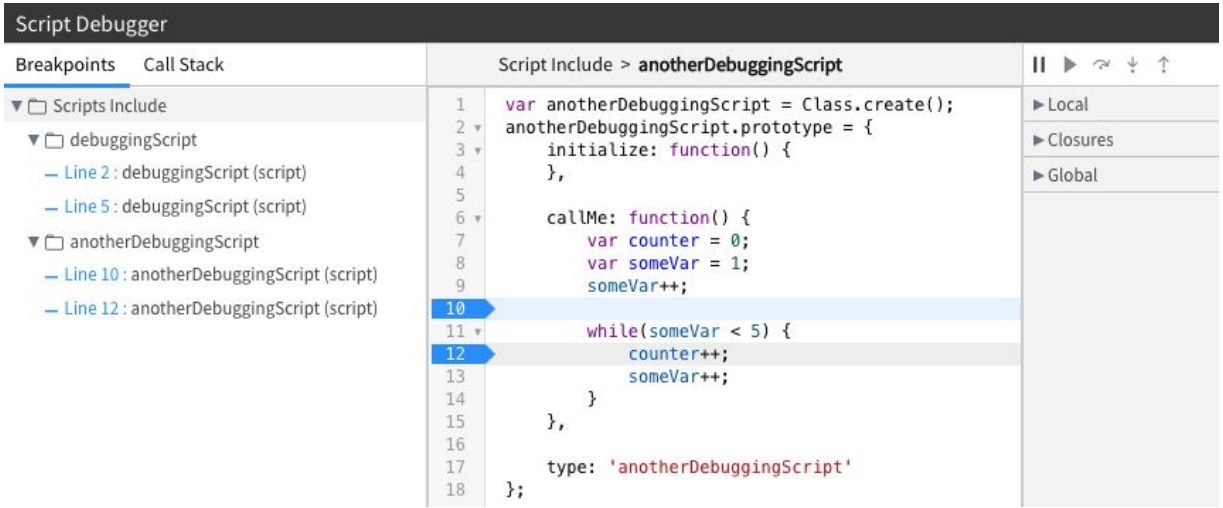
Debugging Tools

- Server-side
  - Script Debugger
  - Session debuggers
- Client-side
  - Browser `console`
  - JavaScript Executer
- Other resources:
  - Debugging Tools Best Practices
  - Script Debugger Docs
  - Using Chrome to Debug Client Side Errors



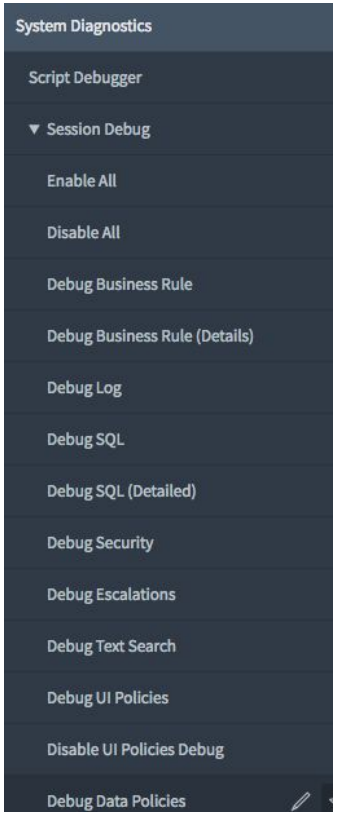
Debugging Tools: Script Debugger

- Set breakpoints
- View variables
- Examine call stack



Debugging Tools: Session debugging

- Oftentimes a last resort
- Can log just about everything
- Business Rule orders, Security, UI policies, etc.
- Checkout this wiki page for more info



Validating JavaScript with JSBin

- Test JavaScript logic with JSBin's JavaScript runtime environment

JavaScript

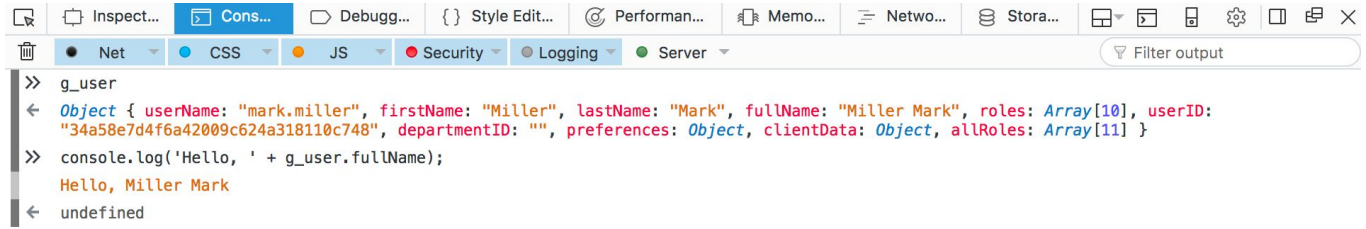
```
var currentHour = 1;

var gs = {};
gs.getUserDisplayName = function() {
  return 'Mark Miller';
}

var greetingsMessage = '';

if(currentHour >= 3 && currentHour < 11) {
  greetingsMessage = 'Good morning ';
} else if(currentHour >= 11 && currentHour < 17) {
  greetingsMessage = 'Good afternoon ';
} else {
  greetingsMessage = 'Good evening ';
}

greetingsMessage += gs.getUserDisplayName();

console.log(greetingsMessage);
```

Console

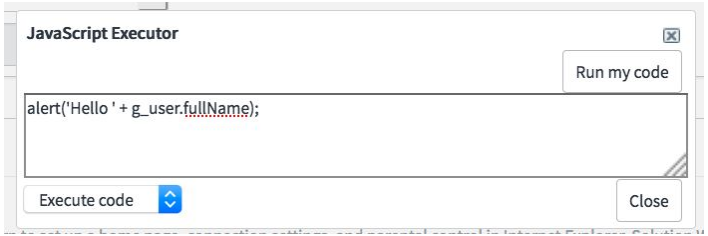
```
"Good evening Mark Miller"
```

Browser Console & ServiceNow JavaScript Executor

- If testing/debugging client-side scripts, try your browser's JavaScript console or ServiceNow's JavaScript Executor



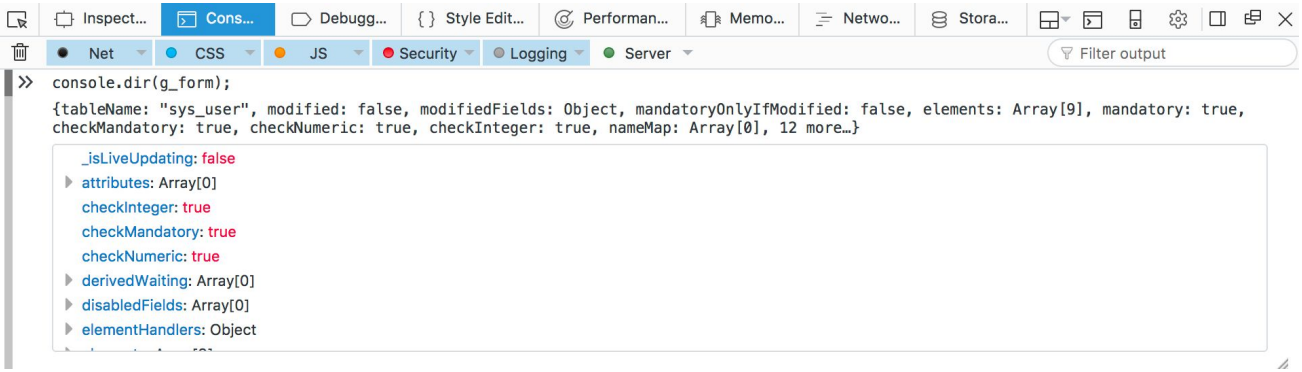
Firefox Developer Tools

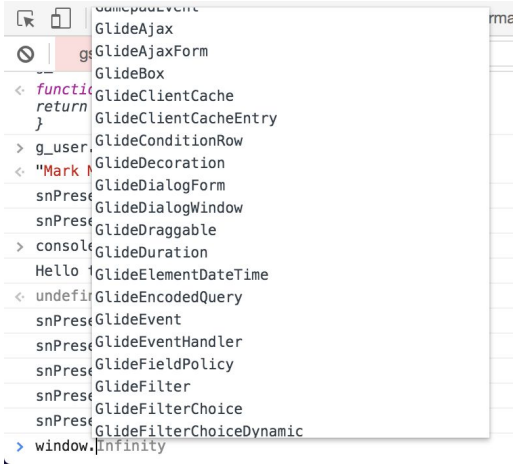


ServiceNow JavaScript Executor

Exploring Client-Side JavaScript Scope

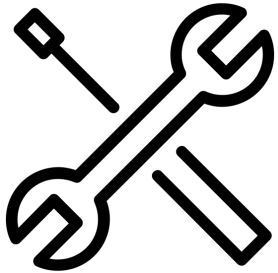
- Use browser's `console.dir()` method





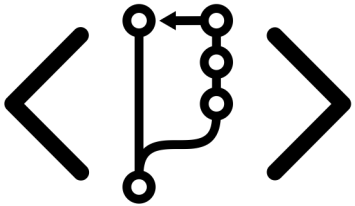
Additional JavaScript Tools

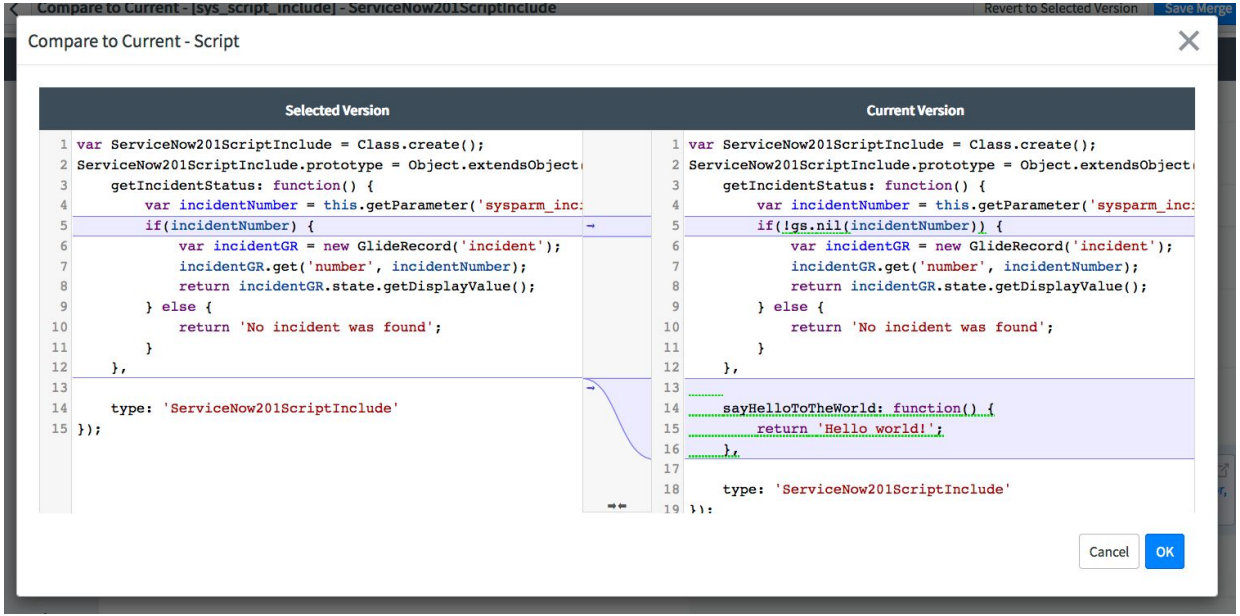
- loupe - JavaScript Event Loop
- metajs - JavaScript AST
- JSBin - JS debugging
- JSFiddle - JS debugging
- Plunker - JS debugging
- JSLint - Syntax checker & more
- RegExr - Regular Expressions builder



Version Control With Update Sets

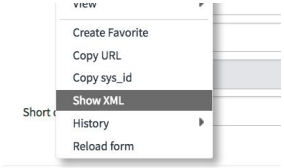
- Find the difference between 2 script versions
- Similar to DiffMerge or other diff tools



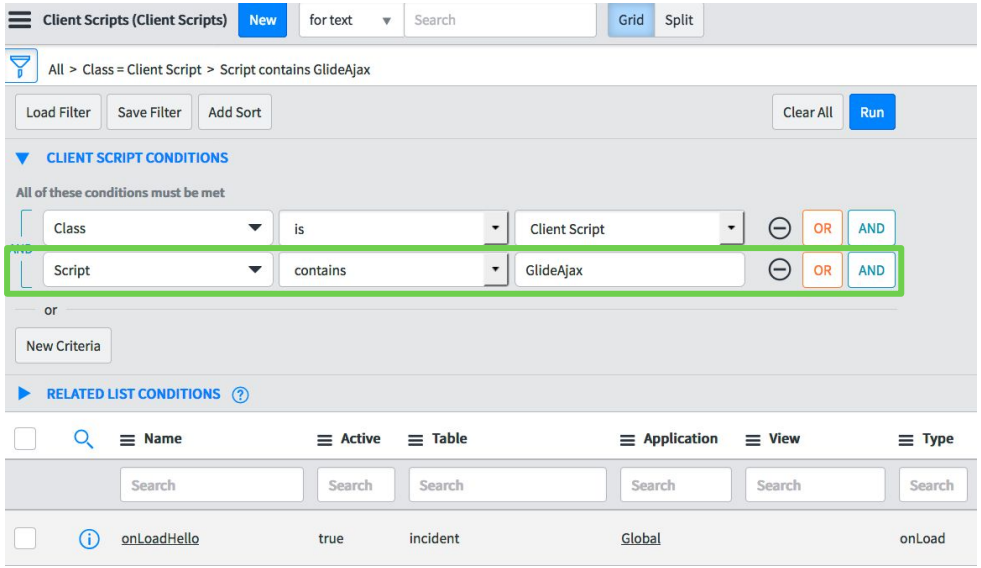


Tips

- Application Navigator
  - *table_name*.list
  - *table_name*.do
  - cache.do
  - stats.do
- *Show XML* UI action
- View object properties
- Right-click a form field to view additional info
- When locating scripts, use the *contains* keyword

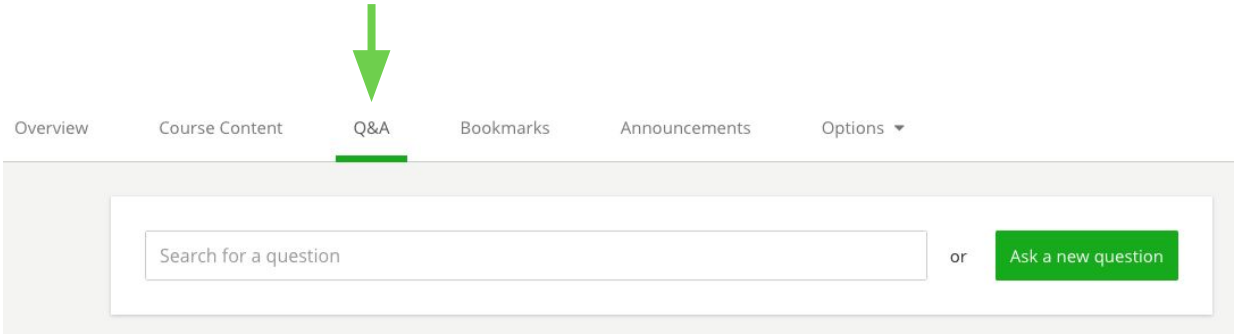



```
// obj = JavaScript object
for(property in obj) {
  gs.log(property + ': ' + obj[property]);
}
```



Help!

- What to do when you're stuck
  - Give debugging a try
  - Google
  - ServiceNow community
  - Stackoverflow
  - reddit.com/r/servicenow
  - Other 3rd-party websites
  - Course Q&A



Section Recap

- Give debugging a try; play around with the tools
- Try Googling for answers
- Post to the community, Stackoverflow or course Q&A
- Validate your JavaScript logic
- Review ServiceNow best practices