

# RAPTOR VIX

---

## VIX

The VistA Imaging Exchange (VIX) service is a service deployed at all VA sites. The purpose of the VIX is to provide access to images stored in VistA Imaging using web services. To provide access to images for Raptor, a modified version of the VIX will be deployed with Raptor that will communicate with the VIX services already deployed at VA sites.

## RAPTOR VIX

The RAPTOR VIX is a modified VIX service that will provide access to image stored in VistA Imaging. The RAPTOR VIX will include an interface for retrieving the list of studies for a patient. The RAPTOR VIX will also host an HTML5 viewer for displaying the images stored in a study.

## RAPTOR Interface

### Authentication

The RAPTOR VIX uses BASIC authentication to authenticate the user. The credentials are expected to be the access and verify codes of a user. In addition to the access/verify codes the following request header should be included in the request:

Request Header Name	Description
xxx-authenticate-site-number	The site number where the user credentials are from. Should be a three digit VA primary site station number that exists in the VA Site Service

### Get Study for Order

The RAPTOR VIX interface uses a RESTful web service request for retrieving the study that corresponds to the radiology order specified. The request should be made as the following:

```
http://<VIX hostname>:<VIX  
port>/RaptorWebApp/secure/restservices/raptor/study/<VA site number>/<radiology  
order IEN>
```

Parameter	Description
VA site number	The site number where the case is from. Should be a three digit VA primary site

	station number that exists in the VA Site Service
radiology order IEN	The IEN of an entry in File #75.1 (RAD/NUC MED ORDERS)

The result will be in XML format similar to the example shown in [Appendix A](#)

The result will include a single study, with one or more series. Each series will only contain a single image even if the series actually contains multiple images. Each image contains a **thumbnailImageUri** property that will provide access to retrieving the thumbnail associated with that image (see [Thumbnail Images](#)). The study will contain a **studyId** property which can be used to display the study in the HTML5 viewer (see [HTML5 Viewer](#)). The full series/image information will be displayed in the HTML5 viewer.

If the requested order does not have images associated with it or there is an error, an Exception will be thrown. The HTTP status code will be **600** and the response will be in the following format:

```
<restExceptionMessage>
  <message>
    Description of error
  </message>
</restExceptionMessage>
```

### Get Patient Studies

To retrieve the list of imaging studies for a patient, a RESTful call should be made in the following URL format:

```
http://<VIX hostname>:<VIX
port>/RaptorWebApp/secure/restservices/raptor/studies/<VA patient ICN>/<VA site
number>
```

```
http://localhost:8080/RaptorWebApp/secure/restservices/raptor/studies/10110V00487
7/500&dateFrom=<dateFrom>&dateTo=<dateTo>&maxResults=<maxResults>
```

Parameter	Description
VA patient ICN	The ICN of the patient to retrieve the studies for
VA site number	The site number where the studies should come from. Should be a three digit VA primary site station number that exists in the VA Site Service
dateFrom	Optional field to specify the start date of studies to include
dateTo	Optional field to specify the end date of studies to include

maxResults	Optional field to limit the number of results to include
------------	--

The result will be in XML format similar to the example in [Appendix B](#).

The **studyId** field should be used to retrieve the list of images in the study.

### Get Study

To retrieve the study for a patient (containing the images in the study), a RESTful call should be made in the following URL format:

http://<VIX hostname>:<VIX port>/RaptorWebApp/secure/restservices/raptor/study/<studyId>

Parameter	Description
studyId	The studyId to retrieve

The result will be in XML format similar to the example shown in [Appendix A](#)

See [Get Study for Order](#) for details of using the results for viewing images.

### Thumbnail Images

Thumbnail images can be downloaded by making an HTTP GET request to the following:

http://<VIX hostname>:<VIX port>/RaptorWebApp/secure/thumbnail<thumbnailImageUri>

Parameter	Description
thumbnailImageUri	The URI specified in the image object in the Get Study Details response

Images will be returned in JPG format.

### Patient Sensitivity

It is assumed that patient sensitivity has been checked and properly logged before requesting the list of studies through this interface. This interface assumes only authorized users are requesting patient studies. Access to sensitive patients will not be logged by this interface.

### HTML5 Viewer

Images will be displayed using an HTML5 viewer hosted on the RAPTOR VIX. The input to the HTML5 viewer will be the studyId and securityToken properties in the study tag of the XML result. To view images in the HTML5 viewer, open a new browser window (or direct them) to the following URL:

http://<VIX hostname>:<VIX  
port>/HTML5DicomViewer/secure/HTML5Viewer.html?studyId=<studyId>  
&securityToken=<securityToken>

The HTML5 Viewer will handle retrieving the images in the study and displaying them. It is the responsibility of Raptor to close the HTML5 Viewer if another patient is being displayed or if the user logs out or closes the Raptor web application.

## Appendix A

The following is a sample result when requesting the details of a study details:

```
<study>
  <cptCode>74160</cptCode>
  <description>CT ABDOMEN W/CONT</description>
  <dicomUid>1.2.826.0.1.3680043.8.966.1.4.1.6889075.7781.1.92411.72</di
    comUid>
  <event/>
  <imageCount>2</imageCount>
  <imageType>IMAGE</imageType>
  <origin/>
  <patientIcn>500000006V723866</patientIcn>
  <patientName>FRANK,MACY LUCY</patientName>
  <procedureDate>2011-09-24T22:18:00-04:00</procedureDate>
  <procedureDescription>RAD *</procedureDescription>
  <securityToken>ABC123</securityToken >
  <serieses>
    <series>
      <imageCount>1</imageCount>
      <images>
        <image>
          <description>CT ABDOMEN W/CONT (#2)</description>
          <imageClass>CLIN</imageClass>
          <imageId>urn:vaimage:1-12239-12237-
            500000006V723866</imageId>
          <imageNumber>0</imageNumber>
          <imageUid>1.3.6.1.4.1.5962.99.1.2634.6192.1316894051125.4.1
            .9893.5774.0</imageUid>
          <procedure>*</procedure>
          <procedureDate>2011-09-24T22:18:00-04:00</procedureDate>
          <thumbnailImageUri>
            ?imageUrn=urn:vaimage:1-12239-12237-500000006V723866
          </thumbnailImageUri>
        </image>
      </images>
      <modality/>
      <seriesNumber>15774</seriesNumber>
      <seriesUid>
        1.3.6.1.4.1.5962.99.1.2634.6192.1316894051125.4.3.9893.5774
      </seriesUid>
    </series>
    <series>
      <imageCount>1</imageCount>
      <images>
```

```

<image>
  <description>CT ABDOMEN W/CONT (#1)</description>
  <imageClass>CLIN</imageClass>
  <imageId>urn:vaimage:1-12238-12237-
    500000006V723866</imageId>
  <imageNumber>0</imageNumber>
  <imageUid>1.3.6.1.4.1.5962.99.1.2634.6192.1316894051125.4.1
    .9893.5775.0</imageUid>
  <procedure>*</procedure>
  <procedureDate>2011-09-24T22:18:00-04:00</procedureDate>
  <thumbnailImageUri>
    ?imageUrn=urn:vaimage:1-12238-12237-500000006V723866
  </thumbnailImageUri>
</image>
</images>
<modality/>
<seriesNumber>15775</seriesNumber>
<seriesUid>
  1.3.6.1.4.1.5962.99.1.2634.6192.1316894051125.4.3.9893.5775
</seriesUid>
</series>
</serieses>
<specialtyDescription>RADIOLOGY</specialtyDescription>
<studyClass>CLIN</studyClass>
<studyId>urn:vastudy:1-12237-500000006V723866</studyId>
</study>

```

## Appendix B

The following is a sample result when requesting the list of studies for a patient:

```

<studies>
  <study>
    <cptCode>74176</cptCode>
    <description>CHEST 8 VIEWS</description>
    <dicomUid>1.2.840.113754.1.4.500.6859578.8896.1.42114.54</dicomUid>
    <event>COMPUTED RADIOGRAPHY</event>
    <imageCount>1</imageCount>
    <imageType>IMAGE</imageType>
    <origin>VA</origin>
    <patientIcn>10110V004877</patientIcn>
    <patientName>TEN,PATIENT</patientName>
    <procedureDate>2014-04-21T11:03:00-04:00</procedureDate>
    <procedureDescription>RAD CR</procedureDescription>
    <securityToken>
      ABC
    </securityToken>
    <serieses/>
    <specialtyDescription>RADIOLOGY</specialtyDescription>
    <studyClass>CLIN</studyClass>
    <studyId>urn:vastudy:500-865-10110V004877</studyId>
  </study>
</studies>

```

```

</study>
<study>
  <cptCode/>
  <description>CHEST-MULTIPLE VIEW</description>
  <dicomUid>1.2.840.113754.1.4.500.6859581.8885.1.41814.50</dicomUid>
  <event>COMPUTED RADIOGRAPHY</event>
  <imageCount>2</imageCount>
  <imageType>IMAGE</imageType>
  <origin>VA</origin>
  <patientIcn>10110V004877</patientIcn>
  <patientName>TEN,PATIENT</patientName>
  <procedureDate>2014-04-18T11:14:00-04:00</procedureDate>
  <procedureDescription>RAD CR</procedureDescription>
  <securityToken>
    ABC
  </securityToken>
  <serieses/>
  <specialtyDescription>RADIOLOGY</specialtyDescription>
  <studyClass>CLIN</studyClass>
  <studyId>urn:vastudy:500-862-10110V004877</studyId>
</study>
<study>
  <cptCode>71020</cptCode>
  <description>CHEST 3 VIEWS</description>
  <dicomUid>1.2.840.113754.1.4.500.6868875.8789.1.112413.47</dicomUid>
  <event>COMPUTED RADIOGRAPHY</event>
  <imageCount>2</imageCount>
  <imageType>IMAGE</imageType>
  <origin>VA</origin>
  <patientIcn>10110V004877</patientIcn>
  <patientName>TEN,PATIENT</patientName>
  <procedureDate>2013-11-24T12:10:00-05:00</procedureDate>
  <procedureDescription>RAD CR</procedureDescription>
  <securityToken>
    ABC
  </securityToken>
  <serieses/>
  <specialtyDescription>RADIOLOGY</specialtyDescription>
  <studyClass>CLIN</studyClass>
  <studyId>urn:vastudy:500-825-10110V004877</studyId>
</study>
</studies>

```