

OneTouch EMR 3.0

Application Programming Interface (API)



OT EMR, Inc.
10100 N Central Expressway,
Suite 250
Dallas, TX 75231
www.onetouchemr.com

Table of Contents

Table of Contents.....	2
Introduction	3
Implementation Instructions	3
Authentication and Patient Token APIs	3
Login API.....	3
Patient Token API.....	4
Patient Summary API	5
Patient Data API	6
Sets Table	6
Sample Response – Demographics	7
Sample Response – Problems	8
Sample Response – Smoking Status.....	8
Sample Response – Medications	9
Sample Response – Medication Allergies	9
Sample Response – Laboratory Results	10
Sample Response – Vital Signs.....	11
Sample Response – Procedures	13
Sample Response – Immunizations	13
Sample Response – Assessments and Plans	14
Sample Response – Goals	15
API Error Message Format	15
Terms of Use	17

Introduction

This guide is intended used by third party developers, including patients, who are developing software applications for accessing Protected Health Information (PHI). Please refer to “Terms of Use” section for the terms of use of this API.

In order to use these APIs, the user/developer first has to obtain credentials i.e. Username and Password from OT EMR Inc. Once the required credentials are obtained, user/developer can then use Login API to authenticate. One further step is required before a user/developer can access patient data. The user/developer must identify the patient whose data is to be retrieved, see instructions in "Patient Token API". If the API can identify the patient, a patient token is returned. If there are any errors or patient is not found then an error message is returned which along with other error messages/codes is listed in “API Error Message Format” section in this document.

The patient token together with the authentication token are required as parameters for all API requests involving retrieval of patient data.

For retrieval of patient data see instructions in sections "Patient Data" and "Patient Summary" API sections below.

Implementation Instructions

The OneTouch EMR APIs are read-only RESTful APIs which permits users, developers and other health IT applications to request read-only data for patient health information that is part of the Common Clinical Data Set.

In order to interact with the OneTouch EMR API an application must be capable of sending and receiving requests over secure HTTP. Any software or library capable of using a secure HTTP (SSL) can use these APIs i.e. OpenSSL, CURL and WGET etc. Application should also be able to generate custom headers and retrieve headers.

It is also recommended that an interacting application be capable of parsing XML and JSON encoded data. No specific configuration is required other than general recommendations below.

- The Root URL for all API requests is <https://{ClientID}.onetouchemr.com/api/v1/> where ClientID is the unique identifier of the client using OneTouch EMR 3.0.
- Input parameters to the API's do not require a particular order however they are case sensitive and should be provided all in lower case.
- For an explanation of the status codes and error codes please refer to the “API Error Message Format” section of this document.
- All the returned data in JSON format and is of type string.

Authentication and Patient Token APIs

Login API

Authenticate API enables user to log into OneTouch database and use other APIs. This API returns an authentication token which is encrypted string containing user details and OneTouch database details. Authentication token should always be sent back to client as encrypted (base64) encoded string in subsequent calls.

URL: <https://{ClientID}.onetouchemr.com/api/v1/authenticate/login>

Method: POST

Header: Content-Type: application/json

Parameters:

Parameter	Data Type	Required	Length	Comments
username	String	Yes	24	Username is provided by Client whose data need to be accessed.
password	String	Yes	24	Password is provided by Client whose data need to be accessed.

Sample Response:

```
{
  "code": "200",
  "message": "Success",
  "description": "The User is successfully authenticated",
  "data": {
    "security": {
      "token":
"YTo1OntzOjk6InVzZXJfbmFtZSI7czo3OiJhImRhdmIzIjtzOjc6InVzZXJfaWQiO3M6MToiMS
I7czo4OiJkYXRhYmFzZSI7czoxNjoiaW50ZXJuYWxfZ3VyamVldCI7czoxMDoidGltZV9zdGFtc
CI7aToxNTE5MzY1NjM4O3M6NDoiagFzaCI7czozMjoiaNTA2YTA2MzFhZDIzOTM4ZjJhOWQ0MzU4
M2U1YjcwNjMiO30="
    }
  }
}
```

Patient Token API

Patient Token API response back with a patient token which uniquely identifies a patient in OneTouch database. The token is generated based on first/last name and dob combination. If no match is found or multiple patients are found, then MRN can be used along with DOB to find the unique patient.

If details are not correct, then an error message is returned.

URL: https://{ClientID}.onetouchemr.com/api/v1/authenticate/patient_token

Method: POST

Headers:

Content-Type: application/json

token: <Generated by login API>

Parameters:

Parameter	Data Type	Required	Length	Comments
-----------	-----------	----------	--------	----------

first_name	String	Yes	25	First name of the patient
last_name	String	Yes	25	Last name of the patient
dob	Date	Yes		Date of Birth Format: YYYYMMDD
mrn	String	No		MRN number of the patient, internal to OneTouch. It may be provided if there are multiple patients returned for First/Last name and dob combination.

Sample Response:

```
{
    "code": "200",
    "message": "Success",
    "description": "The Patient token is successfully generated.",
    "data": {
        "security": {
            "token":
"eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJwYXRpZW50X2lkIjoiaMSIsImlybiI6IjEwM  
DAwMSIsImZpcnN0X25hbWUiOiJBbGljZSIsImxhc3RfbmFtZSI6Ik5ld2l1bhiIsImRvYiI6IjE5  
NzAtMDUtMDEiLCJyYWNoeI6W10sImV0aG5pY2l0aWVzIjpbXSibWFyaXRhbF9zdGF0dXMiOiI  
iLCJyY2NlcGF0aW9uIjoiIiwic2V4dWFXS29yaWVudGF0aW9uIjpbXSwiZ2VuZGVyX2lkZW50aX  
R5IjpbXSwidGltZXN0YW1wIjoxNTE5MzY2NjAwfQ.gU-  
dx0VMT8lCT4cqJaOO4K0tbILGeSe2J7rHfRkXwD0"
        }
    }
}
```

Patient Summary API

This API returns complete for all of the data categories specified in the Common Clinical Data Set.

URL: https://{ClientID}.onetouchemr.com/api/v1/patients/summary

Method: GET

Header:

token: <Auth token from Login API>

patient token: <Patient token from Patient Token API>

Parameters:

Parameter	Data Type	Required	Comments
start_date	Date	No	Start date of the date range for patient data. Format: YYYYMMDD
end_date	Date	No	End date of the date range for patient data. Format: YYYYMMDD
date	Date	No	If no start/end date is provided then data is returned for specific date. If all three parameters are specified then 'date' parameter will get precedence.

Sample Response:

For a successful request the output returns XML data formatted according to C-CDA R2.1 Continuity of Care Document template as per the requirements from 170.315.g.9 – Application Access – All Data Request ONC 2015 Certification module.

Patient Data API

This API returns output data in JSON format for each of the individual data sets specified in the Common Clinical Data Set (as defined in Sets Table below) and return the full set of data for that specific data category.

URL: <https://{ClientID}.onetouchemr.com/api/v1/patients/data>

Method: GET

Header:

Content-Type: application/json

token: <Auth token from Login API>

patient_token: <Patient token from Patient Token API>

Parameters

Parameter	Data Type	Required	Comments
start_date	Date	No	Start date of the date range for patient data. Format: YYYYMMDD
end_date	Date	No	End date of the date range for patient data. Format: YYYYMMDD
date	Date	No	If no start/end date is provided then data is returned for specific date. If all three parameters are specified then 'date' parameter will get precedence.
sets	String	Yes	To have the API return the data identified under the column heading "Common Clinical Data Set Element" of the Sets Table the value specified under the column heading "Set Name" needs to be passed in the 'sets' parameter to the API. Sets can be any of the values listed under 'Sets Table' in 'Set Name' column.

Sets Table

Set Name	Common Clinical Data Set Element
DE	Patient Demographics (sections Patient Name, Sex, Date of Birth, Race, Ethnicity, Preferred Language, Care Team and Implanted Devices from Common Clinical Data Set)
SS	Smoking Status (section Smoking status from CCDS)

PR	Problems (section Problems)
MD	Medications (section Immunizations from CCDS)
MA	Medication Allergies (section Medication allergies from CCDS)
LR	Laboratory Results (sections Laboratory Tests and Laboratory Values/Result from CCDS)
VS	Vital Signs (section Vital Signs from CCDS)
PC	Procedures (section Procedures from CCDS)
IM	Immunizations (section Immunizations from CCDS)
AP	Assessment and Plan (section Assessment and Plan of Treatment from CCDS)
HC	Health Concerns (section Health Concerns from CCDS)
GO	Goals

Response:

The response is returned in JSON format for each of the above sets. The sample API call for any of the above sets looks like: <https://{ClientID}.onetouchemr.com/api/v1/patients/data/{Set Name}>. Details of each API calls is listed as below:

Sample Response – Demographics

URL: <https://{ClientID}.onetouchemr.com/api/v1/patients/data/DE>

Response:

```
{ "data": {
  "demographics": {
    "id": "1",
    "first_name": "Alice",
    "middle_name": "Jones",
    "last_name": "Newman",
    "previous_name": "Alicia",
    "suffix": "",
    "gender": "F",
    "birth_date": "1970-05-01",
    "race": "White",
    "other_races": [
      "European"
    ],
    "ethnicities": [
      "Not Hispanic or Latino"
    ],
    "preferred_language": "English",
    "care_team": [{
      "id": "1",
      "first_name": "Albert",
      "last_name": "Davis"
    }]
  },
}
```

```

    "implantable_devices": [{
      "id": "1",
      "name": "Cardiac resynchronization therapy implantable
pacemaker",
      "udi": " (01) 00643169007222 (17) 160128 (21) BLC200461H"
    }
  ]
}
}
}

```

Sample Response – Problems

URL: <https://{ClientID}.onetouchemr.com/api/v1/patients/data/PR>

Response:

```

{  "data": {
    "problems": [{
      "id": "1",
      "problem": "Essential hypertension [401]",
      "snomed_ct": "59621000",
      "snomed_desc": "Essential hypertension",
      "status": "active",
      "start_date": "2011-10-05",
      "end_date": ""
    }, {
      "id": "2",
      "problem": "Severe hypothyroidism",
      "snomed_ct": "83986005",
      "snomed_desc": "83986005",
      "status": "active",
      "start_date": "2006-12-31",
      "end_date": ""
    }
  ]
}
}

```

Sample Response – Smoking Status

URL: <https://{ClientID}.onetouchemr.com/api/v1/patients/data/SS>

Response:

```
{
  "data": {
    "social": {
      "birth_sex": "Female",
      "smoking_status": {
        "code": 449868002,
        "description": "Current every day smoker"
      }
    }
  }
}
```

Sample Response – Medications

URL: <https://{ClientID}.onetouchemr.com/api/v1/patients/data/MD>

Response:

```
{
  "data": {
    "medications": [{
      "id": "1",
      "medication": "Ceftriaxone 100 MG/ML Injectable Solution",
      "rxnorm": "309090",
      "direction": "Two Times Daily",
      "start_date": "2015-06-22",
      "end_date": "2015-06-30",
      "status": "completed",
      "quantity": ""
    }, {
      "id": "2",
      "medication": "Tylenol 500 MG Oral Tablet",
      "rxnorm": "209459",
      "direction": "As needed",
      "start_date": "2015-06-22",
      "end_date": "2015-07-01",
      "status": "completed",
      "quantity": ""
    }
  ]
}
```

Sample Response – Medication Allergies

URL: <https://{ClientID}.onetouchemr.com/api/v1/patients/data/MA>

Response:

```
{
  "data": {
    "allergies": [{
      "id": "1",
      "substance": {
        "displayName": "Penicillin G",
        "code": "7980",
        "codeSystemName": "RxNorm",
        "codeSystem": "2.16.840.1.113883.6.88"
      },
      "rxnorm": "7980",
      "allergy_type": {
```

```

        "snomed_ct": "416098002",
        "snomed_desc": "Drug allergy (disorder)"
    },
    "start_date": "19800509",
    "end_date": "",
    "reaction": {
        "code": "247472004",
        "codeSystemName": "SNOMED CT",
        "codeSystem": "2.16.840.1.113883.6.96",
        "displayName": "hives"
    },
    "severity": {
        "code": "6736007",
        "displayName": "Moderate",
        "codeSystem": "2.16.840.1.113883.6.96",
        "codeSystemName": "SNOMED CT"
    }
}
]]
}
}

```

Sample Response – Laboratory Results

URL: <https://{ClientID}.onetouchemr.com/api/v1/patients/data/LR>

Response:

```

{  "data": {
    "labs": {
      "results": {
        "labs": {
          "id": "10",
          "lab": {
            "code": "5811-5",
            "displayName": "Specific gravity of Urine by Test strip",
            "codeSystem": "2.16.840.1.113883.6.1",
            "codeSystemName": "LOINC"
          },
          "value": "1.015",
          "unit": "",
          "date": 1434976560,
          "reference_range": "1.005-1.030",
          "interpretation": "Normal"
        },
        "radiology": []
      },
      "pending": {
        "labs": [{
          "id": "4",
          "name": "Urinalysis macro (dipstick) ",
          "target_date": "2015-06-21"
        }, {
          "id": "5",
          "name": "Urinalysis macro (dipstick) ",
          "target_date": "2015-06-28"
        }
      ],
      "radiology": []
    }
  }
}

```

```

    },
    "facilities": [{
      "id": "1",
      "name": "Value Labs",
      "oid": "2.16.840.1.113883.19.5",
      "address_1": "2474 Rocky place",
      "address_2": "",
      "city": "Beaverton",
      "state": "OR",
      "zip_code": "97006",
      "contact": "555-666-1002"
    }
  ]
}
}
}

```

Sample Response – Vital Signs

URL: <https://{ClientID}.onetouchemr.com/api/v1/patients/data/VS>

Response:

```

{
  "data": {
    "vitals": [{
      "set_id": "1",
      "code": "8480-6",
      "codeSystem": "2.16.840.1.113883.6.1",
      "codeSystemName": "LOINC",
      "displayName": "SYSTOLIC BLOOD PRESSURE",
      "value": "145",
      "unit": "mm[Hg]",
      "date": "2015-06-22 10:15:00 -0500"
    }, {
      "set_id": "1",
      "code": "8462-4",
      "codeSystem": "2.16.840.1.113883.6.1",
      "codeSystemName": "LOINC",
      "displayName": "DIASTOLIC BLOOD PRESSURE",
      "value": "88",
      "unit": "mm[Hg]",
      "date": "2015-06-22 10:15:00 -0500"
    }, {
      "set_id": "1",
      "code": "8867-4",
      "codeSystem": "2.16.840.1.113883.6.1",
      "codeSystemName": "LOINC",
      "displayName": "HEART RATE",
      "value": "80",
      "unit": "/min",
      "date": "2015-06-22 10:15:00 -0500"
    }, {
      "set_id": "1",
      "code": "8310-5",
      "codeSystem": "2.16.840.1.113883.6.1",
      "codeSystemName": "LOINC",

```

```

        "displayName": "BODY TEMPERATURE",
        "value": "38.0",
        "unit": "Cel",
        "date": "2015-06-22 10:15:00 -0500"
    }, {
        "set_id": "1",
        "code": "9279-1",
        "codeSystem": "2.16.840.1.113883.6.1",
        "codeSystemName": "LOINC",
        "displayName": "RESPIRATORY RATE",
        "value": "18",
        "unit": "/min",
        "date": "2015-06-22 10:15:00 -0500"
    }, {
        "set_id": "1",
        "code": "8302-2",
        "codeSystem": "2.16.840.1.113883.6.1",
        "codeSystemName": "LOINC",
        "displayName": "HEIGHT",
        "value": "177",
        "unit": "cm",
        "date": "2015-06-22 10:15:00 -0500"
    }, {
        "set_id": "1",
        "code": "29463-7",
        "codeSystem": "2.16.840.1.113883.6.1",
        "codeSystemName": "LOINC",
        "displayName": "WEIGHT",
        "value": "88",
        "unit": "kg",
        "date": "2015-06-22 10:15:00 -0500"
    }, {
        "set_id": "1",
        "code": "39156-5",
        "codeSystem": "2.16.840.1.113883.6.1",
        "codeSystemName": "LOINC",
        "displayName": "BODY MASS INDEX",
        "value": "28.1",
        "unit": "kg/m2",
        "date": "2015-06-22 10:15:00 -0500"
    }, {
        "set_id": "1",
        "code": "59408-5",
        "codeSystem": "2.16.840.1.113883.6.1",
        "codeSystemName": "LOINC",
        "displayName": "OXYGEN SATURATION",
        "value": "95",
        "unit": "%",
        "date": "2015-06-22 10:15:00 -0500"
    }
  ]
}

```

Sample Response – Procedures

URL: <https://{ClientID}.onetouchemr.com/api/v1/patients/data/PC>

Response:

```
{ "data": {
  "procedures": [{
    "id": "11",
    "procedure": {
      "code": "56251003",
      "displayName": "Nebulizer therapy",
      "codeSystem": "2.16.840.1.113883.6.96",
      "codeSystemName": "SNOMED CT"
    },
    "status": "completed",
    "date": "2015-06-22 08:35:00 -0500"
  }, {
    "id": "12",
    "procedure": {
      "code": "175135009",
      "displayName": "Introduction of cardiac pacemaker system via
vein",
      "codeSystem": "2.16.840.1.113883.6.96",
      "codeSystemName": "SNOMED CT"
    },
    "status": "completed",
    "date": "2011-10-05 08:39:00 -0500"
  }]
}
```

Sample Response – Immunizations

URL: <https://{ClientID}.onetouchemr.com/api/v1/patients/data/IM>

Response:

```
{
  "data": {
    "immunizations": [{
      "id": "1",
      "immunization": {
        "code": "106",
        "codeSystem": "2.16.840.1.113883.12.292",
        "codeSystemName": "CVX",
        "displayName": "DTaP, 5 pertussis antigens"
      },
      "date": "2012-01-04",
      "manufacturer": "Immuno Inc.",
      "lot_number": "2",
      "status": "completed"
    }, {
      "id": "2",
      "immunization": {
        "code": "166",
        "codeSystem": "2.16.840.1.113883.12.292",

```

```

        "codeSystemName": "CVX",
        "displayName": "influenza, intradermal, quadrivalent,
preservative free"
    },
    "date": "2015-06-22",
    "manufacturer": "",
    "lot_number": "",
    "status": "cancelled"
  }
]
}
}

```

Sample Response – Assessments and Plans

URL: <https://{ClientID}.onetouchemr.com/api/v1/patients/data/AP>

Response:

```

{
  "data": {
    "assessments": [{
      "id": "1",
      "diagnosis": "Fever, unspecified [780.60]",
      "comment": "The patient was found to have fever and suspected
Anemia based on the patient history. Patient should closely monitor the
temperature and blood pressure and get admitted to Community Health
Hospitals if the fever does not subside within a day."
    }
  ],
  "plans": {
    "planned_encounters": [{
      "type": "Follow Up",
      "date": "2015-07-01"
    }
  ],
  "planned_observations": {
    "labs": [{
      "id": "6",
      "lab": "EKG (Electrocardiogram (ECG or",
      "description": "EKG (Electrocardiogram (ECG or on 2015-06-22",
      "target_date": "2015-06-22"
    }
  ],
  "radiology": [{
    "id": "1",
    "radiology": "Chest X-ray",
    "body_site": "Lower Respiratory Tract Structure",
    "description": "Lower Respiratory Tract Structure Chest X-ray
on 2015-06-22",
    "target_date": "2015-06-22"
  }
  ],
  "planned_procedures": [],
  "planned_medications": [{
    "id": "1",
    "medication": "Clindamycin",

```

```

        "direction": "three times a day as needed if pain does not
subside/",
        "description": "Clindamycin three times a day as needed if pain
does not subside/"
    }
  ]
}
}
}

```

Sample Response – Goals

URL: https://{ClientID}.onetouchemr.com/api/v1/patients/data/GO

Response:

```

{
  "data": {
    "goals": [{
      "id": "1",
      "goal": "* Get rid of intermittent fever that is occurring every
few weeks.\r\n"
    }, {
      "id": "2",
      "goal": "* Need to gain more energy to do regular activities"
    }
  ]
}
}

```

API Error Message Format

The API response back with proper error/message codes along with HTTP status codes as mentioned below.

Error Type	Error Message
Standard HTTP Error 1) 200 OK - Response to a successful GET, PUT, PATCH or DELETE. 2) 201 Created - Response to a POST that results in a creation. 3) 400 Bad Request - The request is malformed, such as if the body does not parse 4) 401 Unauthorized - When no or invalid authentication details are provided. 5) 403 Forbidden - When authentication succeeded but authenticated user doesn't have access to the resource 6) 404 Not Found - When a non-existent resource is requested 7) 405 Method Not Allowed - When an HTTP method is being requested that isn't allowed for the authenticated user	<pre> { "code" : 1234, "message" : "Something bad happened", "description" : "More details about the error" } </pre>

8) 415 Unsupported Media Type - If incorrect content type was provided as part of the request 9) 429 Too Many Requests - When a request is rejected due to rate limiting	
Data Validation Error Error code range should be between OT1000-OT2000. Common error types are: OT1001 – Blank field OT1002 – Field length is more than the allowed length. OT1003 – Only letters and numbers are allowed. Special characters are not allowed. OT1004 – Only numbers are allowed. OT1005 – Only letters are allowed. OT1006 – HTML characters are not allowed. .	<pre>{ "code" : 1001, "message" : "Data Validation Failed", "errors" : [{ "code" : OT1001, "field" : "assessment", "message" : "Assessment field cannot be blank" }, { "code" : OT1002, "field" : "encounterId", "message" : "Field length is more than the allowed length " }] }</pre>
Application Specific Errors OT1100 – Authentication is failed. Username or Password is incorrect. OT1101 – Authentication is failed. The token is expired, please re-authenticate. OT1102 – Invalid token. OT1104 – Name and DoB combination - Duplicate patients are not allowed. OT1105 – The patient is not found against name and dob combination. OT1106 - There are multiple records for the name and dob combination. Please provide mrn. OT1107 - Please read the API document for valid set identifiers.	<pre>{ "code" : OT1101, "message" : " Authentication is failed. The token is expired, please re-authenticate ", }</pre>

Terms of Use

OT EMR, Inc. offers some of its data from OneTouch EMR 3.0 in machine readable format through an Application Programming Interface (API). This service is offered subject to your acceptance of the terms and conditions (Agreement) contained herein.

All of the content, documentation, code, and related materials made available to you through the API are subject to these terms. Access to use the API or its content constitutes acceptance of this Agreement.

Using of this API do not require preregistration with OT EMR, Inc., instead a username/password is required from the registered client. You may use any of the OT EMR, Inc. API's to develop a service or services to search, display, analyze, retrieve, view, and otherwise "get" information from OT EMR, Inc.

This API is provided "AS IS", without warranty of any kind, express or implied, including but not limited to the warranties of merchantability, fitness for a particular purpose and non-infringement. In no event shall the authors or copyright holders be liable for any claim, damages or other liability, whether in an action of contract, tort or otherwise, arising from, out of or in connection with the API or the use or other dealings in the Software.

Only OT EMR, Inc. may modify the terms of this Agreement. Company may modify the terms of this Agreement without written notice by posting the modified Agreement on our Company website.

You hereby warrant that:

- (1) Your use of the API will be in strict accordance with the OT EMR, Inc. Privacy Policy, this Agreement, and all applicable laws and regulations; and
- (2) Your use of the API will not infringe or misappropriate the intellectual property rights of any third party.