This document includes a RESTful API specification to access CommCareHQ programmatically.

TulaSalud is implementing a pilot project in rural Guatemala to evaluate CommCare. While CommCare already meets the short term needs of the pilot project, additional capabilities will be needed over the longer term for CommCare to remain effective as we scale up the number of CHWs and ensure that each CHW remains tightly integrated with the overall healthcare system.

While the specific long-term needs and requirements are currently unknown, a well designed and implemented API to access clinical data will allow future requirements to be addressed more easily. Similar APIs supported by EpiSurveyor have made it very simple to integrate clinical data submitted by CHWs with Google Services such as Google Docs and Gmail using Google Apps Script (http://code.google.com/googleapps/appsscript/).

Potential uses for an API include:

- Building case monitoring applications that enable secondary care providers (e.g. nurse in health center) to access case information when a patient has been referred from a community to a health center
- Building case monitoring applications that enable compliance monitors to easily monitor CHW activities while on the road, visiting CHWs in their communities
- Building case visualization applications, based on Google Maps, that are able visualize the location of cases and support case filtering and aggregation options. For example, visualizing the location of all women with high-risk pregnancies with an estimated delivery date in the next 4 weeks.

The following pages include draft specifications for five RESTful APIs.

Outstanding questions

How should authentication be handled?

Brad wrote: *The standard I would recommend adopting is OAuth. That is the standard used today for FaceBook, Twitter, Yammer, FourSquare, and many others. Plus, it is better suited for an "API" because how it works is you share a token and authorize for particular services. Check out http://oauth.net/ for more information. For code samples, this is a great resource: http://oauth.net/code/ I have used the Java library "scribe" with success.*

What parameter naming convention should be used?

Input parameters names are currently using CamelCase; however, output value names are using underscores. **Question**: should CamelCase be used consistently for both input parameter names and output values names, or is a different naming convention preferred?

What date format(s) will be used?

The draft APIs use "yyyy-mm-dd hh:nn:ss", which is not formally specified and does not include time zone.

LIST GROUPS

Purpose: get a list of user groups. The list of groups may be presented to the user as a simple list of group names, where each group name includes a hyperlink to access a list of group members. Group names could, for example, mirror the geographic distribution of CHWs…with a separate group name used for each health district. Access control may be applied at the group level, with each user having access to one or more groups. Only groups that the user is permitted to access are included in the output.

Base URL: https://www.commcarehq.org/a/[domain]/Groups/

Input parameters:

Name	Description	Example
Format	Return data format (optional) Supported: xml (default), json	Format=xml

Output values:

Name	Description	Example
group_id	Group UUID	ac9d34ff59cf6388e4f5804b12276d8a
group_name	Group name	CHW Group 1

Sample output:

```
curl -v --digest -u ${USER_NAME} https://www.commcarehq.org/a/demo/Groups/?Format=xml

        <groups>
            <group>
                    <group_id>ac9d34ff59cf6388e4f5804b12276d8a</group_id>
                    <group_name>CHW Group 1</group_name>
            </group>
            <group>
                    <group_id>ac9d34ff59cf6388e4f5804b12277693</group_id>
                    <group_name>CHW Group 2</group_name>
            </group>
            …
        </groups>
```

LIST USERS

Purpose: get a list of users. The list of users may be presented to the end user as a simple list of names, where each name includes a hyperlink to access a list of cases owned by the user.

Base URL: https://www.commcarehq.org/a/[domain]/Users/

Input parameters:

Name	Description	Example
Format	Return data format (optional) Supported: xml (default), json	Format=xml
GroupId	Group UUID (optional)	GroupId=ac9d34ff59cf6388e4f5804b12276d8a

Output values:

Name	Description	Example
user_id	User UUID	3c5a623af057e23a32ae4000cf291339
user_name	User name of user, including domain	jdoe@example.commcarehq.org
first_name	First name of user	John
last_name	Last name of user	Doe
phone	Primary phone number of user	+50253311399
email	Email address of user	john.doe@example.org

Sample output:

```
curl -v --digest -u ${USER_NAME} https://www.commcarehq.org/a/demo/Users/?Format=xml

        <users>
            <user>
                    <user_id>3c5a623af057e23a32ae4000cf291339</user_id>
                    <user_name>jdoe@example.commcarehq.org</user_name>
                    <first_name>John</first_name>
                    <last_name>Doe</last_name>
                    <phone>+50253311399</phone>
                    <email>jdoe@example.org</email>
            </user>
            <user>
                    <user_id>3c5a623af057e23a32ae4000cf2943248</user_id>
                    <user_name>jsmith@example.commcarehq.org</user_name>
                    <first_name>Jane</first_name>
                    <last_name>Smith</last_name>
                    <phone>+50253311388</phone>
                    <email>jsmith@example.org</email>
            </user>
            …
        </users>
```

LIST CASES

Purpose: get a list of cases. The list of cases may be presented to the end user a simple list of cases, where each case name incudes a hyperlink to access detailed information about the case.

Base URL: https://www.commcarehq.org/a/[domain]/Cases/

Input parameters:

Name	Description	Example
Format	Return data format (optional) Supported: xml (default), json	Format=xml
GroupId	Group UUID (optional)	GroupId=ac9d34ff59cf6388e4f5804b12276d8a
UserId	User UUID (optional)	UserId=3c5a623af057e23a32ae4000cf291339
CaseType	Type of case (optional)	CaseType=pregnancy
CaseStatus	Case status (optional) Supported: open (default), closed, any	CaseStatus=open

Output values:

Name	Description	Example
case_id	Case UUID	0X9OCW3JMV98EYOVN32SGN4II
user_name	User name of case owner, including domain	jdoe@example.commcarehq.org
user_id	UUID user that owns the case	3c5a623af057e23a32ae4000cf291339
case_name	Name of case	Rose
external_id	External ID associated with the case	123456
case_type	Type of case	pregnancy
opened_on	Date and time case was opened	2011-11-16 14:26:15
modified_on	Date and time case was last modified	2011-12-13 15:09:47
case_status	Case status	open
closed_on	Date and time case was closed	2011-12-20 15:09:47

Sample output:

```
curl -v --digest -u ${USER_NAME} https://www.commcarehq.org/a/demo/Cases/?Format=xml

    <cases>
        <case>
                <case_id>0X9OCW3JMV98EYOVN32SGN4II </case_id>
                <user_name>jdoe@example.commcarehq.org</user_name>
                <user_id>3c5a623af057e23a32ae4000cf291339</user_id>
                <case_name>Rose </case_name>
                <external_id>123456</external_id>
                <case_type>pregnancy</case_type>
                <opened_on>2011-11-16 14:26:15</opened_on>
                <modified_on>2011-12-13 15:09:47</modified_on>
                <case_status>open</case_status>
                <closed_on>2011-12-20 15:09:47</closed_on>
        </case>
        …
    </cases>
```

CASE DATA

Purpose: get all of the data associated with a case, including all case property values, a list of associated forms and a list of associated referrals. The case data may be presented to the end user as a case details screen.

Base URL: https://www.commcarehq.org/a/[domain]/CaseData/

Input parameters:

Name	Description	Example
Format	Return data format (optional) Supported: xml (default), json	Format=xml
CaseId	Case UUID	CaseId=0X9OCW3JMV98EYOVN32SGN4II

Output values:

Name	Description	Example
case_id	Case UUID	0X9OCW3JMV98EYOVN32SGN4II
user_name	User name of case owner, including domain	jdoe@example.commcarehq.org
user_id	UUID of user that owns the case	3c5a623af057e23a32ae4000cf291339
case_name	Name of case	Rose
external_id	External ID associated with the case	123456
case_type	Type of case	pregnancy
opened_on	Date and time case was opened	2011-11-16 14:26:15
modified_on	Date and time case was last modified	2011-12-13 15:09:47
case_status	Status of the case (open, closed)	open
closed_on	Date and time case was closed	2011-12-20 15:09:47
<case_property>	Dynamic property value (one entry for each case property)	

Start of data from for each form associated with the case. Repeats for each form		
form_id	UUID of form associated with the case	1J9NF7B4FTH73435PYJJSL5SJ
form_name	Name of form associated with the case	Create a pregnancy case
started_on	Date and time form was started	2011-11-16 14:26:15
ended_on	Date and time form was completed	2011-11-16 14:27:35

Start of data from for each referral associated with the case. Repeats for each referral		
referral_id	UUID of referral associated with the case	D8LZS28LEUWU7W9QNDM89XWPL
referral_type	Type of referral	referred_to_health_center
opened_on	Date and time referral was opened	2011-11-17 14:26:15
modified_on	Date and time referral was modified	2011-11-17 14:27:10
followup_on	Date and time of referral followup	2011-11-19 00:00:00
referral_status	Status of referral (open, closed)	open

Sample output:

curl -v --digest -u ${USER_NAME} https://www.commcarehq.org/a/demo/CaseData/?CaseId=0X9OC&Format=xml

```
<case_data>
    <case_id >0X9OCW3JMV98EYOVN32SGN4II</case_id>
    <user_name> jdoe@example.commcarehq.org</user_name>
    <user_id>3c5a623af057e23a32ae4000cf291339</user_id>
    <case_name>Rose</case_name>
    <external_id>123456</external_id>
    <case_type>pregnancy</case_type>
    <opened_on>2011-11-16 14:26:15</opened_on>
    <modified_on>2011-12-13 15:09:47</modified_on>
    <case_staus>open</case_status>
    <closed_on>2011-12-20 15:09:47</closed_on>
    <case_property1>Dynamic property value 1</case_property1>
    <case_property2>Dynamic property value 2</case_property2>
    …
    <forms>
        <form>
            <form_id>1J9NF7B4FTH73435PYJJSL5SJ</form_id>
            <form_name>Create a pregnancy case</form_name>
            <started_on>2011-11-16 14:26:15</started_on>
            <ended_on>2011-11-16 14:27:35</ended_on>
        </form>
        …
    </forms>
    <referrals>
        <referral>
            <referral_id>D8LZS28LEUWU7W9QNDM89XWPL</referral_id>
            <referral_type>referred_to_health_center</referral_type>
            <opened_on>2011-11-17 14:26:15</opened_on>
            <modified_on>2011-11-17 14:27:10</modified_on>
            <followup_on>2011-11-19 00:00:00</followup_on>
            <referral_status>open</referral_status>
        </referral>
        …
    <referrals>
    …
</case_data>
```

FORM DATA

Purpose: get all of the data associated with a form, including all form property values. The form data may be presented to an end user as detailed data associated with a particular case. For example, by clicking on a prenatal visit hyperlink in a case summary screen, the end user may be presented with clinical data associated with a specific prenatal visit.

Base URL: https://www.commcarehq.org/a/[domain]/FormData/

Input parameters:

Name	Description	Example
Format	Return data format (optional) Supported: xml (default), json	Format=xml
FormId	Form UUID	FormId=1J9NF7B4FTH73435PYJJSL5SJ

Output values:

Name	Description	Example
form_id	Form UUID	1J9NF7B4FTH73435PYJJSL5SJ
user_name	User name of form owner, including domain	jdoe@example.commcarehq.org
user_id	UUID of user that submitted the form	3c5a623af057e23a32ae4000cf291339
form_name	Name of form associated with the case	Create a pregnancy case
started_on	Date and time form was started	2011-11-16 14:26:15
completed_on	Date and time form was completed	2011-11-16 14:27:35
<form_property>	Values of all of the form properties (one entry for each form property)	

Sample output:

```
curl -v --digest -u ${USER_NAME} https://www.commcarehq.org/a/demo/FormData/?FormId=JSL5SJ &Format=xml

    <form_data>
        <form_id>1J9NF7B4FTH73435PYJJSL5SJ</form_id>
        <user_name>jdoe@example.commcarehq.org</user_name>
        <user_id>3c5a623af057e23a32ae4000cf291339</user_id>
        <form_name>Create a pregnancy case</form_name>
        <started_on>2011-11-16 14:26:15</started_on>
        <completed_on>2011-11-16 14:27:35</completed_on>
        <form_property1>Form property value 1</form_property1>
        <form_property2>Form property value 2</form_property2>
        …
    </form_data>
```