



TRAKnet Open API

Technical Specification Document

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Overview

The TRAKnet Open APIs provide secure access to patient data through a RESTful implementation based on the STU 3 (3.0.1) version of the Fast Healthcare Interoperability Resources - [FHIR](#) for developers.

Security

TRAKnet Open API uses [OAuth 2.0](#) for security and the trusted connection is built over SSL using HTTPS. This means that when making calls to any FHIR resource with the TRAKnet Open API, you must pass a token. This token is passed in the Authorization Header to identify the client.

To obtain a Bearer token, you must call an Authorization Server. The authorization server typically exposes a single endpoint:

Token: used to obtain the Bearer token

HTTP Request

Production:

[GET https://nexus-portal-fhir.azurewebsites.net/Token](https://nexus-portal-fhir.azurewebsites.net/Token)

Staging:

[GET https://nexus-portal-fhir-dev.azurewebsites.net/Token](https://nexus-portal-fhir-dev.azurewebsites.net/Token)

Parameter(Data Type = Body)	Description
Username	Resource owner username
Password	Resource owner password
grant_type	Resource grant type(default grant type is password)
Body	X-www-form-urlencoded

Example Request:

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> Username	example@nemohealth.com	
<input checked="" type="checkbox"/> Password	example12\$253	
<input checked="" type="checkbox"/> grant_type	password	
Key	Value	Description

Response Parameters

Element	FHIR Resource	Reference	ML
Patient	Patient	https://www.hl7.org/fhir/patient.html	5
Allergies	AllergyIntolerance	https://www.hl7.org/fhir/allergyintolerance.html	3
Medications	MedicationStatement	https://www.hl7.org/fhir/medicationstatement.html	3
Problem List	Condition	https://www.hl7.org/fhir/condition.html	3
Procedures	Procedure	https://www.hl7.org/fhir/procedure.html	3
Lab test	Observation	https://www.hl7.org/fhir/observation.html	5
Lab Results	DiagnosticReport	https://www.hl7.org/fhir/diagnosticreport.html	3
Immunization	Immunization	https://www.hl7.org/fhir/immunization.html	3
Smoking status	Observation	https://www.hl7.org/fhir/observation.html	5
Care team members	CarePlan	https://www.hl7.org/fhir/careplan.html	2
Social History	Observation	https://www.hl7.org/fhir/observation.html	5
Vital Signs	Observation	https://www.hl7.org/fhir/observation.html	5
Implantable Device list	Device	https://www.hl7.org/fhir/device.html	2
Assessment and Plan of treatment	CarePlan	https://www.hl7.org/fhir/careplan.html	2
Goal	Goal	https://www.hl7.org/fhir/goal.html	2
Health Concerns	Condition	https://www.hl7.org/fhir/condition.html	3
C-CDA	DocumentReference	https://www.hl7.org/fhir/documentreference.html	3

Parameter	Description
token_type	Always Bearer
Scope	Always user_impersonation
expires_in	The lifetime of the access token, in seconds. Default 3600
access_token	The bearer token used in the Authorization header for subsequent requests
refresh_token	A long-lived token (14 days) used to renew expired access tokens without providing user credentials

Example Response:

```
{
  "access_token": "token for access",
  "token_type": "bearer",
  "expires_in": 1209599,
  "userName": "example@nemohealth.com",
  ".issued": "Fri, 29 May 2020 19:20:24 GMT",
  ".expires": "Fri, 12 Jun 2020 19:20:24 GMT"
}
```

FHIR Resources:

API EndPoint (BASE):

Prod:

<https://nexus-portal-fhir.azurewebsites.net/>

Staging:

<https://nexus-portal-fhir-dev.azurewebsites.net/>

Header Parameters:

These parameters are used for subsequent requests

Name	Description	Additional information
Authorization	This token is used to authenticate user	Required
Content-Type	Input data format (application/json)	Required

Parameters & DataTypes

Name	Description	Type	Additional information
patientid	Unique Id for the authenticated user.	string	Required
StartDate	Start date of the request. A time component is not used when passing the start date.	date	[Optional]., ex., 2015-11-14, 11/14/2015
EndDate	End date of the request. A time component is not used when passing the end date.	date	[Optional] ex., 2015-11-14, 11/14/2015

MAIN GET API's:

Below you will find our main patient API's. These are different from the API's found in the SWAGGER Document as there is one API that allows different operations to be sent (Example: PatientDetails, LabTest, Medication, ETC.) When using these all results will be returned in a FHIR response (just like the other calls located in our SWAGGER API document.

Patient (When searching for a specific patient without an ID it is recommended to use their email)	Example: https://nexus-portal-fhir-dev.azurewebsites.net/oauthfhir/6451/Pati
Open API controller used for retrieving all patient data.	Example2: https://nexus-portal-fhir-dev.azurewebsites.net/oauthfhir/6451/Pati
API	Description
<a href="https://<<Base_URL>>/oauthfhir/{practiceid}/PatientDetails?identifier=<<patientid>>">https://<<Base_URL>>/oauthfhir/{practiceid}/PatientDetails?identifier=<<patientid>>	Return all data for patient

Assessment	
Open API for retrieving patient assessments.	
API	Description
<a href="https://<<Base_URL>>/oauthfhir/{practiceid}/CarePlan_Assessment?patient=<<patientid>>">https://<<Base_URL>>/oauthfhir/{practiceid}/CarePlan_Assessment?patient=<<patientid>>	Gets the list of patient assessments.

CareTeamMember	
Open API for retrieving care team members.	
API	Description
<a href="https://<<Base_URL>>/oauthfhir/{practiceid}/CarePlan?patient=<<patientid>>">https://<<Base_URL>>/oauthfhir/{practiceid}/CarePlan?patient=<<patientid>>	Gets the list of care team members for a patient's encounters

ClinicalDocument	
Open API controller used for retrieving all patient data.	
API	Description
<a href="https://<<Base_URL>>/OpenApiReport/{practiceid}/Report/GetReports/<<patientid>>">https://<<Base_URL>>/OpenApiReport/{practiceid}/Report/GetReports/<<patientid>>	Return Export Summary

Goal	
Open API for retrieving patient goals.	
API	Description
<a href="https://<<Base_URL>>/oauthfhir/{practiceid}/Goal?patient=<<patientid>>">https://<<Base_URL>>/oauthfhir/{practiceid}/Goal?patient=<<patientid>>	Gets the list of patient goals.
HealthConcern	
Open API for retrieving health concerns.	
API	Description
<a href="https://<<Base_URL>>/oauthfhir/{practiceid}/Condition_HealthConcern?patient=<<patientid>>">https://<<Base_URL>>/oauthfhir/{practiceid}/Condition_HealthConcern?patient=<<patientid>>	Gets the list of patient health concerns.

Immunization	
Open API for retrieving Immunizations.	
API	Description

https://<<Base_URL>>/oauthfhir/{practiceid}/Immunization?patient=<<patientid>>	Gets the list of patient immunizations.
--	---

LabResult	
Open API for retrieving lab results.	
API	Description
https://<<Base_URL>>/oauthFHIR/{practiceid}/DiagnosticReport?patient=<<patientid>>	Gets the list of patient lab results.

LabTest	
Open API for retrieving lab tests.	
API	Description
https://<<Base_URL>>/oauthFHIR/{practiceid}/DiagnosticReport?patient=<<patientid>>	Gets the list of patient lab tests.

Medication	
Open API for retrieving medications.	
API	Description
https://<<Base_URL>>/oauthfhir/{practiceid}/Medication?patient=<<patientid>>	Gets the list of patient medications.

MedicationAllergy	
Open API for retrieving medication allergies.	
API	Description
https://<<Base_URL>>/oauthFHIR/{practiceid}/AllergyIntolerance?patient=<<patientid>>	Gets the list of patient medication allergies.

Problem	
Open API for retrieving problems.	
API	Description
https://<<Base_URL>>/oauthFHIR/{practiceid}/Condition?patient=<<patientid>>	Gets the list of patient problems.

Procedure	
Open API for retrieving procedures.	
API	Description
https://<<Base_URL>>/oauthFHIR/{practiceid}/Procedure?patient=<<patientid>>	Gets the list of patient procedures.

SmokingStatus	
Open API for retrieving smoking status.	

API	Description
https://<<Base_URL>>/oauthfhir/{practiceid}/Observation_SmokingStatus?patient=<<patientid>>	Get the list of patient smoking statuses.

TreatmentPlan	
Open API for retrieving treatment plans.	
API	Description
https://<<Base_URL>>/oauthFHIR/{practiceid}/CarePlan_PlanofTreatment?patient=<<patientid>>	Gets the list of patient treatment plans.

UniqueDeviceIdentifier	
Open API for retrieving unique device identifiers.	
API	Description
https://<<Base_URL>>/oauthfhir/{practiceid}/Device?patient=<<patientid>>	Gets the list of patient unique device identifiers.

VitalSign	
Open API for retrieving vital signs.	
API	Description
https://<<Base_URL>>/oauthFHIR/{practiceid}/Observation_Vitals?patient=<<patientid>>	Gets the list of patient vital signs.

Error Handling:

All response objects contain base error handler properties. These properties can be verified when the response is received.

Name	Description	Type	Additional information
Success	Represents the success of the call.	Boolean	Required
ErrorMessage	If the success property is false, the ErrorMessage property will contain error text, otherwise it will be null.	string	[Optional]
ErrorType	If the success property is false the ErrorType property will contain the text of the type of error that has occurred, otherwise it will be null.	string	[Optional]

Response Code:

- 200 – Successful Request
- 400 – Bad Request
- 401 – Unauthorized
- 403 - An unexpected error has occurred
- 404 – Requested resource cannot be found
- 500 - Internal Server Error

Samples:

Patient Response:

```
[
  {
    "Patient": {
      "Identifier": [
        {
          "ValueElement": {
            "Value": "1538b509-f76b-4df7-b3b2-1d659e957a0a"
          }
        }
      ],
      "Name": [
        {
          "TextElement": {
            "Value": "Alice Jones Newman"
          },
          "FamilyElement": [
            {
              "Value": "Newman"
            }
          ],
          "GivenElement": [
            {
              "Value": "Alice Jones"
            }
          ],
          "Period": {
            "StartElement": {
              "Value": "07/01/2015 00:53:34"
            }
          }
        }
      ],
      "Telecom": [
        {
          "ValueElement": {
            "Value": "venkateshwarlu@nalashaa.com"
          }
        }
      ],
      "BirthDateElement": {
        "Value": "5/1/1970 12:00:00 AM"
      },
      "Address": [
```

```

{
  "TextElement": {
    "Value": "1357"
  },
  "LineElement": [
    {
      "Value": "Amber Dr"
    }
  ],
  "CityElement": {
    "Value": "Beaverton"
  },
  "StateElement": {
    "Value": "OR"
  },
  "PostalCodeElement": {
    "Value": "97006"
  },
  "CountryElement": {
    "Value": "US"
  }
},
"MaritalStatus": {
  "TextElement": {
    "Value": "U"
  }
},
"Contact": [
  {
    "Relationship": [
      {
        "TextElement": {
          "Value": "92b97ab4-c272-4e6a-80b8-e4d129ecd978"
        }
      }
    ]
  }
],
"Name": {
  "TextElement": {
    "Value": "MaryJo P Bach"
  },
  "FamilyElement": [
    {
      "Value": "Bach"
    }
  ],
  "GivenElement": [
    {
      "Value": "MaryJo"
    }
  ]
}

```

```
    ],
    "PrefixElement": [
      {
        "Value": "MaryJo"
      }
    ]
  },
  "Telecom": [
    {
      "ValueElement": {
        "Value": "123456789"
      }
    },
    {
      "ValueElement": {
        "Value": "123456789"
      }
    }
  ],
  "Address": {
    "TextElement": {
      "Value": "729 Lobster Drive"
    },
    "CityElement": {
      "Value": "Woods Hole"
    },
    "StateElement": {
      "Value": "MA"
    },
    "PostalCodeElement": {
      "Value": "02543"
    }
  },
  "Organization": {
    "ReferenceElement": {
      "Value": "92b97ab4-c272-4e6a-80b8-e4d129ecd978"
    }
  }
},
"Communication": [
  {
    "Language": {
      "TextElement": {
        "Value": "en"
      }
    }
  }
]
}
```

```
}  
]
```

Allergy Response:

```
[  
  {  
    "AssertedDate": "5/10/1980 12:00:00 AM",  
    "Code": {  
      "Coding": [  
        {  
          "SystemElement": {  
            "Value": "SNOMED CT"  
          },  
          "VersionElement": {  
            "Value": "2.16.840.1.113883.6.96"  
          },  
          "CodeElement": {  
            "Value": "7980"  
          },  
          "DisplayElement": {  
            "Value": "Penicillin G"  
          }  
        }  
      ]  
    },  
    "Reaction": [  
      {  
        "Substance": {  
          "Coding": [  
            {  
              "SystemElement": {  
                "Value": "RXNorm"  
              },  
              "VersionElement": {  
                "Value": "2.16.840.1.113883.6.88"  
              },  
              "DisplayElement": {  
                "Value": "Hives"  
              }  
            }  
          ]  
        }  
      ]  
    }  
  ],  
  "AllergyIntolerance": {  
    "Identifier": [  
      {
```

```

    "ValueElement": {
      "Value": "5456c88f-98bf-44e6-8ed5-604290bf3eda"
    }
  },
  "Recorder": {
    "ReferenceElement": {
      "Value": "b2047d90-5167-4762-9596-d432c2b22844"
    }
  },
  "LastOccurrenceElement": {
    "Value": "5/10/1980 12:00:00 AM"
  }
},
"OnSetDateTime": "9/26/2017 12:50:40 AM"
},
{
  "AssertedDate": "5/10/1980 12:00:00 AM",
  "Code": {
    "Coding": [
      {
        "SystemElement": {
          "Value": "SNOMED CT"
        },
        "VersionElement": {
          "Value": "2.16.840.1.113883.6.96"
        },
        "CodeElement": {
          "Value": "733"
        },
        "DisplayElement": {
          "Value": "Ampicillin"
        }
      }
    ]
  }
},
"Reaction": [
  {
    "Substance": {
      "Coding": [
        {
          "SystemElement": {
            "Value": "RXNorm"
          },
          "VersionElement": {
            "Value": "2.16.840.1.113883.6.88"
          },
          "DisplayElement": {
            "Value": "Hives"
          }
        }
      ]
    }
  }
]

```

```
    }
  ]
}
],
"AllergyIntolerance": {
  "Identifier": [
    {
      "ValueElement": {
        "Value": "5253fe51-167b-4b41-9c92-b15eb841b387"
      }
    }
  ],
  "Recorder": {
    "ReferenceElement": {
      "Value": "b2047d90-5167-4762-9596-d432c2b22844"
    }
  },
  "LastOccurrenceElement": {
    "Value": "5/10/1980 12:00:00 AM"
  }
},
"OnSetDateTime": "9/26/2017 12:50:09 AM"
}
]
```

Terms & Conditions:

[Insert Link]