

AIM Template Service 2.0 User's Guide



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Introduction to the AIM Template Service

The AIM Template Service (ATS) is a web service application that makes it possible for you to upload (publish) and download AIM templates created using a caBIG® Annotation and Image Markup (AIM) tool such as [AIM Template Builder](#). You can import AIM template files to AIM Template Builder and modify them there. You can then use AIM Template Builder to export the template(s) to an AIM template file. If you want to share that file, you can upload it to ATS.

AIM templates contain a set of well-defined questions and answer choices to facilitate collecting information for a particular purpose, such as The Cancer Genome Atlas Glioblastoma (TCGA GBM) study. AIM templates ensure that users can annotate medical images using a controlled vocabulary and standard template. This results in simple and constrained annotations that are reproducible and consistent.

An AIM template group is a container that holds more than one template. Templates and template groups are part of AIM template files, which are in XML format. The following XML file section shows how template groups and their component template files are described in an AIM template file.

```
<?xml version="1.0" encoding="UTF-8"?>
<TemplateContainer authors="kirbyju" name="BRCA 04-18-12" version="1.2" description="TCGA Breast Research Group templates." uid="
1.3.6.1.4.1.14519.5.34.7435.2378" creationDate="2012-04-18" xsi:schemaLocation="gme://caCORE.caCORE/3.2/edu.northwestern.radiology.AIMTemplate
AIMTemplate_v1n23.xsd" xmlns="gme://caCORE.caCORE/3.2/edu.northwestern.radiology.AIMTemplate" xmlns:xsi="
http://www.w3.org/2001/XMLSchema-instance">
  <Template name="TCGA-BRCA Mass" version="1.2" authors="kirbyju" description="TCGA Breast Research Team" uid="1.3.6.1.4.1.14519.5.2.1.1"
  codeValue="99NCI_TCGA_BRCA" codeMeaning="TCGA-BRCA Mass" codingSchemeDesignator="99NCI_CIP" creationDate="2012-04-18">
  <Template name="TCGA-BRCA Nonmass" version="1.2" authors="kirbyju" description="TCGA Breast Research Team" uid="1.3.6.1.4.1.14519.5.2.1.3"
  codeValue="99NCI_TCGA_BRCA" codeMeaning="TCGA-BRCA Nonmass" codingSchemeDesignator="99NCI_CIP" creationDate="2012-04-18">
  <Template name="TCGA-BRCA CRF" version="1.1" authors="kirbyju" description="TCGA Breast Research Team" uid="1.3.6.1.4.1.14519.5.2.1.2"
  codeValue="99NCI_TCGA_BRCA" codeMeaning="TCGA-BRCA CRF" codingSchemeDesignator="99NCI_CIP" creationDate="2012-03-19">
</TemplateContainer>
```

A valid AIM template is validated by AIM schemas (version 1, revision 18/19/23).

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Why Use the AIM Model?

Imaging reports contain both graphical drawings and medical knowledge in the form of annotations. These annotations are stored as unstructured text and separated from graphical drawings, which are typically in a proprietary format on an imaging system. Extracting this valuable medical information and combining it with drawings on another system is a time-consuming process that yields results that are cumbersome to filter and search. Also, existing vocabularies used to describe medical images contain thousands of terms. This makes it difficult for users to find these terms and then include them in their AIM annotations.

The AIM model begins to solve this problem by capturing the descriptive information of an image with user-generated graphical symbols placed on the image into a single common information source. AIM captures medical findings using standard vocabularies such as RadLex, SNOMED CT®, and DICOM, and user-defined terminology. Image information captured in the AIM model includes the anatomic entity and its characteristics, imaging observation and its characteristics, and inference.

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What is in an AIM Template?

An AIM template contains a collection of data collection items (questions) and possible values (answers) for each question. You create a template for each imaging study. You capture each item and value using a standardized vocabulary.

An AIM template has one or more components. Each component represents a study question that may have one or more answers. Template components can be any of the following: anatomic entity, imaging observation, inference, calculation, or geometric shape (markup).

Both anatomic entities and imaging observations are also described by their associated characteristics. Anatomic entity and imaging observation characteristics inherit the attributes of their respective component. Characteristics have *annotator confidence* that allows a user to enter a percentage that represents the level of user confidence in answering the question. A characteristic may also have a quantification value.

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Requesting an NCI Account

You must have an NCI account with caGrid and ATS access to publish AIM templates to the AIM Template Service.

To request this access, send an email to [Application Support](#).

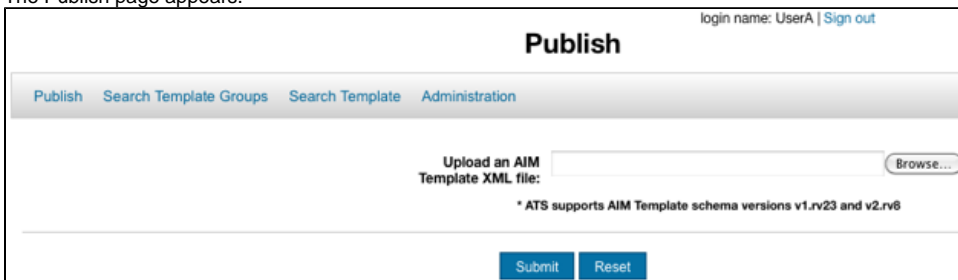
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Publishing a Template

You can publish a template file to ATS if you have a [caGrid account](#), the template file is in XML format, and the template complies with AIM schema versions v1.rv23 and v2.rv13.

1. Select **Publish**.

The Publish page appears.



2. Click **Browse** and navigate to the template file on your file system.
3. Click **Submit**.

A confirmation message appears.



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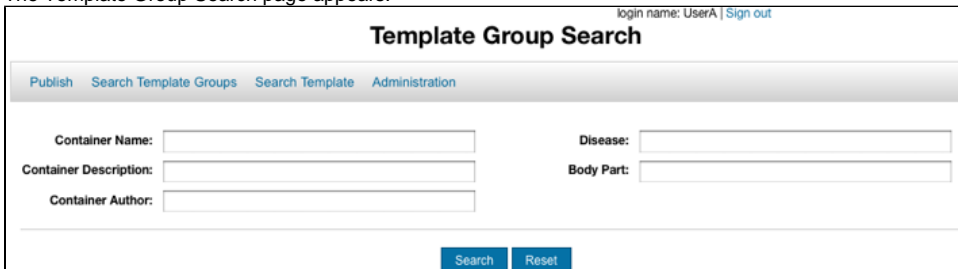
Searching for a Template Group to Download

You can download a template group from ATS so that you can import it to any AIM-enabled application such as AIM Template Builder.

When you create a template group using an AIM-enabled application, you specify its metadata. You can use this metadata as search criteria when you search for the template group later.

1. Select **Search Template Groups**.

The Template Group Search page appears.



2. Narrow your search by entering information into the fields. If you do not enter any information into the fields, all template groups available in ATS appear, and it may take longer to see the results of your search. The following fields are available.

Field	Description
Container Name	Template group name
Container Description	Template group description
Container Author	Person who created the template group in the AIM-enabled application
Disease	Disease that is the topic of the templates in the template group
Body Part	Body part that is the topic of the templates in the template group

3. Click **Search**.

All template groups matching the search criteria you entered appear.

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[Search Template Groups](#)
[Search Template](#)
[Administration](#)

Container Name:

Disease:

Container Description:

Body Part:

Container Author:

Search

Reset

Template Name	Authors	Template Description	Disease	Body Part	Download Template
VASARI Template Test	The AIM team	This template is used by an application program to present readers and adjudicators with available option for evaluating brain tumor studies.			download
Mammo Template	tuser	This template is used by an application program to present readers and adjudicators with available option for evaluating brain tumor studies			download
Mammo Template	tuser	This template is used by an application program to present readers and adjudicators with available option for evaluating brain tumor studies			download
Mammo Template	tuser	This template is used by an application program to present readers and adjudicators with available option for evaluating brain tumor studies			download

4. Find a template group and then click the **download** link.

Your browser prompts you to save or open the AIM template file.

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Searching for a Template to Download

Download a template from ATS so that you can use it in an AIM-enabled application such as AIM Template Builder.

When you create a template using an AIM-enabled application, you specify its metadata. You can use this metadata as search criteria when you search for the template later.

1. Select **Search Template**.

The Template Search page appears.

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[Search Template](#)
[Administration](#)

Template Name:

Disease:

Template Code Desc:

Body Part:

Template Description:

Modality:

Template Author:

Search

Reset

2. Narrow your search by entering information into the fields. If you do not enter any information into the fields, all template groups available in the AIM Template Service appear, and it may take longer to see the results of your search. The following fields are available.

Field	Description
Template Name	Template name
Template Code Desc	Template code description
Template Description	Template description

Template Author	Person who created the template in the AIM-enabled application
Disease	Disease that is the topic of the templates in the template group
Body Part	Body part that is the topic of the templates in the template group
Modality	Any of the various types of equipment or probes used to acquire images of the body, such as CR or DR (radiography), US (ultrasound) and MR (magnetic resonance imaging)

- Click **Search**.

All templates matching the search criteria you entered appear.

Template Search

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Template Name:
Template Code Desc:
Template Description:
Template Author:

Disease:
Body Part:
Modality:

Template Name	Authors	Template Description	Disease	Body Part	Modality	Download Template
VASARI_7	AIM Team	This is a VASARI template version 2.				download
						download
MarkupOnly-1	tuser	TCGA-GBM markup only template				download
MarkupOnly-2	tuser	TCGA-GBM markup only template				download
MarkupOnly-5	tuser	TCGA-GBM markup only template				download
MarkupOnly-6	tuser	TCGA-GBM markup only template				download

- Find a template and then click the **download** link.
Your browser prompts you to save or open the AIM template file.

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Changing the Permissions for a Template Group

You can make the template groups you publish to ATS public or private.

- Select **Administration**.
The Edit Permissions page appears.

Edit Permissions

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[Search Template](#)
[Administration](#)

login name: UserA | [Sign out](#)

Name	Owner	Publish Date	Permissions	Allowed Users	Change	View
AIM_Template_Group_3.xml	UserA	7/16/12 6:55 PM	public		Change	View
Mammo Template_1.xml	UserA	7/24/12 1:58 PM	public		Change	View
Mammo Template_2.xml	UserA	7/24/12 1:58 PM	public		Change	View
Mammo Template_5.xml	UserA	7/24/12 2:47 PM	public		Change	View
Mammo Template_6.xml	UserA	7/24/12 2:47 PM	public		Change	View
Mammo Template_8.xml	UserA	7/24/12 2:47 PM	public		Change	View
Mammo Template_9.xml	UserA	7/24/12 2:47 PM	public		Change	View
Mammo Template_10.xml	UserA	7/24/12 2:47 PM	public		Change	View
Mammo Template_11.xml	UserA	7/24/12 2:47 PM	public		Change	View
Markup-only VASARI Template-5-2-11.xml	UserA	7/24/12 2:55 PM	public		Change	View

- For a selected template group, click **Change**.
The Change Template Group page appears.

Change Template Group

login name: UserA | [Sign out](#)

Permission: Public
Allowed Users:

Delete: ☐

- From the Permission list, select **Public** or **Private**. For the **Private** option, enter names of users allowed to access that template group in the Allowed Users field. Separate each name by a comma. For example, UserA, UserB.
- Click **Change**.

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Deleting a Template Group

Deleting a template group permanently removes it from ATS.

- Select **Administration**.
The Edit Permissions page appears.

<div>login name: UserA Sign out</div> <div>Edit Permissions</div> <div> Publish Search Template Groups Search Template Administration </div>						
Name	Owner	Publish Date	Permissions	Allowed Users	Change	View
AIM_Template_Group_3.xml	UserA	7/16/12 6:55 PM	public		Change	View
Mammo Template_1.xml	UserA	7/24/12 1:58 PM	public		Change	View
Mammo Template_2.xml	UserA	7/24/12 1:58 PM	public		Change	View
Mammo Template_5.xml	UserA	7/24/12 2:47 PM	public		Change	View
Mammo Template_6.xml	UserA	7/24/12 2:47 PM	public		Change	View
Mammo Template_8.xml	UserA	7/24/12 2:47 PM	public		Change	View
Mammo Template_9.xml	UserA	7/24/12 2:47 PM	public		Change	View
Mammo Template_10.xml	UserA	7/24/12 2:47 PM	public		Change	View
Mammo Template_11.xml	UserA	7/24/12 2:47 PM	public		Change	View
Markup-only VASARI Template-5-2-11.xml	UserA	7/24/12 2:55 PM	public		Change	View

- For a selected template group, click **Change**.
The Change Template Group page appears.

<div>login name: UserA Sign out</div> <div>Change Template Group</div>	
Permission: <div>Public </div>	
Allowed Users: <input type="text"/>	
<div> <input type="checkbox"/> Delete: </div> <div> <input type="button" value="Delete"/> </div>	<div> <input type="button" value="Change"/> <input type="button" value="Reset"/> </div>

- Select the **Delete** checkbox.
- Click **Delete**.

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Viewing an AIM Template in XML

You can view the contents of an AIM template in XML format.

- Select **Administration**.
The Edit Permissions page appears.

<div>login name: UserA Sign out</div> <div>Edit Permissions</div> <div> Publish Search Template Groups Search Template Administration </div>						
Name	Owner	Publish Date	Permissions	Allowed Users	Change	View
AIM_Template_Group_3.xml	UserA	7/16/12 6:55 PM	public		Change	View
Mammo Template_1.xml	UserA	7/24/12 1:58 PM	public		Change	View
Mammo Template_2.xml	UserA	7/24/12 1:58 PM	public		Change	View
Mammo Template_5.xml	UserA	7/24/12 2:47 PM	public		Change	View
Mammo Template_6.xml	UserA	7/24/12 2:47 PM	public		Change	View
Mammo Template_8.xml	UserA	7/24/12 2:47 PM	public		Change	View
Mammo Template_9.xml	UserA	7/24/12 2:47 PM	public		Change	View
Mammo Template_10.xml	UserA	7/24/12 2:47 PM	public		Change	View
Mammo Template_11.xml	UserA	7/24/12 2:47 PM	public		Change	View
Markup-only VASARI Template-5-2-11.xml	UserA	7/24/12 2:55 PM	public		Change	View

- The template file contents appear in a new browser window.

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
- <TemplateContainer uid="2.25.847593044734358879644913128696602395578" name="VASARI Template Test" authors="The AIM team" version="1" creationDate="2011-07-03" description="This template is used by an application program to present readers and adjudicators with available option for evaluating brain tumor studies." xsi:schemaLocation="gme://caCORE.caCORE3/2/edu/northwestern.radiology.AIMtemplateAIMTemplate_v1vr23.xml"/>
- <Template uid="2.25.23219568473439981245633128696602393556" name="VASARI_T1" authors="AIM Team" version="1.0" creationDate="2011-07-17" description="This is a VASARI template version 1.0." codeMeaning="Brain Tumor Measurement" codeValue="VASARI_1" codingSchemeDesignator="VASARI_1"/>
- <Component label="Tumor Location" itemNumber="1" explanatoryText="Location of lesion geographic center (not all areas of involvement)." minCardinality="1" maxCardinality="1" shouldDisplay="true">
- <AnatomicEntity annotatorConfidence="true">
- <AnatomicEntityCharacteristic label="Side of Tumor Center" itemNumber="1" explanatoryText="Side of lesion center" minCardinality="1" maxCardinality="1" shouldDisplay="true" annotatorConfidence="false">
<A>"wec"errp"ode">lue "G,"'00"ode">cap"ice">phd"nd Sch"nef"ign"or">RT\
```

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