

Advanced REDCap Form Plugin User Guide - v1.0

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1 Introduction

Advanced REDCap Form Plugin is a plugin for REDCap that allows users to print the forms they create as pdfs using advanced formatting features.

1.1 Features

- All multiple choice questions(checkbox, dropdown, and radio) are rendered in multiple columns if possible. The number and size of columns is determined at runtime based on the longest answer choice.
- Radio and Dropdown elements are rendered with circles for the answer choices. This is to indicate that only one answer should be selected.
- Checkbox elements are rendered with squares for the answer choices. This is to indicate the multiple answers could be selected.
- When a question is broken up onto two different pages, '*continued on next page.*' is rendered on the bottom of the first page.
- Date elements are rendered as individual text boxes with a light grey 'M', 'D', or 'Y' in each in order to indicate month, day, or year respectively.
- REDCap allows users to specify branching logic when creating forms or surveys. In order to visually display this branching on the pdf form, the question that has branching logic is indented. Once a question has been indented to the center of the page, further indenting stops in order to preserve the legibility of the document.
- At the top right of every page, the page number is printed along with the total page number.
- At the bottom left of every page, the date the form was rendered is printed. This to help ensure that users are not using outdated pdf forms.
- A configuration file can be utilized to create custom forms based on the values provided.

2 Installation

2.1 Dependencies

Python Version 2.7 To install, please see the python site.

ReportLab Version 2.5. Once python is installed, you can install ReportLab by typing 'pip install reportlab' into the command prompt or see the ReportLab site for further documentation on the library.

REDCap Version 4.9.0 or greater. To install, please see the REDCap site to become a consortium member.

REDCap Connect Once REDCap is installed, the Connect file needs to be installed. To install the REDCap Connect file, please see the REDCap wiki plugin page.

2.2 Installing the Advanced REDCap Form Plugin

Once all of the dependencies have been installed, place the 'form' folder inside the 'plugins' folder in the main directory where the 'database.php' file is located. If the 'plugins' folder does not exist, create the 'plugins' folder and place the 'form' folder inside it. When you are done, go to your REDCap 'Project Setup' page and follow the following directions.

Figure 1: On the project setup page, select the 'Add or Edit Bookmarks' page.

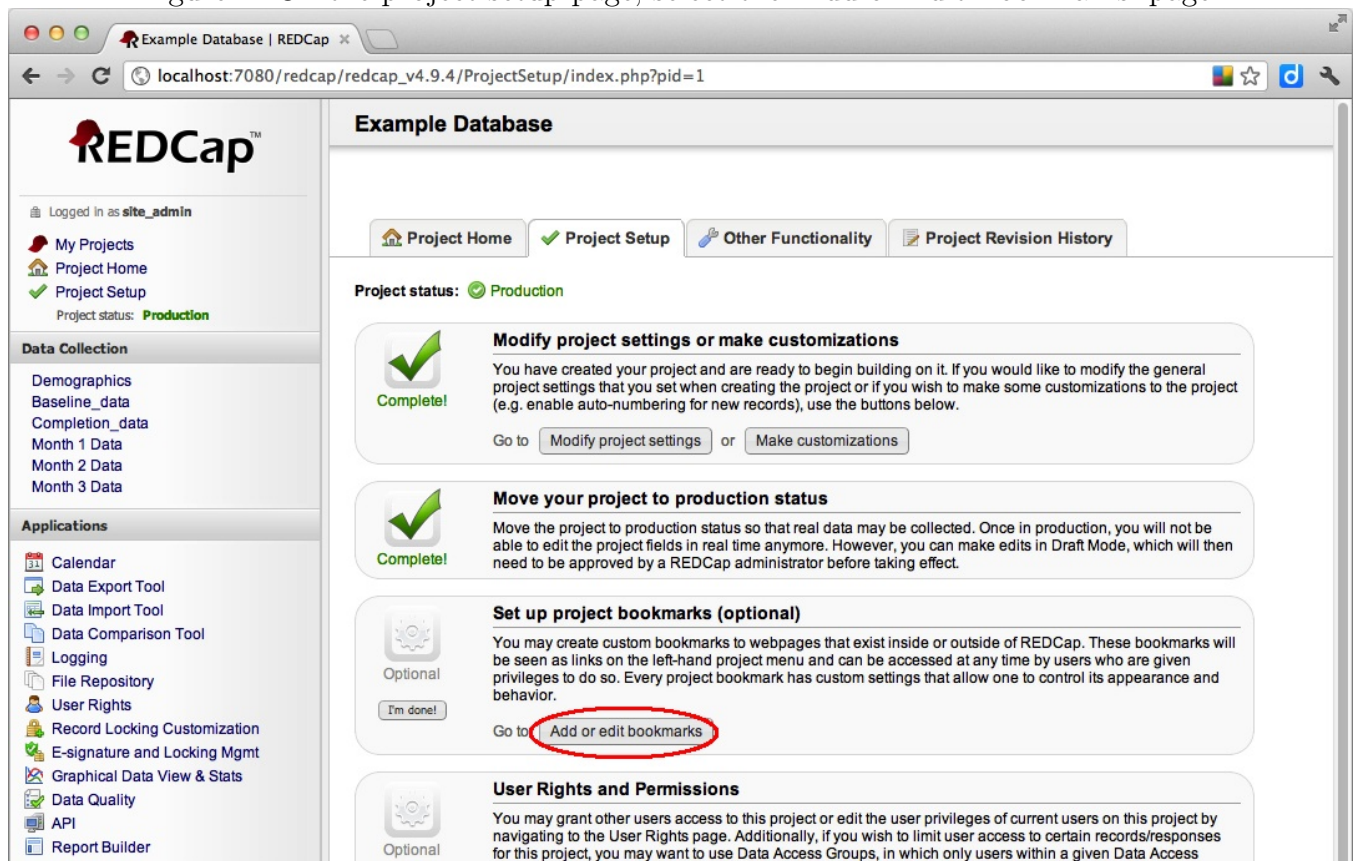


Figure 2: On the Bookmarks page, enter a 'Link Label', which will be displayed on the left sidebar under 'Project Bookmarks'. Then in the 'Link URL/Destination' box, enter your REDCap base URL(circled in red below) followed by '/plugins/index.php'. So in our example, we would be entering 'http://localhost:7080/redcap/plugins/index.php' in the 'Link URL/Destination' box.

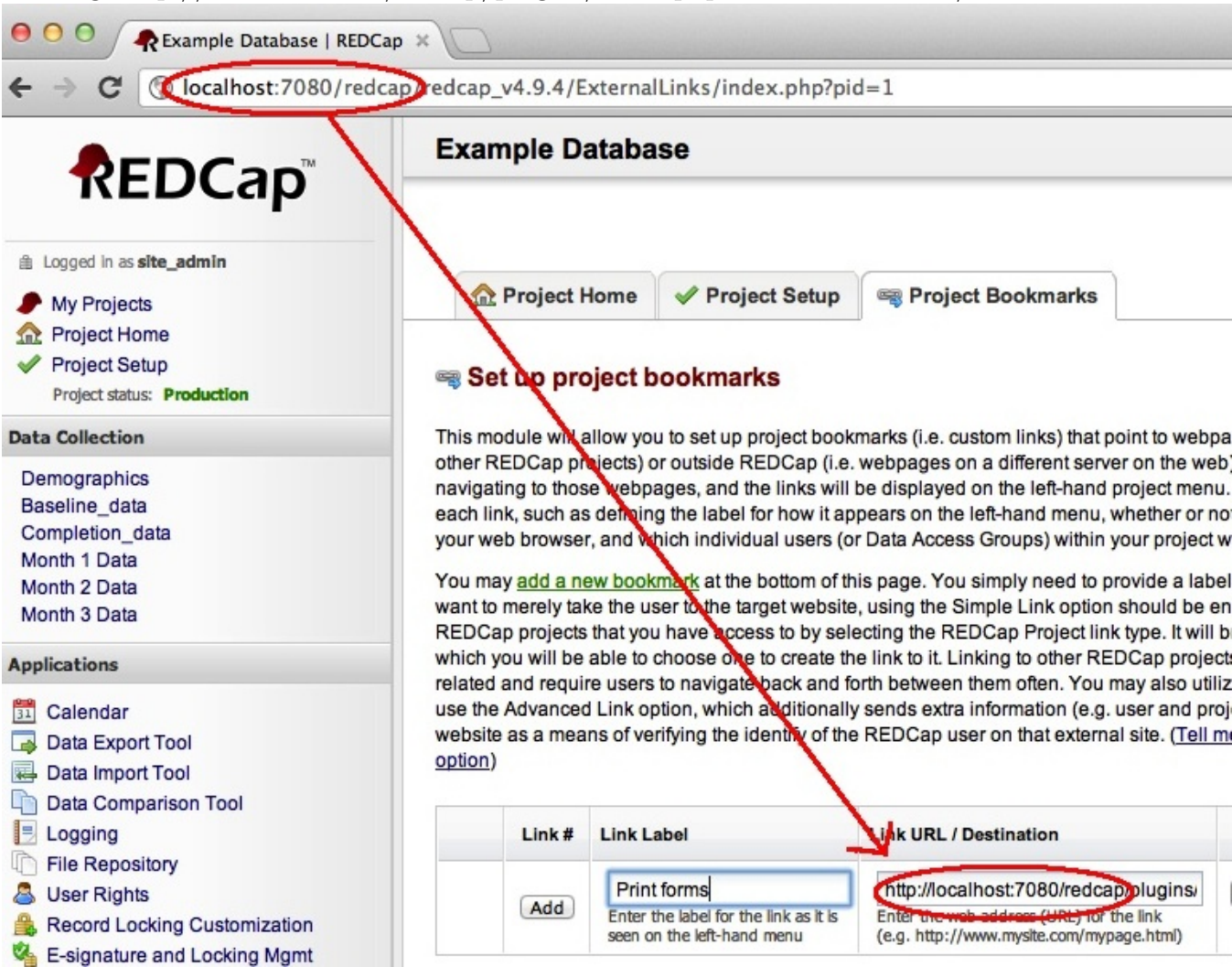
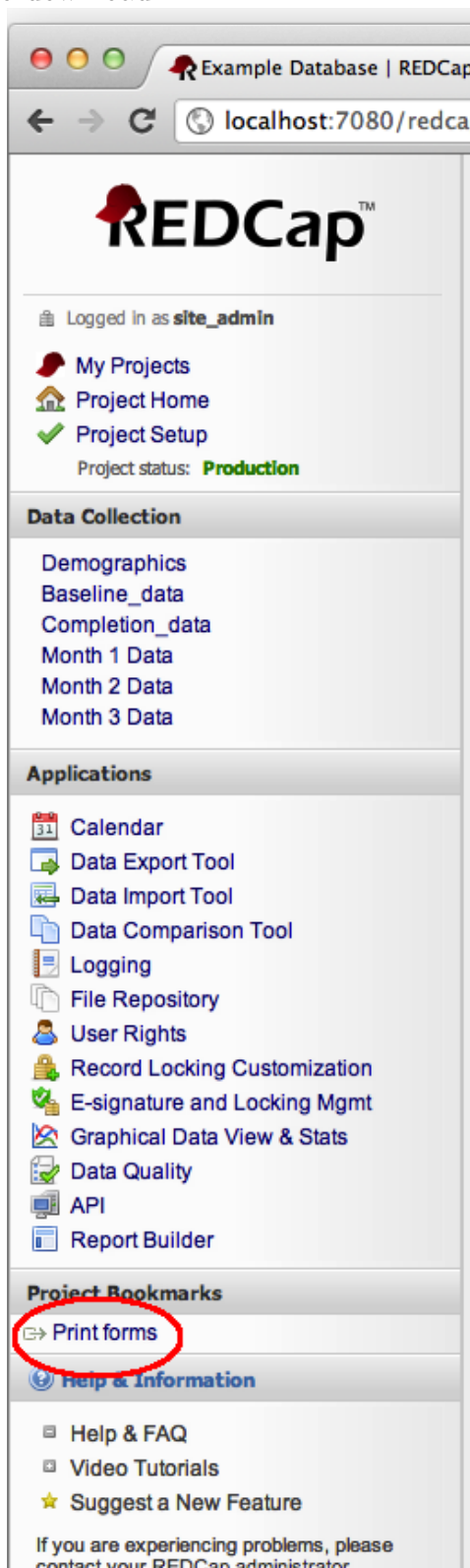


Figure 3: Select the 'Append project ID to URL' checkbox. If you do not select this, the plugin will not work. When you are done, click the 'add' button to create your new bookmark.

Link #	Link Label	Link URL / Destination	Link Type	User Access	Opens new window	Append record info to URL	Append project ID to URL	Delete
Add	Print forms Enter the label for the link as it is seen on the left-hand menu	http://localhost:7080/redcap/plugins/ Enter the web address (URL) for the link (e.g. http://www.mysite.com/mypage.html)	Simple Link	<input checked="" type="radio"/> All users <input type="radio"/> Selected users	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Figure 4: You should now see your Link Label in the sidebar under 'Project Bookmarks'. In our example we used 'Print forms' as our Link Label. If you select 'Print forms', a zip file of all the pdf forms in the project will start to download.



3 Advanced Configuration Features

The Advanced REDCap Form Plugin allows users to specify constraints on branching logic in order to print customized forms. So for example, we have a clinician who consistently knows whether the patient he is going to see is male or female before the visit. The clinician would like to have 2 bookmarks for printing his forms, one that prints forms for male patients and another that prints the forms for the female patients. We could use the Advanced Configuration Features to accomplish this by following the steps below.

3.1 Creating a Constraint File to Print Based on Branching Logic

Figure 5: The first thing we need to do is create a constraint file named `const_#.cfg` where `#` is our project id. In order to get your project id, go to the 'Project Home' page. Then look at your URL; at the end, you should see `'?pid='` followed by a number. The number is your project id. So in our example, our project id is 1. We then create a file named `'const_1.cfg'`

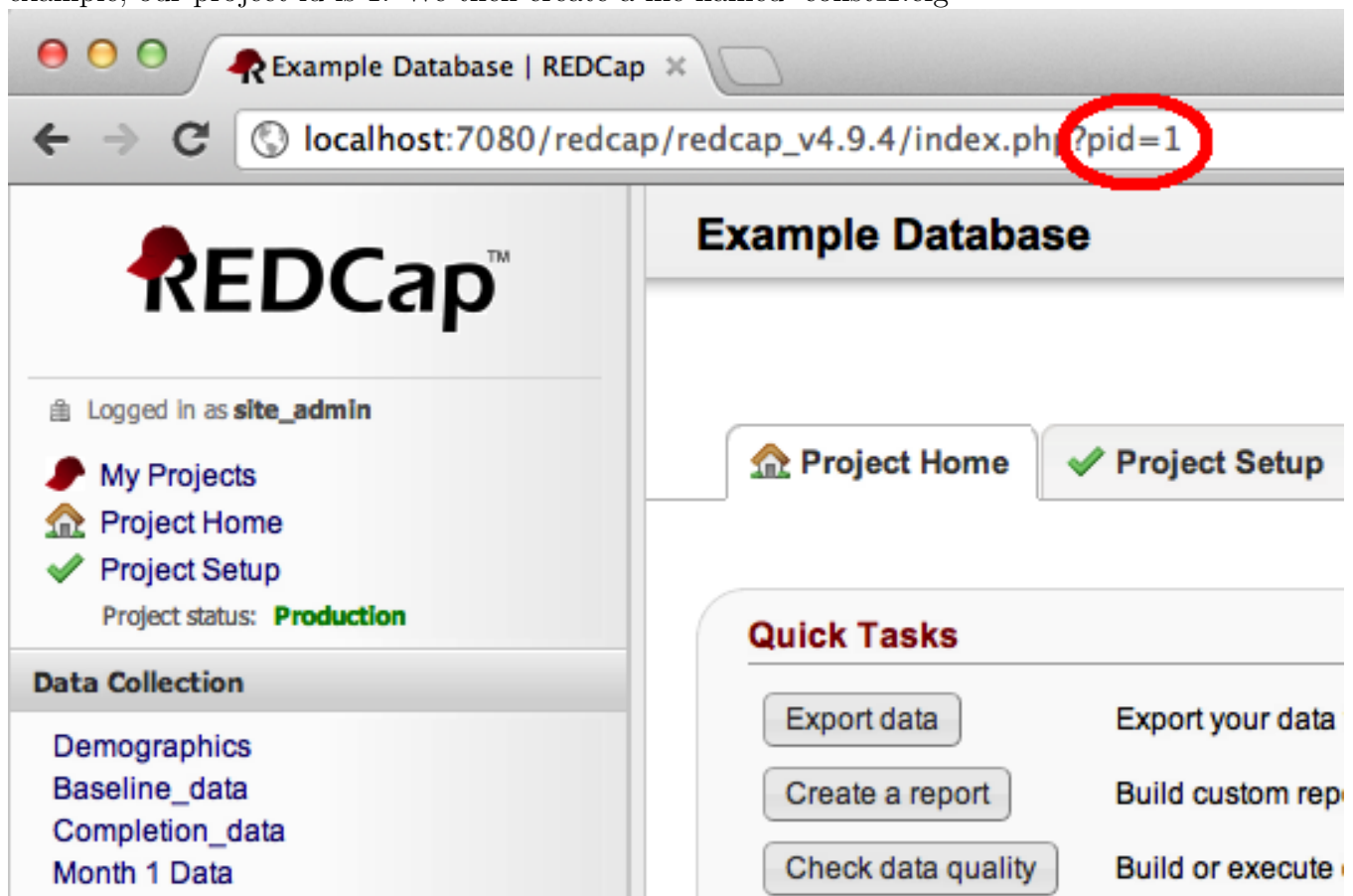


Figure 6: Open the constraint file in your favorite text editor. Now we need to decide on section names for each bookmark. Ideally we want to keep our section names short yet descriptive. For our project, we choose 'male' and 'female'. We then type '[male]' and '[female]' into our constraint file. Make sure to surround your section names with square brackets.

```
const_1.cfg + (~) - VIM
1 [male]
2 [female]
3
```

Figure 7: We need get the field name along with the indexes of the choices for the gender of the patient in order to specify the branching logic in our constraint file. Since we don't know this offhand, we download the data dictionary and open it with Microsoft Excel. The data dictionary can be found on the 'Project Revision History' tab.

Example Database | REDCap

localhost:7080/redcap/redcap_v4.9.4/ProjectSetup/project_revision_history.php?pid=1

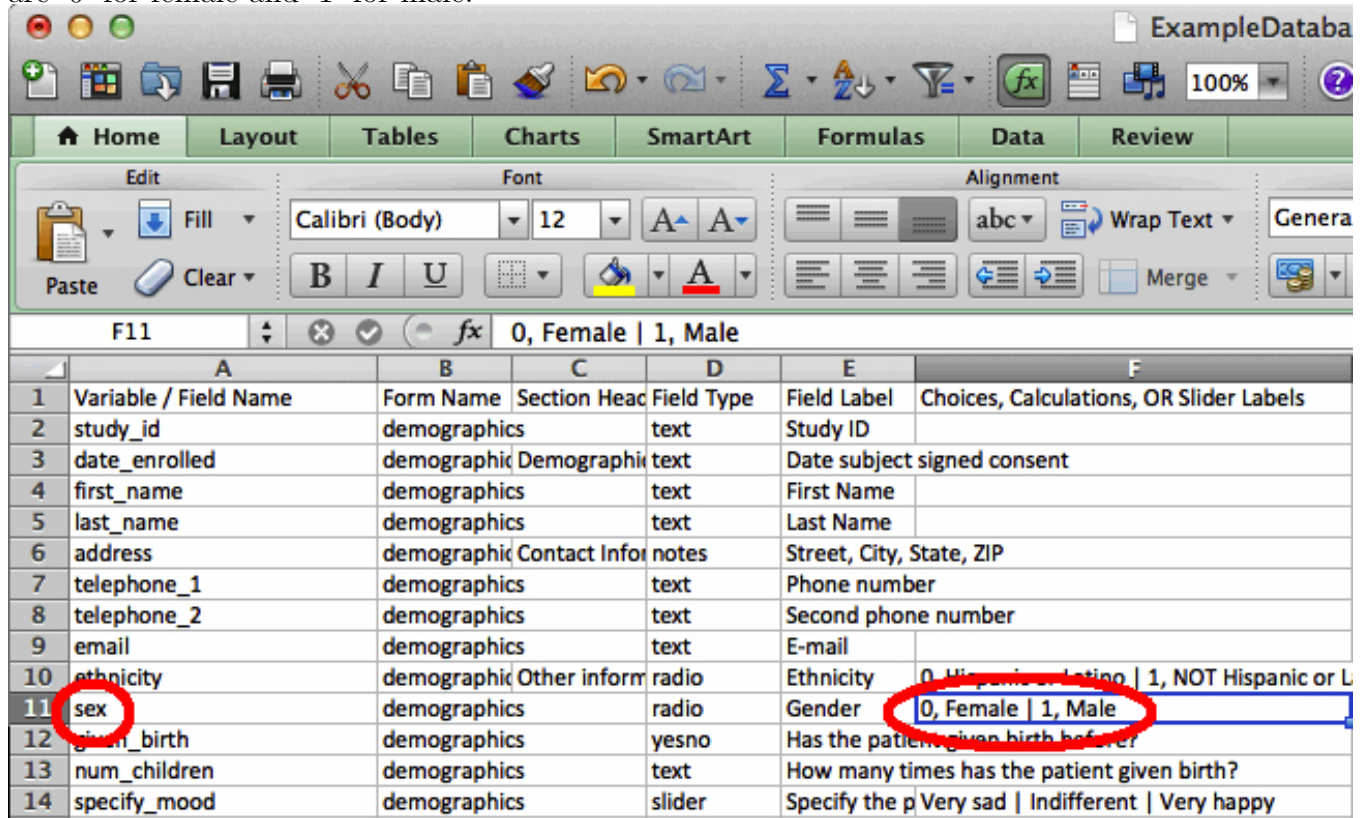
Example Database

Project Home | Project Setup | Other Functionality | **Project Revision History**

The tables below list information about when major changes and revisions were made to the project. The first table displays when the project was created, and if the project is in production, lists the time it was moved to production, revisions made to the project fields while in production. You may also download any of the Data Dictionaries from The table at the bottom displays general statistics with regard to the times of project changes and revisions.

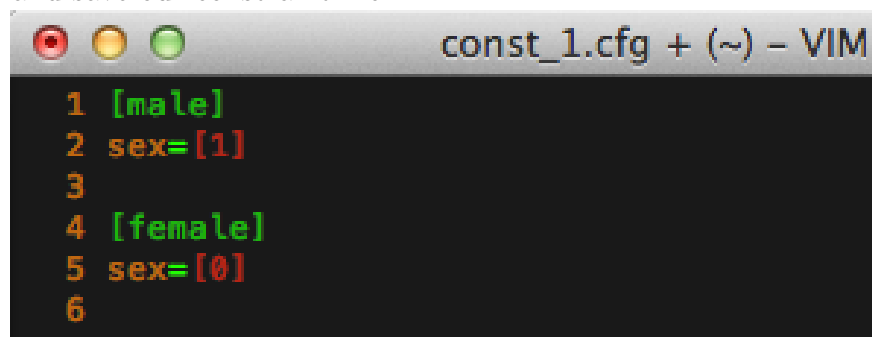
Project Revision History			
Created project	02/29/2012 9:37am	-	
Moved to production (current)	02/29/2012 9:37am	Download data dictionary	
Draft Mode (current draft)	-	Download data dictionary	

Figure 8: In Microsoft Excel, we can find the field name in column A and the corresponding indexes for choices in column F. In our example, the field name we are concerned with is 'sex' and the indexes are '0' for female and '1' for male.



	A	B	C	D	E	F
1	Variable / Field Name	Form Name	Section Head	Field Type	Field Label	Choices, Calculations, OR Slider Labels
2	study_id	demographics		text	Study ID	
3	date_enrolled	demographic	Demographic	text	Date subject signed consent	
4	first_name	demographics		text	First Name	
5	last_name	demographics		text	Last Name	
6	address	demographic	Contact Infor	notes	Street, City, State, ZIP	
7	telephone_1	demographics		text	Phone number	
8	telephone_2	demographics		text	Second phone number	
9	email	demographics		text	E-mail	
10	ethnicity	demographic	Other inform	radio	Ethnicity	0, Hispanic or Latino 1, NOT Hispanic or L
11	sex	demographics		radio	Gender	0, Female 1, Male
12	given_birth	demographics		yesno	Has the patient given birth before?	
13	num_children	demographics		text	How many times has the patient given birth?	
14	specify_mood	demographics		slider	Specify the p	Very sad Indifferent Very happy

Figure 9: Now that we have the field name and the indexes, we can add them to our constraint file. Since the index 1 was associated with Male in our data dictionary, we write sex=[1] under our '[male]' section. Likewise index 0 was associated with Female, so we write 'sex=[0]' under our '[female]' section and save our constraint file.



```

1 [male]
2 sex=[1]
3
4 [female]
5 sex=[0]
6

```

The finished constraint file needs to be placed on your server in the plugins/form/config_files/ directory. If there is an existing constraint file with the same name, you need to merge them together, otherwise you will may break existing bookmarks.

Figure 10: Finally, we need to add our new constraints as bookmarks. Enter an appropriate 'Link Label' and check the 'Append project ID to URL' checkbox. Then enter your base REDCap URL followed by '/plugins/form/index.php?const=section', where section is the section name you specified in the constraint file. In our case, we would enter 'http://localhost:7080/redcap/plugins/form/index.php?const=male' for the male forms and 'http://localhost:7080/redcap/plugins/form/index.php?const=female' for the female forms. Once we hit 'add', our bookmarks should be displayed in the left sidepanel.

2	Print male forms	http://localhost:7080/redcap/plugins/form/index.php?const=male	Simple Link	<input checked="" type="radio"/> All users <input type="radio"/> Selected users	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="button" value="Add"/> Print female forms Enter the label for the link as it is seen on the left-hand menu	http://localhost:7080/redcap/plugins/form/index.php?const=female Enter the web address (URL) for the link (e.g. http://www.mysite.com/mypage.html)	Simple Link	<input checked="" type="radio"/> All users <input type="radio"/> Selected users	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

3.2 Creating a Constraint File to Only Print Certain Forms

In certain cases, a user might want to create a bookmark that only prints certain forms in the project instead of printing all of the forms. This can be accomplished by using the constraint file as well.

Continuing with our example from the previous section, our clinician only wants to print the forms 'Demographics', 'Baseline_data', 'Completion_data', and 'Month 1 Data' for the male patients and the forms 'Demographics', 'Baseline_data', 'Completion_data', and 'Month 2 data' for the female patients.

Figure 11: In our constraint file, we use the '__forms' value to specify which forms we want to print for each bookmark. If '__forms' is not specified under a section, all the forms will print for that bookmark. So for our example, under '[male]' we specify '__forms=demographics, baseline_data, completion_data, month_1_data' and under '[female]' we specify '__forms=demographics, baseline_data, completion_data, month_2_data'

```

const_1.cfg + (~) - VIM — vim — 100x53
1 [male]
2 __forms=demographics, baseline_data, completion_data, month_1_data
3 sex=[1]
4
5 [female]
6 __forms=demographics, baseline_data, completion_data, month_2_data
7 sex=[0]
8

```