REDCap @ Yale
Research Electronic Data Capture

Yale External Module (EM): Checklist for EM Development

If you are creating a new, customized external module that will be used on a project at REDCap@Yale, submit the following form to redcap@yale.edu.

Note: If a manual code review is required, you will be charged for this service and an estimate provided before work begins. The coding practices that trigger a manual code review are flagged throughout the checklist.

EM Developer	**Name:**	
	Title:	
	Email:	
External Module Title:		
Brief Description of EM:		
GitHub Repository Location:		
Anticipated Start Date for Testing:		
Anticipated EM Update Frequency:		
Anticipated End Date for EM support:		

If there is a REDCap Project associated with the External Module:

Principal Investigator Name:	
REDCap Project Title:	
REDCap Project ID:	

			CHECKLIST FOR EXTERNAL MODULES DEVELOPMENT	

Packaging and Documentation

Yes	No	N/A	Standard	Fees
☐	☐	☐	Can the EM function normally without any fatal PHP or JavaScripterrors occurring?	
☐	☐	☐	Does the module title… • succinctly describe the module? • contain a description that provides enough information to convey its general purpose and functionality?	
☐	☐	☐	Are the correct and appropriate values set for its REDCap version compatibility and PHP version compatibility in the config.json file?	
☐	☐	☐	Do the permissions listed in the config.json file match with what the module does or attempts to do?	
☐	☐	☐	Does the readme.md file: • describe the functions supported by the EM? • contain detailed explanations of all configuration settings?	
☐	☐	☐	Does the submission include a system development lifecycle document that specifies: • the anticipated update frequency • the end date for EM support	

Coding Practices

Yes	No	N/A	Standard	Fees
☐	☐	☐	Is the EM listed as a repository on GitHub.com or git.yale.edu? **Note**: This repository must be accessible by the REDCap@Yale EM review team.	
☐	☐	☐	Is the project metadata programmatically created or updated in the EM? **Note:** This is NOT permitted.	
☐	☐	☐	Are internal/undocumented REDCap functions/methods used in the module? **Note**: This is NOT permitted. We recommend using the documented External Modules methods, "REDCap" class methods, and "Project" class methods/variables.	

CHECKLIST FOR EXTERNAL MODULES DEVELOPMENT

Coding Practices (cont'd)

Yes	No	N/A	Standard	Fees
☐	☐	☐	Are there direct UPDATE, INSERT, DELETE, ALTER or CREATE queries to the REDCap database? **Note:** This is NOT permitted.	
☐	☐	☐	Are SELECT queries implemented using prepared (parameterized) SQL statements? • SELECT queries are rarely permitted and only as an option of last resort. • SELECT queries must be clearly designed to restrict processing to study data, as governed by the Institutional Review Board (e.g. this may include multiple REDCap projects functioning as a study covered by a single protocol). **Note:** Ambiguities will trigger a mandatory code review and fees.	$
☐	☐	☐	Is logging enabled in all REDCap methods used to add or update data?	
☐	☐	☐	Are you using global-scope JavaScript functions/variables? **Note:** The use of global scope JavaScript functions/variables is highly discouraged in favor of wrapping functions/variables inside an IIFE (Immediately Invoked Function Expression) or instead by creating the variables/functions as properties of a single global scope JavaScript object, which will protect against conflicts with other modules that might be running simultaneously.	
☐	☐	☐	Are you circumventing REDCap's authentication system – including NOAUTH calls to plugin pages? **Note:** This is NOT permitted, except under extraordinary circumstances. Exceptions to this rule must be justified, explained, and will trigger a mandatory code review with accompanying fees. The bar for acceptance is extremely high.	$
☐	☐	☐	If your code includes REDCap API calls, do you describe how you will maintain the security of that token? **Note:** The user account associated with the token must adhere to the Principle of Least Privilege.	

CHECKLIST FOR EXTERNAL MODULES DEVELOPMENT

Coding Practices (cont'd)

Yes	No	N/A	Standard	Fees
☐	☐	☐	Are you integrating third-party software applications through API calls, Data Entry triggers and other methodologies? **Note**: This is permitted, but must be justified, clearly explained and will trigger a mandatory code review and fees.	$
☐	☐	☐	Do you have a dependency on a code library and resources external to REDCap? **Note:** This is permitted, but must be justified, clearly explained, and will trigger a mandatory code review and fees.	$

Security

Yes	No	N/A	Standard	
☐	☐	☐	Do you use and enforce REDCap authentication and user permissions throughout the module, where deemed appropriate and necessary?	
☐	☐	☐	Is all user-input being output onto a webpage HTML-escaped (e.g. using REDCap::escapeHtml) to prevent Cross-Site Scripting (XSS)?	
☐	☐	☐	Are any plugin pages accessed through AJAX calls protected against cross-site request forgery (CSRF) attacks? **Note**: Contact REDCap@Yale for suitable approaches based on REDCap CSRF tokens.	

Versioning

Yes	No	N/A	Standard	Fees
☐	☐	☐	Do EM version numbers adhere to semantic versioning (semver) principles (https://semver.org/)? The recommended approach is: • MAJOR version: new features not backward-compatible with previous major versions. • MINOR version: feature additions and updates that are backward-compatible within the same major version. • PATCH: bug fixes	
☐	☐	☐	Do you include a summary of each EM version, including release date, in config.json?	
☐	☐	☐	Is the EM code available on GitHub as a tagged release, named according to EM version number (e.g., "v1.2.3")?	

Notes, Explanations and Justifications: