Application Building Learning Track

The Application Building Learning Track will guide you through building basic CommCare survey forms to deploying complex applications that use case management.

After learning all of the material covered in this track you are eligible to take the App Building Capstone Exercise and become certified in CommCare Application Building!

Or go back to the CommCare Learning Tracks homepage to explore other tracks, or look at general questions about CommCare Certification.

- Overview
  - Is this the right track for me?
  - What will I learn?
  - Am I qualified?
- Core Modules
  - CommCareHQ Basics
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  - Advanced Form Builder
  - Case Management
  - Application Design
- Advanced Modules
  - Multimedia in CommCare
  - Applications in Multiple Languages
  - Advanced Application Building Topics
- Application Building Certification

Overview

Is this the right track for me?

This track is appropriate for people that will design and build CommCare applications.

What will I learn?

After completing this track, a CommCare Application Builder will be able to:

- Confidently navigate CommCareHQ and explain the basic function of each part of the website
- Use the CommCare form builder to develop complex forms with multiple question types, skip logic, and validation
- Use Hidden Values to perform moderately complex calculations
- Understand the basic principles of case management in CommCare
- Link forms and case properties using Case Management in CommCare applications
- Be able to find additional information on complex features by using the CommCare Help Site
- Demonstrate good practice in design of CommCare applications

Am I qualified?

Anyone can use the page to walk through application building, and you do not need any programming skills or experience.

We find that a good application builder has the following traits:
- Very comfortable with use of the Internet
- Proficient in English or French
- Comfortable with use of Microsoft Excel or a similar product
- Has experience using Android devices

Core Modules

The modules listed below should be reviewed in order. We recommend you open links in a separate tab, or download this guide so you can use it for navigation.

CommCareHQ Basics

CommCareHQ Basics Overview

This module provides a basic overview of CommCareHQ, including creating and managing a web account, navigating sections of CommCareHQ, using support resources, and configuring project settings.

This module requires completion of:
- CommCare Fundamentals

<table>
<thead>
<tr>
<th>Learning Objective</th>
<th>The learner should be able to:</th>
<th>Links</th>
</tr>
</thead>
</table>
| Create a CommCareHQ account | - Complete the sign up process for CommCareHQ  
- Login to account | Beginner Tutorial Part 1 - Setting Up a New Project Space |
| Create a new CommCareHQ project space | - Set up a new project space  
- Recognize what is allowed in a project space name | Beginner Tutorial Part 1 - Setting Up a New Project Space |
| Distinguish between a CommCareHQ account and a CommCareHQ project space | - Explain the relationship between a CommCareHQ account and a CommCareHQ project space  
- Recall that CommCareHQ users can have access to multiple project spaces | CommCare Fundamentals - CommCare Structure |
| Describe each section of CommCareHQ | - Locate each of the following sections of CommCareHQ: Dashboard, Reports, Data, Users, Applications, Exchange, Project Settings (also CloudCare and Messaging only if relevant to project)  
- Explain what information can be found and what tasks can be completed in each of the main sections (also CloudCare and Messaging only if relevant to project) | Beginner Tutorial Part 2 - Navigating and Preparing the Application Builder  
Project Space Settings |
| Explain the purpose of the CommCare users forum and how to join | - Explain the purpose of the CommCare users forum  
- Understand and provide examples of the types of questions that are asked to the users forum  
- Feel comfortable answering questions or sharing information when appropriate  
- Describe best practices and basic etiquette when using the users group (e.g. clear subject lines, starting a new thread for a new topic i.e. not using an existing thread to ask an unrelated question, etc.) | Home |
| Access and use the CommCare Help Site | - Navigate the home page of the Help Site (menu, shortcuts, search bar)  
- Provide examples of the types of resources available on the Help Site  
- Complete a search for a problem or question they have (i.e. use the search bar to input a topic, select a topic from the auto-filled list or search for their specific topic, understand and select from search results, etc.) | Home |
### Form Builder Basics

**Form Builder Basics Overview**

Covers the basic use of the form building, including adding, removing, and changing common types of questions, changing order, adding basic display and validation conditions, and defining basic question content. The basic use of the application builder is also covered.

![Tutorial Available for This Module](image)

You can learn everything in this module by completing the Beginner Tutorial.

**This module requires completion of:**
- CommCare Fundamentals
- CommCareHQ Basics

<table>
<thead>
<tr>
<th>Learning Objective</th>
<th>The Learner Should be able to:</th>
<th>Link to Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognize and explain the function of each part of the application builder</td>
<td>• Recognize the following sections: Deploy, Settings, Multimedia, Languages, Application Structure, Actions</td>
<td>Beginner Tutorial Part 2 - Navigating and Preparing the Application Builder</td>
</tr>
<tr>
<td>Create a blank application</td>
<td>• Navigate to the applications tab and click the link next to &quot;make a new application&quot;</td>
<td></td>
</tr>
<tr>
<td>Change and save changes application, module, and form names</td>
<td>• Explain where to go to update each one of these</td>
<td>Beginner Tutorial Part 2 - Navigating and Preparing the Application Builder</td>
</tr>
<tr>
<td>Identify and explain the function of the different parts of the form builder</td>
<td>• Recognize the Question Bar, Question Tree, and Question Properties sections</td>
<td>Form Builder</td>
</tr>
<tr>
<td>Add, delete, and change the order of questions in a form</td>
<td>• Recall that there is no &quot;undo&quot; button</td>
<td>Form Builder</td>
</tr>
<tr>
<td>Explain the purpose of different question types and identify where to go for more information on question types</td>
<td>• Use the Form Builder page on the help site for more information on each question type</td>
<td>Form Builder</td>
</tr>
<tr>
<td>Explain the role of Question IDs and what is/is not acceptable in one</td>
<td>• Explain whether or not Question IDs are acceptable when given examples.</td>
<td>Form Builder</td>
</tr>
</tbody>
</table>
## Advanced Form Builder

You can learn everything in this module by completing the [Hidden Value Calculations Tutorial](#).

### Advanced Form Building and Hidden Values Overview

Advanced Form Building and Hidden Values covers the uses of hidden values and use of the advanced expression editor tool to build display and validation conditions. The basic structure of "if" statements is also covered.

### This module requires completion of:

- CommCare Fundamentals
- CommCareHQ Basics
- Form Builder Basics

### Learning Objective

<table>
<thead>
<tr>
<th>The learner should be able to:</th>
<th>Link to Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Describe the possible uses of Hidden values</td>
<td><a href="#">Hidden Value Calculations Tutorial</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Add and edit label text</th>
<th>• Distinguish between label text and the label question type</th>
<th>Form Builder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distinguish between the form builder and the form settings page</td>
<td>• Access the form builder by clicking on &quot;edit&quot; or the small pencil icon on a form’s name</td>
<td>Form Builder</td>
</tr>
<tr>
<td>Test a form in CloudCare using the Preview Form button</td>
<td>• Access the Preview Form from the Form Settings page</td>
<td>Using Web Apps</td>
</tr>
<tr>
<td>Make a question required and explain what that means</td>
<td>• Describe possible drawbacks of making a questions required</td>
<td>Form Builder</td>
</tr>
<tr>
<td>Add a basic display condition using the Expression Builder</td>
<td>• Define display conditions and explain how they work • Add display conditions to a form</td>
<td>Beginner Tutorial Part 5</td>
</tr>
<tr>
<td>Add validation conditions using the Expression Builder</td>
<td>• Define validation conditions and explain how they work • Add validation conditions</td>
<td>Beginner Tutorial Part 5</td>
</tr>
<tr>
<td>Locate the Advanced Tools section of the Form Builder</td>
<td>• Find the options for bulk translations, export form contents, etc.</td>
<td>Form Builder</td>
</tr>
</tbody>
</table>
| Use the Advanced Expression Editor tool to build display conditions or validation conditions | • Recognize the limits to the types of expressions you can build using the CommCare Expression Builder  
• Recognize the importance of using the Advanced Expression Editor rather than writing directly into the question properties | Hidden Values Tutorial Part 1: Adding Two Questions Using a Hidden Value |
|---|---|---|
| Create basic calculation expressions in Hidden Values | • Make calculations using values from multiple questions  
• Identify some of the supported expressions for basic math functions. | Hidden Values Tutorial Part 1: Adding Two Questions Using a Hidden Value |
| Perform a calculation with dates | • Use date questions to make calculations | Hidden Values Tutorial Part 2: Calculations Using a Date |
| Describe the structure of basic "if" statements | • Use the correct syntax for if statements: if(condition = x, then y, else z)  
• Find errors in incorrect if statements | Hidden Values Tutorial Part 3: If Statements |
| Display the output from a hidden value or previous question in the Label of a different question | • Use output expressions to display questions and hidden values | Hidden Values Tutorial Part 4: Displaying an Output |
| Find additional functions that you can use in CommCare | • Use the Help Site to discover other types of calculations and formatting that can be done | CommCare Functions |

### Case Management

You can learn everything in this module by completing the [Basic Case Management Tutorial](#) and the [Advanced Case Management Tutorial](#).

#### Case Management Overview

Covers configuring case management in an application.

#### Tutorial Available for This Module

You can learn all the topics in this module by completing the [Basic Case Management Tutorial](#) and the [Advanced Case Management Tutorial](#).

#### This module requires completion of:

- CommCareHQ Overview
- Form Builder Basics
- Advanced Form Building

<table>
<thead>
<tr>
<th>Learning Objective</th>
<th>Details</th>
<th>Link to resources</th>
</tr>
</thead>
</table>
| Explain the different options for Form Action on the Case Management tab of Form Settings | • Determine when to use: Form registers a new case, Form updates/closes a case, etc. | Case Management  
Basic Case Management Tutorial Part 2 - Registering a New Case |
<p>| Configure a form to register a new case | | Basic Case Management Tutorial Part 2 - Registering a New Case |
| Make a form require a case to be selected before opening it | | Basic Case Management Tutorial Part 3 - Updating a Case |
| Configure a form to close a case | | Basic Case Management Tutorial Part 3 - Updating a Case |
| Define a Case Type at the Module Level | | Basic Case Management Tutorial Part 4 - Module Case Management Settings |</p>
<table>
<thead>
<tr>
<th>Task</th>
<th>Tutorial/Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Save data to the case and explain the purpose of saving case properties from a form</td>
<td>Advanced Case Management Tutorial Part 1 - Saving Data to Case Properties</td>
</tr>
<tr>
<td>Load data into a case and explain the purpose of loading case properties into a form</td>
<td>Advanced Case Management Tutorial Part 3 - Case Management Window</td>
</tr>
<tr>
<td>Within a form, reference data that is loaded from the case</td>
<td>Advanced Case Management Tutorial Part 4 - Referencing Data from the Case</td>
</tr>
<tr>
<td>Distinguish between the case list and case details</td>
<td>Basic Case Management Tutorial Part 4 - Module Case Management Settings</td>
</tr>
<tr>
<td>Add properties to the Case List</td>
<td>Case List and Case Detail Configuration</td>
</tr>
<tr>
<td>Add properties to the Case Details</td>
<td>Case List and Case Detail Configuration</td>
</tr>
<tr>
<td>Configure the sorting of the Case List</td>
<td>Case List and Case Detail Configuration</td>
</tr>
<tr>
<td>Configure a Filter for the Case List</td>
<td>Case List and Case Detail Configuration</td>
</tr>
<tr>
<td>Correctly use the options for data type in the case list and details view</td>
<td>Case List and Case Detail Configuration</td>
</tr>
</tbody>
</table>

### Application Design

#### App Design Overview

Covers best practices for designing an application from individual questions to the overall workflow, as well as important design processes like collecting user feedback.

<table>
<thead>
<tr>
<th>Learning Objective</th>
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</table>
| Design a workflow that is understandable by users and meets program requirements | - Employ User-Centered Design to understand any existing workflows  
- Use the CommCare Worksheet or other application design views to describe and develop an overall application structure | Application Planning  
Application Design                                |
| Collect, analyze, and use user feedback                                             | - Pilot early designs and prototypes with users to collect feedback                           | User Testing                |
| Use appropriate project and application settings                                     | - Ensure that project settings are set appropriately  
- Recognize or be able to find information on all major Application Settings          | Application Settings  
Project Space Settings |
| Use Question Design best practices                                                  | - Use descriptive, consistent Question IDs  
- Develop question labels that are clear and fit on the screen  
- Use appropriate validation conditions with helpful, actionable validation messages  
- Determine the best question type to use for each question (ex. integer vs decimal vs text)  
- Ensure that question types are appropriate for the selected device (no GPS questions for feature phones)  
- Minimize the use of text input type questions                                        | Question Design          |
| Use Form Design best practices                                                      | - Use and test Display Conditions  
- Cluster related questions using Question Groups  
- Use hidden values to help users with calculations                                     | Form Design               |
| Use Case Management best practices                                                 | - Use descriptive case types  
- Design case list and details to show useful information, use the best format available, and work well on the selected device | Case Management Design     |
Advanced Modules

These modules are relevant to many but not all projects. They are required for a Certification.

Multimedia in CommCare

**Multimedia in CommCare Overview**

This module covers best design practices for developing multimedia content for CommCare applications, as well as the core skills for adding, updating, and managing media files in CommCareHQ.

This module requires completion of:

- CommCareHQ Basics
- Form Builder Basics
- Advanced Form Builder and Hidden Values
- Basic Case Management
- Advanced Case Management

<table>
<thead>
<tr>
<th>Learning Objective</th>
<th>The learner should be able to</th>
<th>Link to Resources</th>
</tr>
</thead>
</table>
| Identify the types of multimedia content that can be added to a CommCare application. | - Identify supported multimedia content types  
- Provide the preferred formats for each type of media | Multimedia in CommCare |
| Understand best practices for multimedia use in CommCare | - Describe the qualities of a good image for a CommCare app  
- Describe the qualities of a good audio clip for a CommCare app  
- Describe the qualities of a good video clip for a CommCare app | Images in CommCare  
Playing Audio in CommCare  
Video in CommCare |
| Upload a media file using the Form Builder | - Add a media file for a question in the form builder  
- Validate that all media are correctly uploaded using the Multimedia Manager  
- Recognize an error message which indicates missing media files  
- Respond to common errors associated with media files | Multimedia in CommCare  
Skipping multimedia validation |
| Download and Install multimedia files | - Download multimedia files from the Multimedia Manager or Deploy section of an Application  
- Explain how to include multimedia files when installing an application on either CommCare for Android or for Feature Phones | Android Online Install (with multimedia)  
Installing multimedia (Java Phones) |
| Create and use form or module Icons | - Select or create appropriate images based on module or form purpose  
- Upload an icon for a form  
- Upload an Icon for a module | Icons in CommCare |
Applications in Multiple Languages

Applications in Multiple Languages Overview

This module covers all aspects of managing multiple languages in a CommCare application, including translation of form content, application-level text, and user interface strings.

The main section this module corresponds to is: Language configuration in CommCareHQ

This module requires completion of:

- CommCare Fundamentals
- Form Builder Basics

<table>
<thead>
<tr>
<th>Learning Objective</th>
<th>The learner should be able to:</th>
<th>Resources</th>
</tr>
</thead>
</table>
| Add a new language to a CommCare application | • Build an application that supports multiple languages  
• Change the default language of an application | Language configuration in CommCareHQ |
| Use the Bulk Application Translation upload feature | • Understand that this can update almost every required translation in your application, including forms, app /modules, case list/details, etc. | Bulk Application Translations |
| Define and update User Interface Translations | • Strings that are not part of the application content you developed (i.e. "save form and exit", "start")  
• Follow instructions to manually update UI translations, or use the bulk translation tool | User Interface Translations |
| Translate the Application, Module, and Form names, as well as the case list/details screens through the Application Builder interface | • Choose the language you want to use from the side menu, then edit each form, module, or application name  
• Can also do this through the bulk application translation tool | Case List and Case Detail Configuration |
| Use the Form Builder Bulk Translation tool | • Translate one form at a time using Excel to manage the translations | Form Bulk Translation |
| Explain what types of fonts are supported by CommCare | • Font must be supported by the phone, and should be unicode | Local Language Support and Fonts |
| [Paid Feature] Manage Lookup Tables in multiple languages | • Use Lookup tables in multiple languages | Using Lookup Tables with Multiple Languages |

Advanced Application Building Topics

These advanced topics are often very important to a project; however because they are not relevant to every project they are no covered in detail here.

Advanced Features Overview

This module covers a variety of advanced, yet commonly used application building topics. These are not covered in any tutorials, but by following the guidance on the help site and trying them out you can gain experience in using them.
| **Use advanced configuration of the Case List and Case Details screens** | **Case List and Case Detail Configuration**<br>**Fuzzy Search** |
| **Use Child Cases (also known as Subcases)** | **Child Cases**<br>**Case List and Case Detail Configuration** |
| **Use Form Logic** | **Form Display Conditions**<br>**End of Form Navigation** |
| **Use Case Sharing** | **Case Sharing**<br>**Worker Monitoring Reports**<br>**Multiple Applications in a Project Space** |
| **[Paid Feature] Use Lookup tables** | **Lookup Tables** |

### Application Building Certification

To get certified in CommCare Application Building you must:

1. Learn all of the material associated with each of the modules listed on this page. Where available we recommend you complete the tutorials.
2. Pass the test for each module.
3. Successfully complete the Application Building Capstone Exercise

For more information please see CommCare Certification.