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Luna Imaging Inc.

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**insight**<sup>®</sup>

# Getting started with the Insight XML Gateway

Luna Imaging Inc.

*insight*<sup>®</sup>

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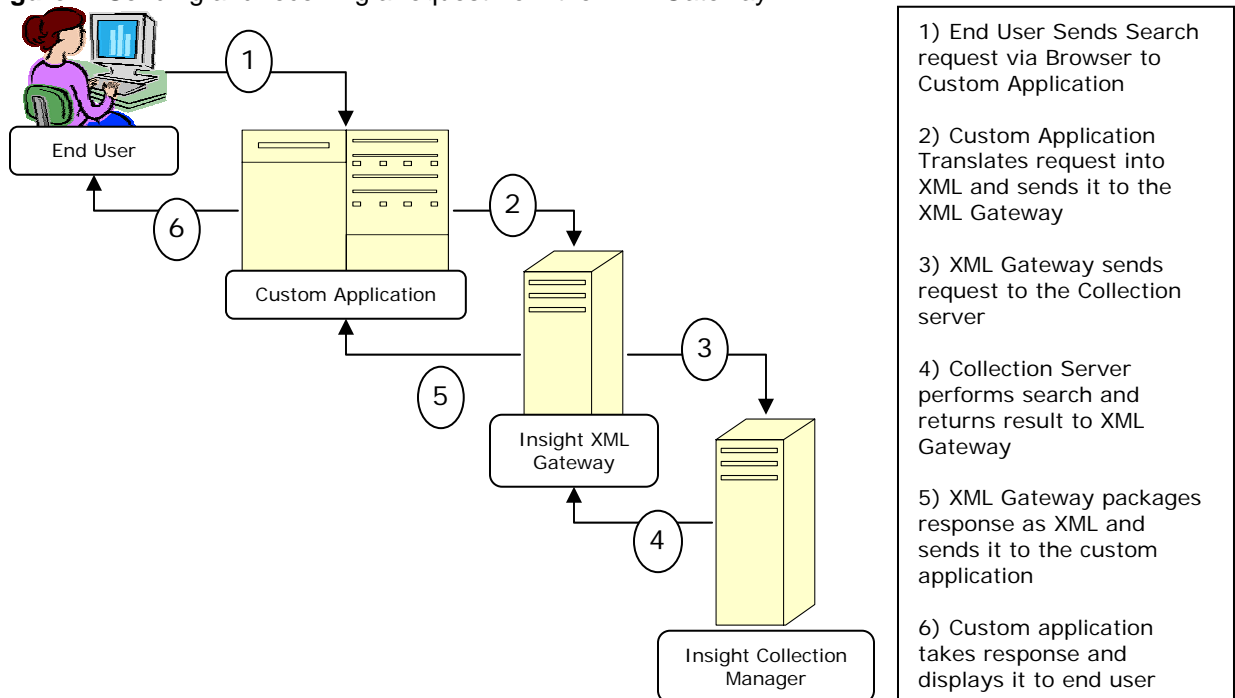
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## How does the Insight XML Gateway Work?

The Insight XML Gateway is middleware. It provides a backend application interface between the content and features within Insight and other applications. It provides a rich toolset to allow Web Application Designers, Developers, and Administrators to use the strengths of the Insight infrastructure, including its advanced search and data retrieval features as a backend for their own applications.

The XML Gateway is a Java Servlet that provides access to Insight content and a subset of Insight's commonly used features by using the HTTP protocol to send and receive XML documents. Once the gateway is configured, applications can send HTTP POST requests to the Gateway to get collection descriptions, perform searches, or retrieve full data records and receive the results back via XML Documents in the HTTP response.

**Figure 1:** Sending and receiving a request from the XML Gateway



## What can be done with the XML Gateway?

As middleware, the XML Gateway provides direct access to Insight functionality. Specifically, the gateway separates the Insight user interface from the backend functionality – allowing developers to build their own interfaces and still leverage Insight's functionality. With the XML Gateway, developers can focus on developing tools to use Insight content without worrying about how to perform a search, compile result sets, or organize data.

## The XML Gateway in Use... a Simple Example

The XML Gateway exposes Insight's infrastructure for use by application developers.

In a simple example, a web-designer might create a website with dynamic content from Insight. The end user could go to the website, perhaps view a few selected images from Insight, and then perform a keyword search. The user would then page through the results to find the image he/she was interested in, and then open those images in the Insight Image Workspace of either

the browser or the Java client. To add a bit more complexity, the end user could customize their searches via data fields, change the thumbnail labels, and/or sort the results.

In a more complex example, the XML Gateway might be used as a backend bridge between Insight and an organization's other data repositories, either allowing Insight to share records with other systems, or creating federated search tools that allow end users to search all repositories. Another backend use might include providing a basic infrastructure for data transformation services.

### **Types of Requests & Responses – DTDs**

The XML Gateway is a multi-threaded messaging translator, relaying parallel requests and responses between user software and Insight internals. For each request sent to the gateway, the gateway will send back a response. For convenience, the gateway embeds the criteria of the request into the response.

The Insight XML Gateway knows about the following types of information regarding a collection or group of collections:

#### **Collection List Request:**

A client requests information about the Insight collections available through this gateway.

#### **Collection List Response:**

The gateway responds with a list of available Insight collections. Each collection will have an associated unique identifier, name, description, institution name, copyright statement, record count, list of supported standard mappings and a Remote Launch String for the group workspace.

The Remote Launch String in this response launches Insight's group workspace, displaying thumbnail images and thumbnail labels for the entire collection.

#### **Field List Request:**

A client requests information about the searchable data fields for specific collections. The request may include references for a single collection or multiple collections. The only data required for this request is the unique identifier(s) of the collection(s).

#### **Field List Response:**

The gateway sends a separate response for each collection, providing a list of defined data fields associated with that collection. Each data field in the response will have an associated native field name and native data type, either 'text' or 'numeric'. Also included are attributes indicating which fields may be used as thumbnail captions, and which fields may be used for sorting. The default fields used for thumbnails and sorting are also indicated.

#### **Search Request:**

A client requests content from one or more collections. Two forms of search requests are supported:

1. A request with a single search specification for an individual or for multiple collections, consisting of a list of unique collection identifiers and the search criteria. Search criteria must use standard fields common to the collections.
2. A request with a single search specification for an individual collection, consisting of the collection unique identifier and the search criteria. Search criteria must use the native fields specific to that collection.

Search criteria will support basic keyword searching, and will also support searching by data fields. The criteria for searching by data fields will have the following characteristics:

- Either Standard or Native fields may be used in criteria, but types may not be mixed.
- The comparison operators that can be used will depend on the data type of a field. For text fields, the supported operators are: *equals*, *contains*, *begins with*, *ends with*, *does not contain*. For numeric fields, the supported operators are: *equals*, *greater than*, and *less than*. Keyword fields may only use *equals*, although the wildcard characters '\*' and '?' are supported.
- Searching may use compound conditions linked by AND or OR. The gateway does not recognize the use of parentheses required of full Boolean searching.

Each request will indicate whether results are desired in terms of native fields, standard fields, or both. Requests must also indicate the maximum number of results that can be included in the response for each collection. The client may specify the kinds of information that will be returned for each collection. A search request may also specify that no results should be returned – this is useful for determining if (or how many) matching objects exist in a collection, when the actual objects are not of interest. The kinds of information desired will be specified in a list selected from among the following options:

1. A Remote Launch String which launches Insight's group workspace, displaying thumbnail images and thumbnail labels of the entire search result set. Remote launch strings which target Luna's two clients (Insight and BrowserInsight) will be included, if available.
2. The four thumbnail labels for each matching object, including their field name and value.
3. Image data, including dimensions, media type, and media file URLs. By default, only thumbnail image data is retrieved, however, larger image size information may be requested.
4. A Remote Launch String for each matching object, which launches Insight's image workspace with an image of the matching object.
5. The full catalog description (fields and values) for each matching object, represented in any data standard supported by the collection.

### **Search Response:**

For each collection specified in the request, a separate response will be returned, containing the unique identifier of the collection searched, the number of results returned, the size of the matching dataset in the database, the index of the first returned item within the full matching dataset, the number of objects in the database, and result content as indicated by the result options selected in the request. In the event of an error, the search response will indicate the error, and contain a variable text error message.

### **Data Request:**

The data request allows a client to request the full catalog description (fields and values) for specified objects. This is an alternate to the search request, which gives full catalog descriptions if they are requested. The client will send a list of object and image IDs to the gateway. These IDs are returned by the gateway in the search response.

### **Data Response:**

The data response uses the same result structure as the search response. All types of information which are (optionally) included in a search response will be included in the data response, for every matching object specified in the request.

## Functional / DTD Cross-Reference

### Collection List Request

A collection list request is used to query the Insight XML Gateway for information regarding available collections. The request contains a single *collectionRequest* element. Personal collections can be excluded from the response by including the attribute *includePersonalCollections="false"*.

### Collection List Response

A collection list response contains zero or more *collectionInformation* elements, followed by a *status* element. A successful response provides the list of collections that may be queried by the Insight XML Gateway.

**<collectionResponse>** elements:

- <status>**: Success, partial failure, or complete failure.
- <collectionInformation>**: Information about a collection that may be queried.

**<status>** attributes:

- code*: zero indicates success; greater than zero indicates an error.

**<collectionInformation>** attributes:

- cid*: The unique ID of this collection within the Insight XML Gateway. Used to identify the collection in most other requests.
- collectionRecordCount*: The total number of records in the collection.

**<collectionInformation>** elements:

- <collectionName>**: The name of this collection.
- <collectionID>**: The numeric ID of the collection (not equivalent to *cid*). Generally used for internal purposes.
- <institutionID>**: The ID of the institution owning the collection. Generally used for internal purposes.
- <vcID>**: The virtual collection ID of the collection. Generally used for internal purposes.
- <description>**: Description of this collection.
- <copyright>**: Copyright statement for this collection.
- <remoteLaunch>**: A URL that launches Insight's group workspace, in Insight or BrowserInsight.
- <mapping>**: A standard mapping that is supported for this collection.
- <status>**: zero indicates success; greater than zero indicates an error.

**<mapping>** attributes:

- type*: native or standard. The default value is native.
- name*: The name of the standard mapping.

**<remoteLaunch>** attributes:

- type*: groupWorkspace
- target*: insight or browserinsight. The default value is browserinsight.

#### Notes

*copyright* is included only if available.

One or more *mapping* elements may be returned for each collection. One element for each mapping supported for that collection.

There may be no *CollectionInformation* elements if an error occurred.

Example of an error is,

```
<status code="3">Collection unavailable.</status>
```

## Field List Request

A field list request is used to query the Insight XML Gateway for information regarding the searchable data fields supported by collections.

The request contains a list of *fieldCollection* elements.

**<fieldRequest>** elements:

**< fieldCollection>**: A collection to query.

**<fieldCollection>** attributes:

*cid*: The unique ID of the collection within the Insight XML Gateway.

### Notes

A field list request without any *fieldCollection* element is used to query all available collections. In this case, users may choose to exclude personal collections from the results by including the attribute *includePersonalCollections="false"*.

## Field List Response

A field list response contains zero or more *collectionFieldList* elements followed by a *status* element. A successful response provides the list of searchable data fields that may be queried by the Insight XML Gateway, for each collection requested. The response provides one native type *fieldList* for each *collectionFieldList* element followed by zero or more standard type *fieldList* elements for supported standard mappings for that collection.

**<fieldResponse>** elements:

**< collectionFieldList>**: List of data fields for a collection.

**<status>**: Success or error.

**<status>** attributes:

*code*: zero indicates success; greater than zero indicates that not all requested collection field lists have been retrieved, or that other problems have occurred.

**< collectionFieldList>** attributes:

*cid*: The unique ID of this collection within the Insight XML Gateway.

*supportsCustomSortAndThumbnails*:

If this attribute is 'false', then **<thumbnailField>** and **<sortField>** elements should not be sent in requests. Doing so will result in an error response.

**< collectionFieldList>** elements:

**<collectionName>**: The name of this collection.

**<collectionID>**: The numeric ID of the collection (not equivalent to *cid*). Generally used for internal purposes.



- <institutionID>**: The ID of the institution owning the collection. Generally used for internal purposes.
- <vcID>**: The virtual collection ID of the collection. Generally used for internal purposes.
- <fieldList>**: zero or more field sets.
- <status>**: Success or error retrieving fields for this collection.

**< fieldList>** attributes:

- mappingType**: The mapping for this list, standard or native. The default value is native.
- mappingName**: The name of the mapping for this list.
- supportsThumbnails**: true or false. If true, then *returnResultsIn* in a search request will cause **<thumbnail>** elements to be returned in this standard. Also, if true, then clients may send **<thumbnailField>** elements in this standard, so long as any thumbnailFields specified are valid thumbnail fields (see **<dataField>**).
- supportsSort**: true or false. If true, then queries using this field standard will be sorted using fields from the standard. If false, then the native standard's sort specification will be used. Also, if true, then clients may send **<sortField>** elements when using this standard for search criteria, so long as any sortFields specified are valid sort fields (see **<dataField>**).

**< fieldList>** elements:

- <dataField>**: zero or more searchable data fields within the collection.

**< dataField>** attributes:

- name**: The name of this data field.
- type**: text or numeric. The default value is text.
- isSearchField**: true or false. The default value is true. If true, the field may be used in a search criterion.
- isThumbnailField**: true or false(default). If true, the field may be used as a **<thumbnailField>**, for customizing thumbnail captions.
- isSortField**: true or false(default). If true, the field may be used as a **<sortField>**, for customizing sort order.
- isDefaultThumbnailField**: true or false(default). If true, this field will be a thumbnail label by default.
- isDefaultSortField**: true or false(default). If true, this field will be used for sorting results, by default.

**< dataField>** elements:

- < fieldMapping>**: Optional within native type *fieldList* elements, a standard field that the native field name has a mapping to. Multiple *fieldMapping* elements may exist for a *dataField*. **FieldMappings are not implemented in version 5.0, and will not be generated in responses.**

## Search Request

A search request is used to query the Insight XML Gateway for information regarding objects in collections matching specified search criteria. Search requests can be in terms of either native

fields or standard fields. A search request using standard fields common to the collections may specify multiple collections to search. A search request using native fields can only apply to one collection.

**<searchRequest>** attributes:

<i>mappingType</i> :	The mapping for search fields, <u>standard</u> or <u>native</u> . The default value is <u>native</u> .
<i>mappingName</i> :	Name of the mapping for search fields. Optional if <i>mappingType</i> value is <u>native</u> .
<i>recordCount</i> :	Maximum result of objects desired in resulting <collectionResultSet> elements.
<i>firstRecordIndex</i> :	Used for paging. Index within the matching result set of the first record to be returned.
<i>maxImageSize</i> :	Maximum size of <image> elements. In this version of the gateway, the largest supported size is two (large thumbnail). Size zero images are small thumbnails. If not specified, no <image> elements will be returned.
<i>includeFullDataRecord</i> :	Full catalog description. Default is true.
<i>includeThumbnailUrl</i> :	Thumbnail URL for each matching object. Default is true.
<i>includeThumbnailLabels</i> :	Thumbnail labels for each matching object. Default is true.
<i>includeGroupWorkspaceLaunchURL</i> :	Default is true.
<i>includeImageWorkspaceLaunchURL</i> :	Remote Launch String for each matching object. Default is true.

**<searchRequest>** elements:

<b>&lt; searchCollection&gt;</b> :	A collection to query.
<b>&lt; sortField &gt;</b> :	Zero through four fields to use for sorting the result set.
<b>&lt; returnResultIn&gt;</b> :	Desired mappings for the result set.
<b>&lt; criteria&gt;</b> :	Criteria to search by.

Notes:

*SearchRequest* must have at least one *searchCollection*.

If no *returnResultIn* is specified, no result <object> elements will be returned.

If no *criteria* is specified, all objects in the collection, up to recordCount, will be returned.

Only one *searchCollection* can exist for a search request of type *native*.

If *maxImageSize* is not specified, no <image> elements will be returned.

**< sortField >** attributes:

<i>name</i> :	The name of a sort field, from the standard identified in the search request. Only fields with the attribute 'isSortField'="true" are valid. This element need not be specified – the gateway will always provide a default sort order.
---------------	---

**< searchCollection>** attributes:

<i>cid</i> :	The unique ID of this collection within the Insight XML Gateway.
--------------	--

**< returnResultIn>** attributes:

<i>mappingType</i> :	The mapping to use for the result set, <u>standard</u> or <u>native</u> . The default value is <u>native</u> .
<i>mappingName</i> :	The name of the standard mapping for the result set. Optional if <i>mappingType</i> value is <u>native</u> .

**< returnResultIn >** elements:

**< thumbnailField >** Zero through four fields to use as thumbnail labels.

**<thumbnailField>** attributes:

*name*: The name of a thumbnail field, from the standard identified in the containing `<returnResultIn>`. Only fields with the attribute 'isThumbnailField="true"' are valid. This element need not be specified – the gateway will always provide default thumbnail labels.

**<criteria>** attributes:

*fieldtype*: keyword or data. The default value is keyword.

*fieldname*: The name of this data field, when *fieldtype* is data.

*type*: text or numeric. The default value is text.

*condition*: CONTAINS | BEGINS WITH | ENDS WITH | DOES NOT CONTAIN | LESS THAN | GREATER THAN | EQUALS.

The default value is CONTAINS.

*booleanOperator*: The boolean condition to be used for this criteria, defaulting to OR. See Section II of this document for examples of support for multiple criteria in a search request.

Allowed conditions for a text type: EQUALS, CONTAINS, BEGINS WITH, ENDS WITH, DOES NOT CONTAIN.

Allowed conditions for a numeric type: LESS THAN, GREATER THAN, EQUALS.

Note: criteria of fieldtype keyword may only use condition EQUALS and booleanOperator AND. Wildcard characters (\* and ?) are supported for keyword searches.

## Search Response

For every search request, the Insight XML Gateway will generate a response. The response contains zero or more *collectionResultSet* elements, each containing result data from an individual collection, followed by a *status* element,. If a *searchRequest* was malformed or invalid, the response will contain an error *status*, and no *collectionResultSet*. Multiple *collectionResultSet* elements may be returned for a standard field search request, one for each collection that was searched.

**<searchResponse>** elements:

**< collectionResultSet>**: Individual collection's search results.

**<status>**: Success or error.

**<status>** attributes:

*code*: zero indicates success; greater than zero indicates that at least one collection was not searchable, or that other problems have occurred.

**<collectionResultSet>** attributes:

*cid*: The unique ID of this collection within the Insight XML Gateway.

*resultSetSize*: The number of *object* elements in this `<resultSet>`.

*firstRecordIndex*: Index within the collection's full set of matching objects of the first <object> in this <resultSet>.

*matchingRecordCount*: The total number of matching objects in this collection.

*requestedRecordCount*: The value of the 'recordCount' attribute of the <searchRequest>, or the number of <objectCriteria> provided in a <dataRequest>. This is provided for assistance with paging interfaces.

*collectionRecordCount*: The number of objects in the collection.

*includesFirstRecord*: Convenient attribute for determining if there are previous matching records in the collection's full set of matching objects.

*includesLastRecord*: Convenient attribute for determining if there are further matching records in the collection's full set of matching objects.

**<collectionResultSet>** elements:

**<collectionName>**: The name of this collection.

**<collectionID>**: The numeric ID of the collection (not equivalent to *cid*). Generally used for internal purposes.

**<institutionID>**: The ID of the institution owning the collection. Generally used for internal purposes.

**<vcID>**: The virtual collection ID of the collection. Generally used for internal purposes.

**<remoteLaunch>**: A URL which launches Insight's group workspace.

**<object>**: An object matching the search.

**<status>**: Success or error searching this collection. Example of an error is, "Collection doesn't support query standard."

**<remoteLaunch>** attributes:

*type*: Will have the value groupWorkspace in the *collectionResultSet* context.

*target*: insight or browserinsight. The default value is browserinsight.

**<object>** attributes:

*cid*: The unique ID of this collection within the Insight XML Gateway.

*objectID*: The unique ID of this object within the collection.

*imageID*: The unique ID of an image associated with this object.

*type*: Indicates the type of media represented by this object. Possible values are media, multi-page-document, and multi-view-document.

**<object>** elements:

**<collectionName>**: The name of this collection.

**<collectionID>**: The numeric ID of the collection (not equivalent to *cid*). Generally used for internal purposes.

**<institutionID>**: The ID of the institution owning the collection. Generally used for internal purposes.

**<vcID>**: The virtual collection ID of the collection. Generally used for internal purposes.

**<collectionCopyrightStatement>**: The collection's copyright statement, if defined.

**<remoteLaunch>**: A URL which launches Insight's group or image workspace, displaying this object.

**<thumbnail>**: Thumbnail data for this object. There will be one *thumbnail* for each data standard requested in the search.

**<image>**: Information regarding an image associated with this object.

**<fullData>**: Full data record for this object. If full data records are requested, there will be one *fullData* for each data standard requested in the search.

**<remoteLaunch>** attributes:

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*type*: Will have the value imageWorkspace or groupWorkspace in the *object* context.  
*target*: insight or browserinsight. The default value is browserinsight.

### <thumbnail> attributes:

*URL*: A URL for the thumbnail image.  
*mappingType*: standard or native. The default value is native.  
*mappingName*: The name of the data mapping used by this *thumbnail*.

### <thumbnail> elements:

<label>: A label associated with this thumbnail, represented in the data standard identified by the *name* attribute of this *thumbnail*.

### <label> attributes:

*name*: The name of the label, in the standard identified by the *name* attribute of the *thumbnail*.  
*order*: The display order of this label.

### <image> attributes:

*URL*: A URL for the thumbnail image.  
*mediaType*: Will have the value 'image', 'audio', 'video', or 'QTVR'.  
*height*: Height of the image in pixels.  
*width*: Width of the image in pixels.  
*size*: Image size in Insight units.

### <image> elements:

<mediaInfo>: Holds technical metadata about an image. Only included if *includeFullDataRecord* is true in the <searchRequest>.

### <mediaInfo> elements:

<field>: A media data field.

### <fullData> elements:

<objectInfo>: Data pertaining to this *object*. There may be one *objectInfo* per requested data standard.

### <objectInfo> attributes:

*mappingType*: standard or native. The default value is native.  
*mappingName*: The name of the data mapping used by this *objectInfo*.

### <objectInfo> elements:

<field>: A data field not contained in any *fieldGroup*.  
<fieldGroup>: A data field group, containing related data fields.

### <fieldGroup> attributes:

*name*: The name of this field group.  
*order*: The display order of this field group.

### <fieldGroup> elements:

<field>: A data field, represented in the data standard of the containing *objectInfo*.

**<field>** attributes:

*name*: The name of this field, in the data standard of the containing *objectInfo*.

*order*: The display order of this field.

**<field>** elements:

**<value>**: One value for this field. Fields can be multi-valued, or have no value.

**<value>** attributes:

*order*: The display order of this value.

## Data Request

A data request is used to query the Insight XML Gateway for full data catalogues and media metadata regarding specific objects in a collection. Unlike search requests, a data request may only apply to one collection. Objects are identified in a data request by specifying their object and image IDs, which are provided as attributes to the **<object>** elements returned by a search request.

**< dataRequest >** attributes:

*cid*: The unique ID of this collection within the Insight XML Gateway.

*maxImageSize*: Maximum size of **<image>** elements. In this version of the gateway, the largest supported size is two (large thumbnail). Size zero images are small thumbnails. If not specified, no **<image>** elements will be returned.

**< dataRequest >** elements:

**< returnResultIn >**: Desired mapping for the result set.

**< objectCriteria >**: Desired mapping for the result set.

**< returnResultIn >** attributes:

*mappingType*: The mapping to use for the result set, standard or native.

The default value is native.

*mappingName*: The name of the standard mapping for the result set.

Optional if *mappingType* value is native.

**< returnResultIn >** elements:

**< thumbnailField >** This element should not be included in a **<dataRequest>**. If present, it will be ignored.

**< objectCriteria >** attributes:

*objectID*: The unique ID of this object within the collection.

*imageID*: The unique ID of an image associated with this object.

## Data Response

For every data request, the Insight XML Gateway will generate a response. The definition of the **dataResponse** matches that of the **searchResponse**, with the following differences:

1. As the **dataRequest** can only specify one collection to search, there will at most one **<collectionResultSet>** element in the response.

2. The optional members of the `collectionResultSet` will always be included in the data response.

## **Business Rules used when Processing Requests**

Every request is validated against the DTD, however, there are some rules that cannot be fully represented in the constraints of the DTD. Therefore, the DTD identifier must be provided in the XML header. In addition, this DTD must be for doctype `<insightRequest>`.

If a parsing or validation error is detected, an `<insightResponse>` will be sent to the client, containing a `<status>` code of 1 (Validation error). The status element is guaranteed to be an immediate child of the `<insightResponse>`. Depending on where in the parsing sequence the error occurred, this same status element may occur as a child of other elements. It is guaranteed that the gateway will perform no queries if a validation error occurs.

### **<insightResponse> status codes:**

- 0: Success.
- 1: Validation error. XML was not well-formed, or validation failed, or business rule violated. Business rules which can cause this error are identified in this document.
- 5: Partial Failure. One or more operations failed, but some operations completed successfully.
- 6: Complete Failure. No operation completed successfully.
- 7: No operation. The gateway performed no operations. Only generated by a search request or field request (with no specified collection) when the gateway is configured with access to zero collections.

## **Collection Request**

The list of collections available is determined by the Insight User the gateway is currently running as, and is thus determined by the system administrator. There will be one `<collectionInformation>` element in the response per accessible collection. If the attribute `includePersonalCollections="false"` is included in the request, then personal collections will not be included in the response.

### **<collectionListResponse> status codes:**

- 0: Success.
- 5: Partial Failure. One or more operations failed, but some operations completed successfully.
- 6: Complete Failure. No operation completed successfully.
- 7: No operation. The gateway performed no operations. This will be due to the gateway being configured with no access to any collections.

### **<collectionInformation> status codes:**

- 0: Success.
- 2: Exception. An unexpected exception has occurred. The string representation of the exception will be provided.
- 3: Collection unavailable. A connection with the Collection Manager could not be made.

## Field Request

If no **<fieldCollection>** elements are provided, all available collections will be queried. If the attribute *includePersonalCollections="false"* is included in the request, then personal collections will not be included in the response.

### **<fieldResponse> status codes:**

- 0: Success.
- 5: Partial Failure. One or more operations failed, but some operations completed successfully.
- 6: Complete Failure. No operation completed successfully.
- 7: No operation. The gateway performed no operations. This will be due to the gateway being configured with no access to any collections.

### **<collectionFieldList> status codes:**

- 0: Success.
- 3: Collection unavailable. A connection with the Collection Manager could not be made.
- 4: Collection undefined. The gateway is unaware of a collection specified in the request.

### **Rules on < collectionFieldList > attributes:**

1. 'supportsCustomSortAndThumbnails'. This attribute will have the value true if the server being queried supports custom specifications of thumbnail fields and sort fields during search requests. This is a configurable property of an Insight Server. If this attribute is 'false' then <thumbnailField> or <sortField> elements in a <searchRequest> will generate an error.

### **Rules on < fieldList > attributes:**

1. 'supportsThumbnails'. This attribute will have the value 'true' if and only if the field standard has at least one data field which can be used as a <thumbnailField>, and if the value of 'supportsCustomSortAndThumbnails' is 'true' for the containing <collectionFieldList>. This condition is defined by a collection's configuration, and can not be set by the XML gateway.
2. 'supportsSort'. This attribute will have the value 'true' if and only if the field standard has at least one data field which can be used as a <sortField>, and if the value of 'supportsCustomSortAndThumbnails' is 'true' for the containing <collectionFieldList>. This condition is defined by a collection's configuration, and can not be set by the XML gateway.

## Search Request

There are two categories of error conditions which can occur during the parsing and processing of a search request. The first category contains those errors which will automatically prevent any search from being executed. These errors are generally reported as validation errors (status code 1), and are the result of violating a business rule, such as using the condition 'CONTAINS' on a numeric dataField. The second category of errors are those which will prevent a search of at least one collection from being executed, but will not necessarily prevent all searches from occurring. An example of this type of error is searching multiple collections by a standard mapping which is not supported by all collections.



**Default values of <searchRequest> attributes:**

mappingType:	native
mappingName:	null
firstRecord	1
maxImageSize	0
includeGroupWorkspaceLaunchURL	true
includeImageWorkspaceLaunchURL	true
includeThumbnailLabels	true
includeFullDataRecord	true
includeThumbnailUrl	true

**Rules on < searchRequest > attributes:**

1. If 'mappingType' is native, 'mappingName' is ignored.
2. If 'recordCount' is not a valid number, a validation error (status code 1) will result.
3. If 'firstRecord' is not a valid number, a validation error (status code 1) will result.
4. 'includeFullDataRecord' also controls the presence of the <mediaInfo> element in the response.
5. If 'includeGroupWorkspaceLaunchURL' is true and 'mappingType' is native, <remoteLaunchURL>s will be included in the <collectionResultSet> which will launch Insight and/or BrowserInsight configured to display the same search result as that contained in the <collectionResultSet>.

**Rules on < sortField >:**

1. If 'name' is not the name of a valid sort field (isSortField='true') in the standard used to express the query in the search request, an error (status code 13) will be reported in the <collectionResultSet>. This rule is tested independently on each collection searched, as a specific field may be a valid sort field in one collection, but not in another.
2. If no <sortField> elements exist in the request, then results will be sorted according to the default sort order of the query standard. If there is no valid definition of a default sort order in this standard, the gateway will substitute the native standard's sort order.
3. There may be at most four <sortField> elements. Additional <sortField> elements will be ignored.
4. <sortField> elements in a search of a collection which does not support custom sorting (supportsCustomSortAndThumbnails = 'true') will result in an error.

**Rules on < returnResultIn > attributes:**

1. If 'mappingType' is native, 'mappingName' is ignored.

**Rules on < thumbnailField >:**

1. If 'name' is not the name of a valid thumbnail field (isThumbnailField='true') in the containing result standard, an error (status code 14) will be reported in the <collectionResultSet>. This rule is tested independently on each collection searched, as a specific field may be a valid sort field in one collection, but not in another.
2. If no <thumbnailField> elements exist in a <returnResultIn> in a search request, then thumbnails for that result standard will use the standard's default thumbnail fields. It is possible that a result standard will not be configured with any thumbnail captions. If this

is the case for all <returnResultIn> elements in a search request, but the 'includeThumbnailLabels' attribute is true, the XML gateway will ensure that thumbnail labels in the collection's native standard are returned.

3. There may be at most four < thumbnailField > elements. Additional < thumbnailField > elements will be ignored.
4. <thumbnailField> elements in a search of a collection which does not support custom sorting (supportsCustomSortAndThumbnails = 'true') will result in an error.

**Rules on < criteria > attributes:**

1. If type is 'text' and fieldtype is 'data', then condition must have one of the enumerated values 'EQUALS', 'CONTAINS', 'BEGINS\_WITH', 'ENDS\_WITH', or 'DOES\_NOT\_CONTAIN'. Violating this rule will result in a validation error (status code 1).
2. If type is 'text' and fieldtype is 'keyword', then condition must be 'EQUALS'. Violating this rule will result in a validation error (status code 1).
2. If type is 'numeric', then condition must have one of the enumerated values 'LESS\_THAN', 'GREATER\_THAN', or 'EQUALS'. Violating this rule will result in a validation error (status code 1).
3. If any criteria has fieldtype 'keyword', then all criteria must have fieldtype 'keyword'. Violating this rule will result in a validation error (status code 1).
4. If criteria are of fieldtype 'keyword', then the 'booleanOperator' attribute must be 'AND'. Violating this rule will result in a validation error (status code 1). (This rule is ignored if there is only one criteria, as the booleanOperator is meaningless in this case).
5. If fieldtype is 'data', 'fieldname' must match a searchable field (a field with the 'isSearchField' attribute being true). Violating this rule will result in the collection not being searched, and status code 15. The field may be a valid search field in another collection.

Examples of creating search criteria supported by the Insight XML Gateway. The OR operator takes precedence: groups of criteria joined with OR are always treated as a series of criteria joined by parentheses.

\*  
[A B] "Any of These"  
Can be specified as  
CONTAIN:A OR CONTAIN:B

\*  
NOT [A B] "All of These"  
Can be specified as  
DOES NOT CONTAIN:A OR DOES NOT CONTAIN:B

\*  
A  
NOT B  
Can be specified as  
CONTAIN:A AND DOES NOT CONTAIN:B

\*  
[A B] "All of These"

NOT C  
Can be specified as  
CONTAIN:A AND CONTAIN:B AND DOES NOT CONTAIN:C

\*  
A  
AND [B C] "Any of These"  
Can be specified as  
CONTAIN:A AND CONTAIN:B OR CONTAIN:C

Note that this is evaluated as CONTAIN:A AND (CONTAIN:B OR CONTAIN:C).

\*  
[A B] "All of These"  
OR C  
Cannot be expressed. The expression  
CONTAIN:A AND CONTAIN:B OR CONTAIN:C

will be evaluated as CONTAIN:A AND (CONTAIN:B OR CONTAIN:C), due to the precedence of the OR operator.

**<searchResponse> status codes:**

- 0: Success.
- 5: Partial Failure. One or more operations failed, but some operations completed successfully.
- 6: Complete Failure. No operation completed successfully.

**<collectionResultSet> status codes:**

- 0: Success.
- 2: Exception. An unexpected exception has occurred. The string representation of the exception will be provided.
- 3: Collection unavailable. A connection with the Collection Manager could not be made.
- 4: Collection undefined. The gateway is unaware of a collection specified in the request.
- 8: Unsupported query standard. This collection does not support the query standard specified in the search request, and will not be searched. The name of the unsupported standard will be provided.
- 9: Unsupported result standard. This collection does not support one of requested result standards. Even if other, supported result standards were requested, this collection will not be searched. The name of the unsupported standard will be provided.
- 10: Unsupported field in standard. One or more dataFields in the search request is not defined in the given standard. This collection will not be searched. The name of the undefined field will be provided.
- 11: Field type mismatch. One or more dataFields in the search request was not of the type specified. This collection will not be searched. The name of the mismatched field will be provided.
- 12: Server error. A server side error occurred during the processing of the search.
- 13: Invalid sort field. One or more <softField> elements in the request was not a dataField which may be used for sorting (i.e. isSortField='false') in this collection. This collection will not be searched.

14. Invalid thumbnail field. One or more <thumbnailField> elements in the request was not a dataField which may be used as a thumbnail label. This collection will not be searched.
16. Collection does not support custom sorting and/or thumbnail fields.

## Data Request

This is a request for metadata information regarding specific objects in a collection. Only one collection may be specified.

Because 'includeFullDataRecord' = 'true' is implicit in the fact that this request is being sent, this attribute is not provided.

More than one <objectCriteria> element may be provided. Multiple <objectCriteria> are joined by an implicit 'OR'.

Results for a <dataRequest> are provided in a <collectionResultSet> element. The possible set of status conditions differs, and is as follows:

### <dataResponse> status codes:

- 0: Success.
- 5: Partial Failure. One or more operations failed, but some operations completed successfully.
- 6: Complete Failure. No operation completed successfully.

### <collectionResultSet> status codes:

- 0: Success.
- 3: Collection unavailable. A connection with the Collection Manager could not be made.
- 4: Collection undefined. The gateway is unaware of a collection specified in the request.
- 9: Unsupported result standard. This collection does not support one of requested result standards. Even if other, supported result standards were requested, the collection will not be searched. The name of the unsupported standard will be provided.
- 12: Server error. A server side error occurred during the processing of the search.
14. Invalid thumbnail field. One or more <thumbnailField> elements in the request was not a dataField which may be used as a thumbnail label. This collection will not be searched.

## Debugging and Error Handling

The XML Gateway integrates two levels of support for debugging:

### Server Side Logging:

For basic support, the XML Gateway has a tiered logging system allowing the System Administrator to manage the verbosity of the gateway's logs from no logging what-so-ever to extremely detailed logs. Configuration of the logging options are managed by the XML Gateway's web.xml file located in the Servlet's deployment directory.

## Interactive Status Messages

Once the gateway is properly setup, other tools are available to help debug. First, each response from the gateway contains a series of status tags which identify the success / failure of a given response. These tags contain valuable information on whether a collection server is available to be queried, whether there was a lexical or validation rule violation, or other useful information. Second, each response contains the request that was sent, which can be a valuable tool in debugging.

## *Psuedo-Code Examples of Sending / Receiving XML*

To provide some perspective on how to get started, some sample code is provided to demonstrate how to send and process requests using a few different programming and scripting languages.

**NOTE:** None of the provided examples consists of a “complete” program or solution, they are intended as “jumping off points” to allow developers or website programmers examples of how to send content to the Gateway.

## PERL

```
#!c:\perl\bin\perl.exe

# This perl script includes the beginnings of what's needed to
# send a request to the gateway and process the response. It takes
# a keyword as a CGI parameter (though it currently does nothing with
# that parameter. It does send a basic collection request to the
# gateway to get a list of the collections available back.

use CGI;                # use the CGI module to manage input parameters
use strict;             # good coding practice
use LWP::UserAgent;     # use the LWP module to handle HTTP interaction

##### CONSTANTS #####

my $gatewayAddress =
"http://dev.lunaimaging.com:8080/insight/servlet/XMLGateway";

#####

my $query = new CGI;    # define a new Parameter handler
my $keyword = $query->param("keyword"); # get the value of the
                                         # keyword parameter

$ua = new LWP::UserAgent; # define a new user agent
                             # to send request
$ua->agent("AgentName/0.1 " . $ua->agent);

# Create a request
my $req = new HTTP::Request POST =>$gatewayAddress;

# put XML payload here.
#
$req->content_type('text/xml'); # define content type

# define XML in request
my $data = "
<?xml version=\"1.0\" encoding=\"UTF-8\"?>
```

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```
<!DOCTYPE insightRequest SYSTEM
\"http://www.lunaimaging.com/support/dtd/insightXMLGateway/v5.5/insightr
equest.dtd\">
<insightRequest>
<collectionRequest><listCollections/></collectionRequest>
</insightRequest>";

$req->content($data);

# Pass request to the user agent and get a response back
my $res = $ua->request($req);

# get response and store it in a variable
my $response = $res->content;

# Handle the error if the request failed
if (!$res->is_success) {
    print "request failed\r\n";
}

# Do something ...
```

## Java

```
import java.net.HttpURLConnection;
import java.net.URL;

import java.io.OutputStream;
import java.io.OutputStreamWriter;
import java.io.BufferedReader;
import java.io.InputStreamReader;

public class GatewayExample
{
    public static void main(String[] args)
    {
        String gatewayAddress =
"http://www.lunaimaging.com:8080/xmlGateway"; // this gateway does
                                                // not exist
        try
        {
            // make the connection to the XML Gateway
            HttpURLConnection urlConnection = (HttpURLConnection)
new URL(gatewayAddress).openConnection();

            // use this connection for read/write, and POST
            urlConnection.setDoOutput(true);
            urlConnection.setDoInput(true);
            urlConnection.setRequestMethod("POST");

            // get an output stream writer to write to
            // the XML Gateway
            OutputStreamWriter requestWriter = new
OutputStreamWriter(urlConnection.getOutputStream());

            // send the XML header section
            // this header indicates that the body of the HTTP
            // request contains an XML 1.0 document encoded
            // in UTF-8, containing an XML message of type
            // insightRequest.
```

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```
        requestWriter.write("<?xml version=\"1.0\"
encoding=\"UTF-8\" ?>");
        requestWriter.write("<!DOCTYPE insightRequest SYSTEM
\"http://www.lunaimaging.com/support/dtd/insightXMLGateway/v5.5/insightr
equest.dtd\" >");

        // send the body of the XML message
        // this XML message requests the gateway
        // respond with an XML message defining
        // its available collections.
        requestWriter.write("<insightRequest>");

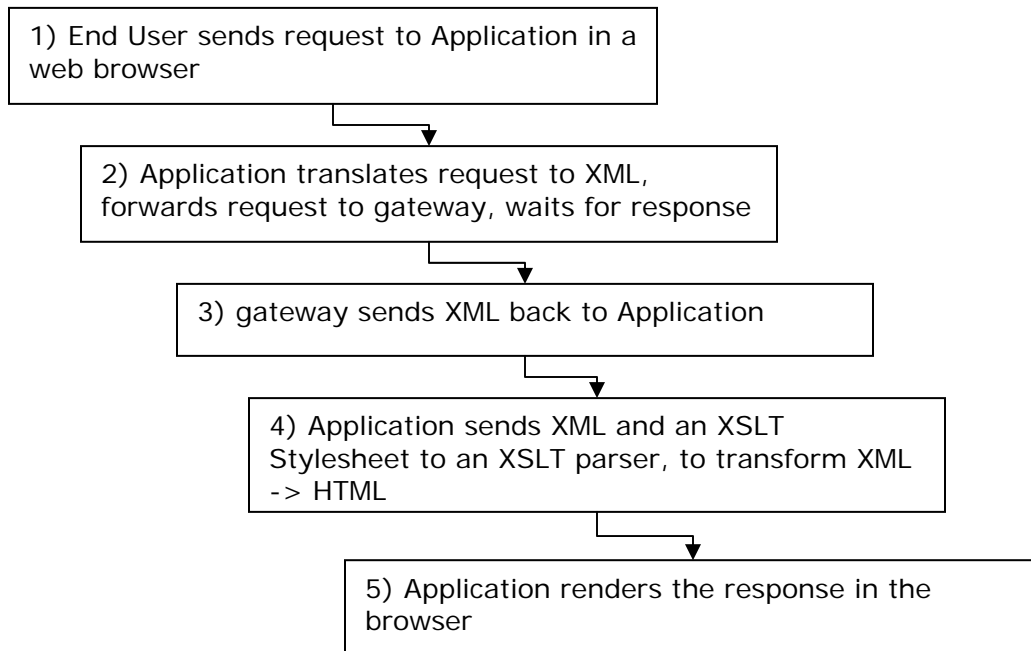
        requestWriter.write("<collectionRequest><listCollections/></collec
tionRequest>");
        requestWriter.write("</insightRequest>");

        // flush the output stream writer and close it
        // the gateway will process the request and send
        // a response
        requestWriter.flush();
        requestWriter.close();

        // read the response and print it.
        // it is important that a character reader on
        // the input stream translate using "UTF-8",
        // as the gateway always sends data using
        // this encoding.
        BufferedReader responseReader = new BufferedReader(new
InputStreamReader(urlConnection.getInputStream(), "UTF-8"));
        String responseLine = null;
        while ( null != (responseLine =
responseReader.readLine()))
        {
            System.out.println(responseLine);
        }
    }
    catch (Exception e)
    {
        //error handling
        System.out.println(e);
        // ...
    }
}
```

## Next Steps

Once you have successfully send and received XML from the Gateway, you will most likely want to start customizing the interaction in different ways. You may want to allow the end user to customize search terms, or choose collections. Furthermore, you probably want to find different ways to render the results. One of the most common methods for rendering XML data is to use XSLT – or “eXtensible Stylesheet Language for Transformation”. XSLT transform stylesheets are themselves XML Documents, making them easy to create, modify, and update. XSLT is built for transforming XML data into other formats from SQL Statements to JPEGs, from Java Code to HTML pages or PDFs. A common flow for an application using XSLT to transform a response might be as follows:





## Using the Simple Search Example Servlet

Insight 5.5 ships with an example Simple Search Servlet. This servlet is designed to demonstrate commonly used functionality within the Insight XML Gateway, and to provide a platform for development for those who require more advanced functionality.

The Simple Search Servlet is based on the model described in the previous section of this document and uses CSS, and XSLT to transform the XML returned by the Insight XML Gateway into a simple HTML interface.

### ***Design***

The Servlet is designed to use a series of templates, and an XSLT Stylesheet to separate virtually all of the servlet's logic from the servlet. The Servlet, then simply sends and processes requests from the gateway, replaces query variables, and returns the results.

### ***Templates***

The Simple Search Servlet uses the following templates:

- search.xml – this is the default keyword search request.
- data.xml -- this is the default data request
- search.html – if no search is performed what to load
- error.html – the default error page

Each of the templates contains variables in the form of %VARIABLE\_NAME%. These variables are replaced at run time by the servlet to customize the templates.

### ***XSLT & Servlet Modes***

The XSLT provided includes a series of default handlers, and then customized modes. These include "Table", "Image", "Text", and the special mode "XML". By changing the display mode, different display characteristics are emphasized in the XSLT and the interface can be changed. The servlet can support as many modes as you choose. Modes are not separated out into different XSLT files because many share common functions and design elements.

### ***CSS***

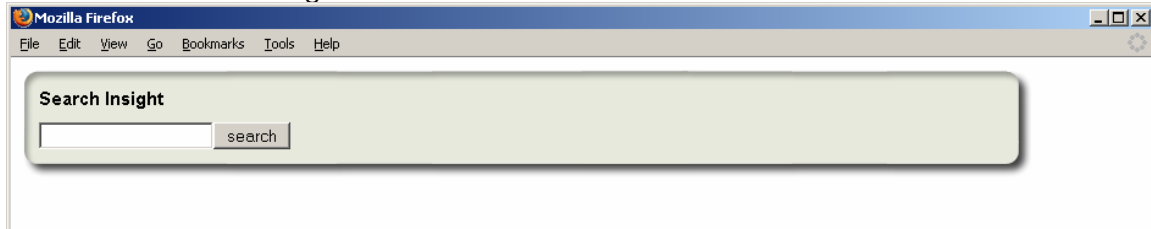
Almost every element in the XSLT is given a css class element. This enables the stylesheet to maintain complete control over the display of the results in the browser.

### ***Locating, Building, Deploying, and Installing the Servlet***

A copy of the simple Search Servlet is located in the utilities/examples directory on the 5.5 Upgrade and Install CD. For more information on installing and configuring the servlet, please see the README.txt File at the root of the simpleSearch directory.

## Screenshots

### The Default Search Page

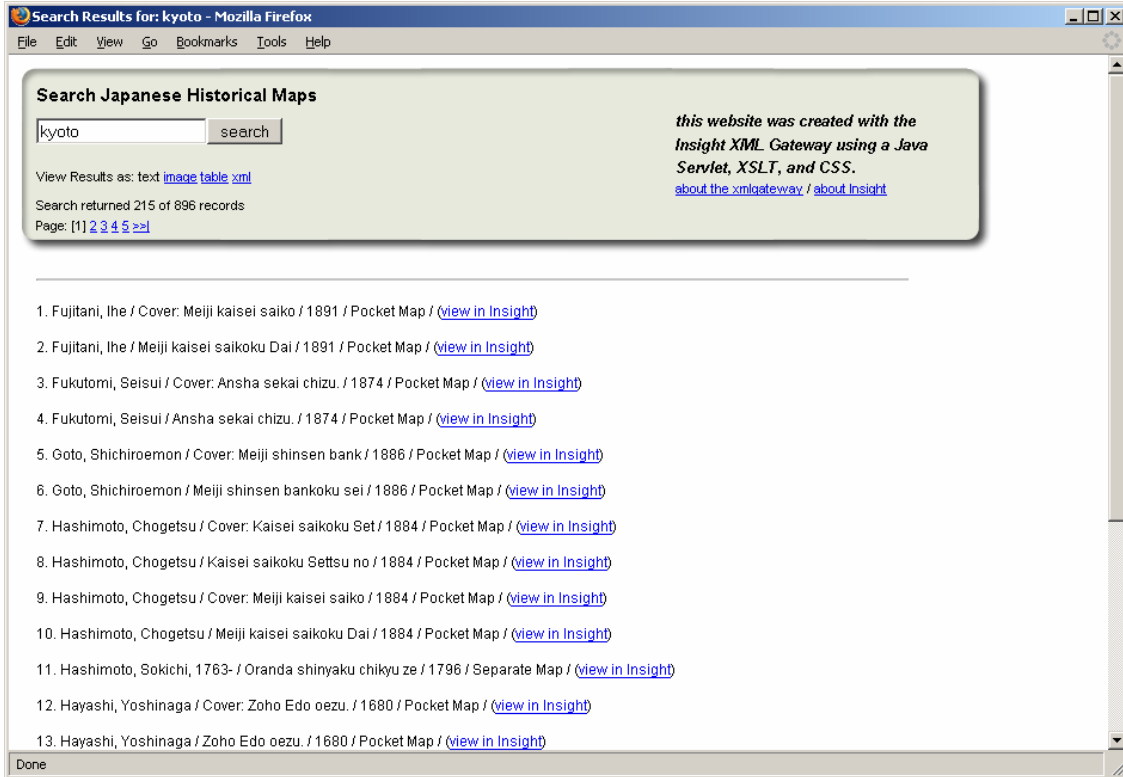


### The "Image Mode"



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## The "Text Mode"



## The "Table Mode"



## Resources

**PHP: Web Services Without SOAP**

[http://www.onlamp.com/pub/a/php/2003/10/30/amazon\\_rest.html](http://www.onlamp.com/pub/a/php/2003/10/30/amazon_rest.html)

**PERL: Multi-Interface Web Services Made Easy**

<http://www.xml.com/pub/a/2002/05/08/ws-easy.html>

**JAVA: Introduction to Java and Web Services**

<http://java.sun.com/webservices/docs/1.3/tutorial/doc/index.html>

## Appendix A: The DTDs

### The Insight Request DTD

```
<?xml version="1.0" encoding="UTF-8"?>

<!-- Copyright (c) 2003, Luna Imaging, Inc. All Rights Reserved -->
<!-- Version 4.1.0 -->

<!--
    Insight Request DTD
-->

<!-- main elements -->
  <!ELEMENT insightRequest (collectionRequest | fieldRequest |
searchRequest | dataRequest)>

<!--
    Collection Request
-->

  <!ELEMENT collectionRequest (listCollections)>
  <!ELEMENT listCollections EMPTY>

<!--
    Field Request
-->

  <!ELEMENT fieldRequest (fieldCollection*)>
  <!ELEMENT fieldCollection EMPTY>
  <!ATTLIST fieldCollection cid CDATA #REQUIRED>

<!--
    Search Request
-->

  <!ELEMENT searchRequest (searchCollection+, sortField*,
returnResultIn+, criteria*)>
  <!ATTLIST searchRequest
    mappingType (standard | native) "native"
    mappingName CDATA #IMPLIED
    recordCount CDATA #REQUIRED
    firstRecordIndex CDATA #IMPLIED
    maxImageSize (0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8) #IMPLIED
    includeGroupWorkspaceLaunchURL (true | false) "true"
    includeImageWorkspaceLaunchURL (true | false) "true"
    includeThumbnailLabels (true | false) "true"
    includeFullDataRecord (true | false) "true"
    includeThumbnailUrl (true | false) "true"
  >
  <!--
    name is required for STANDARD searches and should specify
    the field standard to search with
  -->

  <!ELEMENT searchCollection EMPTY>
  <!ATTLIST searchCollection cid CDATA #REQUIRED>
```

## Getting Started with the Insight® XML Gateway

```
<!ELEMENT sortField EMPTY>
  <!ATTLIST sortField name CDATA #REQUIRED>

<!ELEMENT returnResultIn (thumbnailField*)>
  <!ATTLIST returnResultIn
    mappingType (native | standard) "native"
    mappingName CDATA #IMPLIED
  >
  <!--
    mappingName is required for STANDARD searches and should
    specify the field standard to use in the results ie.
    dublinCore
  -->
<!ELEMENT thumbnailField EMPTY>
  <!ATTLIST thumbnailField name CDATA #REQUIRED>

<!ELEMENT criteria (#PCDATA)>
  <!ATTLIST criteria
    condition (CONTAINS | BEGINS_WITH | ENDS_WITH |
DOES_NOT_CONTAIN | LESS_THAN | GREATER_THAN | EQUALS) "CONTAINS"
    type (text | numeric) "text"
    fieldname CDATA #IMPLIED
    fieldtype (keyword | data) "keyword"
    booleanOperator (AND | OR) "OR"
  >
  <!--
    NOTE: If there is no fieldname, then the fieldtype must be
    Keyword. If the fieldtype is keyword, then fieldname should
    be blank or it may be ignored
  -->

<!--
  dataRequest
-->

<!ELEMENT dataRequest (returnResultIn+, objectCriteria+)>
  <!ATTLIST dataRequest
    cid CDATA #REQUIRED
    maxImageSize (0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8) #IMPLIED
  >

<!ELEMENT objectCriteria EMPTY>
  <!ATTLIST objectCriteria
    objectID CDATA #REQUIRED
    imageID CDATA #REQUIRED
  >
```

## The Insight Response DTD

```

<?xml version="1.0" encoding="UTF-8"?>

<!-- Copyright (c) 2003, Luna Imaging, Inc. All Rights Reserved -->
<!-- Version 4.1.0 -->

<!--
  Insight Response DTD
-->

<!ENTITY % insightRequest SYSTEM
"http://www.lunaimaging.com/support/dtd/insightXMLGateway/v4.1/insightre
quest.dtd">

<!-- main elements -->
  <!ELEMENT insightResponse (insightRequest?, (collectionResponse |
fieldResponse | searchResponse | dataResponse)?, status)>

%insightRequest;

<!--
  Data Response
-->

  <!ELEMENT dataResponse (collectionResultSet?, status)>

<!--
  Collection Response
-->

  <!ELEMENT collectionResponse (collectionInformation*, status)>

  <!ELEMENT collectionInformation (name?, description?,
institutionID?, copyright?, remoteLaunch*, mapping*, status)>
    <!ATTLIST collectionInformation cid CDATA #REQUIRED>

    <!ELEMENT name (#PCDATA)>
    <!ELEMENT description (#PCDATA)>
    <!ELEMENT institutionID (#PCDATA)>
    <!ELEMENT copyright (#PCDATA)>

    <!ELEMENT mapping EMPTY>
      <!ATTLIST mapping
        type (native | standard) "native"
        name CDATA #REQUIRED
      >

<!--
  Field Response
-->

  <!ELEMENT fieldResponse (collectionFieldList*, status)>

  <!ELEMENT collectionFieldList (fieldList*, status)>
    <!ATTLIST collectionFieldList cid CDATA #REQUIRED>

  <!ELEMENT fieldList (dataField*)>
    <!ATTLIST fieldList
      mappingType (standard | native) "native"

```

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```
        mappingName CDATA #REQUIRED
        supportsThumbnails (true | false) #REQUIRED
    >
<!ELEMENT dataField (fieldMapping*)>
  <!ATTLIST dataField
    name CDATA #REQUIRED
    type (text | numeric) "text"
  >
<!ELEMENT fieldMapping EMPTY>
  <!ATTLIST fieldMapping
    standard CDATA #REQUIRED
    filename CDATA #REQUIRED
    type (text | numeric) "text"
  >
<!--
Search Response
-->
<!ELEMENT searchResponse (collectionResultSet*, status)>
<!ELEMENT collectionResultSet (remoteLaunch*, object*, status)>
  <!ATTLIST collectionResultSet
    cid CDATA #REQUIRED
    size CDATA #REQUIRED
    totalRecordCount CDATA #REQUIRED
  >
  <!--
    DISPLAY NOTE: the remoteLaunch will return the entire result
    set inside Insight. Size is the size of the result set
    totalRecordCount is the total number of matches found
  -->
  <!ELEMENT object (collectionCopyrightStatement?, remoteLaunch*,
thumbnail*, image*, fullData?)>
  <!ATTLIST object
    objectID CDATA #REQUIRED
    imageID CDATA #REQUIRED
    institutionID CDATA #REQUIRED
    collectionID CDATA #REQUIRED
    vcID CDATA #REQUIRED
  >
  <!--
    DISPLAY NOTE: All of the attributes are not display items
  -->
  <!--
    DISPLAY NOTE: The collection copyright statement should be
    displayed with all data, the remote launch will open the
    object in Insight. The thumbnail info is good for display of
    a short record while the full data is good for an extended
    record. The data is displayed in a shorthand which means
    that all data standards conform to the DTD
  -->
  <!ELEMENT image (mediaInfo?)>
  <!ATTLIST image
    URL CDATA #IMPLIED
    mediaType CDATA #REQUIRED
    height CDATA #REQUIRED
    width CDATA #REQUIRED
    size CDATA #REQUIRED
```



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```
>
<!--
  DISPLAY NOTE:  mediaType will have one of the values Image,
  Audio, Video, or QTVR.
-->

<!ELEMENT collectionCopyrightStatement (#PCDATA)>
  <!--
    DISPLAY NOTE:  this should be displayed with each record
  -->

<!ELEMENT thumbnail (label*)>
  <!ATTLIST thumbnail
    URL CDATA #IMPLIED
    mappingType (standard | native) "native"
    mappingName CDATA #REQUIRED
  >
  <!--
    DISPLAY NOTE:  neither Name nor Type should be displayed
  -->
  <!--
    DISPLAY NOTE:  An object may have up to 4 thumbnail labels,
    and the labels may be in a data standard or native fields.
    The Thumbnail may have a URL included to the thumbnail (max
    of 96x96 pixels)
  -->

<!ELEMENT label (#PCDATA)>
  <!ATTLIST label
    name CDATA #REQUIRED
    order CDATA #REQUIRED
  >
  <!--
    DISPLAY NOTE:  These should be used in the Browse View
  -->
  <!--
    DISPLAY NOTE:  Different collections may have different
    labels so name may or may not be useful, order is display
    order.  The PCDATA contents of a label may be empty.
  -->

<!ELEMENT fullData (objectInfo+)>
  <!--
    DISPLAY NOTE:  An object may have multiple objectInfos which
    pertain to the different standards of data requested
  -->

<!ELEMENT objectInfo (field*, fieldGroup*)>
  <!ATTLIST objectInfo
    mappingType (standard | native) "native"
    mappingName CDATA #REQUIRED
  >
  <!--
    DISPLAY NOTE:  neither Name nor Type should be displayed
  -->
  <!--
    DISPLAY NOTE:  An Object may have more than on object Info
  -->

<!ELEMENT mediaInfo (field*)>
  <!--
```

```

        DISPLAY NOTE: There is only one mediaInfo, it is the
        technical metadata about a given image being returned.
        Display is optional
    -->

<!ELEMENT fieldGroup (field*)>
  <!ATTLIST fieldGroup
    name CDATA #IMPLIED
    order CDATA #REQUIRED
  >
  <!--
    DISPLAY NOTE: The same field may repeat multiple times, the
    order should be unique to the field group
  -->

<!ELEMENT field (value*)>
  <!ATTLIST field
    name CDATA #REQUIRED
    order CDATA #REQUIRED
  >
  <!--
    DISPLAY NOTE: Should display these in the full Data View
  -->

<!ELEMENT value (#PCDATA)>
  <!ATTLIST value
    order CDATA #REQUIRED
  >

<!-- basic elements -->

<!ELEMENT status (#PCDATA)>
  <!ATTLIST status code CDATA #REQUIRED>
  <!--
    DISPLAY NOTE: not displayed, for admin use only
  -->

<!ELEMENT remoteLaunch (#PCDATA)>
  <!ATTLIST remoteLaunch
    type (imageWorkspace | groupWorkspace) "groupWorkspace"
    target (insight | browserinsight) "browserinsight"
  >
  <!--
    DISPLAY NOTE: This is always a URL
  -->

```

## Appendix B: Sample Requests / Responses

### Collection Request

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE insightRequest SYSTEM
"http://www.lunaimaging.com/support/dtd/insightXMLGateway/v4.1/insightre
quest.dtd">

<!-- Insight Collection Request -->

<!-- Queries the Gateway for the list of available collections. -->

<insightRequest>
  <collectionRequest>
    <listCollections/>
  </collectionRequest>
</insightRequest>
```

### Collection Response

```
<?xml version="1.0" encoding="UTF-8"?>

<!DOCTYPE insightResponse SYSTEM
"http://www.lunaimaging.com/support/dtd/insightXMLGateway/v4.1/insightre
sponse.dtd">

<!--
  This is the response to the request shown in example file
  collectionRequest.xml.
-->

<insightResponse>
  <insightRequest>
    <collectionRequest>
      <listCollections/>
    </collectionRequest>
  </insightRequest>
  <collectionResponse>
    <collectionInformation cid="8::RUMSEY::NA"
collectionRecordCount="100">
      <collectionName>David Rumsey Collection - v4</collectionName>
      <collectionID>8</collectionID>
      <institutionID>RUMSEY</institutionID>
      <vcID>NA</vcID>
      <description>The David Rumsey Collection focuses on 18th and 19th
century North and South American cartographic materials. The collection
includes atlases, globes, school geographies, maritime charts, and a
variety of separate maps including pocket, wall, children's and
manuscript maps. The online selection is an expanding cross section of
images designed to highlight the depth and breadth of the collection.
The digital images and associated descriptive data are © Cartography
Associates.</description>
      <institutionID>RUMSEY</institutionID>
      <copyright>David Rumsey Collection</copyright>
      <remoteLaunch type="groupWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=4&iia=0&gwia=0</remoteLaunch>
```

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```
<remoteLaunch type="groupWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=4&iia=0&gvia=0</remoteLaunch>
  <mapping type="native" name="David Rumsey Collection"/>
  <mapping type="standard" name="Cartography Associates"/>
  <mapping type="standard" name="Visual Resource Association v3.0"/>
  <mapping type="standard" name="DublinCore"/>
  <mapping type="standard" name="USMARC"/>
  <mapping type="standard" name="CIMI"/>
  <mapping type="standard" name="ObjectID"/>
  <status code="0"></status>
</collectionInformation>
<collectionInformation cid="10000::VRA::NA"
collectionRecordCount="1000">
  <collectionName>Insight Standard - v4</collectionName>
  <collectionID>10000</collectionID>
  <institutionID>VRA</institutionID>
  <vcID>NA</vcID>
  <status code="3">Collection unavailable.</status>
</collectionInformation>
<collectionInformation cid="1::AMICO::NA"
collectionRecordCount="150000">
  <collectionName>The AMICO Library - v4</collectionName>
  <collectionID>1</collectionID>
  <institutionID>AMICO</institutionID>
  <vcID>NA</vcID>
  <status code="3">Collection unavailable.</status>
</collectionInformation>
<collectionInformation cid="1::CORNELL::NA"
collectionRecordCount="10000">
  <collectionName>Johnson Museum - v4</collectionName>
  <collectionID>1</collectionID>
  <institutionID>CORNELL</institutionID>
  <vcID>NA</vcID>
  <description>The Johnson Museum has one of the finest collections
of art in New York State and is recognized
as one of the most important university museums in the country. Spanning
the history of art,
the Museum's collections are especially strong in Asian Art,
nineteenth and twentieth-century American art, and the graphic
arts.</description>
  <copyright>For Non-Commercial Use Only</copyright>
  <remoteLaunch type="groupWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=1&iia=0&gvia=0</remoteLaunch>
  <remoteLaunch type="groupWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=1&iia=0&gvia=0</remoteLaunch>
  <mapping type="native" name="Insight Sampler"/>
  <mapping type="standard" name="Visual Resource Association v3.0"/>
  <mapping type="standard" name="USMARC"/>
  <mapping type="standard" name="DublinCore"/>
  <mapping type="standard" name="ObjectID"/>
  <mapping type="standard" name="CDWA"/>
  <status code="0"></status>
</collectionInformation>
<status code="5">Some requests failed.</status>
</collectionResponse>
<status code="5">Some requests failed.</status>
</insightResponse>
```

## Field Request

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE insightRequest SYSTEM
"http://www.lunaimaging.com/support/dtd/insightXMLGateway/v4.1/insightre
quest.dtd">

<!-- Insight Field Request -->

<!--
    Queries the gateway for supported field standards and fields. For
    field standard information on all available collections, do not
    include the <fieldCollection> element
-->

<insightRequest>
  <fieldRequest>
    <fieldCollection cid="100::VRA::NA"/>
  </fieldRequest>
</insightRequest>
```

## Field Response

```
<?xml version="1.0" encoding="UTF-8"?>

<!DOCTYPE insightResponse SYSTEM
"http://www.lunaimaging.com/support/dtd/insightXMLGateway/v4.1/insightre
sponse.dtd">

<insightResponse>
  <insightRequest>
    <fieldRequest>
      <fieldCollection cid="100::VRA::NA"/>
    </fieldRequest>
  </insightRequest>
  <fieldResponse>
    <collectionFieldList cid="100::VRA::NA"
supportsCustomSortAndThumbnails="true">
      <collectionName>Demo Collection - VRA</collectionName>
      <collectionID>100</collectionID>
      <institutionID>VRA</institutionID>
      <vcID>NA</vcID>
      <fieldList mappingType="native" mappingName="Insight VRA"
supportsThumbnails="true" supportsSort="true">
        <dataField name="Work Record ID" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
          </dataField>
        <dataField name="Work Type" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="true" isDefaultSortField="true">
          </dataField>
        <dataField name="Title" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="true" isDefaultSortField="false">
          </dataField>
        <dataField name="Title Type" type="text" isSearchField="true"
isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
          </dataField>
        <dataField name="Display Measurement" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
```

```

    </dataField>
    <dataField name="Numeric Measurement" type="numeric"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Measurement Unit" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Measurement Type" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Measurement Qualifier" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Material" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Material Type" type="text" isSearchField="true"
isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Technique" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Creator Name" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="true" isDefaultSortField="true">
    </dataField>
    <dataField name="Creator Last Name" type="text"
isSearchField="true" isThumbnailField="false" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Creator First Name" type="text"
isSearchField="true" isThumbnailField="false" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Creator Name Variant" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Creator Dates" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Creator Early Date" type="numeric"
isSearchField="true" isThumbnailField="false" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Creator Late Date" type="numeric"
isSearchField="true" isThumbnailField="false" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Creator Nationality" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Creator Type" type="text" isSearchField="true"
isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">

```

```

    </dataField>
    <dataField name="Creator Role" type="text" isSearchField="true"
isThumbnailField="false" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Display Date" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="true" isDefaultSortField="true">
    </dataField>
    <dataField name="Early Date" type="numeric" isSearchField="true"
isThumbnailField="false" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Late Date" type="numeric" isSearchField="true"
isThumbnailField="false" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Date Type" type="text" isSearchField="true"
isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Location" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Location Type" type="text" isSearchField="true"
isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repository" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repository Type" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repository City" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Province" type="text" isSearchField="true"
isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repository Country" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="ID Number" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="ID Number Type" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Style/Period Term" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Style/Period Type" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">

```

```

    </dataField>
    <dataField name="Culture" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="true">
    </dataField>
    <dataField name="Subject" type="text" isSearchField="true"
isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Subject Type" type="text" isSearchField="true"
isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Related Object" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Relation Type" type="text" isSearchField="true"
isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Description" type="text" isSearchField="true"
isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Description Type" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Source" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Rights Statement" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Record ID" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Type" type="text" isSearchField="true"
isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Title" type="text" isSearchField="true"
isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Title Type" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Display Measurement" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Numeric Measurement" type="numeric"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Measurement Unit" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">

```



```

    </dataField>
    <dataField name="Repro Measurement Type" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Measurement Qualifier" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Material" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Material Type" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Technique" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Creator Name" type="text"
isSearchField="true" isThumbnailField="false" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Creator Last Name" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Creator First Name" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Creator Dates" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Creator Early Date" type="numeric"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Creator Late Date" type="numeric"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Creator Nationality" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Creator Role Description" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Creator Type" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Display Date" type="text"
isSearchField="true" isThumbnailField="false" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
    <dataField name="Repro Early Date" type="numeric"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">

```

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```
</dataField>
  <dataField name="Repro Late Date" type="numeric"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
  </dataField>
  <dataField name="Repro Date Type" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
  </dataField>
  <dataField name="Repro Location" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
  </dataField>
  <dataField name="Repro Location Type" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
  </dataField>
  <dataField name="Repro Location Notes" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
  </dataField>
  <dataField name="Repro Repository" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
  </dataField>
  <dataField name="Repro Repository Type" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
  </dataField>
  <dataField name="Repro ID Number" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
  </dataField>
  <dataField name="Repro IDNumber Type" type="text"
isSearchField="true" isThumbnailField="false" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
  </dataField>
  <dataField name="Repro Subject" type="text" isSearchField="true"
isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
  </dataField>
  <dataField name="Repro Subject Type" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
  </dataField>
  <dataField name="Repro Related Object" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
  </dataField>
  <dataField name="Repro Relation Type" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
  </dataField>
  <dataField name="Repro Description" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
  </dataField>
  <dataField name="Repro Description Type" type="text"
isSearchField="true" isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
  </dataField>
  <dataField name="Repro Source" type="text" isSearchField="true"
isThumbnailField="false" isSortField="false"
isDefaultThumbnailField="false" isDefaultSortField="false">
```

```

    </dataField>
    <dataField name="Repro Rights Statement" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false">
    </dataField>
  </fieldList>
  <fieldList mappingType="standard" mappingName="DublinCore"
supportsThumbnails="true" supportsSort="true">
    <dataField name="Type" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Format Extent" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Subject" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="true"/>
    <dataField name="Description" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="true"/>
    <dataField name="Title " type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="true" isDefaultSortField="false"/>
    <dataField name="Format Medium" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Creator" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="true" isDefaultSortField="true"/>
    <dataField name="Date Created" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="true" isDefaultSortField="true"/>
    <dataField name="Coverage Spatial" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Contributor" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Source" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Rights" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Coverage Temporal" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Description Abstract" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Relation" type="text" isSearchField="true"
isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Relation IsVersionOf" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Relation HasVersion" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Relation IsReplacedBy" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>

```

```

    <dataField name="Relation Replaces" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Relation IsRequiredBy" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Relation Requires" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Relation IsPartOf" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Relation HasPart" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Relation IsReferencedBy" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Relation References" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Relation IsFormatOf" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Relation HasFormat" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Title Alternative" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Description TableOfContents" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Description Abstract" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
    <dataField name="Resource Identifier" type="text"
isSearchField="true" isThumbnailField="true" isSortField="true"
isDefaultThumbnailField="false" isDefaultSortField="false"/>
  </fieldList>
  <status code="0"></status>
</collectionFieldList>
  <status code="0"></status>
</fieldResponse>
<status code="0"></status>
</insightResponse>

```

## Search Request

```

<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE insightRequest SYSTEM
"http://www.lunaimaging.com/support/dtd/insightXMLGateway/v4.1/insightre
quest.dtd">

```

```

<!-- Insight Search Request -->

```

```

<!--

```

This document shows an example of searching the Johnson Museum for two specified objects. In a typical client implementation, this request will be executed when a user clicks on a 'view full data' action. Object and Image IDs will have been obtained by the client implementation in an earlier searchRequest query. In this

## Getting Started with the Insight® XML Gateway

example, the two objects were included in the result set shown in searchResponse.xml.

```
-->
<insightRequest>
  <dataRequest cid="1::CORNELL::NA" maxImageSize="0">
    <returnResultIn mappingType="native"/>
    <objectCriteria objectID="1035" imageID="790019"/>
    <objectCriteria objectID="1700" imageID="80420007"/>
  </dataRequest>
</insightRequest>
```

## Search Request With Paging

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE insightRequest SYSTEM
"http://www.lunaimaging.com/support/dtd/insightXMLGateway/v4.1/insightre
quest.dtd">
```

```
<!-- Insight Search Request -->
```

```
<!--
  This document shows an example of using search requests to control
  paging result sets.  Two requests are shown, retrieving two
  consecutive 'pages' of results.  These requests would be sent in
  two separate XML messages.
-->
```

```
<!-- This request gets the first 20 records -->
```

```
<insightRequest>
  <searchRequest mappingType="native" includeFullDataRecord="false"
recordCount="20" firstRecordIndex="1">
    <searchCollection cid="1::CORNELL::NA"/>
    <returnResultIn mappingType="native"/>
    <criteria condition="BEGINS_WITH" fieldname="Artist"
fieldtype="data">king</criteria>
    <criteria condition="CONTAINS" fieldtype="data"
fieldname="Category" booleanOperator="OR">painting</criteria>
  </searchRequest>
</insightRequest>
```

```
<!-- This request gets the second 20 records -->
```

```
<insightRequest>
  <searchRequest mappingType="native" includeFullDataRecord="false"
recordCount="20" firstRecordIndex="21">
    <searchCollection cid="1::CORNELL::NA"/>
    <returnResultIn mappingType="native"/>
    <criteria condition="BEGINS_WITH" fieldname="Artist"
fieldtype="data">king</criteria>
    <criteria condition="CONTAINS" fieldtype="data"
fieldname="Category" booleanOperator="OR">painting</criteria>
  </searchRequest>
</insightRequest>
```

## Search Response

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE insightResponse SYSTEM
"http://www.lunaimaging.com/support/dtd/insightXMLGateway/v4.1/insightre
sponse.dtd">
```

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```
<!--
  This is the response to the request shown in example file
  searchRequest.xml.
-->

<insightResponse>
  <insightRequest>
    <searchRequest mappingType="native" includeFullDataRecord="false"
recordCount="5" maxImageSize="0">
      <searchCollection cid="1::CORNELL::NA"/>
      <returnResultIn mappingType="native"/>
      <criteria condition="BEGINS_WITH" fieldname="Artist"
fieldname="data">king</criteria>
      <criteria condition="CONTAINS" fieldtype="data"
fieldname="Category" booleanOperator="OR">painting</criteria>
    </searchRequest>
  </insightRequest>
  <searchResponse>
    <collectionResultSet cid="1::CORNELL::NA" resultSetSize="5"
matchingRecordCount="20" firstRecordIndex="1"
collectionRecordCount="10000" includesFirstRecord="true"
includesLastRecord="false">
      <collectionName>Johnson Museum - v4</collectionName>
      <collectionID>1</collectionID>
      <institutionID>CORNELL</institutionID>
      <vcID>NA</vcID>
      <remoteLaunch type="groupWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=1&iia=0&gwia=3&ig=Johnson+Museum+of+Art&gwis
p=0%7CArtist%7CArtist%7C1%7Cking%7C3%7C1%7CCategory%7CCategory%7C1%7Cp
ainting%7C2%7C</remoteLaunch>
      <remoteLaunch type="groupWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=1&iia=0&gwia=3&ig=Johnson+Museum
+of+Art&gwis
p=0%7CArtist%7CArtist%7C1%7Cking%7C3%7C1%7CCategory%7CCa
tegory%7C1%7Cpainting%7C2%7C</remoteLaunch>
      <object cid="1::CORNELL::NA" objectID="1035" imageID="790019"
type="media">
        <collectionName>Johnson Museum - v4</collectionName>
        <collectionID>1</collectionID>
        <institutionID>CORNELL</institutionID>
        <vcID>NA</vcID>
        <collectionCopyrightStatement>For Non-Commercial Use
Only</collectionCopyrightStatement>
        <remoteLaunch type="imageWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=1&iia=1&gwia=0&id=1035&ir=790019&iwas=2</
remoteLaunch>
        <remoteLaunch type="groupWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=1&iia=0&gwia=3&ig=Johnson+Museum+of+Art&gwis
p=0%7CImageID%7CImageID%7C1%7C1035%3A790019%7C0%7C</remoteLaunch>
        <remoteLaunch type="imageWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=1&iia=1&gwia=0&id=1035&ir=79
0019&iwas=2</remoteLaunch>
        <remoteLaunch type="groupWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=1&iia=0&gwia=3&ig=Johnson+Museum
+of+Art&gwis
p=0%7CImageID%7CImageID%7C1%7C1035%3A790019%7C0%7C</remo
teLaunch>
      </object>
    </collectionResultSet>
  </searchResponse>
</insightResponse>
```

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```
<thumbnail
URL="http://TEST_URL/cornell/Base64/Disc0079/00790019.jpg"
mappingType="native" mappingName="Insight Sampler">
  <label name="Title" order="1">Evening</label>
  <label name="Artist" order="2">KINGSLEY, Elbridge</label>
  <label name="Creation Date" order="3">19-20th century</label>
  <label name="Category" order="4">Painting/Watercolor</label>
</thumbnail>
<image
URL="http://TEST_URL/cornell/Base64/Disc0079/00790019.jpg"
mediaType="image" height="89" width="96" size="0">
</image>
</object>
<object cid="1::CORNELL::NA" objectID="1036" imageID="790020"
type="media">
  <collectionName>Johnson Museum - v4</collectionName>
  <collectionID>1</collectionID>
  <institutionID>CORNELL</institutionID>
  <vcID>NA</vcID>
  <collectionCopyrightStatement>For Non-Commercial Use
Only</collectionCopyrightStatement>
  <remoteLaunch type="imageWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=1&iia=1&gwia=0&id=1036&ir=790020&iwas=2</
remoteLaunch>
  <remoteLaunch type="groupWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=1&iia=0&gwia=3&ig=Johnson+Museum+of+Art&gwis
p=0%7CImageID%7CImageID%7C1%7C1036%3A790020%7C0%7C</remoteLaunch>
  <remoteLaunch type="imageWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=1&iia=1&gwia=0&id=1036&ir=79
0020&iwas=2</remoteLaunch>
  <remoteLaunch type="groupWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=1&iia=0&gwia=3&ig=Johnson+Museum
+of+Art&gwis=0%7CImageID%7CImageID%7C1%7C1036%3A790020%7C0%7C</remo
teLaunch>
  <thumbnail
URL="http://TEST_URL/cornell/Base64/Disc0079/00790020.jpg"
mappingType="native" mappingName="Insight Sampler">
  <label name="Title" order="1">Grant's
Headquarters</label>
  <label name="Artist" order="2">KINGSLEY, Elbridge</label>
  <label name="Creation Date" order="3">19-20th century</label>
  <label name="Category" order="4">Painting/Watercolor</label>
</thumbnail>
<image
URL="http://TEST_URL/cornell/Base64/Disc0079/00790020.jpg"
mediaType="image" height="81" width="96" size="0">
</image>
</object>
<object cid="1::CORNELL::NA" objectID="1037" imageID="790021"
type="media">
  <collectionName>Johnson Museum - v4</collectionName>
  <collectionID>1</collectionID>
  <institutionID>CORNELL</institutionID>
  <vcID>NA</vcID>
  <collectionCopyrightStatement>For Non-Commercial Use
Only</collectionCopyrightStatement>
  <remoteLaunch type="imageWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=1&iia=1&gwia=0&id=1037&ir=790021&iwas=2</
remoteLaunch>
```

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```
<remoteLaunch type="groupWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=1&iia=0&gwia=3&ig=Johnson+Museum+of+Art&gwisp
=0%7CImageID%7CImageID%7C1%7C1037%3A790021%7C0%7C</remoteLaunch>
  <remoteLaunch type="imageWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=1&iia=1&gwia=0&id=1037&ir=79
0021&iwas=2</remoteLaunch>
  <remoteLaunch type="groupWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=1&iia=0&gwia=3&ig=Johnson+Museum
+of+Art&gwisp=0%7CImageID%7CImageID%7C1%7C1037%3A790021%7C0%7C</remo
teLaunch>
  <thumbnail
URL="http://TEST_URL/cornell/Base64/Disc0079/00790021.jpg"
mappingType="native" mappingName="Insight Sampler">
  <label name="Title" order="1">Landscape and Brook</label>
  <label name="Artist" order="2">KINGSLEY, Elbridge</label>
  <label name="Creation Date" order="3">19-20th century</label>
  <label name="Category" order="4">Painting/Watercolor</label>
</thumbnail>
  <image
URL="http://TEST_URL/cornell/Base64/Disc0079/00790021.jpg"
mediaType="image" height="96" width="63" size="0">
</image>
</object>
  <object cid="1::CORNELL::NA" objectID="1038" imageID="790022"
type="media">
  <collectionName>Johnson Museum - v4</collectionName>
  <collectionID>1</collectionID>
  <institutionID>CORNELL</institutionID>
  <vcID>NA</vcID>
  <collectionCopyrightStatement>For Non-Commercial Use
Only</collectionCopyrightStatement>
  <remoteLaunch type="imageWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=1&iia=1&gwia=0&id=1038&ir=790022&iwas=2</
remoteLaunch>
  <remoteLaunch type="groupWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=1&iia=0&gwia=3&ig=Johnson+Museum+of+Art&gwisp
=0%7CImageID%7CImageID%7C1%7C1038%3A790022%7C0%7C</remoteLaunch>
  <remoteLaunch type="imageWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=1&iia=1&gwia=0&id=1038&ir=79
0022&iwas=2</remoteLaunch>
  <remoteLaunch type="groupWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=1&iia=0&gwia=3&ig=Johnson+Museum
+of+Art&gwisp=0%7CImageID%7CImageID%7C1%7C1038%3A790022%7C0%7C</remo
teLaunch>
  <thumbnail
URL="http://TEST_URL/cornell/Base64/Disc0079/00790022.jpg"
mappingType="native" mappingName="Insight Sampler">
  <label name="Title" order="1">New England Elms</label>
  <label name="Artist" order="2">KINGSLEY, Elbridge</label>
  <label name="Creation Date" order="3">19-20th century</label>
  <label name="Category" order="4">Painting/Watercolor</label>
</thumbnail>
  <image
URL="http://TEST_URL/cornell/Base64/Disc0079/00790022.jpg"
mediaType="image" height="63" width="96" size="0">
</image>
</object>
```



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```
<object cid="1::CORNELL::NA" objectID="1700" imageID="80420007"
type="media">
  <collectionName>Johnson Museum - v4</collectionName>
  <collectionID>1</collectionID>
  <institutionID>CORNELL</institutionID>
  <vcID>NA</vcID>
  <collectionCopyrightStatement>For Non-Commercial Use
Only</collectionCopyrightStatement>
  <remoteLaunch type="imageWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=1&iia=1&gvia=0&id=1700&ir=80420007&iwas=2
</remoteLaunch>
  <remoteLaunch type="groupWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=1&iia=0&gvia=3&ig=Johnson+Museum+of+Art&gwis
p=0%7CimageID%7CimageID%7C1%7C1700%3A80420007%7C0%7C</remoteLaunch>

  <remoteLaunch type="imageWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=1&iia=1&gvia=0&id=1700&ir=80
420007&iwas=2</remoteLaunch>
  <remoteLaunch type="groupWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=1&iia=0&gvia=3&ig=Johnson+Museum
+of+Art&gwis
p=0%7CimageID%7CimageID%7C1%7C1700%3A80420007%7C0%7C</re
moteLaunch>
  <thumbnail
URL="http://TEST_URL/cornell/Base64/Disc8042/80420007.jpg"
mappingType="native" mappingName="Insight Sampler">
  <label name="Title" order="1">The Last Gleam (after
pai</label>
  <label name="Artist" order="2">KING, James S.</label>
  <label name="Creation Date" order="3">after 1872</label>
  <label name="Category" order="4">Painting/Watercolor</label>
</thumbnail>
  <image
URL="http://TEST_URL/cornell/Base64/Disc8042/80420007.jpg"
mediaType="image" height="65" width="96" size="0">
  </image>
</object>
  <status code="0"></status>
</collectionResultSet>
  <status code="0"></status>
</searchResponse>
  <status code="0"></status>
</insightResponse>
```

## Data Request

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE insightRequest SYSTEM
"http://www.lunaimaging.com/support/dtd/insightXMLGateway/v4.1/insightre
quest.dtd">
```

```
<!-- Insight Search Request -->
```

```
<!--
```

This document shows an example of searching the Johnson Museum for two specified objects. In a typical client implementation, this request will be executed when a user clicks on a 'view full data' action. Object and ImageIDs will have been obtained by the client implementation in an earlier searchRequest query. In this

## Getting Started with the Insight® XML Gateway

example, the two objects were included in the result set shown in searchResponse.xml.

```
-->
<insightRequest>
  <dataRequest cid="1::CORNELL::NA" maxImageSize="0">
    <returnResultIn mappingType="native"/>
    <objectCriteria objectID="1035" imageID="790019"/>
    <objectCriteria objectID="1700" imageID="80420007"/>
  </dataRequest>
</insightRequest>
```

## Data Response

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<!DOCTYPE insightResponse SYSTEM
"http://www.lunaimaging.com/support/dtd/insightXMLGateway/v4.1/insightre
sponse.dtd">
```

```
<!-- This is the response to the request shown in example file
dataRequest.xml. -->
```

```
<insightResponse>
  <insightRequest>
    <dataRequest cid="1::CORNELL::NA" maxImageSize="0">
      <returnResultIn mappingType="native"/>
      <objectCriteria objectID="1035" imageID="790019"/>
      <objectCriteria objectID="1700" imageID="80420007"/>
    </dataRequest>
  </insightRequest>
  <dataResponse>
    <collectionResultSet cid="1::CORNELL::NA" resultSetSize="2"
matchingRecordCount="2" requestedRecordCount="2" firstRecordIndex="1"
collectionRecordCount="10000" includesFirstRecord="true"
includesLastRecord="true">
      <collectionName>Johnson Museum - v4</collectionName>
      <collectionID>1</collectionID>
      <institutionID>CORNELL</institutionID>
      <vcID>NA</vcID>
      <remoteLaunch type="imageWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=1&iia=1&gwia=0&id=1035+1700&ir=790019+8042000
7&iwas=2</remoteLaunch>
      <remoteLaunch type="groupWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=1&iia=0&gwia=3&ig=Johnson+Museum+of+Art&gwis
p=0%7CImageID%7CImageID%7C1%7C1035%3A790019%7C0%7C0%7CImageID%7CImageID%7
C1%7C1700%3A80420007%7C0%7C</remoteLaunch>
      <remoteLaunch type="imageWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=1&iia=1&gwia=0&id=1035+1700&
ir=790019+80420007&iwas=2</remoteLaunch>
      <remoteLaunch type="groupWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=1&iia=0&gwia=3&ig=Johnson+Museum
+of+Art&gwis
p=0%7CImageID%7CImageID%7C1%7C1035%3A790019%7C0%7C0%7CIM
ageID%7CImageID%7C1%7C1700%3A80420007%7C0%7C</remoteLaunch>
      <object cid="1::CORNELL::NA" objectID="1035" imageID="790019"
type="media">
        <collectionName>Johnson Museum - v4</collectionName>
        <collectionID>1</collectionID>
        <institutionID>CORNELL</institutionID>
        <vcID>NA</vcID>
```

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```
<collectionCopyrightStatement>For Non-Commercial Use
Only</collectionCopyrightStatement>
  <remoteLaunch type="imageWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=1&iia=1&gwia=0&id=1035&ir=790019&iwas=2</
remoteLaunch>
  <remoteLaunch type="groupWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=1&iia=0&gwia=3&ig=Johnson+Museum+of+Art&gwisp
=0%7CImageID%7CImageID%7C1%7C1035%3A790019%7C0%7C</remoteLaunch>
  <remoteLaunch type="imageWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=1&iia=1&gwia=0&id=1035&ir=79
0019&iwas=2</remoteLaunch>
  <remoteLaunch type="groupWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=1&iia=0&gwia=3&ig=Johnson+Museum
+of+Art&gwisp=0%7CImageID%7CImageID%7C1%7C1035%3A790019%7C0%7C</remo
teLaunch>
  <thumbnail
URL="http://TEST_URL/cornell/Base64/Disc0079/00790019.jpg"
mappingType="native" mappingName="Insight Sampler">
  <label name="Title" order="1">Evening</label>
  <label name="Artist" order="2">KINGSLEY, Elbridge</label>
  <label name="Creation Date" order="3">19-20th century</label>
  <label name="Category" order="4">Painting/Watercolor</label>
</thumbnail>
  <image
URL="http://TEST_URL/cornell/Base64/Disc0079/00790019.jpg"
mediaType="image" height="89" width="96" size="0">
  <mediaInfo>
    <field name="Image ID" order="1">
      <value order="1">790019</value>
    </field>
    <field name="Resolution Size" order="2">
      <value order="1">0</value>
    </field>
    <field name="Format" order="3">
      <value order="1">JPEG</value>
    </field>
    <field name="Media Type" order="4">
      <value order="1">Image</value>
    </field>
    <field name="File Name" order="5">
      <value order="1">00790019.jpg</value>
    </field>
    <field name="Width" order="6">
      <value order="1">96</value>
    </field>
    <field name="Height" order="7">
      <value order="1">89</value>
    </field>
  </mediaInfo>
</image>
  <fullData>
    <objectInfo mappingType="native" mappingName="Insight
Sampler">
      <field name="Collection" order="1">
        <value order="1">Johnson Museum - v4</value>
      </field>
      <field name="Artist" order="2">
        <value order="1">KINGSLEY, Elbridge
1842 - 1918
American
```

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```
Male</value>
  </field>
  <field name="Title" order="3">
    <value order="1">Evening</value>
  </field>
  <field name="Creation Date" order="4">
    <value order="1">19-20th century</value>
  </field>
  <field name="Medium" order="5">
    <value order="1">Wood engraving on Japanese</value>
  </field>
  <field name="Credit Line" order="6">
    <value order="1">Bequest of William P. Chapman, Jr., Class
of 1895</value>
  </field>
  <field name="Category" order="7">
    <value order="1">Painting/Watercolor</value>
  </field>
  <field name="Subject Description" order="8">
    <value order="1">Townscapes; Rivers; Bodiesofwater</value>
  </field>
</objectInfo>
</fullData>
</object>
<object cid="1::CORNELL::NA" objectID="1700" imageID="80420007"
type="media">
  <collectionName>Johnson Museum - v4</collectionName>
  <collectionID>1</collectionID>
  <institutionID>CORNELL</institutionID>
  <vcID>NA</vcID>
  <collectionCopyrightStatement>For Non-Commercial Use
Only</collectionCopyrightStatement>
  <remoteLaunch type="imageWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=1&iia=1&gwia=0&id=1700&ir=80420007&iwas=2
</remoteLaunch>
  <remoteLaunch type="groupWorkspace"
target="insight">http://dev.lunaimaging.com:8080/servlet/deploy/insight/
launch?cid=1&iia=0&gwia=3&ig=Johnson+Museum+of+Art&gwis
p=0%7CImageID%7CImageID%7C1%7C1700%3A80420007%7C0%7C</remoteLaunch>
  <remoteLaunch type="imageWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=1&iia=1&gwia=0&id=1700&ir=80
420007&iwas=2</remoteLaunch>
  <remoteLaunch type="groupWorkspace"
target="browserinsight">http://dev.lunaimaging.com:8080/browserinsight/b
rowserinsight?cmd=start?cid=1&iia=0&gwia=3&ig=Johnson+Museum
+of+Art&gwis
p=0%7CImageID%7CImageID%7C1%7C1700%3A80420007%7C0%7C</re
moteLaunch>
  <thumbnail
URL="http://TEST_URL/cornell/Base64/Disc8042/80420007.jpg"
mappingType="native" mappingName="Insight Sampler">
    <label name="Title" order="1">The Last Gleam (after
pai</label>
    <label name="Artist" order="2">KING, James S.</label>
    <label name="Creation Date" order="3">after 1872</label>
    <label name="Category" order="4">Painting/Watercolor</label>
  </thumbnail>
  <image
URL="http://TEST_URL/cornell/Base64/Disc8042/80420007.jpg"
mediaType="image" height="65" width="96" size="0">
  <mediaInfo>
    <field name="Image ID" order="1">
```

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```
        <value order="1">80420007</value>
      </field>
      <field name="Resolution Size" order="2">
        <value order="1">0</value>
      </field>
      <field name="Format" order="3">
        <value order="1">JPEG</value>
      </field>
      <field name="Media Type" order="4">
        <value order="1">Image</value>
      </field>
      <field name="File Name" order="5">
        <value order="1">80420007.jpg</value>
      </field>
      <field name="Width" order="6">
        <value order="1">96</value>
      </field>
      <field name="Height" order="7">
        <value order="1">65</value>
      </field>
    </mediaInfo>
  </image>
  <fullData>
    <objectInfo mappingType="native" mappingName="Insight
Sampler">
      <field name="Collection" order="1">
        <value order="1">Johnson Museum - v4</value>
      </field>
      <field name="Artist" order="2">
        <value order="1">KING, James S.
1852 - 1925
American
Male</value>
      </field>
      <field name="Title" order="3">
        <value order="1">The Last Gleam (after painting by William
M. Hart)</value>
      </field>
      <field name="Creation Date" order="4">
        <value order="1">after 1872</value>
      </field>
      <field name="Medium" order="5">
        <value order="1">Etching</value>
      </field>
      <field name="Credit Line" order="6">
        <value order="1">Gift of E. B. White</value>
      </field>
      <field name="Category" order="7">
        <value order="1">Painting/Watercolor</value>
      </field>
      <field name="Object Type" order="8">
        <value order="1">Landscapes</value>
      </field>
      <field name="Subject Description" order="9">
        <value order="1">Animals; Cows; Landscapes; Rock;
Townscapes?; Trees</value>
      </field>
    </objectInfo>
  </fullData>
</object>
<status code="0"></status>
</collectionResultSet>
<status code="0"></status>
</dataResponse>
```

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```
<status code="0"></status>  
</insightResponse>
```