



EndoVault®

API Definition

Confidentiality and Proprietary Rights

This document is the confidential property of EndoSoft LLC. It is furnished under an agreement with EndoSoft, LLC. and may only be used in accordance with the terms of that agreement. The use of this document is restricted to customers of EndoSoft, LLC. and their employees. The user of this document agrees to protect EndoSoft, LLC. Proprietary rights as expressed herein. The user further agrees not to permit access to this document by any person for any purpose other than as an aid in the use of the associated system. In no case, will this document be examined for the purpose of copying any portion of the system described herein or to design another system to accomplish similar results.

This document or portions of it may not be copied without written permission from EndoSoft, LLC. The information in this document is subject to change without notice.

Trademarks

EndoSoft®, EndoVault®, EndoDoc®, EndoSwift®, EndoMail®, EndoSchedule®, EndoScan®, EndoNotes®, EndoBilling®, Bronchosoft®, EndoAdmin®, EndoAccess™, ENR®, PhotoReport®, ImageArk® and Qlinical® are registered trademarks of Utech Products Inc./EndoSoft, LLC. All other brand and product names are trademarks and/or registered trademarks of their respective owners.

Release Date and Copyright Notice

Release Date: 09/18/2019

Copyright © 2019 EndoSoft LLC. All rights reserved. This document is protected by the copyright laws as an unpublished work.

To contact EndoSoft

Phone: 1(518) 831-8000 (North & South America)

+44 116 380 0518 (Europe)

+91 80 43360606 (Asia & Middle East)

+61 (0) 2 9089 8806 (Australia & New Zealand)

+31 172-471017 (International)

Website: www.endosoft.com Email: support@endosoft.com

SI No.	Modified By	Date	Comments
1	Praveen Kumar	04.25.2019	Initial Check-in
2	Michael L Shaffer	04.30.2019	Added Cover, formatting and Terms of Service
3	Praveen Kumar	06.25.2019	Updated syntax details for section query
4	Michael L Shaffer	09.18.2019	Updated date spec.

Contents

Overview	4
EndoVault API resources.....	5
Resources.....	5
Resource /querypatient	5
Resource /querysections	9
Resource version.....	11
Exception Handling	12
Requesting patient data using date and date ranges	13
Requesting one or more patient data categories	14
Examples	15
Terms of Service.....	15
EndoSoft® License Statement and Limited Warranty.....	15
DISCLAIMER OF WARRANTY	16
<i>Scope of Grant</i>	16
<i>Title</i>	16
<i>Termination</i>	16
<i>Export Controls</i>	16
<i>Limitation of Liability</i>	17
<i>High Risk Activities</i>	17
<i>Miscellaneous</i>	17
<i>U.S. Government Restricted Rights</i>	17

Overview

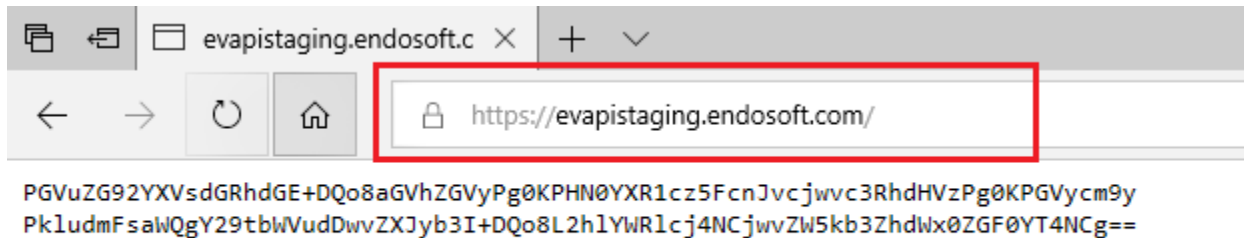
The EndoVault RESTful API is a service developed at EndoSoft for accessing the patient's data. Representational State Transfer (REST) is a style of software architecture for distributed hypermedia systems such as the World Wide Web. REST-style architectures consist of clients and servers. Clients initiate requests to servers; servers process requests and return appropriate responses. Requests and responses are built around the transfer of "representations" of "resources". A resource can be essentially any coherent and meaningful concept that may be addressed. A representation of a resource is typically a document that captures the current or intended state of a resource.

The EndoVault RESTful API is a simple service implemented using HTTPS and can be thought of as a collection of resources, specified as URLs. Some characteristics of the EndoVault RESTful web API:

- The base URL for the web service is <https://<service url>>
- The service can return the data in CCD XML format.
- The service only supports HTTPS method POST, since it is designed to retrieve patient's data.

Clients of the EndoVault RESTful API can be any applications that support HTTPS POST.

Secure channel can be tested from any web browser such as Internet Explorer, Google Chrome or Firefox etc.



EndoVault API resources

Table 4-1 lists the EndoVault API resources.

Resources

REST Resource	Description
/	Resource base
/querypatient	Return the specific patient record number from EndoVault system
/querysummary	Return the specific patient clinical summary from EndoVault system
/querysections	Return the selected sections of the clinical summary of a specific patient
/version	Return the API version

Table 4-1

Resource /querypatient

Get the patient Medical Records Number(MRN), Date of Birth(DOB) and Social Security Number(SSN) associated with a specific patient.

Syntax

The API syntax is as follows;

“<base URL>/querypatient?Dob=<encoded value>&Gender=<encoded value>&LastName=<encoded value>&FirstName=<encoded value>&Middle=<encoded value>&Initial=<encoded value>&Address1=<encoded value>&City=<encoded value>&State=<encoded value>”

Query String Fields

The query string fields for each resource are described in the detailed sections of Table 5-1. Query string values must be Base64 encoded string.

Field Name	Description	Data Type	Data Length	Required/Optional (R/O)	Comments
Dob	Date of birth of the patient	string	8	O	Date must be in MM/DD/YYYY format.
Gender	Administrative Sex of the patient	string	16	O	
LastName	Last Name of the patient	string	200	O	
FirstName	First Name of the patient	string	32	O	
Middle	Middle Name of the patient	string	32	O	
MRN	MRN of the patient	string	24	O	

Table 5-1

Return Data

EndoVault API /queryPatient returns an XML which contains patient's medical record number, date of birth and social security number as recorded in the EndoVault System.

Example

The example below retrieves the patient details for "Newman Alice".

<https://<base URL>/querypatient?Dob=MTk3MDA1MDE=&Gender=RmVNYWxl&LastName=TmV3bWFu&FirstName=QWxpY2U=&Middle=Sm9uZXM>

(returns)

```
<patients>
<count>4</count>
  <patient>
    <mrn>STAGE3_16</mrn>
    <firstname>Alice</firstname>
    <lastname>Newman</lastname>
    <middle>Jones</middle>
    <dob>19700501</dob>
    <gender>F</gender>
  </patient>
  <patient>
    <mrn>STAGE3-B4-A1-19</mrn>
    <firstname>Alice</firstname>
    <lastname>Newman</lastname>
    <middle>Jones</middle>
    <dob>19700501</dob>
    <gender>F</gender>
  </patient>
  <patient>
    <mrn>STAGE3-B7-A1-119</mrn>
    <firstname>Alice</firstname>
    <lastname>Newman</lastname>
    <middle>Jones</middle>
    <dob>19700501</dob>
    <gender>F</gender>
  </patient>
  <patient>
    <mrn>STAGE3-G9-A1-191</mrn>
    <firstname>Alice</firstname>
    <lastname>Newman</lastname>
    <middle>Jones</middle>
    <dob>19700501</dob>
    <gender>F</gender>
  </patient>
</patients>
```

Resource /querysummary

Get the patient details of a specific patient from the EndoVault system.

Syntax

The API syntax is as below:

“<base URI>/ querysummary?MRN=<encoded value>”

Query String Fields

Query string values must be Base64 encoded.

Field Name	Description	Data Type	Data Length	Required/ Optional (R/O)	Comments
MRN	Medical Record Number of the patient	string	8	R	

Return Data

EndoVault API/querysummary returns an XML which contains patient’s details as recorded in the EndoVault System.

Example

The example below retrieves the patient details for “Newman Alice”.

<https://<base URL>/ querysummary?MRN=U1RBROUzLUI0LUExLTE5>

(returns)



CCD_STAGE3-B4-A1
-19_780.xml

Resource /querysections

Get the patient details along with specified section data of a specific patient from the EndoVault system.

Syntax

The API syntax is as below:

“<base URI>/ querysections?

MRN=<encodedvalue>&Startdate=<encodedvalue>&Enddate=<encodedvalue>&Sections=<encodedvalue>”

Query String Fields

Query string values must be Base64 encoded.

Field Name	Description	Data Type	Data Length	Required/ Optional (R/O)	Comments
MRN	Medical Record Number of the patient	string	8	R	
Startdate	Encounter Start Date	string	10	O	Date must be in MM/DD/YYYY format.
Enddate	Encounter End Date	string	10	O	Date must be in MM/DD/YYYY format.
Sections	Section Data to be queried from the system	string	560	R	Sections should be separated by pipeline () character

Below are the acceptable section names

- Demographics
- Author
- Care Team
- Allergies
- Problems
- Medications
- Encounters
- Procedures
- Lab Tests
- Results
- Immunizations
- Social History
- Vitals
- Implants
- Functional Status

- Plan of Treatment
- Referral Reason
- Goals
- Discharge Instructions
- Reason for Visit
- Assessment
- Cognitive Status
- Health Concerns

Return Data

EndoVault API /querysections returns an XML which contains patient's details along with the section info requested as recorded in the EndoVault System.

Example

The example below retrieves the patient details for "Newman Alice" with sections Demographics, Care Team, Allergies and Medications.

<https://<base URL>/querysections?MRN=U1RBR0UzLUI0LUE5&Sections=RGVtb2dyYXBoaWNzfENhcmUgVGVhbXxBbGxlcmdpZXN8TWVkaWNhdGlvbnM=>

(returns)



CCD-STAGE3-API Section Data.xml

Resource version

Get the version of EndoVault API data set.

Syntax

The API syntax is as below:

“<base URI>/version”

Query String Fields

-NA-

Return Data

EndoVault API /version returns an XML which contains Endo EndoVault API data set version.

Example

<https://<base URL>/version>

(returns)

```
<endovaultdata>
<header>
<status>Success</status>
</header>
<detail>
<data>Version: 3.2</data>
</detail>
</endovaultdata>
```

Exception Handling

EndoVault API is capable to handle any kind of exception and in the event of an exception, an XML based result will be generated and send back with the exception details.

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<endvaultdata>
  <exception>
    <id> 28639F5B-F412-4CBD-BEB7-95C72452D825</id>
    <text>Error while processing request queryPatient</text>
    <description>Could not locate a specific patient. Too many
patients are available within the system with the given
parameters</description >
  </exception >
</endvaultdata>
```

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<endvaultdata>
  <exception>
    <id> 28639F5B-F412-4CBD-BEB7-95C72452D825</id>
    <text>Error while processing request queryPatient</text>
    <description>Unhandled type of exception
happened.</description >
  </exception >
</endvaultdata>
```

Requesting patient data using date and date ranges

(Endovaultapi Version 3.2 required)

The screenshot displays the Endovault API web interface. At the top, the URL is set to `https://evapistaging.endosoft.com`. The "Patient Search Criteria" section includes fields for MRN (containing "STAGE3-G9*"), First Name, Last Name, MI, Gender, and DOB (set to "9/18/2019"). A "Summary Date Range" box, highlighted with a red border, contains "Start Date" (10/18/2018) and "End Date" (10/18/2019). To the right, a "Query Patient" button is also highlighted with a red border. Below the search criteria, a "Sections" grid lists various data categories with checkboxes, all of which are checked. A "Version" dialog box is open in the foreground, displaying "Version: 3.2" and an "OK" button. The main content area shows a table of patient data for "John R. Wright, Jr." with the following details:

Confidentiality	Normal
Patient	John R. Wright, Jr.
Date of birth	August 1, 1980
Sex	Male
Communication Language	English
Race	Unknown Unknown
Ethnicity	Unknown
Contact info	1357, Amber Dr Beaverton, OR 97006, US Tel: +1(555)-777-1234
Patient IDs	STAGE3-G9-I2-83
Document Id	7a5312a7-3578-4b5f-af5b-a7d411f3208c 2.16.840.1.113883.3.72
Document Created	October 18, 2019 16:27:58Z

Requesting one or more patient data categories

The screenshot shows the EndoSoft API interface. At the top, the URL is set to `https://evapistaging.endosoft.com`. The Patient Search Criteria section includes fields for MRN (STAGE3-G9*), First Name, Last Name, MI, Gender, and DOB (9/18/2019). The Summary Date Range is set from 10/18/2018 to 10/18/2019. A red box highlights the Sections selection area, where the following categories are checked: Demographics, Encounters, Allergies, Problems, Medications, Procedures, Lab Tests, Results, Immunizations, Social History, Vitals, Implants, Functional Status, Plan of Treatment, Referral Reason, and Goals. A second red box highlights the 'Query Selected Sections' button. Below the search criteria, the interface displays patient information for John R. Wright, Jr., including date of birth (August 1, 1980), sex (Male), communication language (English), race (Unknown), ethnicity (Unknown), contact info (1357, Amber Dr, Beaverton, OR 97006, US), patient IDs (STAGE3-G9-12-83), document ID (7a5312a7-3578-4b5f-af5b-a7d411f3208c 2.16.840.1.113883.3.72), and document creation date (September 19, 2019, 16:40, EST). A red box highlights the Table of Contents section, which lists: Allergies, Adverse Reactions, Alerts; Medications; Problems; and Encounters. Below this, the 'Allergies, Adverse Reactions, Alerts' section is expanded to show 'Allergies' with the result 'No known Allergies'. The 'Medications' section is also visible at the bottom.

Examples

Example1:

Searching for patients, MRN starting with "STAGE3-G9"

<https://evapistaging.endosoft.com/querypatient?mrn=U1RBROzLUc5Kg==>

Example2:

Get the patient summary for patient MRN: "STAGE3-G9-A1-191"

<https://evapistaging.endosoft.com/querysummary?mrn=U1RBROzLUc5LUExLTE5MQ==>

Example3:

Query Sections (Demographics, Encounters, Allergies) for Patient MRN "STAGE3-G9-A1-191"

<https://evapistaging.endosoft.com/querysections?mrn=U1RBROzLUc5LUExLTE5MQ==§ions=RGVtb2dyYXBoaWNzfEVuY291bnRlcnN8QWxsZXJnaWVz>

Terms of Service

EndoSoft® License Statement and Limited Warranty

Endosoft LLC. ("ENDOSOFT") grant you the right to use this ENDOSOFT® software product ("Software"), including any accompanying documentation, in the manner provided below. This Software is owned by ENDOSOFT or its suppliers and is protected by copyright law and international copyright treaty. Therefore, you must treat this Software like any other copyrighted material (e.g., a book), except that you may either make one copy of the Software solely for backup or archival purposes or transfer the Software to a single hard disk provided you keep the original solely for backup or archival purposes.

You may not transfer the Software and documentation on a permanent basis. Except as provided in this statement, you may not transfer, rent, lease, lend, copy, modify, translate, sublicense, time-share or electronically transmit or receive the Software, media or documentation. You acknowledge that the Software in source code form remains a confidential trade secret of ENDOSOFT and therefore you agree not to modify the Software or attempt to decipher, decompile, disassemble or reverse engineer the Software, except to the extent applicable laws specifically prohibit such restriction.

If you have purchased an upgrade version of the Software, it constitutes a single product with the ENDOSOFT software that you upgraded. You may use the upgrade version of the Software only in accordance with this license statement.

This Software is subject to U.S. Commerce Department export restrictions and is intended for use in the country into which ENDOSOFT sold it.

DISCLAIMER OF WARRANTY

This Software is provided on an "AS IS" basis, without warranty of any kind, including without limitation the warranties of merchantability, fitness for a particular purpose and non-infringement. The entire risk as to the quality and performance of the Software is borne by you. Should the Software prove defective, you and not ENDOSOFT assume the entire cost of any service and repair. In addition, the security mechanisms implemented by ENDOSOFT® software have inherent limitations, and you must determine that the Software sufficiently meets your requirements. This disclaimer of warranty constitutes an essential part of the agreement. SOME JURISDICTIONS DO NOT ALLOW EXCLUSIONS OF AN IMPLIED WARRANTY, SO THIS DISCLAIMER MAY NOT APPLY TO YOU AND YOU MAY HAVE OTHER LEGAL RIGHTS THAT VARY BY JURISDICTION.

Scope of Grant

You may:

- use the Software on one computer;
- use the Software on a network, provided that each computer accessing the Software through the network must have a copy licensed to that computer
- copy the Software for archival purposes, provided any copy must contain all of the original Software's proprietary notices.

You may not:

- permit other individuals to use the Software except under the terms listed above;
- modify, translate, reverse engineer, decompile, disassemble (except to the extent applicable laws specifically prohibit such restriction), or create derivative works based on the Software;
- rent, lease, grant a security interest in, or otherwise transfer rights to the Software; or
- remove any proprietary notices or labels on the Software.

Title

Title, ownership rights, and intellectual property rights in the Software shall remain in ENDOSOFT and/or its suppliers. The Software is protected by copyright laws and treaties. Title and related rights in the content accessed through the Software is the property of the applicable content owner and may be protected by applicable law. This License gives you no rights to such content.

Termination

The license will terminate automatically if you fail to comply with the limitations described herein. On termination, you must destroy all copies of the Software.

Export Controls

None of the Software or underlying information or technology may be downloaded or otherwise exported or re-exported (i) into (or to a national or resident of) Cuba, Libya, Yugoslavia, North Korea, Iran, Syria or

any other country to which the U.S. has embargoed goods; or (ii) to anyone on the U.S. Treasury Department's list of Specially Designated Nationals or the U.S. Commerce Department's Table of Denial Orders. By downloading or using the Software, you are agreeing to the foregoing and you are representing and warranting that you are not located in, under the control of, or a national or resident of any such country or on any such list.

Limitation of Liability

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, TORT, CONTRACT, OR OTHERWISE, SHALL ENDOSOFT OR ITS SUPPLIERS OR RESELLERS BE LIABLE TO YOU OR ANY OTHER PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES. IN NO EVENT WILL ENDOSOFT BE LIABLE FOR ANY DAMAGES IN EXCESS OF THE AMOUNT ENDOSOFT RECEIVED FROM YOU FOR A LICENSE TO THE SOFTWARE, EVEN IF ENDOSOFT SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES, OR FOR ANY CLAIM BY ANY OTHER PARTY. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. FURTHERMORE, SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS LIMITATION AND EXCLUSION MAY NOT APPLY TO YOU.

High Risk Activities

The Software is not fault-tolerant and is not designed, manufactured or intended for use or resale as on-line control equipment in hazardous environments requiring fail-safe performance, such as in the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control, direct life support machines, or weapons systems, in which the failure of the Software could lead directly to death, personal injury, or severe physical or environmental damage ("High Risk Activities"). ENDOSOFT and its suppliers specifically disclaim any express or implied warranty of fitness for High Risk Activities.

Miscellaneous

If the copy of the Software you received was accompanied by a printed or other form of "hard-copy" End User License Agreement whose terms vary from this Agreement, then the hard-copy End User License Agreement governs your use of the Software. This Agreement represents the complete agreement concerning this license and may be amended only by a writing executed by both parties. If any provision of this Agreement is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This Agreement shall be governed by the laws of the State of New York. The application the United Nations Convention of Contracts for the International Sale of Goods is expressly excluded.

U.S. Government Restricted Rights

The Software and documentation are provided with RESTRICTED RIGHTS. Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subparagraphs (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 or subparagraphs (c)(1) and (2) of the Commercial Computer Software-Restricted Rights at 48 CFR 52.227-19, as applicable. Manufacturer is ENDOSOFT, LLC., 135 Broadway, Schenectady, NY 12305 USA.