



Get.It! Base  
Tailoring Guide  
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# Chapter 1

## Introduction



---

The Get.It! Base product is comprised of the Archway servlet engine without any packaged weblications. This engine provides an HTTP-based interface to Peregrine's product line, including ServiceCenter and AssetCenter, and access to other databases using the JDBC adapter.

Get.It! Base includes:

- Adapters: ServiceCenter, AssetCenter, JDBC, LDAP, and e-mail.
- Get.It! run-time environment, including JRun.
- A login screen and portal.
- AssetCenter weblication templates for creating pages that will access data about Assets, IMAC, Work Orders, Employees, Budgets, and Contracts.

Common forms and files are included within the `... \apps\common\` directory. This common package includes the following.

- Admin
- Common lookup
- Form components
- Schema files

## About this Manual

To use this manual effectively, you should have working knowledge of both XML and JScript.

- Operating guides, reference manuals, and other documentation for your PC hardware and operating software.
- The *Get.It! Base Installation and Administration* guide tells how to install, configure, and administer Get.It! Base.
- JRun documentation located in the `... \JRun\docs` directory.

## Organization of the Manual

This manual is organized by main function. The following table illustrates those parts of the manual that you need to reference to find the information you need.

---

<b>To Find This</b>	<b>Look Here</b>
Background information; how to use this manual.	Chapter 1: Introduction
Information about the Archway Architecture; archway requests; scripting; the Document Manager; basic information about weblications.	Chapter 2: Get.It! Base Architecture Overview
Introduction to document schema definitions; definition of a document schema; and using a schema in a weblication.	Chapter 3: Introduction to Document Schemas
Templates you can use with AssetCenter	Chapter 4: AssetCenter Templates
Steps on how to tailor Get.It! Base; where to save your changes; changing scripts, schemas, components of a weblication; integrating a new module into Get.It! Base.	Chapter 5: Tailoring Get.It! Base
Information about the Get.It! Base adapters, including instructions for connecting to a database using the JDBC adapter.	Chapter 6: Adapters
Gives information about the supported languages: English, French, German, Italian, and Japanese.	Chapter 7: Localization Support
The weblication structure; descriptions of individual elements and attributes (tags) used in documents; reusable form components.	Appendix A: Weblication Reference
Document schema files; schema attributes; tags you can use in schemas.	Appendix B: Document Schema DTD
Java Script functions for a variety of processes.	Appendix C: JavaScript

---

## Conventions Used in this Manual

Most screen shots in this manual come from the Windows version of Get.It! and are included as examples only. In some cases, the Peregrine Systems products, AssetCenter and ServiceCenter, have been used for examples of screens and to create sample XML or JScript code.

Screens are shown using the Get.It! Classic stylesheet.

The following documentation conventions are used in this guide:

Object	Font	Example
Button	Bold	Click <b>Next</b> .
Directory path/file name	Courier New	C:\Program Files\getit\ login.asp
...	Courier New	<pre>var msgTicket = new Message( "Problem" );  ... msgTicket.set( "_event", "epmc" );</pre> <p>The ellipsis (...) is used to indicate that portions of a script have been omitted because they are not needed for the current topic. Samples of code are not entire files, but they are representative of the information being discussed in a particular section.</p>

Note: Many of the examples and sample scripts shown in this guide use AssetCenter and ServiceCenter specific file names and data, but you can adapt the information for use with any system.



# Chapter 2

## Get.It! Base Architecture Overview

---

Many of the examples and sample scripts shown in this chapter use AssetCenter and ServiceCenter specific file names and data, but you can adapt the information for use with any system.

This chapter introduces Archway, the architecture behind Get.It! Base. This architecture offers a simple and extensible way of creating a Web interface to Peregrine's existing systems, including AssetCenter and ServiceCenter, or to any other database. Templates are provided for use with AssetCenter.

The architecture has been designed to allow you to create a Web interface that:

- Offers services to everyone in an organization
- Offers access everywhere users need it
- Offers support related to everything in the infrastructure that helps employees get things done

The Get.It! Base architecture is designed to make services available to users through common interfaces like Web browsers, handheld computers (PalmPilot), or mobile phones. The applications are designed to provide a wide range of services, from helping a user with a PC problem, to allowing the creation of a purchase request, to reporting a problem with the employee's office space.

# High Level Architecture

Get.It! Base applications and interfaces are implemented using basic building blocks that include:

HTTP	A simple and widely supported protocol for sending client requests to a server. Variations such as HTTPS provide security as well.
XML	A documentation meta-language that allows you to format data, which can then be displayed through a Web browser. Unlike HTML, you create your own XML tags and define them any way you want.
Commercial web servers	The services provided by the Archway architecture can be served from any commercial Web server, including IIS, Apache, Netscape Enterprise Server, or the Java Web Server.
Common clients	Applications can be built to be deployed via Web browsers (IE, Netscape), handheld devices (Palm Pilot), or mobile phones (through HDML).

The following diagram illustrates the architecture:

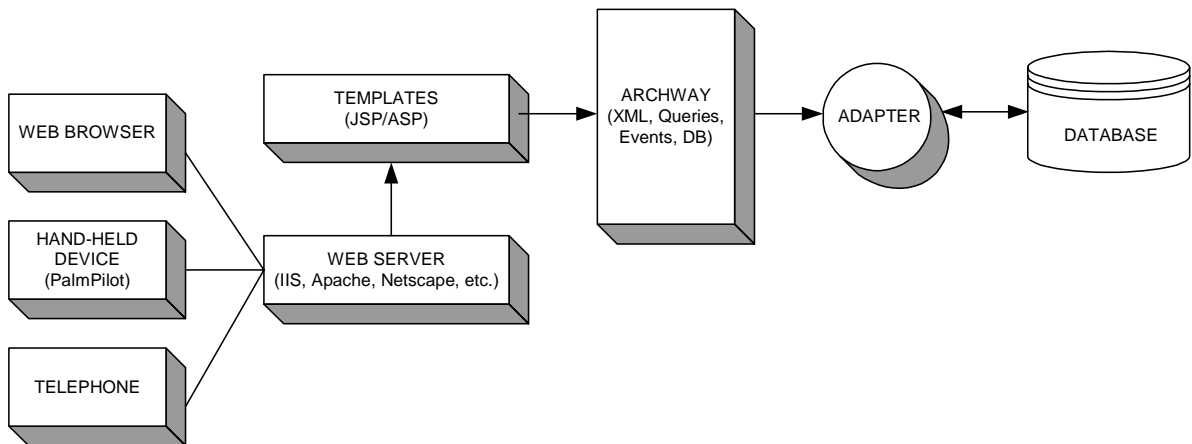


Fig. 2.1 The architecture

At the center of the architecture is a component named Archway. This component listens to HTTP requests from arbitrary clients, routes the requests to an appropriate server, and returns data or documents. The requests supported by Archway can vary, but they fundamentally consist of queries, data updates, or system events.

For example, a client can contact Archway and ask to query a database for a list of problem tickets. Another client could contact Archway and supply it with a new purchase request that should be entered into the database.

All requests and responses are formatted using XML (Extensible Markup Language). XML provides a readable self-describing syntax for defining documents. For example, a problem ticket expressed in XML could appear as follows:

```
<problem>
  <number> PM5670 </number>
  <contact> Joe Smith </contact>
  <description> My printer is out of paper </description>
</problem>
```

Clients that interact with Archway can do anything they need with the XML that is returned as a response. Very frequently, the client initiating the request is a user interface such as a Web browser. Such a client could easily display the XML documents returned by Archway. However, to be of better use, the XML documents are often displayed within a formatted HTML page. This is accomplished by using Java's JSP (Java Server Pages).

JSP provides a syntax for creating HTML pages that is pre-processed by the Web server before being sent to the browser. During this processing, XML data obtained from Archway is merged into the HTML page.

Archway's architecture includes special support for automatically generating the pages (i.e. HTML, JSP) that make up a weblication.

## Archway Internal Architecture

The internal design of Archway is simple and flexible. Archway is implemented as a Java servlet—a Java application executed by a Web server. HTTP requests sent to the Web server are forwarded to the Archway servlet for processing. When all processing is complete, the Web server returns the output generated by Archway.

Each request is interpreted to determine its destination. Specifically, Archway is able to communicate with a variety of back-end systems, including the AssetCenter or ServiceCenter products from Peregrine. Requests can be handled in one of three ways:

1. A request can be sent directly to an adapter that talks to a back-end server. For instance, a query request for opened tickets could be forwarded to an adapter capable of communicating with ServiceCenter.
2. A request can be sent to a script interpreter hosted by Archway. This is a very powerful feature. It allows you to define your own application-specific services. Within a script, calls can be made back to Archway to access the back-end system with database operations and events.
3. Finally, a request can be sent to a component known as a Document Manager. This component provides automated services for combining logical documents.



The following diagram illustrates the internal Archway architecture.

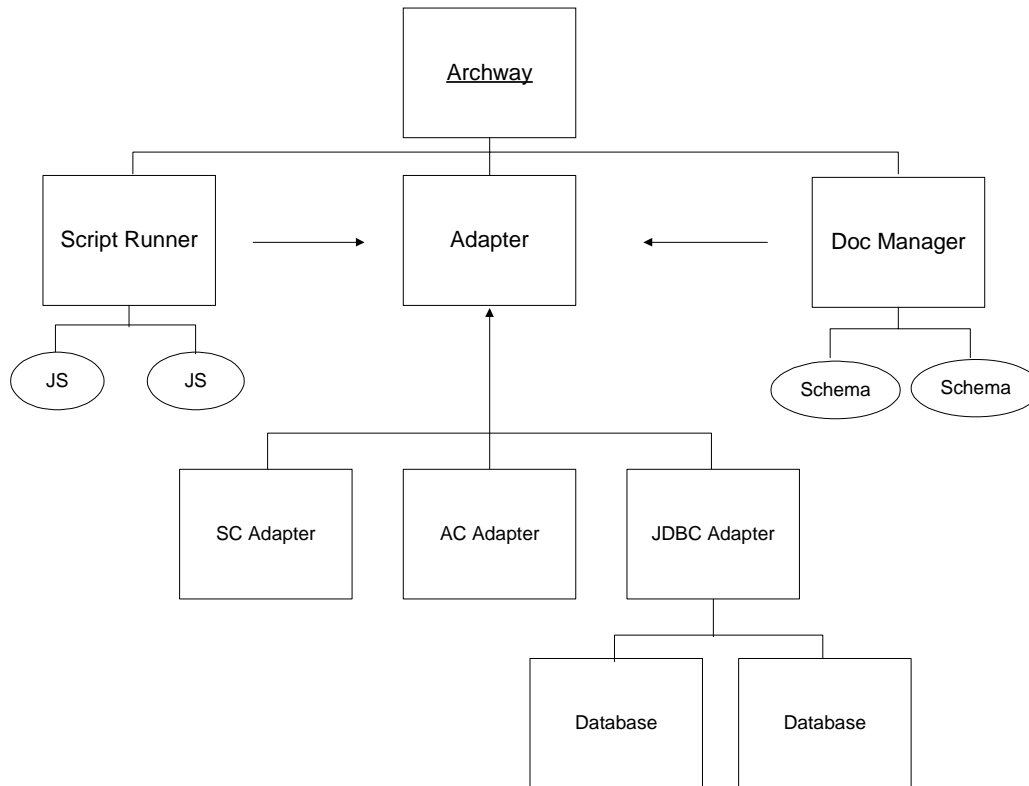


Fig. 2.2 Archway's internal architecture

Archway communicates with back-end systems with the help of specialized adapters that support a predefined set of interfaces for performing connections, database operations, events, and authentication. All adapters use DLLs to communicate with each application.

Messages can be routed to a script interpreter hosted by Archway. The interpreter supports ECMAScript. JavaScript (Netscape) and JScript (Microsoft) were both created based upon the original ECMAScript language.

Messages can be routed to the Document Manager component. This component reads special schema definitions that describe application documents for logical entities such as a Purchase Request, Problem Ticket, or Product Catalog. The Document Manager uses these schemas to automatically generate database operations that query, insert, or update such documents.

## Archway Requests

Archway supports a variety of requests, all of which are based on two basic technologies: HTTP and XML. The HTTP protocol defines a simple way for clients to request data from a server. The requests are stateless and a client/server connection is maintained only during the duration of the request. All this brings several advantages to Archway, including the ability to support a large load of requests with the help of any of today's commercial Web servers.

Another important advantage is that any system capable of making HTTP requests can contact Archway. This includes Web browsers, of course. But in addition, all modern programming environments support HTTP. This makes it very simple to write new adapters that communicate with Peregrine servers without the need of specialized APIs.

From a simple point of view, an HTTP connection consists of:

- A client request
- A server response

The messages exchanged normally have a number of header lines and some content lines. For this discussion, let's focus on two principal parts of a request:

**Query String** This represents the *parameters* sent along with the URL for the HTTP connection.

For instance, consider the following URL:

```
http://prgn/servlet/archway?hello&world.
```

This URL is made up of a server locator (`http://prgn/servlet/archway`) and a query string (`hello&world`).

**Content** A request can also include an arbitrary amount of data appended to the request. This data could follow any format, but for Archway, the data is always formatted as XML.

Archway uses the query string of a request to determine what it has been asked to do. The following query string syntax is expected:

```
archway?target.command&param=value&param=value&...
```

Let's consider each part of the request.

Target	The name of a target object that should handle the request. Archway's job is to forward requests to a system and return the response. Thus, the target could be ServiceCenter, AssetCenter, or another database. As we will see, the target may also be the name of a Script Object that contains customizable logic for handling the request.
Command	The command describes the action that the target object should take. By default, there are five basic actions that may be supported: query, update, insert, delete, and event. However, when the target is a Script Object, the action can be any function defined by the script.
Param=Value	An arbitrary number of parameters can be passed along with the request. The encoding of these parameters is the same as that used by CGI (the Common Gateway Interface). This makes it seamless to make Archway calls from a Web page. As with CGI, data sent by a browser is provided by fields embedded in an HTML form. This data is automatically formatted as a CGI request in a way that Archway understands.

The following are some sample URLs that illustrate the power of contacting Archway with HTTP requests that return XML documents. These samples are intended as an introduction.

```
archway?sc.query&_table=probsummary&priority.code=1
```

This sends a query request to ServiceCenter for all records in the `probsummary` table with a priority code of 1.

```
archway?ac.query&_table=amAsset&_return=Brand;mPrice;Model&_count=2
```

This sends a query request to AssetCenter for the first two records in the `amProduct` table. Only the **Brand**, **mPrice**, and **Model** fields are returned for each record.

```
archway?test.helloWorld&greeting=Hello
```

This sample sends a *helloWorld* request to a script object named **test**.

You could try URLs like these from a Web browser to see firsthand how the Archway requests work. The figure below illustrates this by showing the XML results of a query for products from AssetCenter.

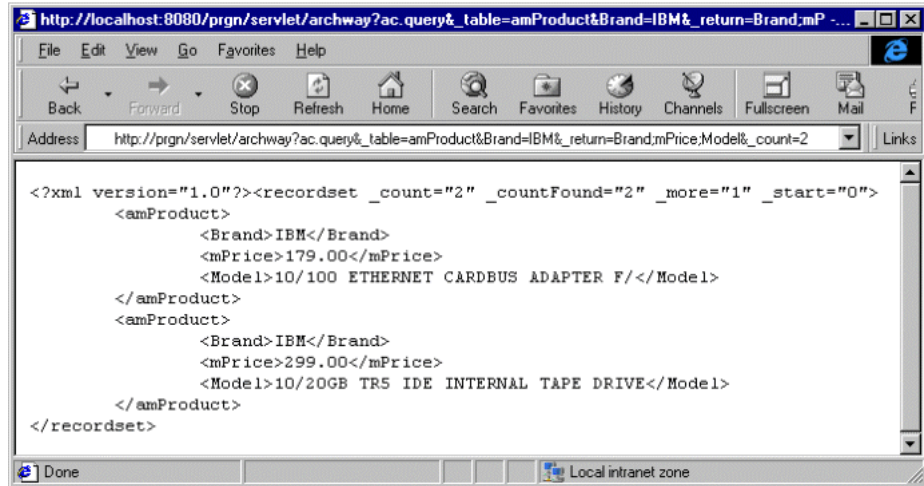


Fig. 2.3 Testing URLs from a Web browser

## Scripting

A great deal of Archway's flexibility and power comes from its support of the ECMAScript language. This enables application developers to define arbitrary code that handles client requests. ECMAScript is a standard version of the language originally made popular by Netscape (JavaScript) and later adopted by Microsoft (JScript).

ECMAScript is a very powerful language, but it allows for simple tasks to be accomplished in a simple manner. Its syntax is similar to that of Java, and yet traditional JavaScript is not Java. While this is true, one interesting aspect of Archway's ECMA support is that it includes the ability to access any arbitrary Java object. This makes Archway scripts even more powerful since they have all the power of Java available within the easy programming syntax of ECMA-Script.

It is beyond the scope of this document to describe all aspects of ECMAScripting. One reason for adopting this language is that it is standard, well known, and widely documented. Numerous references and guides exist for the language.

ECMAScript, JavaScript, and JScript tend to vary in some way or another. This is especially true in the APIs for what is known as *Client Side JavaScript*. This is the type of scripting supported by a browser to allow dynamic manipulation of what gets displayed within a Web page. However, none of this really matters in the context of Archway. Archway uses what is known as *Core JavaScript*. This is the subset of the language that is independent of any client side (browser) features. Archway executes all script code on the server while processing a request. When the script is finished executing, its response is sent back as XML to the client.

Much of the ability to write useful scripts comes from a very small set of *Scriptable* Objects that are supplied with the Archway architecture. Two of the main objects provided are:

- |           |   |
|-----------|---|
| Messenger | This object allows any script to send messages back to Archway. For example, through the messenger, a script can ask Archway to send a query to AssetCenter or an event to ServiceCenter. |
| Message   | This object encapsulates XML documents in a very easy to use API. With this object, scripts can very easily build and interpret complex XML documents.                                    |

Below are samples of ECMAScript that illustrate the ease of programming provided by these objects. The first script executes a query against AssetCenter:

```
function pmoEvent( msg )
{
    var msgProducts;
    msgProducts = archway.sendQuery(
        "ac", "SELECT Brand,mPrice FROM AmProduct", 0, 10 );
    return msgProducts;
}
```

Here is another sample script that sends a PMO event to ServiceCenter:

```
function getCatalog( msg )
{
    var msgEvent;
    var msgResponse;

    msgEvent = new Message( "pmo" );
    msgEvent.set( "contact.name", msg.get("UserName" ) );
    msgEvent.set( $ax.field.name, msg.get( "Description" ) );
    msgResponse = archway.sendEvent( "sc", msgEvent );

    return msgResponse;
}
```

## The Document Manager

Archway uses XML to exchange data and documents between clients and the supported back-end systems. Fundamentally, the XML data returned by Archway is obtained by executing queries against one or more systems. The queries could be executed by a direct URL request or indirectly within an ECMAScript.

Simple queries are only capable of returning record sets of data. However, clients are more often interested in exchanging documents. A Document is a logical entity built up of several pieces of data that can come from various physical database sources. For example, consider a Product document. Products have a number of individual fields such as **Price** or **Brand**. They also may have collections of other related documents, such as a collection of *Vendors*. Below is sample XML for a Product document:

```
<product>
  <brand> IBM </brand>
  <model> ThinkPad 770 </model>
  <price> 1250 </price>
  <vendors>
    <vendor>
      <name> Best Buy </name>
      <phone> 267-8967 </phone>
    </vendor>
    <vendor>
      <name> Super City </name>
      <phone> 267-8967 </phone>
    </vendor>
  </vendors>
</product>
```

Building such a Product document can certainly be accomplished by running several queries and putting the results together in an XML message. An ECMAScript is a perfect place to code such logic.

However, there is an even better way to build documents with the use of Archway's Document Manager. This component provides the very important service of processing logical Document Schema Definitions and automatically generating queries or database operations to create and process these documents.

Here is a small example of a document schema that defines what Product documents should look like:

```
<document name="Product">
  <attribute name="Id"                type="num" />
  <attribute name="Brand"              type="string" />
  <attribute name="Model"              type="string" />
  <attribute name="Price"              type="money" />

  <collection name="Suppliers">
    <document name="Supplier">
      <attribute name="Name"           type="string" />
      <attribute name="Phone"         type="string" />
    </document>
  </collection>
</document>
```

Note: The principal concept to notice is that a document schema describes the fields and collections that make up a document. The details on how to construct document schemas are documented in Chapter 3, "Introduction to Document Schemas."

The Document Manager can be accessed with direct URL calls to Archway, as well as from ECMAScripts. Here is a sample script that retrieves Product documents:

```
function Product( msg )
{
  return archway.sendDocQuery( "ac", "Product", msg );
}
```

## Weblications

If an application is to be deployed on a Web browser, there remains one piece that must be defined to create the application: the screens and the flow for navigating among them.

Web browsers display screens defined in HTML. The screens can contain data retrieved from the server, and they may also provide entry fields for sending input data back to the server.

To understand how Archway fits in with the creation of browser interfaces, let's start by considering the example of setting up a Web page that lets a user create a new ServiceCenter ticket. Defining this page in HTML might appear as follows:

```

<form action="http://prgn/archway?sc.pmo" method="GET">
<input type="text" name="contact.name"> <br>
<input type="text" name="$ax.field.name"> <br>
<input type="submit" value="Open"/>
</form>

```

The first line in the code above defines an HTML form. All forms have an action property that tells the browser where to send the data typed in by the user. In this case, we see that data will be sent to

`http://prgn/archway?sc.pmo`

The next two lines contain input fields, each associated with a named field: `contact.name` and `$ax.field.name`.

In essence, the HTML above sends a PMO message to ServiceCenter through Archway. The data typed into the entry fields are passed in as PMO parameters.

What about using HTML to display data retrieved via Archway? As mentioned earlier, Archway is designed to return XML documents that can be merged into an HTML page using technologies such as JSP or ASP. Below is a sample snippet of JSP that sends Archway a query for ServiceCenter tickets and displays the results in an HTML table.

```

<html>
  <table>
  <%
Message msg = messenger.sendQuery(
  "SELECT number,brief.description FROM probsummary" );
List list = msg.getList( "probsummary" );
  for ( int iCurrent = 0; iCurrent < list.getLength(); iCurrent++ )
  {
  %>
  <tr>
    <td> <%= list.get( iCurrent, "number" ) %> </td>
    <td> <%= list.get( iCurrent, "brief.description" ) %> </td>
  </tr>
  <%
  }
  %>
  </table>
</html>

```

The code above is basically an HTML page with Java code mixed in. The Java code uses a few objects defined by Archway. These are shown in bold, and they include:

- A messenger that talks to Archway
- A message class that encapsulates XML responses



- A list object that allows easy navigation of a result set.

While these two samples of code are interesting to understand, it is not necessary to learn much if anything about HTML, JSP, or ASP development to write a Weblication with Archway. This is because Archway provides some additional tools that automatically generate the underlying HTML and JSP code that makes up an application.

Before introducing these tools, consider the following page showing a table with results from a catalog search. (Note: The following screen is from Peregrine's Get.It! product and is not part of the Get.It! Base templates.)

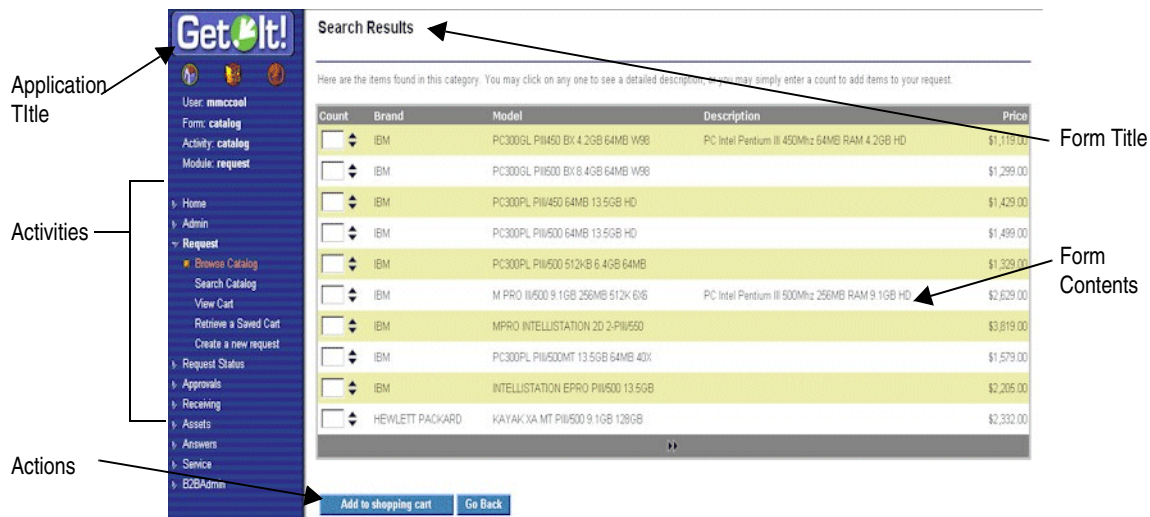


Fig. 2.4 Example of a weblication window

This page is part of a weblication. It conforms to a predefined template that determines a regular layout and placement of several components within a browser page. The actual template is customizable, and therefore not all weblications have to look as the one pictured above.

The creation of the page above is made possible by three ingredients:

- XSL Layout templates—These templates define the layout and organization of items in a Web page. They are defined using the Extensible Stylesheet Language (XSL). This is an XML-based language that is used to format Web pages out of XML data. There are many good Web sites for learning more about XSL. The World Wide Web Consortium (W3C) provides the latest XSL specifications.

- Cascading Style Sheets (CSS)—All aesthetic aspects of a Web page are defined separately in a CSS file. This includes specifications for colors, fonts, alignment rules, and special effects.
- Weblication Definition—The actual application specific portions of a weblication are defined using a concise high level XML description.

Defining weblications in this manner has several advantages. First, it is much simpler than having to hand code numerous HTML and JSP pages. Second, it makes it easy to define a consistent look and feel to a Web site. A simple change to a template is quickly propagated to what could be hundreds of page files. Finally, the pages created automatically for a weblication include a number of features to deal with user authentication, security, access rights, and session tracking.

To illustrate this further, here is the XML weblication description for the form displayed in Figure 2.4:

```
<form name="catalog" onload="procure.getCatalog">
  <title> Get.Desktop </title>
  <instructions>
    Here are the items found in this category. You may click on any
    one to see a detailed description, or you may simply enter a
    count to add items to your order.
  </instructions>
  <table record="Product" rows="10">
    <link target-form="product" field="Id"/>
    <column label="Count"      field="nCount" type="select"/>
    <column label="Brand"      field="Brand"/>
    <column label="Model"      field="Model"/>
    <column label="Price"      field="Price"/>
  </table>
  <actions target-activity="review">
    <submit name="bTable"> Add to shopping cart </submit>
    <back/>
  </actions>
</form>
```

Just this small amount of XML is responsible for almost the entire window in Figure 2.4. An Archway tool parses this definition and generates the necessary HTML and JSP code that creates proper input to the browser. Compare this to the JSP and HTML code shown at the top of this section, and it is quickly evident that the weblication approach provides a much simpler way to define applications.

There are a few things worth highlighting in this XML definition. First, notice that the form has an `onload` property. It specifies that when constructing the page, an Archway script named `getCatalog` should be invoked. This script is defined to return Product documents.

For instance, each product could have the following XML definition:

```
<Product>
  <Brand> X </Brand>
  <Model> Y </Model>
  <Price> Z </Price>
</Product>
```

This XML data is easily incorporated into the HTML page. The form defines a table element that references fields in the XML Product description, and Archway takes care of generating the proper code to extract the fields from the XML documents.

Again, this is just an introduction to the concept of a weblication. This is probably the most important part of the Archway architecture to understand because it is directly related to the ability to define Get.It! Base applications. Details on the weblication definition language are documented in Appendix A, "Weblication Reference." In addition, related information can be found in Chapter 5, "Tailoring Get.It! Base."



# Chapter 3

## Introduction to Document Schemas

---

The Archway Document class provides Archway weblications and scripts with the service of processing logical Document Schema Definitions and implementing the physical database access operations for querying and constructing documents.

For example, consider a “Product” document. Products have a number of individual fields such as Price and Brand. They also have collections of other subdocuments such as a collection of Vendors.

The queries that create a document vary depending on the physical schema of the system hosting the Product data. To understand how to construct these queries, the class reads an XML Document Type Definition (DTD) file.

The DTD file contains *Base Document Definitions* that define the fields, collections, and nested documents that make up a logical Document.

In addition, the DTD file defines *Derived Document Definitions* with physical database schema information for building a base document out of data found in a specific system. A Derived Document Definition may define physical table and field information for some (but not all) of the fields in a Base Document.

### Definition of a Document Schema

A document is defined as a collection of one or more *Attributes*. Each attribute is a “field” in the document. For example, a Product document may have a Price attribute and zero or more nested Documents. This allows documents to be nested inside each other recursively for zero or more nested Collections. A Collection is a Document attribute which in turn has a list of one or more nested documents. For instance, a Product may have a Suppliers collection with one or more Supplier documents.

The following is an example that demonstrates most elements of the XML schema for defining documents:

```
<documents name="base">

  <!-- Product Document -->
  <document name="Product">
    <attribute name="Id" type="num"/>
    <attribute name="Brand" type="string"/>
    <attribute name="Model" type="string"/>
    <attribute name="Price" type="money"/>

    <!-- Here is an example of a nested document reference -->
    <collection name="Suppliers">
      <document name="Supplier"/>
    </collection>
  </document>

  <!-- Supplier Document -->
  <document name="Supplier">
    <attribute name="Name" type="string"/>
    <attribute name="Price" type="money"/>
  </document>

</documents>
```

The following is a more complete sample XML DTD of a Product document. The sample shows some additional, important concepts:

- Schemas are organized into "base" and "derived" versions. In the examples that follow, the first is a base schema and the second is a derived schema.
- Derived (adapter specific) schemas map to a specific system and are used to generate queries. A derived schema must map to an adapter from which the information will be accessed.
- Nested documents can be defined in place or as references.

```

<?xml version="1.0"?>

<!--=====
Name:   schema.xml
Author: David Baron
Date:   10/99
=====-->

<schema>

<!--=====
Generic Schema Definitions
=====-->

<documents name="base">

  <!-- Product Document -->
  <document name="Product">

    <attribute name="Id"           type="num"/>
    <attribute name="Certification" type="string"/>
    <attribute name="Category"     type="string"/>
    <attribute name="Brand"        type="string"/>
    <attribute name="Model"        type="string"/>
    <attribute name="Comment"      type="string"/>
    <attribute name="Price"        type="money"/>
    <attribute name="Description"  type="string"/>
    <attribute name="PhotoId"      type="number"/>
    <attribute name="IconId"       type="number"/>

    <!-- Here is an example of a nested document reference -->
    <collection name="Suppliers">
      <document name="Supplier"/>
    </collection>

    <!-- Here is an example of a nested document definition -->
    <collection name="Stocks">
      <document name="Stock">
        <attribute name="Name"      type="string"/>
        <attribute name="Quantity"  type="string"/>
      </document>
    </collection>

  </document>

  <!-- Supplier Document -->
  <document name="Supplier">
    <attribute name="Name"          type="string"/>
    <attribute name="Price"         type="money"/>
    <attribute name="Delivery"      type="time"/>
  </document>

```

In a "base" schema the document is defined within the schema.

<documents name="base">

This is an example of a referenced nested document.

<!-- Here is an example of a nested document reference -->  
 <collection name="Suppliers">  
 <document name="Supplier"/>  
 </collection>

This is an example of a nested document in place.

<!-- Here is an example of a nested document definition -->  
 <collection name="Stocks">  
 <document name="Stock">  
 <attribute name="Name" type="string"/>  
 <attribute name="Quantity" type="string"/>  
 </document>  
 </collection>

In a derived schema, the document is created by information which is accessed from another system. In this example, the data will be accessed in the "amProduct" table from within AssetCenter.

```

<!--=====
AssetCenter Schema Derivations
=====-->

<documents name="ac">
  <!-- AC Product Document -->
  <document name="Product"          table="amProduct">
    <attribute name="Id"              path="lProdId" />
    <attribute name="Catergory"       path="Category.Name" />
    <attribute name="Comment"        path="Comment.memComment" />
    <attribute name="Price"          path="mPrice" />
    <attribute name="PhotoId"        path="lPhotoId" />
    <attribute name="IconId"         path="lIconId" />
    <attribute name="Description"    path="cf_Description" />

    <collection name="Stocks">
      <document name="Stock"          table="amProdStockLine">
        <attribute name="Name"        path="Stock.Name" />
        <attribute name="Quantity"    path="lTotalQty" />
      </document>
    </collection>

  </document>

  <!-- Supplier Document -->
  <document name="Supplier"          table="amProdSupp">
    <attribute name="Name"            path="Supplier.Name" />
    <attribute name="Price"           path="mPrice" />
    <attribute name="Delivery"        path="tsDelivDelay" />
    <attribute name="Available"       path="lQtyAvail" />
    <attribute name="URL"             path="Product.fv_ManufacturerURL" />
  </document>

</documents>

<!--=====
Done
=====-->
</schema>

```



## Using Schemas in a Weblication

In using Document and Schema support, “document” type archway messages are available to ECMAScripts. Here is a script that queries for a list of Product documents (sendDocQuery):

```
function getCatalog( msg )
{
    return archway.sendDocQuery( "ac", "Product", msg );
}
```

The DocumentManager also supports SQL-like queries. For instance, you can query as in the following example:

```
archway.sendDocQuery( "ac", "SELECT Brand,Description FROM Product
WHERE Category='Desktop'ORDER BY Brand", 0, -1 );
```

You can also accomplish Document querying in the following manner:

```
msgParam.set( "_return", "Brand;Description" );
msgParam.set( "Category", "Desktop" );
msgParam.set( "_sort", "Brand" );
archway.sendDocQuery( "ac", "Product", msgParam, 0, -1 );
```

Use the SQL queries sparingly, especially in a weblication, because this method defeats one of the main purposes for setting up the DocumentManager. In a weblication setting you do not want hard-coded queries in your scripts. All fields that go in the msgParam are served for us by the weblication forms. This makes tailoring much easier. However, for certain script situations, the new syntax offers some coding comfort. Other calls include sendDocInsert and sendDocUpdate. See the Messenger API for details.

The document object works together with data provided by wbuild to do the following:

- Automatically create all queries that comprise a document.
- Use parameters passed into a script to filter the resulting Document result set. For instance, to search for Products with a particular Brand, Model, or Certification, the calling weblication needs a form with Brand, Model, or Certification fields. These are automatically added to the query if they are applicable to the document search.
- While wbuild generates forms from an XML weblication, it builds a list of document fields used by the form. This list is passed to the document search, allowing the Document class to limit the queries to those fields that will be used. This is very significant as it can eliminate the need for numerous sub-queries.



# Chapter 4

## AssetCenter Templates

---

You must have Peregrine's AssetCenter installed to use these templates.

There are six AssetCenter templates included with Get.It! Base:

- Assets
- Budgets
- Contracts
- Employees/Person Management
- Inventory Move, Add, Change (IMAC)
- Work Orders

These files are located in the `jscript`, `schema`, and `weblication` folders in the `...getit\apps\acw` directory. See “Working with the Templates” on page 4-3 for details about each template.

**Note:** If you are going to make modifications to the templates, copy the template files into the `...getit\apps\user` directory before making changes. If you do not save modified files in the `user` directory, they will be overlaid when you install future versions of Get.It! Base.

When you open Get.It! Base in a Web browser and log in, only the Work Order Management and Asset Browser modules are displayed in the Portal. In order to see the other templates, you must change the user rights to give access to the other templates. This can be done two ways:

- Modify the `archway.ini` file to include the user rights. This will give everyone on the system full access to all modules.
- In AssetCenter, modify specific user profiles to include user rights. This limits access to the users you want to have access to each module.

The user rights are:

- `getit.asset`—gives access to the Assets module (default access to all users).
- `getit.assetrw`—gives access to the IMAC module.
- `acw.employee`—gives access to the Employees/Person Management module.
- `acw.budget`—gives access to the Budgets module.

- `acw.contract`—gives access to the Contracts module.
- `acw.workorder`—gives access to the Work Orders module (default access to all users).
- `getit.admin`—gives access to the Administration module.

Along with the weblication templates are schemas which link to AssetCenter tables. You can find the schemas in the `...\getit\apps\acw\schema\` directory. The following chart shows which tables in AssetCenter the schemas are linked to.

Schema	AssetCenter Table
<code>acwassetlight.xml</code>	<code>amAsset</code>
<code>acwbudget.xml</code>	<code>amBudget</code>
<code>acwcontract.xml</code>	<code>amContract</code>
<code>acwcontractasset.xml</code>	<code>amAstCntrDesc</code>
<code>acwcontractassetlight.xml</code>	<code>amAstCntrDesc</code>
<code>acwcontractrent.xml</code>	<code>amCntrRent</code>
<code>acwcontractrentlight.xml</code>	<code>amCntrRent</code>
<code>acwexpenseline.xml</code>	<code>amExpenseLine</code>
<code>acwexpenselineLight.xml</code>	<code>amExpenseLine</code>
<code>acwworkorder.xml</code>	<code>amWorkOrder</code>

We also include jscripts in Get.It! Base. You can find the schemas in the `...\getit\apps\acw\jscript\` directory. The following chart shows the jscripts that are provided.

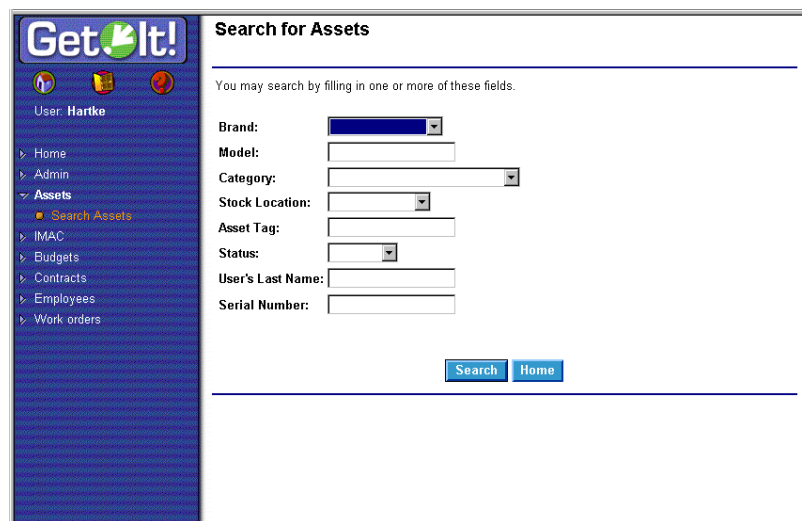
JScript	Description
<code>acwasset.js</code>	Query for assets matching selected options.
<code>acwbudget.js</code>	Query for budgets matching selected options.
<code>acwcontract.js</code>	Query for contracts matching selected options.
<code>acwemployee.js</code>	Query for employees matching selected options.
<code>acwimac.js</code>	Query for assets matching selected options and allows you to change, move, and replace assets.
<code>acwworkorder.js</code>	Query for work orders matching selected options.

## Working with the Templates

Each template links back to show a view of AssetCenter through a Web browser. The templates are designed to be basic guides to get you started on building your own weblications.

### The Asset Template

The Asset template is in a file called `acwasset.xml`. You can use it to search for an asset by brand, model, category, asset tag, or status. The figure below shows the Asset template.



The screenshot shows a web application interface for searching assets. On the left is a dark blue sidebar with the 'GetIt!' logo and a navigation menu including Home, Admin, Assets (with 'Search Assets' selected), IMAC, Budgets, Contracts, Employees, and Work orders. The main content area is titled 'Search for Assets' and contains a search form with the following fields: Brand (dropdown), Model (text input), Category (dropdown), Stock Location (dropdown), Asset Tag (text input), Status (dropdown), User's Last Name (text input), and Serial Number (text input). Below the form are 'Search' and 'Home' buttons. A horizontal line is positioned below the search buttons.

*Fig. 4.1 The Asset template window*

### The Budget Template

The Budget template is in the file called `acwbudget.xml`. You can use it to search for and display general information and details of budgets. The figures below show the Budget template.

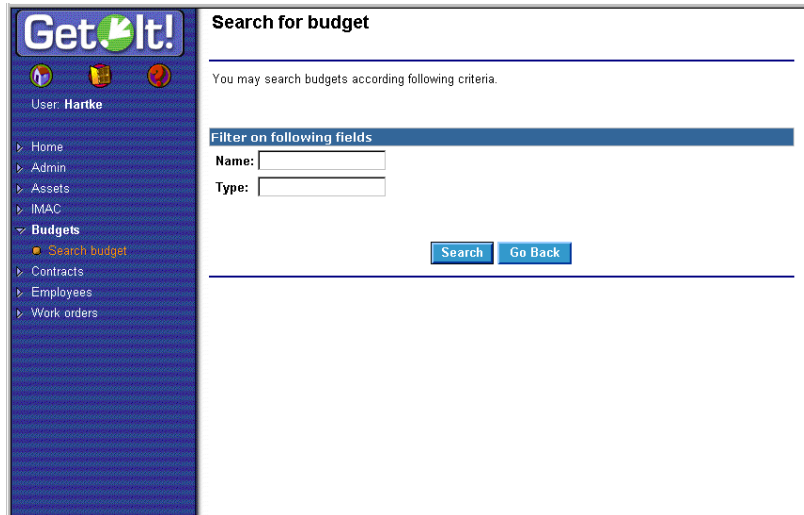


Fig. 4.2 The Budget template window

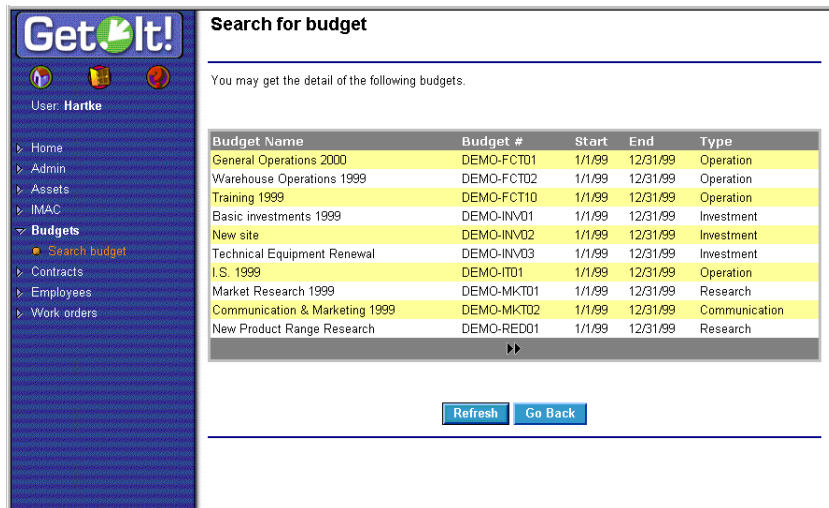


Fig. 4.3 The Budget template search results window

## The Contract Template

The Contract template is in the file called `acwcontract.xml`. You can use it to search for and display general information and details of the contracts. The figures below show the Contract template.

**GetIt!**  
User: Hartke

- Home
- Admin
- Assets
- IMAC
- Budgets
- Contracts**
  - Search Contract
- Employees
- Work orders

**Search for Contracts**

You may search by filling in one or more of these fields.

**Filter on following fields**

Reference:

Contract #:

Contract type:

Start Date:  Dec 18 2000

End Date:  Dec 18 2000

Fig. 4.4 The Contract template window

**GetIt!**  
User: Hartke

- Home
- Admin
- Assets
- IMAC
- Budgets
- Contracts**
  - Search Contract
- Employees
- Work orders

**Search for Contracts**

You may search by filling in one or more of these fields.

Reference	Contract #	Start	End	Type
DEMO-MAI3	CL-27881	1/1/99	12/31/99	Maintenance
DEMO-LIC4	45668L44	12/16/98	12/31/99	Licence
DEMO-INS1	AXA-4377329	1/1/99	12/31/99	Insurance
DEMO-LEA2	IL-347677	1/1/99		MasterLease
DEMO-LEA3	IL-7638090	1/1/99	12/31/01	LeaseSchedule
C000001		3/6/00	3/6/03	Maintenance
C000002		3/6/00	3/6/03	Maintenance
C000003		3/6/00	3/6/03	Maintenance
C000004		3/6/00	3/6/03	Maintenance
C000005		3/6/00	3/6/03	Maintenance

Fig. 4.5 The Contract template search results window

## The Employee Template

The Employee template is in the file called `acwemployee.xml`. You can use it to search for and display general information and details of the employees. The figures below show the Employee template.

**Get It!**

User: Hartke

- Home
- Admin
- Assets
- IMAC
- Budgets
- Contracts
- Employees
  - Search Employee
- Work orders

### Search for Employee details

You may search by filling in the following filter. You will then be able to modify the following fields of the selected employee:  
Phone number, Comments.

**Filter on Employee Identification and location**

Mr/Mrs:

Last Name:

First Name:

Location:

Fig. 4.6 The Employee template window

**Get It!**

User: Hartke

- Home
- Admin
- Assets
- IMAC
- Budgets
- Contracts
- Employees
  - Search Employee
- Work orders

### Search for Employees

You may search by filling in one or more of these fields.

**Filter on Employee Identification**

Mr/Mrs:  Last Name:  First Name:

**Filter on Person location**

Location:

Mr/Mrs	Last Name	First Name	Phone	Location
	Admin		(408) 536-6000	
Mr.	Hartke	Richard	(650) 572-9000	001 - Office
Mrs.	Listel	Susan	(650) 572-9000	001 - Reception
Mr.	Bell	Gerald	0181 345 9802	026 - Office
Mrs.	Mitsuko	Annita	0181 345 9803	026B - Office
Mrs.	Tossi	Michaela	0181 345 9804	030 - Office
Mr.	Colombo	Gerald	0181 345 9805	024 - Office
Mr.	Mankowicz	Dominic	0181 345 9806	025 - Office
Mrs.	Merchand	Nicole	0181 345 9808	027 - Office
Mrs.	Landau	Vera	(650) 572-9000	010 - Office

Fig. 4.7 The Employee template search results window



## The Inventory Move, Add, Change Template

The IMAC template is in the file called `acwimac.xml`. You can use it to search for and display information about assets, view and change configuration details of assets, replace an asset, and search for a parent or replacement asset. The figures below show the IMAC template.

**GetIt!**

User: Hartke

- Home
- Admin
- Assets
- IMAC
  - Search Assets
  - Budgets
  - Contracts
  - Employees
  - Work orders

### Asset changes

You can move assets to new locations for existing assets, or simply update the current status of any asset.

Please enter the search criteria for the asset(s) you wish to find and press the search button.

**Filter on following fields**

Brand:

Model:

Category:

Stock Location:

Asset Tag:

Status:

User's Last Name:

Serial Number:

Fig. 4.8 The IMAC search template window

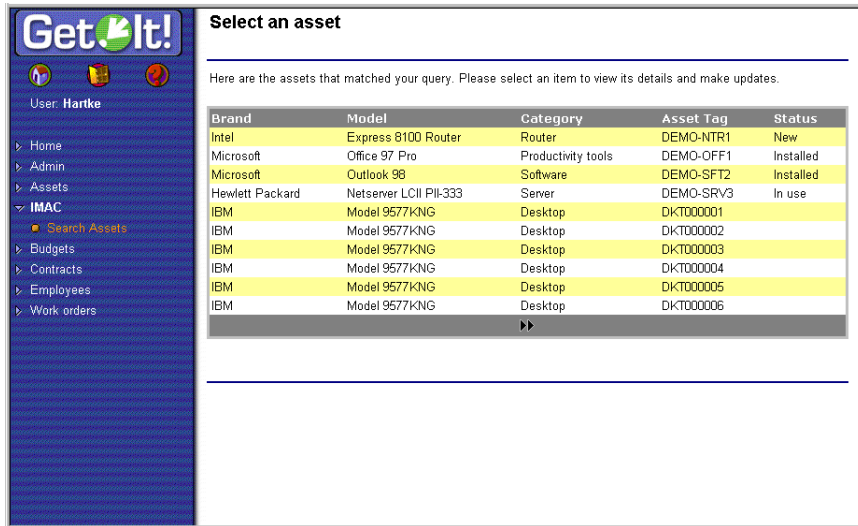


Fig. 4.9 The IMAC template search results window

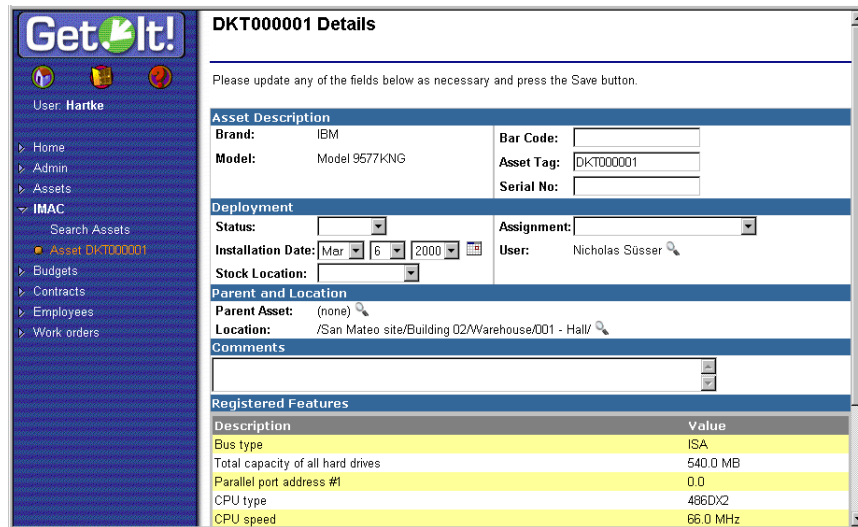


Fig. 4.10 The IMAC template asset detail window

## The Work Order Template

The Work Order template is in the file called `acworkorder.xml`. You can use it to search for and display information about work orders assigned to the current user. The figures below show the Work Order template.

The screenshot shows a web application window titled "Update work orders assigned to Hartke". The interface includes a sidebar on the left with the "GetIt!" logo and navigation links: Home, Admin, Assets, IMAC, Budgets, Contracts, Employees, and Work orders (with sub-links for My work orders and Close work order). The main content area has a search filter section with a "Status" dropdown set to "Closed". Below this is a table titled "Work order identification" with the following data:

Work order	Status	Deadline	Priority	Requester	Asset Tag	Location
WO000003	Notified		Urgent		DKT000003	/San Mateo site/Building 02/Warehouse/003 - Hall/
WO000004	Notified		Urgent		DKT000004	/San Mateo site/Building 02/Warehouse/002 - Hall/
WO000007	Notified		Urgent		DKT000023	/San Mateo site/Building 01/2nd Floor/002 - Office/
WO000008	Notified		Urgent		DKT000034	/San Mateo site/Building 01/2nd Floor/003 - Office/
WO000009	In Progress	12/31/00 03:56 AM	Urgent		DKT000035	/San Mateo site/Building 01/2nd Floor/004 - Office/
WO000010	Notified		Urgent		DKT000036	/San Mateo site/Building 01/2nd Floor/001 - Office/
WO000011	Scheduled	1/9/01 06:00 PM	Urgent		DKT000147	/San Mateo site/Building 02/Warehouse/
WO000012	Notified		Urgent		DKT000148	/Ariane Building/30th Floor/010 - Office/
WO000013	Notified		Urgent		DKT000149	/Ariane Building/30th

Fig. 4.11 The Work Order template window

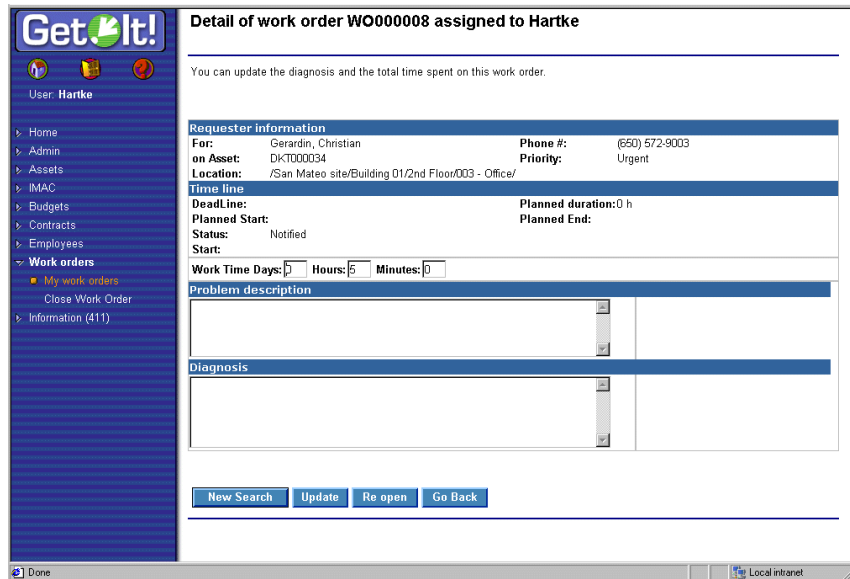


Fig. 4.12 The Work Order detail template window

# Chapter 5

## Tailoring Get.It! Base

---

This chapter describes how to customize individual features of a weblication's appearance and performance. It does not tell you how to create a weblication from the start nor does it explain how to code in XML, JavaScript or other languages. Before you use this product you should have a thorough understanding of creating weblications using these languages and have in-depth knowledge of browsers and the Web.

In this chapter we will explain how to:

- Change the wording or labels in a form
- Add or remove fields on a form
- Add fields to the Documents exchanged with the system
- Change the behavior of a script
- Change the layout of a weblication
- Add or remove modules
- Translate your modifications into the supported languages

## Archway Architecture

The Archway architecture is designed to accommodate the types of tailoring mentioned above.

Before you tailor Get.It! Base, we highly recommend you have an understanding of the archway architecture. See “Get.It! Base Architecture Overview” on page 2-1 for explanations of several concepts and terms that are used throughout this chapter. For a description of the weblication tags, see Appendix A, “Weblication Reference” at the back of this manual.

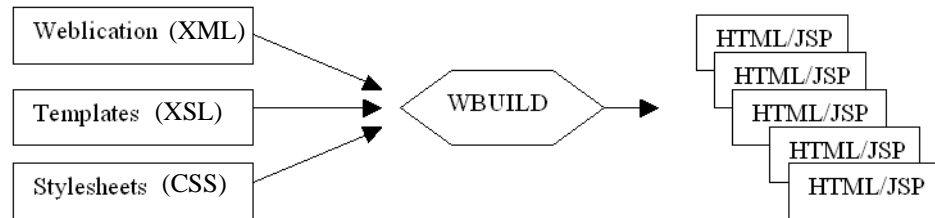
## Weblication Toolset

Before you make changes to the weblication, use the Admin Module to set “Debug scripting” in the General Execution Settings and “Show form info” in the Weblication Settings to true.

Before doing any tailoring, you may want to review the various ingredients that make up a weblication. See Chapter 2, “Get.It! Base Architecture Overview” for an introduction to weblications.

Weblication XML Definitions	The XML files that define application modules, activities, and forms.
ECMA Scripts	ECMA script files that implement application specific behavior.
Document Schema Definitions	The XML definitions that describe the data that should be queried or updated to create XML documents that can be interchanged with Archway by a client such as a weblication.
Stylesheets	The colors and fonts used for pages in a weblication.
Layout Templates	Templates that define the layout and component construction rules for creating pages in a Weblication.
WBUILD	The executable tool used to compile a weblication.

The components listed here play different roles in the overall weblication definition. The deployment of a weblication requires a compilation step that takes all of the ingredients and generates a set of Web pages that are installed into a Web server directory:



When you make changes to a Weblication definition, you need to re-generate the Web pages by running `wbuild application` from a command prompt at the directory `...getit\bin`.

*Fig. 5.1 The Weblication toolset at work*

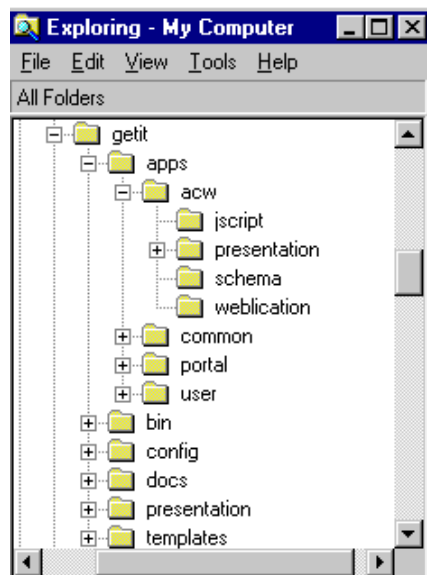
## Before You Make Changes

Since the source for the webapplication is provided with the product, you can make any changes you want to a Get.It! Base webapplication. Before you start to modify Get.It! Base, there are a few items you will need to know and set regardless of the change you are making. These tips make the process of modifying Get.It! Base much easier.

### File Structures

The templates that come with Get.It! Base are stored in the `...getit\apps` directory. The XML files, schemas, and scripts used to make up the template are grouped by application within this directory into packages. Packages make it easy for you to determine which files, schemas, and scripts are used for each application.

Each package should contain the XML files, schemas, and scripts that make up each application. The *common* folder holds the files that are used in more than one application.



The following folders should be created for each application package. Some packages can also contain folders that are specific just to that application.

- `jscript` = The script files for the application.
- `presentation` = Common browser-side presentation files. Most presentation files are generated by the `wbuild` command and are not stored in source control.
- `schema` = The schema files for the application.
- `weblication` = The XML files that make up the application.

Store all files you create and changes you make to the templates in the `.../getit/apps/user/` folder. Changes to the XML files should be stored in the *weblication* folder within the user directory, and changes to schemas should be stored in the *schema* folder.



## Application Definition File

In this sample, we use "Get.It!" as the application name. The application name entered in this file is what you enter as the parameter in the wbuild command.

Applications must be defined within a file that lists the packages that are to be included for deployment. This file is called the `getit.xml` file and is shown below.

```
<application name="e" appname="getit" home="portal"
navigate="TreeMenu" >

  <title> AssetCenter Web Powered by Get.It! </title>

  <modules>

    <!--=====
      List of packages imported by this deployment configuration.
      The "contents" attribute is optional: when specified it helps
      determine the order in which content module files are included.
      When not specified, all files found in a package folder are
      included in alphabetical order.
    =====>
    <package name="common" />
    <package name="acw" contents="acwasset; acwimac; acwbudget;
      acwcontract; acwemployee; acwworkorder"/>
    <package name="portal" />
  </modules>

  <!--=====
      Include a user section that allows user customization
    =====>
  <user>
    <package name="user"/>
  </user>

</application>
```

## Archway.ini Use of Packages

You must enter a field in the *archway.ini* file in order to support packages:

```
weblication=getit.xml
```

The "weblication" parameter tells Get.It! Base which application has been deployed. At run time, Get.It! Base reads the application definition file to know which packages are included in the execution. This is important because it is used by Get.It! Base to locate scripts and schemas.

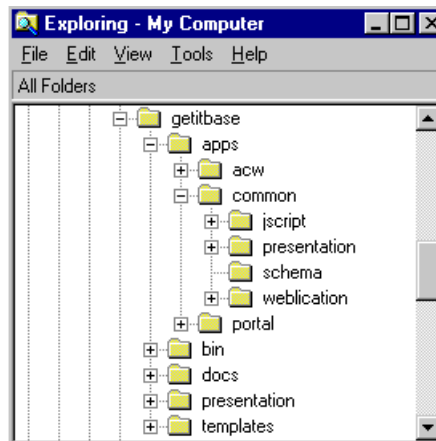
An alternate method, `Archway.getPackages()` is now available for run-time information about packages.

## Presentation Folders

The presentation folder is a placeholder that contains no checked-in files. This folder should only contain generated files. You can define presentation folders with specific files and images, that are not automatically generated, in the individual packages. `Wbuild` pulls all presentation files into the top-level `presentation` folder. You should never check in any files in this top level folder.

## Common Components

Some of the images, forms, schemas, and XML files are used more than once within the Get.It! Base weblocation. These common components of the weblocation are stored in the `...getit\apps\common` directory.



The `common` folder holds the images, scripts, presentation files, schemas, and XML files that are used by more than one application package.

Fig. 5.2 The common folder.

## Displaying Form Information

In a weblocation, a form may contain detail fields for an item in the back-end system. For example, an asset form might show information about a product, including the model, brand, list price, and so forth. We have created an option in the Settings activity in the Administration Module that allows you to display the information you can use to find the form you want to change.

If "Show form info" is set to true, three lines of information are displayed on the left of the window as shown in the following sample:

**Module** = The name of the XML file in the ...getit\apps\ directory.

**Activity/Form** = Use these as search criteria to locate the exact form you want to change.

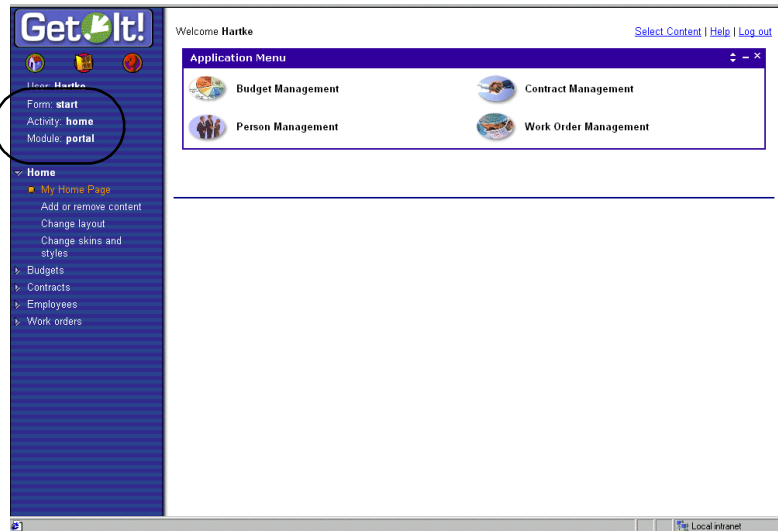


Fig. 5.3 Showing the forms information

Use the form statistics to determine the XML file you want to modify, and to search this file to find the exact form to change.

The “module” tells us which file to edit. Look in ...getit\apps\applicationpackage\weblication\*<module>*.xml. In the sample above, the file is login.xml. Within that file, look for `<module name="login">`. The following is the actual line you will find:

```
<module name="login" access="anonymous" appmenu="false"
apphead="false">
```

The “Activity” tells us which activity to look for within that module. Search for `<activity name="main">`. The following is the actual line you will find:

```
<activity name="main">
```

The “form” tells us which form to edit within the activity, and the module. Search for `<form name="start">`. The following is the actual line you will find:

```
<form name="start" onload="login.init">
```

If what you want to change is the title of the module or activity, however, the form information you find is not what you want to change. To find where you would change the titles, try the following method:

For any given *<module>*.xml, look at the lines immediately following the `<module name="...">` declaration at the beginning of the file and change the data there. Look at the admin.xml file.

```
<module name="admin" access="getit.admin">
```

```
<title> Administration </title>
<description
  image="icons/admin.gif"
  short="Admin"
  long="Server settings, execution logs, control panel, ..." />
```

What each line tells us:

```
<module name="admin" access="getit.admin">
```

This tells us which named User Right the user needs in order to access this module.

```
<title> Administration </title>
```

Data to show on the left hand side (in the activities) within the module.

```
<description
  image="icons/admin.gif"
```

Identifies the graphic to show on the main menu.

```
short="Admin"
```

Name to use on the main menu.

```
long="Server settings, execution logs, control panel, ..." />
```

The long description shows at the bottom of the browser when you point to the short name on the menu.

You can change the names of the module or activity in this area of any XML file.

## Debugging Changes

We recommend you set all “debug” options in the `archway.ini` file to *true* to make it easier to determine what is going on in the changes you make.

1. Log into the Get.It! Base Administration Module by logging into Get.It! with a user ID that has administration rights.
2. Click **Admin** to access the Get.It! Base Administration Module.
3. In the activities, click **Settings**.
4. In the section titled *General Execution Options*, enter a path and file name in the Log file field. This is where the debug information will be stored.
5. Set the *Debug logging* option to **true**.
6. Set the *Debug scripting* option to **true**.
7. Click **Save** to save your changes (scroll down to below the settings table to find the Save button).

8. Be sure to set the debug options back to **false** before you release your changes to your entire user base.

You should also enter the following line into a script you are changing; it will output debug information to the archway log file as specified in the Get.It! Base Administration Module Settings. Whatever you type for String Value is what will appear in the `archway.log` file.

```
env.debuglog( String Value);
```

Where “string value” is equal to an explanation of the area you are debugging. You may want to make the string value equal to the outcome you are expecting.

## Where to Make the Modifications

If you change the standard templates or files we include, your changes will be lost the next time you install a new version of Get.It! Base. To prevent this, a directory called “user” has been included within the `...\getit\apps\` directory. The install process will not overwrite changes you store in the `...user\` directory. When you create a new file, you can save it directly under the `...\getit\apps\` directory.

Within the “user” directory you will need three directories called “schema,” “jscript,” and “weblication.” Verify that these directories exist in the `...\getit\apps\user\` directory. The “weblication” directory includes some samples.

- If you are updating a schema, save the updated file in the `schema` directory.
- If you are updating a script, save it in the `jscript` directory.
- If you are updating an XML file, save the updates in the `weblication` directory.

The following instructions give a general description of how to update a standard file or template in Get.It! Base.

1. Open the file you want to change. This could be a schema file, an application file, or a script.
2. Use the Save As command to save the file into the `...\getit\apps\user\` directory. All files saved in the correct subfolder (`schema`, `jscript`, `weblication`) in this directory are read by the `wbuild` command.
3. Make your changes and save the file.
4. Run `wbuild application`, where “application” is the name of the application you are changing.

You can test how this works using the following method:

1. Find the sample `prgn.xml` file in the `...getit\apps\user\weblication\samples\` directory. You can use any of the files in this directory as a test, but in this example we will use the `prgn.xml` file.
2. Copy the `prgn.xml` file from the `...samples\` directory into the `...getit\apps\user\weblication\` directory. After running the `wbuild` command, log into Get.It! Base and you will see a new “PRGN” option.

## Necessary Information

When you create a new file there are four items you must have at the beginning and end of every file. (In the sample below, replace `xxx` with the name of the module and `yyy` with the name of the activity.)

```
<module name="xxx">
  <activities>
    <activity name="yyy">
      <forms>
        ...
      </forms>
    </activity>
  </activities>
</module>
```

These items are needed in order to make the new file work within the weblication.

## Running the `wbuild` Command

The `wbuild` command takes all of the pieces and generates a set of Web pages that are installed into a Web server directory. You can enter parameters to have specific applications compiled.

`wbuild application =` Compiles the application you enter. Replace *application* with the name of the application you want to compile, such as `wbuild getit`. Run `wbuild getit` unless you have created your own application definition file. The valid application parameters are those set in the Application Definition file. See “Application Definition File” on page 5-5 for more information on this file.

1. Display a command prompt. One method of doing this is to use Start>Programs>Command Prompt. Change the directory to `...\getit\bin`. (To change the directory, first ensure you are at the correct directory, for example a `C:>` by typing `C:` and pressing ENTER. You should see `C:\>` as your prompt. Then type `cd program files\getit\bin` and press ENTER. You should now see `C:>Program Files\getit\bin>` as your prompt.)
2. Type `wbuild application` at the prompt and press ENTER. Where *application* is the name of the application package you want to recompile. The `wbuild` command processes all weblication files in each package. It will list all the processing it is going through. When the processing is complete, you can minimize or close the window.

## Changing Form Contents

Each form in a weblication is defined by a `<form>` element in its appropriate module file. This is where form contents are declared, including things such as Title, Instructions, Fields, Menus, Tables, Links, and Action Buttons.

You can add to or delete from these contents. In the example below, we will add a field to a form.

## Adding Form Fields

To add a field to a form, consider the following example, which shows the details for a specific product in a company catalog.

Make sure the form statistics are displayed. See “Displaying Form Information” on page 5-6 for instructions.

The screenshot shows a web application interface for 'GetIt!'. On the left is a blue navigation menu with options like Home, Admin, Request, Browse Catalog, Search Catalog, View Cart, etc. The main content area displays product details for 'M PRO III/500 9.1GB 256MB 512K 6X6'. It includes an image of a computer, fields for Brand (IBM), Description (PC Intel Pentium III 500Mhz 256MB RAM 9.1GB HD), List Price (\$2,629.00), and Comments. There are also sections for 'Availability from Vendor' and 'Availability from Stock'. At the bottom, there is a 'Number to order' field with a spinner control.

Fig. 5.4 Adding a field to a form

The form contains detail fields for the product, including the model, brand, list price, and so forth. The Form Statistics tells us exactly where to go for the form definition: we’re viewing the product form in the catalog activity of the request module (and, therefore, found in `request.xml`).

1. Open the file you want to change.
2. Find the form you want to change in the file by using the Form Statistics. In this example it would be the form named *product* in the activity named *catalog*. The form is defined in the following manner:

```
<form name="product" onload="procure.getProduct">
  <title field="Model"> $$ (Model) </title>
  <fields>
    <field name="image" type="image" field="PhotoId"/>
    <break/>
    <field name="brand" label="Brand" field="Brand"/>
    <field name="description" label="Description"
      field="Description"/>
    <field name="price" label="List Price" field="Price"/>
    <field name="comments" label="Comments" field="Comment"/>
    <link name="infos" label="More Info" target-field="URL"
      window="true"/>
    <break/>
    <field name="vendor" label="Availability from Vendor"/>
  </fields>
```

The `request.xml` file is not part of the standard templates included in GetIt! Base. The process for adding a field to the form is the same, however.



```

<table record="Supplier">
  <column label="Vendor Name" field="Name"/>
  <column label="Availability" field="Available"/>
  <column label="Delay" field="Delivery"/>
  <column label="Price" field="Price"/>
</table>
...
</form>

```

Consider how to add a **Delivery** field to the form that displays the average time it takes for the catalog item to be available once ordered. This is achieved by adding a field entry to the form, as shown below. The revised XML below contains this new field:

```

<form name="product" onload="procure.getProduct">
  <title field="Model"> $$ (Model) </title>
  <fields>
    <field name="image" type="image" field="PhotoId"/>
    <break/>
    <field name="brand" label="Brand" field="Brand"/>
    <field name="description" label="Description"
      field="Description"/>
    <field name="price" label="List Price" field="Price"/>
    <field name="Delivery" field="Delivery"/>
    <field name="comments" label="Comments" field="Comment"/>
    <link name="infos" label="More Info" target-field="URL"
      window="true"/>
    <break/>
    <field name="vendor" label="Availability from Vendor"/>
  </fields>
  <table record="Supplier">
    <column label="Vendor Name" field="Name"/>
    <column label="Availability" field="Available"/>
    <column label="Delay" field="Delivery"/>
    <column label="Price" field="Price"/>
  </table>
  ...
</form/>

```

3. After making this modification, run the `wbuild getit` command to regenerate the form. See “Running the `wbuild` Command” on page 5-10 if you need instructions.

The modified window in the browser is displayed below.

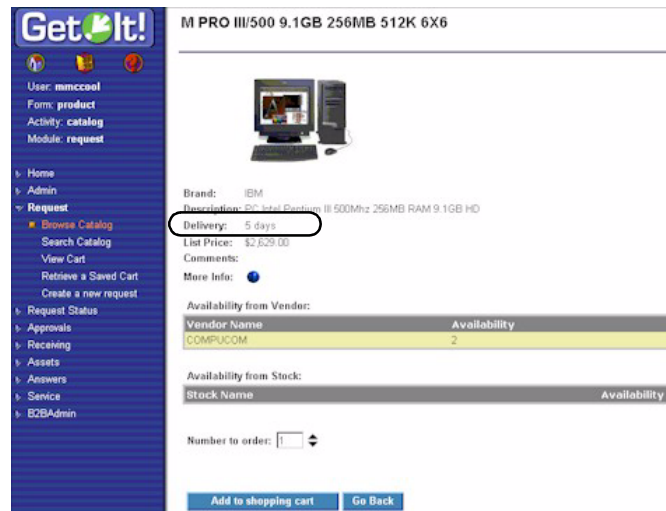


Fig. 5.5 With the new “Delivery” field.

### Data for the New Field (Scripts)

A remaining question is where does the **Delivery** field actually come from? All data available to a script is provided by its onload script. This is defined in the form’s declaration:

```
<form name="product" onload="procure.getProduct">
```

As shown, the form in our example relies on the `getProduct` function of the `procure` script file. This script is designed to return product documents. The product document schema includes the Delivery field we just added.

This tells us that the type of change described in this section is possible as long as the data for a new field is already provided by the form’s script. This is not always the case. In order to display new fields, it is sometimes necessary to modify Document Schemas or even the script logic. See “Adding Fields to a Schema” on page 5-17 for details.

## Split Frames (forms)

If you are working with forms, you have the option of displaying two or more forms on a single page. This allows a master list of items to be displayed on top and the details of a selected item to be displayed at the bottom. The following example illustrates the use of `rows` to accomplish this. Modify the bold text to accommodate your frame dimension requirements.

```
<form name="start" type="frameset" rows="335,*">  
  <redirect name="list" target-form="results"/>  
  <redirect name="detail" target-activity="detail"/>  
</form>
```

## Localizing Your Changes

If you want to translate the change you have made to other authorized languages, use the following steps. See Chapter 7, "Localization Support" for more information on localizing your changes.

The translated \*.str files are created only if the "resolveAppStrings" field in the archway.ini file is set to True. If it is set to False, only the English string file is created.

1. Make sure you verify the change is working in the English version of the webpublication and that `wbuild` has been run.

Open a command prompt and run `strbuild getit`. This will create the STR files for the languages you have set in the Administration Module Settings.

2. If your allowed languages include more than English (based on the entries in the Locale field in the Administration Module Settings), you will need to update the appropriate string files with the translation of the new field you added. For this example, we will update the French file.

3. Open the `getit_fr.str` file and search for the field you just added. In this example, search for “Delivery.”

In this example, we are using Notepad to update the file. If you use a different program, your window may look different.

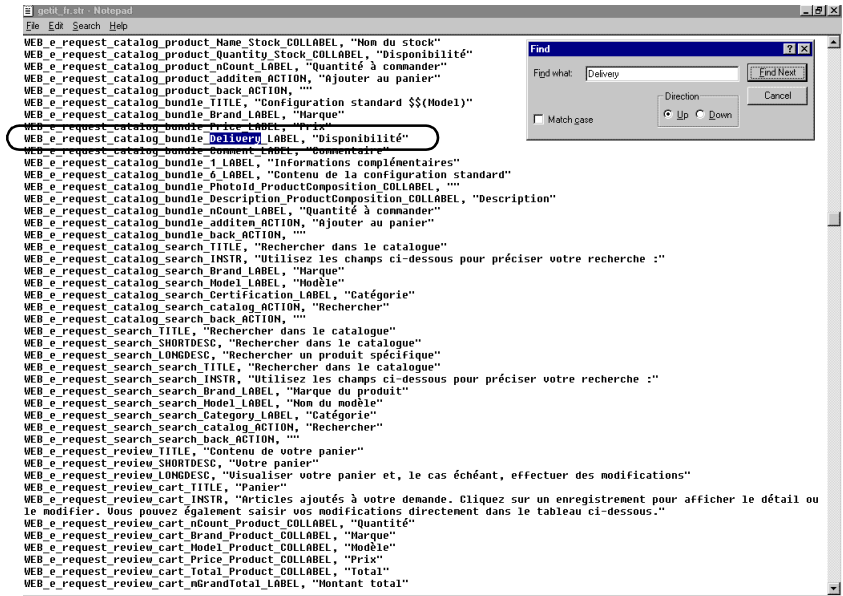


Fig. 5.6 Translating the new field.

4. The new field will show blank quotes unless this string has been previously translated into this language. Type the translation of the string into the blank quotes. In the example above, we have typed the translation for Delivery.
5. Save the file. Do *not* save it into a user directory.
6. Log into Get.It! Base and verify that the translation was successful.

## Adding Fields to a Schema

Most of the scripts in Peregrine Systems' Weblications use Archway's Document Manager to exchange data with back-end systems. See "The Document Manager" on page 2-10 for information about the Document Manager.

One of the main reasons for using the Document Manager is that it makes customization possible without the need to modify database operations hard coded in scripts. If your customization needs call for adding more data to a document, you can do it by extending the appropriate Document Schema.

### Undefined Schema Fields

To add a field that is not yet defined in the schema, consider the example of a user entering a request.

Modifications of the schema are restricted to fields that exist in the database.

The screenshot shows a web application interface for 'Get.It!'. On the left is a navigation menu with options like Home, Admin, Request, Request Status, Approvals, Receiving, Assets, Answers, Service, and B2BAdmin. The main content area displays the 'Status for request REQ000038: Pending approval'. Below this, there are several sections for data entry: 'When would you like this and what is it for?' (Date: 9/18/00, Purpose: Upgrade), 'Who is this for and where should it be delivered?' (First/Last Name, Location, Address, City, State, Zip Code, Phone), 'Which department is paying for this?' (Cost Center, Project, Budget, Attachments), and 'Request contents: (select each item for order and delivery details)'. The 'Request contents' section contains a table with the following data:

Count	Brand	Model	Description
1	IBM	M PRO III/500 9.1GB 256MB 512K 6/6	IBM M PRC

At the bottom, there is a 'Grand Total: \$2,629.00' and two buttons: 'Approval Workflow' and 'Go Back'.

Fig. 5.7 Adding information to a schema

The form allows the user to specify a request purpose, delivery date, cost center, and so forth. Now, assume that we want to add a new field to track the requester's Internal Credit Number—a company-specific number given to each employee.

The new company-specific field obviously does not exist out-of-the-box in the schema associated with this form. The XML file used by this particular form is the request document and the schema is the file that defines which fields are available.

Each schema file contains a generic document definition, followed by one or more system-specific derivations. In other words, the first portion of the schema defines the fields for Get.It! Base, and the second portion of the schema maps the Get.It! Base field to the field in a table in one of the back-end systems. Use the following steps to add a new field:

The `request.xml` file is not part of the standard templates sent with Get.It! Base. The process for adding a field to a schema is the same, however.

1. Open the schema file you want to change. In this example we will use the `request.xml` schema file.
2. Find the “request” generic document definition, which is shown below:

```
<document name="Request">
  <attribute name="Id"                type="num"/>
  <attribute name="ApprovalStatus"    type="num"/>
  <attribute name="Budget"            type="string"/>
  <attribute name="Comment"           type="string"/>
  <attribute name="CostCenter"        type="string"/>
  ...
</document>
```

3. To add our new Internal Credit Number, we start by inserting the field into the “request” generic document definition:

```
<document name="Request">
  <attribute name="Id"                type="num"/>
  <attribute name="ApprovalStatus"    type="num"/>
  <attribute name="Budget"            type="string"/>
  <attribute name="Comment"           type="string"/>
  <attribute name="CostCenter"        type="string"/>
  <attribute name="ICN"               type="num"/>
  ...
</document>
```

This new line defines a new numeric field named `ICN`. The field has been added to the generic schema definition. This definition is generic because it is not tied to any specific back-end system. However, we also need to extend the back-end system specific request schema.

4. Each schema file contains a generic document definition followed by one or more system-specific derivations. Here is the line added to that definition:

```
<documents name="ac">

<!-- AC Request Document -->
<document name="Request"          table="amRequest">
  <attribute name="Id"              field="lReqId"/>
  <attribute name="ApprovalStatus" field="seApprStatus"/>
  <attribute name="Budget"          field="Budget.Name"
    link="lBudgId" linktable="amBudget" linkfield="Name"/>
  <attribute name="Comment"        field="Comment.memComment"
    link="lCommentId" linktable="amComment"
    linkfield="memComment" linktype="hard"/>
  <attribute name="CostCenter"      field="CostCenter.Title"
    link="lCostId" linktable="amCostCenter" linkfield="Title"/>
  <attribute name="ICN"            field="Field2"/>
</document>
```

```
...  
</document>  
</documents>
```

The purpose of entries in the back-end system specific schema is to define the mapping between a logical document field and its physical database counterpart. In this case, we've mapped the new ICN attribute to Field2 in the table called "amRequest." Field2 is a customizable generic field in the back-end system database, and in this example we have chosen to use it for storing the ICN number.

5. After making this modification, run `wbuild getit` to regenerate the form. See "Running the `wbuild` Command" on page 5-10 if you need instructions.

With just these two new lines in the request document schema, the Weblica-tion is now capable of tracking a new field with every request. Now we can add the field to any form in the same way described in the previous section.

## Changing Script Behavior

The Get.It! Base architecture is designed to minimize the need for script changes; however, you can customize the logic of an Archway script. The Document Manager minimizes the number of modifications you will need to make, because, as described in the last section, you can modify the type of data returned by a script by simply updating the appropriate Document Schema.

However, for those times when you must modify a script, the Archway's script model allows you to make modifications without having to alter the base code shipped by Peregrine. You just create your own version of the function in a user-derived script. As with all other items you modify, store your user-derived scripts in a directory separate from the scripts shipped by Peregrine. This directory is in `...getit\apps\user\jscript\`.

## Changing JScript

Consider the following example. The following screenshot shows a form in the Resources module. The form is used to enter data describing a request.

The screenshot shows the 'Submit New Request' form in the Get.It! application. The form is divided into several sections:

- When would you like this and what is it for?**: Includes a date picker (Sep 18 2000) and a purpose field.
- Who is this for and where should it be delivered?**: Includes fields for First (Matthew), Last (Mccool), Phone, and a Lookup field.
- What department is paying for this?**: Includes fields for Cost Center, Project, and Budget.
- Select individual request lines to add**: A table with columns for Count, Brand, and Model. The table shows one row with Count 1, Brand IBM, and Model M PRO 31500 91. Below the table is a 'Grand Total: \$2,629.00' and buttons for 'Submit for Approval' and 'Save'.
- Budget Lookup**: A pop-up window with a search box and a list of budget items: Basic investments 1999, Communication & Marketing 1999, Design & Research 1999, General Operations 1999, IT 1999, Market Research 1999, New Product Range Research, New sites, Technical Equipment Renewal, and Training 1999. A 'New Search' button is at the bottom.

Fig. 5.8 Changing JScript.

This form includes selection boxes that are populated with valid choices obtained by queries against the database. For this example, we will add another field to this form to capture the requester's Department in the company. To accomplish this, we will need to modify the form's script to query for a list of valid department names that can be shown in a new select box.



1. Determine which script is used. You can do this by looking at the form's `onload` script, which is specified in the form's XML definition. Use the Form Statistics to determine where to look in the XML file. In Figure 5.8 above, the form is defined in the *submit* activity of the *request* module.
2. Open the file you want to change. In this example we are using a file from the *Get.Resources!* module, which is not part of *Get.It! Base*. However, the steps to modify a script are the same.
3. Search for the form you want to change, using the Form Statistics shown on the Web page. In this example the form is named *submit*, in the activity named *submit*. Here is the form's declaration:

```
<form name="submit" onload="procure.getOrderParameters">
```

4. Determine the name of the JScript file by looking at the `onload` element. The `getOrderParameters` function of the *procure* script is responsible for gathering data for the form. The contents of the script can be found in the *procure.js* script file.
5. Open the script file you need to change. In this example it is called *procure.js*.
6. If you are changing a standard template, save the file in the `..\getit\apps\user\jscript\` directory.
7. Find the query within the script that you want to change. In this example we have located the following code:

```
function getOrderParameters( msg )
{
    ...
    // Get the list of Budgets
    msg = new Message();
    msg.add( "_return", "Name" );
    msg.add( "_sort", "Name" );
    msg = archway.sendDocQuery( "ac", "Budget", msg );
    msgResponse.add( msg );
    ...
}
```

8. Now you need to extend the work of the default script to include a new query. In this example we will extend the query to find the company department names. The following is the new user function in its entirety and then we will walk through each of its lines of code:

```

function getOrderParameters( msg )
{
    var msgResult;
    var msgDepartments;

    // Call base function to perform standard queries
    msgResult = this.parent.getOrderParameters( msg );

    // Query for departments
    msgDepartments = archway.sendDocQuery(
        "ac", "SELECT Name from amEmplDept WHERE bDepartment=1" );

    // Add departments to overall response
    msgResult.add( msgDepartments );

    return msgResult;
}

```

## 9. Save your changes.

This procedure defines a new function with the same name as the one we are trying to extend (`getOrderParameters`). The new function is stored in a new user script file with the same name as the base script file (`procure.js`). By doing this, we are guaranteed that Archway will invoke our new function instead of the base version.

Within the function, we included a call to the base function:

```
msgResult = this.parent.getOrderParameters( msg );
```

It is not mandatory to do this. However, by calling the parent function, we preserve the base queries and only add our new query on top. In some cases, you will want to bypass the original behavior altogether.

Next, we query for the data of interest:

```
msgDepartments = archway.sendQuery(
    "ac", "SELECT Name from amEmplDept WHERE bDepartment=1" );
```

This gives us a result set with a list of department names. Finally, the list is added to the result set obtained from the base function:

```
msgResult.add( msgDepartments );
```

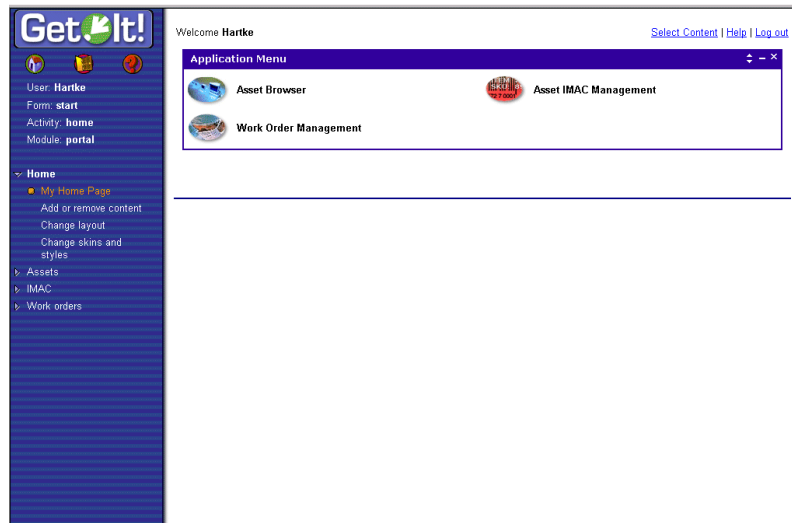
The only remaining task is to add the actual department field to the weblication form. See “Changing Form Contents” on page 5-11 for step-by-step instructions.

## Integrating a New File with Get.It! Base

The method you use to integrate new templates into Get.It! Base depends on the type of template you want to integrate.

### Integrating a URL

If you are linking a template that can be accessed through a Web browser using a URL, you can add the product as a new module or as an activity on an existing module.



*Fig. 5.9 Adding a URL as a module or as an activity*

### Adding a URL as a Module

If you add the URL as a module, users can access it through a button on the main menu and on the menu bar.

1. Create a new XML file. You can either create all the code yourself or you can copy code from an existing template. The following instructions walk you through copying code from existing templates.
2. Open a file from one of the Get.It! Base templates that most closely matches the module you want to add. There are also samples in the `...\getit\apps\user\weblication\samples` directory.
3. Copy the tags from the existing file and paste them into the new XML file you created in step 1.

4. Update the module name with the name of the product you are integrating. Make sure to change the module name, title, image, short description, and long description to match the module you are adding. Update the “target-url” with the URL of the product you are integrating.
5. Save the new file. Make sure it has an extension of .xml.
6. Run `wbuild getit`. See “Running the `wbuild` Command” on page 5-10 if you need detailed instructions.
7. Log out and log back in to Get.It! Base and the new module is available.

### ***Adding a URL as an Activity***

If you add a URL as an activity, users can access it through a link on the activity list in an existing module.

1. Log into Get.It! Base and determine the module in which you want the new activity to be available.
2. Determine if there is an activity that behaves similarly to the activity you are adding. For example, is there an existing activity that links to a different URL?
3. Open the XML file from an existing application package (in the `...getit\apps\` directory) for the module into which you want to integrate the new activity.
4. Find the section of the XML file where the activities are defined and enter the following, replacing the Peregrine information with the information for the URL you want to integrate.

```
<!--=====
      Activity: link to Peregrine
=====-->

<activity name="prgn">
  <description
    short="Peregrine"
    long="Link to Peregrine's web site."
    target-url="http://www.peregrine.com"
  </activity>
```

5. Update the name of the activity to be the name of the product you are integrating. Make sure to change the activity name, short description, and long description to match the product you are integrating. Update the “target-url” with the URL of the product you are integrating.
6. Save your changes.
7. Run `wbuild`. See “Running the `wbuild` Command” on page 5-10 if you need detailed instructions.
8. Log out and log back in to Get.It! Base and the new activity is available.

## Adding a New Module

To add a new module, you copy an existing XML file, make your updates, and then save the new module to the `...\getit\apps\user\weblication\` directory. You define the module in the new XML file and then add it to the Weblication when you import it.

To start, determine an existing XML file that is the closest to the new module.

1. Open an XML file from an existing application package (in the `...\getit\apps\` directory) that you want to change, or that does a similar action to what you want the new module to do. If no existing XML closely matches what you want to do, we recommend you still open a file to use as a guide.
2. Update the applicable portions of the file, including header information, nested tags, and so forth. Update the new XML file until it includes all the functions that you want it to do. Use the instructions in the previous sections of this chapter.
3. If you need to populate tables in the new module, you may need to create a new script in the `...\getit\apps\user\jscript\` directory. Copy an existing script, just as you did to create the new XML file. When you save the new script, be sure to include the `.js` extension on the file name. See “Changing JScript” on page 5-20 for instructions on updating a script file.
4. Run `wbuild getit`. See “Running the wbuild Command” on page 5-10 if you need detailed instructions.
5. Log out and back into Get.It! Base to see the changes you have made.

Modules can be removed from a weblication by removing their entry in the `...\getit\apps\user\` directories (if they are modules you created) or from the `getit.xml` file if they are modules that came with Get.It! Base.

## Adding a Feature from AssetCenter

Within AssetCenter, features may be added to track information not provided for by the out-of-the-box database schemas. The Get.It! Base weblication allows features to be incorporated as well, allowing customization of the databases and screens for use by all users.

1. Add the feature to the desired table within AssetCenter. This should be done in the typical AssetCenter fashion.
2. Add access to the feature using amUserRight entry. You must give access to the feature by modifying the amUserRight table. Select the amUserRight entries for which the new feature is relevant and provide access to users as necessary.
3. Add the feature to a schema. Once the feature has been created within AssetCenter, add it to the weblication's schema. An excerpt from the request.xml schema is shown below. The addition has been highlighted in bold. See "Adding Fields to a Schema" on page 5-17 for details on updating a schema.

```
<schema>

<documents name="base">
  <!-- Request Document -->
  <document name="Request">
    <attribute name="Id"                type="num"/>
    ...

    <attribute name="TestFeature" type="string"/>
    ...

  </document>
</documents>

<!--=====
  AssetCenter Schema Derivations
=====-->

<documents name="ac">

  <!-- AC Request Document -->
  <document name="Request"            table="amRequest">
    <attribute name="Id"                field="lReqId"/>
    ...

    <attribute name="TestFeature" field="fv_TestReq"/>
  </document>
</documents>
```

4. Add the feature to an application. After the feature is referenced in the schema, you need to incorporate it into the screen definitions. See “Changing Form Contents” on page 5-11 for details on updating an application.

5. An example is given here from the `...getit\apps\request.xml`:

```
<!-- This form requests order information for submission -->
<form name="submit" onload="procure.getOrderParameters">
  <title> Request Information </title>
  <instructions>
    Please provide the following information necessary
    for submitting your request.
  </instructions>
  <fields>
    <input label="Purpose" type="text" field="Purpose"
      size="50"/>
    ...
    <input label="Test Feature" type="text"
      field="TestFeature" />
  </fields>
```

6. Run `wbuild getit`. See “Running the wbuild Command” on page 5-10 if you need detailed instructions.

# Portal

The Portal is the Get.It! Base interface, customizable to your specific requirements. There are numerous Components that comprise the Portal. Each Component has a different function, some of which are also customizable. You can modify the layout, open and close Components, or remove Components from the interface. The Portal that you receive upon installing Get.It! Base will look similar to the following.

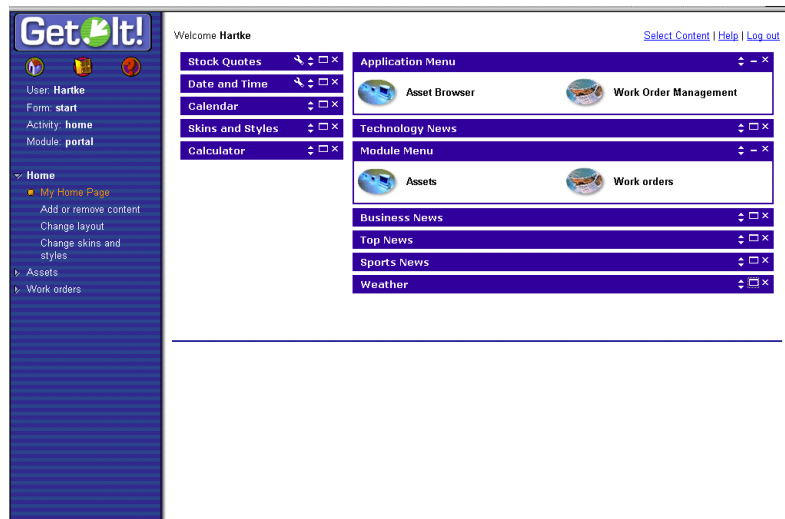


Fig. 5.10 The Portal with all components turned on

Within Portal you have access to many components. The components are divided into two categories. The first category is Weblications, including Application Menu and Module Menu. The second category is Personal Utilities, including Calendar, Calculator, Weather, Stock Quotes, Top News, Business News, Technology, Sports News, and Date And Time.

**Note:** If you are using Netscape Navigator as your default browser, some screens may appear differently than shown. Notes are given where differences occur.

## Customizing (GUI)

The Get.It! Base Portal is a dynamic interface. You can move and remove all Components. The Stock Quotes Component is modifiable, so you can specify which quotes to display. Each Component contains a toolbar in its upper-right



corner. Depending on the type of Component, each corner will contain Customize (wrench), Copy (superimposed windows), Move (vertical arrows), Hide (dash), and Remove (X) options.

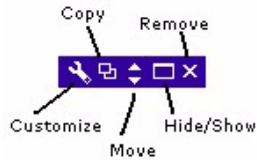


Fig. 5.11 Window Tools

### **Customize**

The Customize option is for customizing the Component. Not all Components are customizable (e.g., News, Sports). Clicking on the **Customize** button will link you to the Change Layout screen, where you can modify the layout. To save your modifications, click **Save** at the bottom of the screen.

### **Copy**

Copy allows you to copy a Component. The only Component that you can copy is the Problem Tickets Component. When you copy the Problem Tickets Component, the second Component will be identified by its title within the title bar (e.g., Problem Tickets: Copy 1).

### **Move**

The Move arrows move Components up and down. You cannot move a Component left and right. To move a Component, up press the Up arrow. Pressing an arrow will move the Component by one increment. For instance, if the Weather Component is on top and the Stock Quotes is directly beneath, pressing the Down arrow on the Weather Component will move it one notch place, or below the Stock Quotes Component.

### **Hide/Show**

Hide closes the Component, reducing the window to a menu bar with selectable options (i.e., Window Tools). If a Component is in a Hidden state, then the option becomes Show. Pressing the Show button will display the Component. The **Hide** and **Show** buttons alternate.

## **Remove**

Clicking the **Remove** button removes the selected Component from the portal. When you click **Remove**, a prompt will appear: Remove This Component? Click **OK** to remove the Component or **Cancel** to void the process. You can always reinstate a Component once it is removed by pressing the Select Content link and then selecting the desired Component.

## **Select Content**

Clicking on Select Contents links you to Customize My Home Page. Within this page are two main features, each containing multiple options that allow you to customize your home page (or Portal). Each feature allows various selections to be made. All of these features are available as Components on your front page.

You do not have the option of customizing all Components. For instance, if you select the Weather option located within Personal Utilities, you will not have the option of locating the forecast for your specific area. Selecting the Weather option provides a United States map with various forecasts from around the country. There are other Components that are customizable. For instance, the Stock Quotes option allows you to edit the displayed stock (the default for this option is PRGN). All of the news options are provided by iSyndicate and are not customizable.

### ***Get.It! Base Weblication Components***

Get.It! Base includes an application menu as a Weblication Components. A check mark in the box means that the option is selected and that it will appear on your home page. Click the Save button located at the bottom of the Select Contents screen.

### ***Personal Utilities***

The Personal Utilities section allows you to customize your home page with a variety of up-to-date options. You can select items from the latest business news to the date and time. Select each option (check box) that you want for the home page and click the Save button located at the bottom of the page.

<b>Component</b>	<b>Function</b>
Calendar	A monthly calendar. This component can be viewed using MS Internet Explorer 4.0 or higher.
Calculator	A standard calculator. This component can be viewed using MS Internet Explorer 4.0 or higher.
Weather	A map of the United States containing various forecasts around the country.
Stock Quotes	The latest quotes of your most frequented stocks.
Top News	The latest headlines provided by iSyndicate.
Business News	All things business provided by iSyndicate.
Technology	All things technological provided by iSyndicate.
Sports News	All things sport provided by iSyndicate.
Date and Time	Your choice of Coordinated Universal Time (UTC or GMT) or Standard Local Time.

### **Create New (Web page)**

Create New, located at the bottom of the Select Content page, allows you to create a new Web page. To create a new page you must insert a Title, a Display URL Link, and a Configure URL Link. The Title is the title of the page. This is synonymous with the HTML `<Title>` tag. The Display URL (Uniform Resource Locator) Link is the address where the page will be located. The Configure URL Link is where the page will be configured. There are also two options for page layout: Wide and Narrow.

For instance, in the Display URL Link you can insert `http://<your-host>getit/timedate.asp` if you are running Microsoft's IIS or JSP (java servlet pages).

For the Configure URL Link you can insert `http://<your-host>/getit/timedate_configure.asp` or JSP. The Date And Time component uses the JSP version. The ASP version is included as an example of how to incorporate Active Server Page technology within Get.It! Base.

<b>Title:</b>	<input type="text"/>
<b>Display URL Link:</b>	<input type="text" value="http://"/>
<b>Configure URL Link:</b>	<input type="text" value="http://"/>
	<input type="radio"/> Wide <input checked="" type="radio"/> Narrow

*Fig. 5.12 Create A New Page*

To create a new page:

1. Click on Select Content.
2. Click Create New (at the bottom of the page).
3. Insert a Title.
4. Insert a Display URL Link.
5. Insert a Configure URL Link.
6. Click Save.

## Change Layout

Your Portal or home page is divided into two areas: Narrow for the left and Wide for the right.

The Narrow section occupies about one-third of the screen; the Wide section occupies about two-thirds of the screen. These proportions are not modifiable. Within both the Narrow Components and Wide Components sections are Up, Down, and Remove buttons. These buttons either move or delete a component. All active components are listed within the drop-down box.

To move a component up or down, or to remove it, first select the component in the drop-down box and use the arrow and delete keys to its right. Press the Save button at the bottom of the screen to save all changes of your layout. You may modify the layout at any time. While this functionality exists within the Portal or main page, the Change Layout option allows you to customize the look more efficiently.

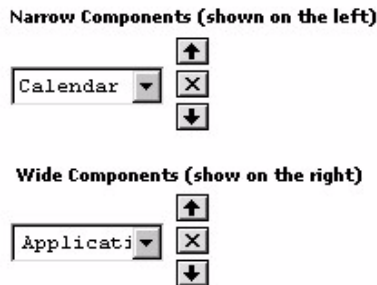


Fig. 5.13 Change Layout

### Netscape Navigator

If you are using Netscape Navigator as your default browser, the Change Layout link allows you to move components either up or down. This feature is the same as the Component Move button (for Internet Explorer users).

### Portal API

The Get.It! Base Portal is customizable. You can add, remove, and modify components. The Portal also gives you the opportunity to use HTML plug-ins or Active X components.

Located within the following directory are samples of code, each containing highlighted script (in bold) that should be modified when making it user-specific.

```
... \getit\src\apps\user\weblication\samples
```

These samples include (1) Adding A New Module, (2) Overriding A Form, and (3) Adding A New Portal Component. Each of these samples is explained, detailing those sections of the code that must be modified when you initiate changes.

Sample	Function
Add Module	Adds a new module menu entry associated with another Web site.
Override Form	Changes the login form to remove the Register option.
Add Portal Component	Adds components to the generic Portal components by changing the AppMenu portal-component to display a simple test phrase, adds a new component to the utility category, and adds another component to a brand new category.

## Portal Components

Similar to the `<component>` tag, the `<portal-components>` tag defines the individual windows found on the home page. These windows can be moved, minimized, and configured to provide the user with a concise view of multiple aspects of the Get.It! Base environment. Portal components can also be linked to third-party plug-ins like news and weather, so that all the resources of the Internet can be brought together.

The default Portal components are defined in a file called `plugins.xml`, located in the `...\apps\portal\weblication\` directory. This file is structured as follows:

```
<portal-components>
  <portal-category name="getit">
    <title> Get.It! Weblication Components </title>

    <!--=====
      Module Menu
    =====-->
    <portal-component name="modulemenu">
      <!-- TODO: Update to store user's favorite links -->
      <title> Module Menu </title>
      <instructions>
Quick links to the various modules that make up this application.
      </instructions>
      <contents>
        <appmenu/>
      </contents>
    </portal-component>

    <!--=====
      AppMenu
    =====-->
    <portal-component name="appmenu">
      <!-- TODO: Update to store user's favorite links -->
      <title> Application Menu </title>
      <instructions>
        Quick links to the various Get.It! applications.
      </instructions>
      <contents>
        <appmenu type="title"/>
      </contents>
    </portal-component>

    <!--=====
      Custom Component Container
    =====-->

    <portal-component name="custom" display="hidden">
      <contents>
```

```

        <custom-portal-component/>
    </contents>
    <configure>
        <custom-portal-configure/>
    </configure>
</portal-component>
...
</portal-category>
...
</portal-components>

```

**<portal-category>**

Attribute	Description
name	Defines part of the name used in the construction of the JSP file name.
<title>	Portal components are divided into categories. These categories define the caption that appears in the “Select Content” form that you can use for selecting the Components that you want on your home page.

**<portal-component>**

The portal component defines the content and configuration forms that are linked together.

Attribute	Description
name	Defines part of the name used in the construction of the JSP file name.
copy	If <code>copy="true"</code> , then an icon appears on the component toolbar that allows the configuration of a component to be duplicated. Use this in conjunction with <code>&lt;configure&gt;</code> to create multiple copies of a component configured to display different information.
adapter	Defines the adapter that is required to support this component. If that adapter is not accessible, then the component will not be listed in the “Select Content” form.
browser	Defines the browser that is required to display this component. If a user uses a different browser, the component will not be listed in the “Select Content” form.

Attribute	Description
access	Defines the access right that the user must possess to access this component. If a user does not have this access right, the component will not be listed in the “Select Content” form.
<title>	Defines the caption that appears on the toolbar of the component and next to the checkbox of the “Select Content” form.
<instructions>	Defines the text that describes the purpose of the component in the “Select Content” form.
<contents>	The contents of this element can be any weblication element, like <table> or <fieldtable>. This tag is equivalent to the <form> tag, including the ability to specify an onload script to gather data for the elements contained within.
<configure>	This optional form defines configuration parameters to be used by the <contents> form. If this tag is present, a wrench icon appears in the portal components toolbar. This tag is equivalent to the <form> tag. The result of this form submit is stored as <component.attributes> that are passed in the msg parameter of the <contents> onload function.

### <plugin>

A plug-in element provides the user with the ability to reference third-party URLs to be included in a portal component. The URL can point to an HTML, JSP, or ASP page, or a GIF or JPG file from anywhere on the Internet.

Attribute	Description
href	Defines the URL address of the resource.
post	If the post attribute is set to “true”, then the data stored in <component.attributes> (see <configure> above) will be passed as post data to the URL.
ID	If the optional ID attribute is defined, the HTML response received from the URL will be scanned, and the HTML element with the given ID will be extracted from the result, discarding all other page information.



## Portal Plug-Ins

Portal allows the use of plug-ins, small software programs that plug into a larger application to provide additional functionality. Plug-ins permit the browser to access and execute files embedded in HTML documents that are in formats the browser would not recognize such as animation, video, and audio files. Most plug-ins are proprietary.

The following XML script defines reusable plug-in components such as Stock Quotes. The complete version of this file can be found in `plugin.xml`.

```
<!--Generic Component Samples-->
<portal-components>
  <portal-category name="getit">
    <title>Get.It! Weblication Components</title>

    ...
  <!--Custom Component Container-->
  <portal-component name="custom" display="hidden">
    <contents>
      <custom-portal-component/>
    </contents>
    <configure>
      <custom-portal-configure/>
    </configure>
  </portal-component>

  <!--Yahoo Stock Quotes-->
  <portal-component name="stockquotes" column="narrow">
    <title>Stock Quotes</title>
    <instructions>Monitor your personal portfolio.</instructions>
    <contents onload="portal.getStockQuotes">
      <table record="MyPortfolio">
        <column label="Symbol" field="Symbol"/>
        <column label="Price" field="Price"/>
        <column label="Change" field="Change"/>
        <column label="Link" field="Link"/>
        <link target-url="redirect.jsp" field="Link"/>
      </table>
    </contents>
    <configure onload="portal.editStockQuotes">
      <list-builder field="Symbol" size="5" default="PRGN">
        <src type="edit" label="Symbol" record="SymbolChoices"
          displaylist="Symbol" valuelist="Symbol"/>
        <dest label="My Portfolio" record="MyPortfolio"
          displaylist="Symbol" valuelist="Symbol"/>
      </list-builder>
    </configure>
  </portal-component>
</portal-components>
```

## Skins and Stylesheets

New skins and stylesheets can be selected from either the Skins & Stylesheets Portal Component or by using the navigational tree menu. There are several predefined themes, each consisting of a skin (images and graphics) and a stylesheet (fonts, colors, and special background images). You can select a new Skin, Stylesheet, or Both from the drop-down selection box located on the Portal home page or through the Skins and Stylesheets link.

New stylesheets can be created using the `Userschemes.xml` file in the `...\getit\templates\css\` directory and the `cssbuild` command. Working within the `Userschemes.xml` file, you must copy an entire `<scheme>` definition and then paste it in the same file. Rename the new `<scheme>` by changing the `<name>...</name>` element. Do not modify the names or locations of images because this will break the skin.

### Creating New Stylesheets

1. Right-click on the `Userschemes.xml` file, located within the `...\getit\templates\css\` directory, and deselect the Read-Only attribute.
2. Open the `Userschemes.xml` file.
3. Copy the first `<scheme>...</scheme>` (this is named “blues”).
4. Paste the new `<scheme>` definition in the same file.
5. Rename the new `<scheme>` (between the `<name>...</name>` element).
6. Modify applicable font colors and images (do not modify any of the elements).
7. Save the file.
8. Open a Command Prompt and run `cssbuild`.

**Note:** You must restart JRun to see the new stylesheet in the Stylesheets drop-down box.

All Skin and Stylesheet selections are predefined, thereby allowing you to quickly create a new portal design without modifying CSS, XML, or HTM files. It is important to understand the file structure when working with Skins and Stylesheets. The purpose of the directory structure is to provide image organization and user-friendly customization. You do not need to hard-code paths. All paths are dynamic and filled at run time, allowing for instant updates without recompiling. You must use JSP files to process image paths. Other file

formats will not be parsed by the JavaServlet engine. Do not modify the `css.xml` file. If you add any new CSS files or Skins, save them in the `...\getit\apps\user\presentation\` directory as a backup.

All image paths in the generated JSP are similar to the following.

### Skinned Images

```

```

### Non-Skinned Images

```
 and 
```

The paths are set by `Archway.ini` as in the following.

```
logo=images/logos/logo_getit_green.gif
images=images
skins=images/skins/
defaultskin=classic
```

When adding new images you will need to decide how it fits within the application structure. But remember that you will not create a fully qualified path for the image. In most instances the XSL file will suffice for the first half of the path.

All images are referenced in the XSL using token replacement, as in the following.

```
$$IMG(buttons/your_button.gif)
$$IMG(icons/your_button.gif)
$$IMG(backgrounds/your_button.gif)
```

There are other versions of this use in the XSL, as in the following.

```
$$IMG(<xsl:variable name="your var"/>)
$$IMG(@image)
```

## Directory Structure

The following directory structure applies to all images, logos, and skins. All directories are dynamic, generated at run time.

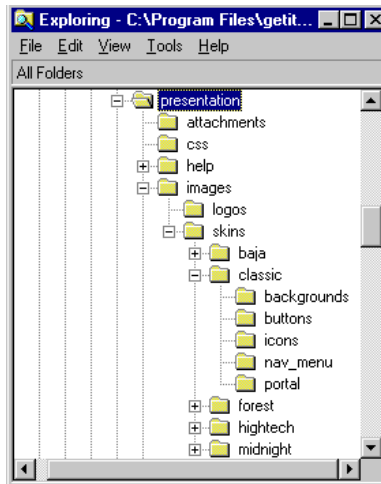


Fig. 5.14 Skins/Stylesheets Directory Structure

Directory	Purpose
Images	Generally, do not place images here. Use this directory only for images not set by skins, in other words, images that will never change and are common to all skins (e.g., <code>spacer.gif</code> , a transparent GIF for forcing spaces in table cells or forced breaks).
Logo	This is for application logos such as the Get.It! Base logo. These are not part of skins so they will never be affected in a skin or stylesheet change.
Skins	No images should be placed in this level. This file is for the organization of lower level skins directories.
Classic	The default skin. This directory can be copied, renamed, and placed within the <code>skins</code> directory. You can also place images at this level that do not fit elsewhere. You can also create new directories to further categorize images at this level.
Backgrounds	All background images are placed in this file.
Banners	Currently empty, but suggested for organizing large banner-like images.
Photos	Suggested for any images used in applications.

Directory	Purpose
Buttons	Defined as any graphic that is used as a button in the browser, except for icons.
Icons	Defined as the main button-like images used as the navigational elements in the application menu (i.e., oval-shaped image: ...graphics\logo\icon).
Nav_menu	Used for all navigational sidebar or menu true images.
Portal	Used for all portal and portal component-related graphics.

### XML Usage

```

<module name="b2badmin" access="getit.b2badmin">
  <title> B2BAdmin </title>
  <description
    image="icons/order.gif"
    short="B2BAdmin"
    long="Manage B2B sites and catalog data" />
<columns>
  <column>
    <fields>

<link target-url="e_b2bshop_return_b2blist.jsp"
param="ListAction=CatalogUpdate" image="icons/capturecatitems.gif">
Capture Catalog Items </link>

<link target-form="ConfigureSites" image="icons/configsites.gif">
Configure Sites </link>

<link target-form="CheckVersions" image="icons/updateobjects.gif">
Update Objects </link>

<link target-form="BillingOptions"
image="icons/billingoptions.gif"> Billing Settings </link>

    </fields>
  </column>
</columns>

```

### XSL (example)

Global\_vars.xsl contains all the path variables for XSL documents.

```



```

### JSP (example)

This is the minimum requirement in any JSP to parse the dynamic paths.

```

<%@ page language="java" buffer="16kb"

```

```
import="com.peregrine.archway.*, com.peregrine.archway.jsp.*,
com.peregrine.util.*, java.util.*,
java.beans.*, java.io.*, java.net.*"%>
<%@ include file="globals.jsp"%>

```

### **JAVA Source Code (example)**

```
out.println( "<IMG SRC='" + Archway.getIni().getProperty( "skins",
"images/skins/" ) + Archway.getIni().getProperty( "defaultskin",
"classic" ) + "/buttons/calendar.gif' BORDER=0/></A>" );
}
```

### **External JavaScripts**

This is more difficult in that any images written to the browser will not be affected by the skins. This is because JSP expressions for establishing image paths cannot be parsed. This can be resolved by creating variables in a JSP that is referenced by external JavaScript. The `Login.jsp` file is a good example. Make sure your `vars` are loaded before the external JavaScript file.

Note that all JavaScript `vars` are hard-coded into the XSL and then passed onto the `Login.jsp`. `Login.jsp` requires the external `Menubuilder.js` file because global JavaScript `vars` are established ahead of the `Menubuilder.js` call. They are then used by the JS file and parsed by the JSP to provide all necessary paths.

```
<script language="JavaScript">
var m_expandedIcon = "<img
src='<%=skins%><%=defaultskin%>/nav_menu/expand.gif' width='12'
height='14' border='0' />";
var m_collapsedIcon = "<img
src='<%=skins%><%=defaultskin%>/nav_menu/collapse.gif' width='12'
height='14' border='0' />";
var m_selectedIcon = "<img
src='<%=skins%><%=defaultskin%>/nav_menu/select.gif' width='12'
height='14' border='0' />";
var m_noselectedIcon = "<img
src='<%=skins%><%=defaultskin%>/nav_menu/noselect.gif' width='12'
height='14' border='0' />";
var m_blankIcon = "<img
src='<%=skins%><%=defaultskin%>/nav_menu/blank.gif' width='12'
height='14' border='0' />";
</script>

<script language="JavaScript1.2" SRC="js/menubuilder.js">
</script>
```

## Production Environment

Before you enter the production environment you should note a few settings to help your transition.

```
java.args in (jrun n/jsm-default/properties/jsm.properties)
```

Be sure to set this parameter to something like the following.

```
java.args=-Xmx128m
```

This defines the size of heap memory given to JRun's Java VirtualMachine, providing 128 MB of memory. Larger settings may be appropriate on larger systems.

```
debugscript (archway.ini)
```

This should be set to false. Failing to do so will cause slower execution and substantial memory consumption.

```
scripttimeout (archway.ini)
```

This specifies the number of seconds allotted to each user to execute a script. The default setting is 30 seconds. If a user script runs longer than this maximum time-out value then all script operations are aborted.

Proper setting of this option is important to prevent run-away scripts from stopping all servers.

```
logstdout (archway.ini)
```

This should be set to false to avoid duplicate logging sent to the `stdout` file, potentially consuming disk space.

```
sessiontimeout (archway.ini)
```

Specifies the number of milliseconds to allow inactive sessions to exist before they expire. The default setting is as follows.

```
sessiontimeout=600000
```

This gives users 10 minutes before expiration. Sometimes smaller time limits may be appropriate. This setting is important because it ensures proper cleanup of old sessions that may potentially be holding on to required memory resources.

`maxscriptrunners (archway.ini)`

This setting controls the size of the FESI ScriptRunner pool created for Archway. A proper setting should rarely be greater than 10 (the default). Each ScriptRunner can consume a significant amount of memory, yet the efficiency of the system does not increase with a number of script runners greater than 10.

`maxquerycount (archway.ini)`

If this parameter is set, it can limit the number of records that Archway will fetch for any given query. It is a good idea to set this parameter as a safety measure against runaway queries or bad scripts that attempt to fetch thousands of records into a single XML response. In some instances a system will need to process a large number of records. But the recommendation in such scenarios is to perform several queries for smaller record chunks. The Start and Count parameters to `sendDocQuery()` help accomplish this.



# Chapter 6

## Adapters



---

Get.It! Base ships with several adapters you can use to connect to one or more databases. The following adapters are included with Get.It! Base:

- AssetCenter adapter—provides a connection to Peregrine’s AssetCenter.
- ServiceCenter adapter—provides a connection to Peregrine’s ServiceCenter.
- JDBC adapter—allows you to establish a full database connection to databases other than AssetCenter or ServiceCenter.
- LDAP adapter—provides you with a centralized source for information about the people within an organization, eliminating the need to maintain user data in more than one location.
- E-mail adapter—allows you to connect to an external mail server.

This chapter includes detailed information about each adapter. There is also a section at the end of the chapter that contains information about the log files produced by JRun, ServiceCenter, AssetCenter, and the archway connector. These log files can be helpful in troubleshooting connectivity problems.

## ServiceCenter Adapter

This section includes information about the `archway.ini` parameters that are specific to ServiceCenter, ServiceCenter event handling, and tips for troubleshooting the Get.It! Base connection to ServiceCenter.

### Archway.ini Parameters

The `archway.ini` file contains parameters that are specific to ServiceCenter. The following table lists the parameters and gives a description of each.

SC Parameter	Description
<code>scadmin</code>	An administrator login must be defined in order to connect to ServiceCenter. The default is <i>falcon</i> , the sample administrator login supplied with ServiceCenter.
<code>scadminpassword</code>	By default, no admin password is required.
<code>scanonymous</code>	With this login, requests sent to archway are processed without going through the Get.It! Base user interface. Used by the scriptpoller function. The default is <i>falcon</i> .
<code>scanonymouspassword</code>	By default, no anonymous password is required.
<code>schost</code>	The host name for your ServiceCenter installation. The default is <i>localhost</i> .
<code>seport</code>	The port number for your ServiceCenter installation. The default port number for a full client is <i>12670</i> .
<code>sclog</code>	The location of the <code>sclog</code> file. The default is <code>C:\Program Files\getit\sc.log</code> .

### ServiceCenter Event Handling

The ServiceCenter adapter provides a detailed `eventin` record that will give status when an event fails to execute or fails to create an `eventout` response.

The following is an example of an `eventin` record. The record was generated because an illegal approver tried to send an approval event:

```

<eventin>
  <evtype>approval</evtype>
  <evtime></evtime>
  <evsysseq>3991blff0036f001</evsysseq>
  <evusrseq>3991blff0036f001</evusrseq>
  <evsysopt></evsysopt>
  <evuser>Hartke</evuser>
  <evpswd></evpswd>
  <evsepchar>^</evsepchar>
  <evfields>^ocmq^Q1102^approve^^Hartke^^^</evfields>
  <evexpire>0</evexpire>
  <evstatus>error</evstatus>
  <evnumber></evnumber>
  <evlist></evlist>
  <evtimestamp>2000-08-09T19:40:05+00:00</evtimestamp>
  <evcount></evcount>
  <evnetnm></evnetnm>
  <evcode></evcode>
  <evmsg>
    <entry>Cannot execute application: es.approval</entry>
    <entry>Unrecoverable error in application: es.approval on
    panel decide.exit</entry>
    <entry>You are not authorized to access Request Mgmt Quotes.
    </entry>
  </evmsg>
  <evvid></evvid>
  <sysmodcount>1</sysmodcount>
  <sysmoduser>N/A</sysmoduser>
  <sysmodtime>2000-08-09T19:40:05+00:00</sysmodtime>
</eventin>

```

The Archway script can use this information as necessary. For instance, it may display the `evmsg` error messages returned by the RAD application, or messages indicating that an event has failed because of customized Format Control rules.

### **Using the `_event` parameter**

The “`_event`” parameter can be used in a script to specify the name of the event to be used in an `SCDocManager` operation.

If an `_event` parameter is not defined, the standard insert or update attributes of the document are used. Refer to “ServiceCenter-Specific Attributes” in Appendix B for information on the insert and update attributes.

The following is an example of the use of the `_event` parameter:

```
var msgTicket = new Message( "Problem" );  
  
...  
msgTicket.set( "_event", "epmc" );  
// Tell SCDocManager to use an epmc event for this update  
  
archway.sendDocUpdate( "sc", msgTicket );
```

These lines will override the default insert and update attributes and instruct the SCDocManager to use the attributes defined in the script instead.

## Troubleshooting the ServiceCenter Database Connection

If you are having trouble making a connection between Get.It! Base and the ServiceCenter database, verify the following:

1. Check the Control Panel page in the Admin module to confirm the database connectivity status. See “Verifying Adapter Connections” on page 6-25.
2. If “sc” is disconnected, verify that the ServiceCenter service is running (the ServiceCenter console has been started).
3. If the ServiceCenter service was not running and you have started it, you need to restart JRun to establish the connection.
4. Verify that you have ServiceCenter *full* client connectivity by starting a client that is pointed to the port listed in the `archway.ini` file.

# AssetCenter Adapter

This section includes information about the `archway.ini` parameters that are specific to AssetCenter, tips for troubleshooting the AssetCenter connection, and tells how to set AssetCenter feature links.

## INI Parameters

The following table lists the `archway.ini` AssetCenter parameters and gives a description of each.

AC Parameter	Description
<code>acadmin</code>	An administrator login must be defined in order to connect to AssetCenter. The default is <i>Admin</i> , the sample administrator login supplied with AssetCenter.
<code>acadminpassword</code>	By default, no admin password is required.
<code>acanonymous</code>	With this login, requests sent to archway are processed without going through the Get.It! Base user interface. Used by the scriptpoller function. The default is <i>Admin</i> .
<code>acanonymouspassword</code>	By default, no anonymous password is required.
<code>acdatabase</code>	The name of the AssetCenter database to which Get.It! Base will connect. The default is <code>ACDemo351ENG</code> .
<code>acdateformat</code>	Establishes the date format for AssetCenter. The default is <code>yyyy-MM-dd</code> .
<code>acapidll</code>	Used with AssetCenter version 3.5 and above. This parameter is not mandatory, since Get.It! Base is able to detect which DLL to load and where to find it, based on the connection name defined by the <code>acdatabase</code> parameter.  When this parameter is not specified, Get.It! Base uses the information provided by AssetCenter in the connection description (in <code>amdb.ini</code> ), to determine the DLL name. Use this parameter only if the default name determination is not successful.

AC Parameter	Description
acapidllpath	<p>Gives the path to the folder in which the AssetCenter API DLL is located. If this parameter is left blank, Get.It! Base will search the folders in which AssetCenter is installed for a DLL with the expected name. If the requested DLL is not found, Get.It! Base will load it from its bin folder.</p> <p>This parameter should be used only if the default path determination does not work as expected. Note that in the case where the locale parameter in <code>archway.ini</code> contains “ja” (meaning that you intend to use Japanese), Get.It! Base will only load the API DLL from an AssetCenter Japanese folder, and if it does not find it there, it will load it from <code>bin/ja</code>.</p>
acdefaultloginclass	<p>Establishes the type of default user login. This parameter can have four different values:</p> <ul style="list-style-type: none"> <li>• If it is empty or not specified in <code>archway.ini</code>, the self-registered users are added to AssetCenter with the default login class defined in AssetCenter. The default for a registered user in AssetCenter is named <code>user</code>.</li> <li>• If the value is <i>casual</i>, (<code>acdefaultloginclass=casual</code>) the self-registered user will be added as a casual user.</li> <li>• If the value is <i>floating</i>, (<code>acdefaultloginclass=floating</code>) the self-registered user will be added as a floating user.</li> <li>• If the value is <i>named</i>, (<code>acdefaultloginclass=named</code>) the self-registered user will be added as a named user.</li> </ul> <p>Casual user, floating user, and named user are described in the AssetCenter documentation.</p>

## Troubleshooting the AssetCenter Database Connection

If you are having trouble making a connection between Get.It! Base and the AssetCenter database, verify the following:

1. Check the Control Panel page in the Get.It! Base Admin module to confirm the database connectivity status.
2. If “ac” is disconnected, verify that the “acdatabase” parameter in the `archway.ini` file is the same as the database name displayed when you log into AssetCenter. For example, in the system as shipped, the `acdatabase` parameter is set to `ACDemo351ENG`. Refer to your AssetCenter documentation for assistance with login procedures.
3. Verify that all AssetCenter settings match Get.It! Base settings. Log into the AssetCenter database. Make sure that the login account referenced in the Get.It! Base settings matches the login for AssetCenter. Also verify that Get.It! Base is using the correct user name and password for the connection. You can do this by selecting `File>Manage Connections` in AssetCenter.
4. Check the Get.It! Base ODBC connections to AssetCenter. Depending on the way you run JRun, it will look for either an ODBC User DSN or an ODBC System DSN.
  - If you start JRun as a service (the usual method), it references the System DSN for the ODBC connection to the AssetCenter database.
  - If you start JRun as an application, it references the User DSN to determine the ODBC connection.

## AssetCenter Feature Links

The following is a JScript function to set AssetCenter feature links.

```
//general case assetcenter feature link population.
//to be used when a feature link is defined to a
//table in assetcenter. you must link with multiple
//tables to link with the required record.

//expects many parameters: amFeature table, SQLName,
//amFeature, TargetTableName, field name of ID field
//in target table.

function featureLink(

//amFeature SQLName
sFeatureSQLName,
```

```

//table that Feature points to
sTableName,

//ID field in sTableName
sId,

//string value of destination record
sDestinationValue,

//ID of destination record of link
IDestinationId
    )
{
    var msgFeature;
    var strFeatId;
    var msgFeatureRelative;

//locate the amFeature record
msgFeature = archway.sendQuery("ac",
    "SELECT IFeatId FROM amFeature WHERE SQLName = "`
    + sFeatureSQLName + "`",
    0,1);

//convenient storage for the Id
strFeatId = msgFeature.get("IFeatId");

//locate the record in sTableName identified via the
//amFeature record
msgFeatureRelative = archway.sendQuery("ac",
    "SELECT IFeatValld FROM" + sTableName +
    "WHERE" + sId + "=" + msgDestinationRecord.get("Id")+
    "AND IFeatId = " + strFeatId,
    0,1);

//modify the record in sTableName with data from
//msgDestinationRecord
msgFeatureRelative.set("fval", IDestinationId);
msgFeatureRelative.set("ValString", sDestinationValue);
archway.sendUpdate("ac", msgFeatureRelative);

    return;
}

```



You can call this to set feature link values. The following example adds a “Manager” feature link to the amEmplDept table to link an employee to a manager.

```
featureLink(  
  
    //SQLName of the amFeature entry  
    "Manager",  
  
    //feature table associated with feature added to "amEmplDept"  
    "amFvEmplDept",  
  
    //name of ID field in amEmplDept  
    "IEmplDeptId",  
  
    //string value of the manager record (e.g., Name, FirstName)  
    sManagerName,  
  
    //ID of destination record of link (the "manager" we're linking with)  
    IManagerId);
```

## JDBC Adapter

The Java Database Connectivity (JDBC) adapter allows you to create a connection between Get.It! Base and a database other than AssetCenter or ServiceCenter.

You can set up as many JDBC adapters as you need. The only limitation is that each adapter must point to a different database target string.

Adding and configuring a JDBC adapter requires several steps:

- Creating the connection between Get.It! Base and the database.
- Validating the connection.
- Adding the database settings to the Settings form.
- Creating a module in the portal so that information from the database will be displayed in the desired format.

The following procedures outline these steps, using the example of establishing a connection to a database that stores data about employees.

## Adding a JDBC Adapter

There are two steps to adding a JDBC Adapter to Get.It! Base:

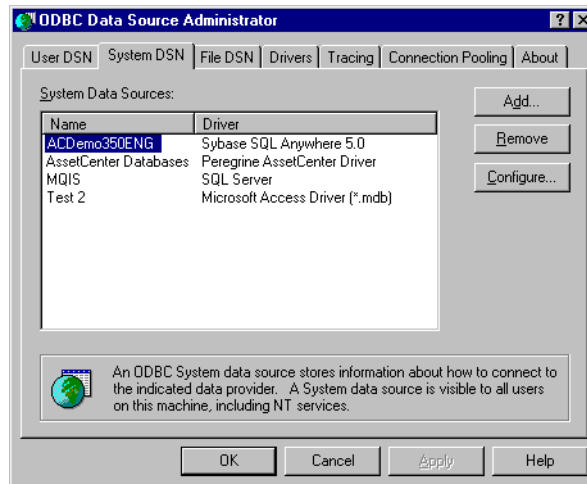
- Verify the Data Source Name (DSN) for the database to which you want to connect.
- Update the `archway.ini` file with information about the database.

### Verifying the System DSN

The first step in adding the JDBC adapter is to verify the DSN for your database. You will need to add this information to the `archway.ini` file.

If you have not yet created a system DSN for your database, use the following procedure to do so.

1. Open the Control Panel (Start->Settings->Control Panel) and double-click the ODBC Data Sources icon.
2. Select the System DSN tab, and then click **Add**.



*Fig. 6.1 ODBC Data Source Administrator*

3. Select the driver for which you want to set up a data source. For this example, we are using the Microsoft Access Driver, because the example database was created using Microsoft Access.

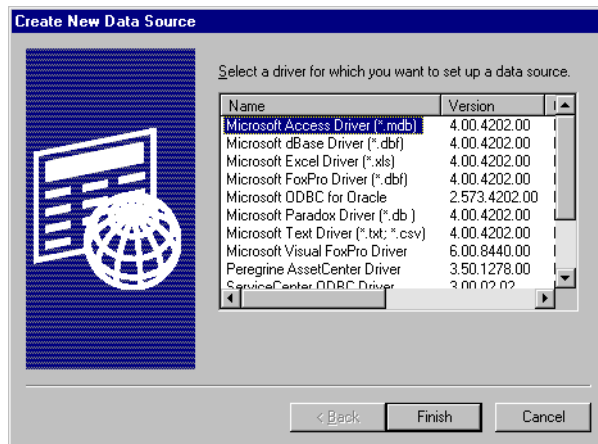


Fig. 6.2 List of available drivers

4. Click **Finish**.
5. In the dialog box displayed, give the data source a name. You can name it anything you want. For this example, we have used “Access\_JDBC\_test”.

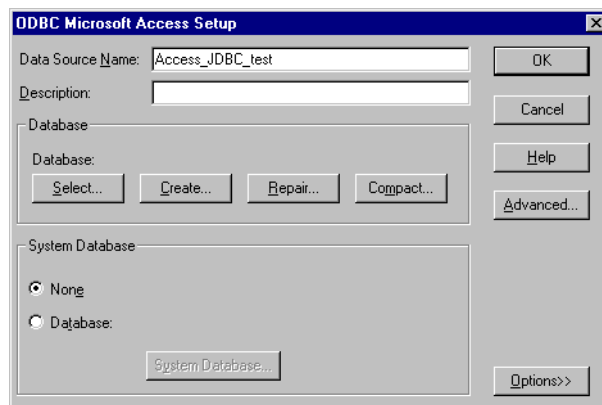
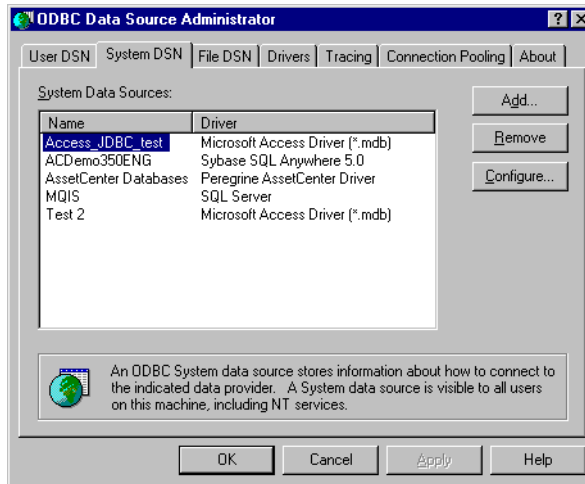


Fig. 6.3 ODBC setup—data source name

6. Click **OK**. The new DSN is added to the list of data source names.



*Fig. 6.4 New system DSN added*

7. Click **OK**.

### **Updating the Archway.ini File**

1. Open the `archway.ini` file in the `C:\Program Files\getit\bin\` directory.
2. Update the adapters line with the JDBC Adapter, so the line would look something like:

```
adapters=sc=SCAdapter;portalDB=SCAdapter;xx=JDBCAdapter
```

where `xx` is a two character designation of the database to which you are linking.

3. Add the following lines to the `archway.ini` file. Replace `xx` with the two character designation of the database to which you are linking. Replace `<odbc name>` with the system DSN for your database.

```
xxdatabase=<odbc name>
xxdatabaseurl=jdbc:odbc:
xxdatabase driver=sun.jdbc.odbc.JdbcOdbcDriver
xxcasesensitive=false
xxanonymous=
xxanonymouspassword=
xxadmin=
xxadminpassword=
```

For this example, the modified lines would look like this:

```
madatabase=Access_JDBC_test
madatabaseurl=jdbc:odbc:
madatabasedriver=sun.jdbc.odbc.JdbcOdbcDriver
macasesensitive=false
maanonymous=
maanonymousspassword=
maadmin=jsmith
maadminpassword=test
```

The fields can be updated after you have changed the Administration module weblocation to display them. The “xxadmin” and “xxadminpassword” are used to actually connect to the database and, therefore, must be a valid database user.

The “xxanonymous” and “xxanonymouspassword” as well as names used in the login screen are used for Get.It! Base user sessions.

The “xxdatabaseurl,” “xxdatabasedriver,” and “xxcasesensitive,” and anonymous login fields are optional. All others are required.

4. Save the file.

### ***Validating the JDBC Adapter Connection***

Once you have completed the steps for adding an adapter, you can verify that the connection has been made.

1. Go to the database you want to query and find a table against which you can run a query. Make note of the table name.
2. Type the following query in the address field of your Web browser, and then press Enter:

```
<hostname>\servlet\archway?<adapter name>.query&_table=<table name>
```

where <name of adapter> is the two-letter designation you gave your database in the archway.ini file.

For our example, we used a table called “Employees” in the sample database, so our query would look like this:

```
localhost\servlet\archway?ma.query&_table=Employees
```

3. In the dialog box displayed, select to open the file from its current location, and then click **OK**.
4. Select a text editor to display the data, and then click **OK**.

Figure 6.5 shows an example of data displayed using Notepad.

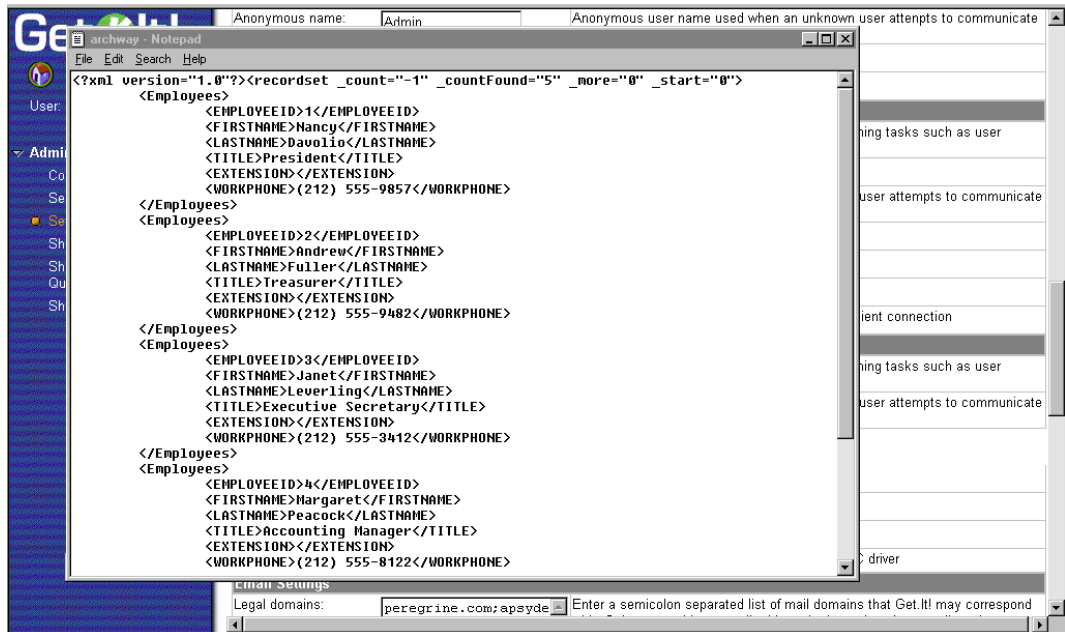


Fig. 6.5 Verification that the JDBC adapter is processing data

## Adding the New Database Settings

The Settings form in the Get.It! Base Admin module contains the settings for the ServiceCenter and AssetCenter database connections.

You will need to update the `admin.xml` file to add the JDBC adapter settings to this form.

### Updating the Admin.xml File

1. Open the `admin.xml` file from the `C:\Program Files\getit\apps\common\weblication\` directory.
2. Find the activity called "Settings."
3. Scroll down until you see where the AssetCenter and ServiceCenter adapters are set up.

Enter the following lines after the AssetCenter and ServiceCenter adapter information. Be sure to update the “JDBC” and “xx” with the information for the system to which you are linking. Where “xx” is used, replace uppercase “XX” with uppercase letters and lowercase “xx” with lowercase letters:

```
<section label="JDBC (xx) Adapter Settings">
  <entry>
    <input field="XXAdmin" type="text" label="Administrator name"
      size="20" />
    <instructions>Administration user used by Get.It! when performing
      tasks such as user authentication and registration</instructions>
  </entry>
  <entry>
    <input field="XXAdminpassword" type="password"
      label="Administrator password" size="20" blank="_blank" />
    <instructions>Administration password</instructions>
  </entry>
  <entry>
    <input field="XXAnonymous" type="text" label="Anonymous name"
      size="20" />
    <instructions>Anonymous user name used when an unknown user
      attempts to communicate through archway</instructions>
  </entry>
  <entry>
    <input field="XXAnonymouspassword" type="password"
      label="Anonymous password" size="20" blank="_blank" />
    <instructions>Anonymous user password</instructions>
  </entry>
  <entry>
    <input field="XXDatabase" type="text" label="DataSource"
      size="20" />
    <instructions>Data source name for ODBC driver</instructions>
  </entry>
  <entry>
    <input field="XXDatabaseUrl" type="text" label="JDBC Url"
      size="20" />
    <instructions>Url for JDBC driver (optional)</instructions>
  </entry>
  <entry>
    <input field="XXDatabaseDriver" type="text" label="JDBC Driver"
      size="20" />
    <instructions>Alternate JDBC driver (optional)</instructions>
  </entry>
  <entry>
    <input field="XXCaseSensitive" type="checkbox" label="Case
      Sensitivity" value="true" valueoff="false" />
    <instructions>Select this to toggle case sensitivity in the JDBC
      driver</instructions>
  </entry>
</section>
```

4. Save the file in your . . . \user directory. If you save it in the common Get.It! Base directory it will be overwritten the next time you load a new version of Get.It! Base.
5. Run wbuild getit. See Chapter 4 for detailed instructions on running the wbuild command.
6. Verify that the fields have been added to the Settings page.

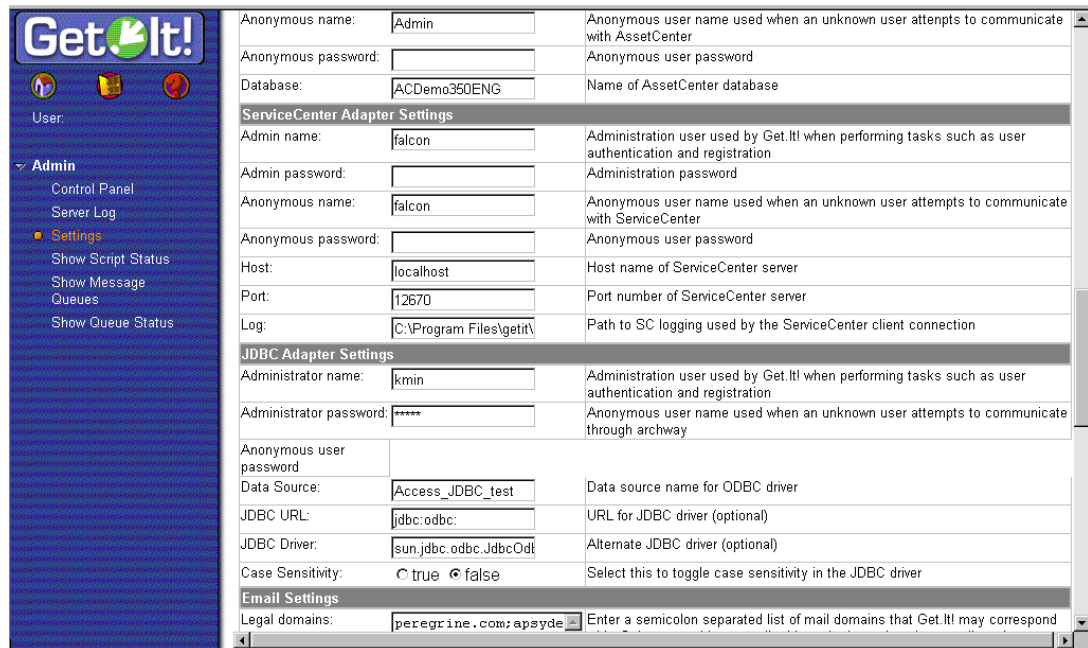


Fig. 6.6 JDBC adapter settings added to the settings page

## Creating an Interface to the Database

In order to display formatted data from your database or to add new information from Get.It! Base to the database, you will need to add a new module to the Get.It! Base portal. This process includes the following three steps:

- Modify an XML file to establish how you would like the data to be formatted.
- Modify schemas to map to the fields in your database tables.
- Modify the JavaScript to point to your database.



All of these procedures can be done by copying existing files and changing them to pull data from your database and format it. The files you will need are located in the `...getit\apps\common` directory. Copy the files you want to use into the equivalent folders in the `...getit\apps\user` directory so that they will not be lost when you upgrade to a later version of Get.It! Base. See “Adding a New Module” on page 5-25 for instructions for adding a module to the portal.

## Preventing Lost Connections

If you experience lost connections while using the JDBC adapter, you can use a polling script which will periodically check for database connectivity and reconnect when a connection is lost. The script is then run through `script-poller.ini` on a periodic basis.

The following script (`pingDB.js`) is an example. You will need to customize this script for your own database name and queries as noted.

```
//-----  
// PingDB - attempts a well known query periodically, on error  
// reconnects the JDBCAdapter to the database using the "_connect"  
// event which will attempt a disconnect and then reconnect.  
//  
// Two functions are defined:  
// start() - executes exactly once  
// run()   - executes on the polling interval  
//  
//-----  
Archway = Packages.com.peregrine.archway;  
Message = Archway.Message;  
  
//-----  
// Start function .. can build parameters for run method  
//-----  
function start( msg )  
{  
    var msgRet = new Message();  
    msgRet.set("message", "ok");  
    return msgRet;  
}  
  
//-----  
// run function .. subsequent invocations  
//-----  
function run( msg )  
{  
    var msgDB = new Message("test_query");  
    var msgRes = null;
```

Replace this query with one that you have used with your database and you know will succeed every time.

```

        var msgRet = new Message();

        msgDB.set("query", "select * from tab");
        msgDB.set("_count", "1");

        msgRes = archway.send( "xx", "query", msgDB );
        if (msgRes.get("message"))
        {
            msgDB = new Message("_connect");
            msgRes = archway.sendEvent( "xx", msgDB );
        }
        msgRet.set("message", "ok");

        return msgRet;
    }

```

Replace "xx" with the two-letter designation of the target database identified in the archway.ini file.

## Calling a Stored Procedure

Stored procedures can be called with input and output parameters. When the procedure is executed, the adapter first attempts to get any result sets that may have been returned, then attempts to retrieve the set of parameters with which the function was called. The resulting parameter list includes both input and output parameters and their values.

All parameters are treated as (and assumed to be declared as) Varchar or String type, with other data types to be supported in a future release.

Input and output parameters are specified with the "type" attribute; valid settings are "IN/OUT/INOUT".

There are three ways to call a stored procedure:

- From the Web browser through CGI syntax in a URL.
- From a JScript file or post stream with an XML document containing `_call` and `_sql` tags.
- Using the Get.It! Base Document Manager.

The following is an example using a stored procedure called "insertEvent()" in an MSSQL7.0 database with two parameters; the first is of type "input" and the second, "output". When called, the procedure verifies the input data and inserts a row returning the new row ID number.

## Using a URL

```
http://localhost:8080/prgn/servlet/archway?ja.event
&_sql={call insertEvent('User1',?)}&name=User&value=User1&type=IN
&name=Id&type=OUT
```

## Using a JScript

```
function processInsert( msg )
{
    var msgEvent = new Message("event");
    var strCall = "{CALL insertEvent('User1',?)}";

    msgEvent.set("_sql", strCall);
    msgArg = new Message("_arguments");

    elTag = msgArg.add("name", "UserName");
    elTag.setAttribute("type", "IN");
    elTag.setAttribute("value", "User1");

    elTag = msgArg.add("name", "Id");
    elTag.setAttribute("type", "OUT");

    msgEvent.add(msgArg);

    msg = archway.sendEvent("ja", msgEvent);

    return msg;
}
```

## Using a Document Insert Or Update

This example uses the following schema definitions:

```
<?xml version="1.0"?>

<schema>

<!--=====
Generic Schema Definitions
=====-->

<documents name="base">
    <document name="ProcEvent">
        <attribute name="UserName" type="string"/>
        <attribute name="Id" type="id"/>
    </document>
</documents>

<!--=====
JDBCAdapter Schema Definition
=====-->
```

```

<documents name="ja">
  <document name="ProcEvent" table="None" insert="insertEvent"
update="updateEvent">
    <attribute name="UserName" field="NAME" insertEvent="IN"
updateEvent="IN"/>
    <attribute name="Id" field="ID" insertEvent="OUT"
updateEvent="IN"/>
  </document>
</documents>

</schema>

```

using the following JScript function:

```

function processInsert( msg )
{
  var msgRequest = new Message( "ProcEvent" );

  msgRequest.add( "UserName", "User1" );
  msgRequest = archway.sendDocInsert( "ja", msgRequest );

  return(msgRequest);
}

```

All methods above will produce the following output:

```

<?xml version="1.0" ?>
<_doc>
  <_arguments>
    <Id>915326</Id>
    <UserName>User1</UserName>
  </_arguments>
</_doc>

```

## LDAP Adapter

Lightweight Directory Access Protocol (LDAP) directories provide a centralized source for information about the people within an organization. E-mail addresses, telephone numbers, fax numbers, user IDs, and passwords can be defined in the LDAP directory and referenced by various applications, eliminating the need to maintain user data in more than one location.

The use of an LDAP directory allows users without AssetCenter Employee Records to log on to Get.It! Base by providing minimal login information, such as login ID and password.

The information in this section assumes prior knowledge of the general setup and configuration of LDAP, and ability to write the associated JScript.

### Connecting LDAP to Get.It! Base

There are three procedures that need to be completed in order to connect to Get.It! Base using LDAP:

- Update the `archway.ini` file to include the LDAP parameter.
- Create a JavaScript to query Get.It! Base.
- Reset the server.

This section provides information on updating the `archway.ini` file. Refer to your LDAP documentation for instructions on setting up an LDAP adapter. Sample scripts are not provided with Get.It! Base because of the variety of possible configurations. However, Chapter 4 of this guide includes instructions for modifying JScripts.

### Updating the `archway.ini` File

To configure the LDAP adapter, update the `archway.ini` file with the following information:

1. Add the adapter name to the adapters line:

```
ac=ACAdapter;portalDB=ACAdapter;ldap=LDAPAdapter
```

2. Define the LDAP connection parameters:

```
ldapurl=xxx  
ldaplogin=xxx  
ldappassword=xxx
```

Replace the “xxx” with your system and user-specific information.

## E-mail Adapter

The E-mail adapter can be set up using Java or from an Archway ECMA script. The various calls that are available are the same either way. The E-mail adapter is based on the Sun Javax.mail classes for mail, especially:

- javax.mail.Session
- javax.mail.Message
- javax.mail.Transport
- javax.mail.search

and several other related classes. Detailed documentation on these is available from Sun's [java.sun.com](http://java.sun.com) site.

The following script illustrates how the E-mail adapter can be used to connect to a mail server and how a given mailbox at that server can be processed:

```
// FESI definitions to point to the Archway mail adapter Java classes
Archway = Packages.com.peregrine.archway;
MailAdapter = Archway.adapters.MailAdapter;

// Allocate a new MailAdapter object
var ma0 = new MailAdapter();

// Optional: Turn on Javax.mail debug mode by calling
// "setDebug( true )"
// If this is done, copious javax.mail debug messages will be written
// to JRUN standard output log
ma0.setDebug( true );

// Connect to a specified mailbox at a specified IMAP4-capable
// mail server, passing the hostname of the server, a userid,
// and a password
ma0.setConnection( "exchange.mycorp.com", "joesmith",
"opensesame" );

// If we could not connect for some reason, print MailAdapter last
// error in the log and return false
if ( ma0.connect() != 0 )
{
    var err = ma0.getLastErrorMessage();

// This returns an Archway error message containing last javax.mail
// error info
    env.error( "Got error: " + err.getLastErrorMessage() +
"trying to connect to mailbox" );
    return false;
}
```

```

// Get a logical Archway lock on the mailbox we are going to process
var strMailLock = "MailAdapter:" + "joesmith"
env.getLock( strMailLock );

// Build the SQL query to query the mailbox
var mailQuery = "SELECT * FROM INBOX ";
if ( docType != null )
{
    mailQuery += " WHERE subject = '" + docType + "' ";
}
if ( lastRecvDate != null && lastRecvDate != "" )
{
    mailQuery += " AND receivedDate > " + lastRecvDate ;
}

// Issue the query. Ask for 4 messages starting with zeroeth message.
// Specifying -1 for the count retrieves all messages
var m = ma0.doQuery( mailQuery, 0, 4 );

// Make sure it worked
if ( m == null )
{
    env.error( ma0.getLastErrorMessage() );
    env.releaseLock( strMailLock );
    return false;
}

env.debuglog( "Response from mailadapter was: " + m.getContent() );
var i = 0;
var docsProcessed = 0;
var list = m.getList("message");
for ( i=0; i < list.getLength(); i++ )
{

// Get the mail message represented by this list entry
var mm = ma0.getMailMessageByNumber( list.get( i,
    "messageNumber" ) );
if ( mm == null )
{
    env.log( "Failed to retrieve mail message by number - " +
    ma0.getLastErrorMessage().getErrorMessage() );
    env.releaseLock( strMailLock );
    return false;
}
env.debuglog( "Mail message " + i + " is: " + mm.getContent
( false ) );

// Get a few elements out of the Mail message
var msgID = mm.get( "messageID" );
var msgNo = mm.get( "messageNumber" );

```

```
        var text      = mm.get( "text" );
        var subject = mm.get( "subject" );
        var dtReceived = new Date( mm.get( "receivedDate" ) );

// Delete the Mail message
    ma0.deleteMailMessageByNumber( msgNo );
    }

// Commit inbox folder changes. This does a Java mail expunge
// operation
    ma0.commitInboxFolderChanges();

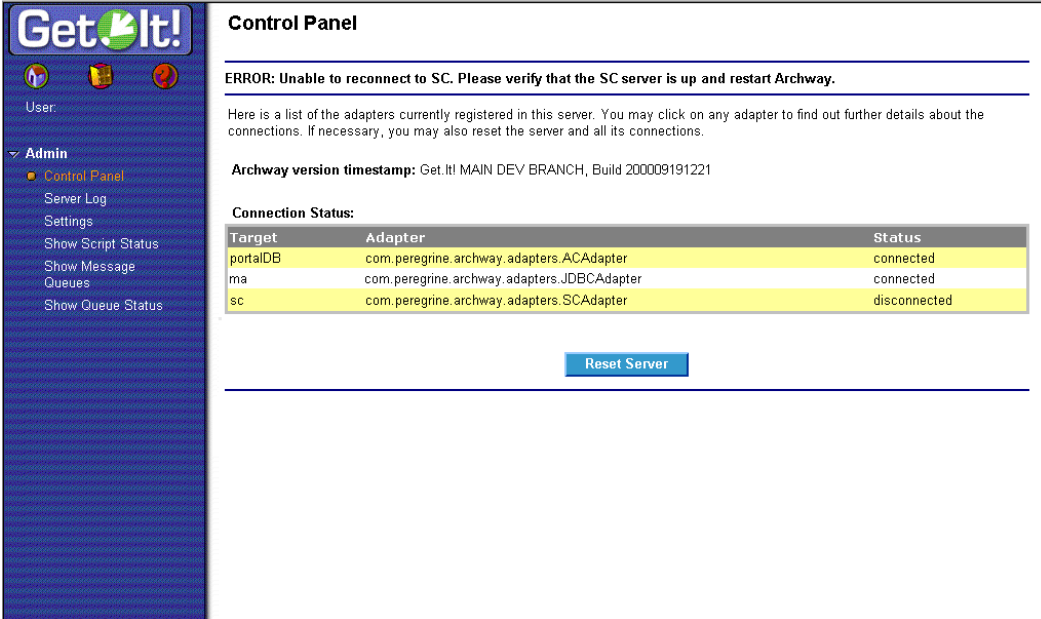
// Release lock on mailbox
    env.releaseLock( strMailLock );

// Close the mail box
    ma0.disconnect();
```



## Verifying Adapter Connections

The status of a connection from Get.It! Base to a database can be verified from the Control Panel in the Admin module. In the example in Figure 6.7, “sc” is shown as disconnected because the ServiceCenter console was not started before logging into Get.It! Base.



The screenshot shows the Get.It! Control Panel interface. On the left is a navigation menu with the 'Admin' section expanded to show 'Control Panel'. The main content area displays an error message: 'ERROR: Unable to reconnect to SC. Please verify that the SC server is up and restart Archway.' Below this, a text block explains that the list shows currently registered adapters and provides instructions on how to view details or reset the server. A table titled 'Connection Status:' lists three adapters: 'portalDB' (connected), 'ma' (connected), and 'sc' (disconnected). A 'Reset Server' button is located below the table.

Target	Adapter	Status
portalDB	com.peregrine.archway.adapters.ACAdapter	connected
ma	com.peregrine.archway.adapters.JDBCAdapter	connected
sc	com.peregrine.archway.adapters.SCAdapter	disconnected

Fig. 6.7 Verifying adapter connections.

For more information on connectivity troubleshooting with each adapter, refer to the appropriate section on each Get.It! Base adapter provided in this chapter.

## Log Files

There are a number of log files produced by JRun, ServiceCenter, AssetCenter, and the archway connector that provide information that can help you troubleshoot your Get.It! Base installation, including connectivity problems.

The following table lists the paths to the log files and gives a description of the types of messages written to each file.

Path to Log File	Description
\JRun\jvm-default\logs\stdout.log	Standard output from JRun, including “writeIn” and Log.log statements from Jscript.
\JRun\jvm-default\logs\event.log	A log of events: initialization of objects, need to re-initialize objects after modifications, and so forth.
\JRun\jvm-default\logs\stderr.log	Standard Error output from JRun. Includes Java exceptions and similar errors.
\JRun\jvm-default\services\jse\logs\error.log	Logs information similar to stderr.log above.
\JRun\jvm-default\services\jse\logs\event.log	Logs information similar to event.log above.
archway.log	The location of this log file is specified in the archway.ini file. The information included in the log file is also determined by the INI file, but includes things like env.log, env.debuglog, and query information.
\Program Files\ServiceCenter\sc.log	Information regarding the ServiceCenter connection.
\Program Files\AssetCenter\ac.log	Information regarding the AssetCenter connection.

# Chapter 7

## Localization Support



Make sure the Locales and Currencies fields in the Administration Module Settings are set correctly before you begin localizing files.

Get.It! Base allows each user to dynamically select the language in which they would like the Get.It! Base windows displayed. This is supported through language-specific string files which you can update if you are adding your own strings.

**Note:** The AssetCenter weblocation templates provided with Get.It! Base support English only.

### General Localization Steps

Before you can localize the strings you create, complete the following two steps:

1. Use the Administration Module to update the Settings so the “Locales” field includes the languages you want to have available. Use the two-character language code defined in the ISO standard. You can find a chart of the ISO codes in the *Get.It! Base Installation and Administration Guide*.
2. Update or create your modifications to Get.It! Base just as you always would. If needed, refer to Chapter 5, "Tailoring Get.It! Base," for the steps to complete.

The following is a general overview of the steps you will do to translate your modifications.

3. Run `wbuild getit`.
4. Run `strbuild getit`. This will update your weblocation string files.
5. After you run `strbuild`, look in these files and update all empty quotes with the correctly translated strings. Search for quote quote ( " ") to find all the empty strings.
6. Log into Get.It! Base. When Get.It! Base attempts to write a screen, it first looks for a string in a country-specific file. If a string is not found in a country-specific file, Get.It! Base then looks in the language-specific file.

See “</form>” on page 5-15 for a step-by-step example of this process.

You can further define language within regions by creating STR files defining only those strings which are different and adding the country name the file names. For example, the English extract file for Great Britain could be `getit_en_GB.str`.

## Archives

A copy of all STR files is stored in an archive file. This archive file is called `..\getit\apps\getit.zip`. You can transmit this file to a third party translation service if you do not want to update the STR files yourself.

## Externalizing ECMAScript Messages

The ECMA scripts defined in each Get.It! Base package also contain some messages. For example, the following is a script that sends a message to the user:

```
User.addMessage( "You have no open problem tickets" );
```

Messages like these are externalized by storing them in a file named `<package>_en.str` found in each package folder.

The externalization process is as follows:

1. During development, all messages should be placed in a STR file. For example:

```
statusNoTickets, "You have no open problem tickets"
```

2. Instead of including the message in the ECMA script, use the API interface shown below:

```
User.addMessage( IDS.get( "service", "statusNoTickets" ) );
```

The `IDS.get()` API requires two parameters. The first is package name where a message is defined. The second is the string ID defined for the entry. The user's preferred language is determined by the ScriptRunner.

ID names must be unique within a package. In addition, each ID should be prefixed by the name of the script file where it is associated.

3. When ready to localize, open the appropriate string file. Save the file in the same user directory where you saved the script file you updated as `user_languagecode.str` where `languagecode` is the two character code for the language (`user_fr.str` for French).

At run time, Archway picks up messages from the appropriate STR file as determined by the user session language preferences. Thus, one user could view English messages while another user views them in French at the same time.

## Externalizing ECMAScript Messages with Variables

The IDS interface includes methods for replacing variables into a message. For example, consider the following message

```
"Asset " + strOld + "will be replaced by asset " + strNew
```

Such a message should be externalized as follows:

```
ID, "Asset %1 will be replaced by asset %2"
```

This allows translators to place the `%1` and `%2` replacement tags anywhere that makes sense according to grammatical rules of the target locale.

The IDS interface supports the `%1` tags with calls such as:

```
IDS.get( user, strID, str1);
```

or

```
IDS.get( user, strID, str1, str2);
```

or

```
IDS.get( user, strID, str1, str2, str3);
```

Where `str1`, `str2`, and `str3` replace `%1`, `%2`, `%3`

IDS defines functions for up to three replacement strings. For greater numbers of replacements, use the `get()` function that takes a string array.

```
IDS.get( user, strID, astr);
```

## Externalizing Messages in XSL Templates

While it is rare, the Get.It! Base XSL templates define some messages of their own. For example, the label for a “back” button is hard coded in the XSL templates, providing a uniform label anywhere a <back> weblocation element is found.

There are two ways XSL templates externalize strings. The first is by using the `$$IDS()` sequence, as shown in the following example:

```
<xsl:template name="genBackButton">
<input type="button" value="$$IDS(common,xslBack)">
</xsl:template>
```

The XSL above refers to a string defined in the common module’s message STR file:

```
xslBack,          "Go Back"
```

The `$$IDS()` sequence is useful when embedding IDS strings in generated HTML. However, some XSL code may actually generate JSP scriptlet code. In such cases, use the normal IDS APIs already described above for Java code externalization. For example:

```
<jsp:scriptlet>
  if ( user.getName().length() > 0 )
    out.println( IDS.get(user, "portal", "xslWelcome") +
      user.getName() );
</jsp:scriptlet>
```

The code above retrieves an IDS string defined in the portal module.

## Japanese Locale

You must run the `wbuild` command when running the Japanese version or locale of Get.It! Base. To run the Japanese version you must type the correct locale in the Locales field. You can find this field by clicking on the Admin module and then scrolling to the Locales field. In this field type “ja.” Click the Save button, located at the bottom of the screen.

Because Japanese characters are not presently supported under the ISO-8859-1 character set, you must run the `wbuild` command. All character sets that fall outside of the ISO-8859-1 character set require the `wbuild` command to be executed.





# Appendix A

## Weblication Reference



---

This chapter is a reference for the weblication Extensible Markup Language Document Type Definition (XML DTD). XML DTD is the high level XML language used to define all Get.It! Base weblications.

### Weblication Structure

All XML structure is comprised of tags with supporting attribute and element information. All basic weblications have the following structure:

```
<application>
  <modules>
    <module>
      <components>
        <component>
        </component>
      </components>
      <activities>
        <activity>
          <forms>
            <form>
            </form>
          </forms>
        </activity>
      </activities>
    </module>
  </modules>
</application>
```

Weblications are defined by an initial application entry or tag. The application tag is comprised of one or more modules (e.g., *assets*, *work orders*). Modules contain elements called components. Each module contains one or more activities. Each activity can have one or more forms.

# Weblication Tags

## <application>

The <application> element is the starting point for defining a weblication. It accepts the following attributes and nested elements:

Attribute	Description
name	A unique name for the weblication. The name should be a single word starting with a letter.
onload	The name of the script that will be invoked when the weblication's main menu is displayed. For example, the login.xml application file contains the onload login.login. The script name is made up of the script file name followed by the script function name.
param	When a script is defined with the onload attribute then it can define parameters that are included within the request message sent to the script. The string value should be constructed as key=value pairs with multiple parameters separated by ampersands (&). Because an ampersand is a special character in XML, you should use &&(_amp). The plus sign (+) is converted into a space character. Special characters can be encoded as a three character string beginning with the percent sign followed by a two-digit hexadecimal representation of the lower 8-bits of the character. For example: <pre>&lt;application onload="login.login" param="p1=yada\$\$(_amp)p2=what+ever"&gt;.</pre>
home	Designates the module which is to be considered the "Home" module and is reached by clicking on the first module tab. The label for the home tab will be the short name given to the module in the description attribute.
<title>	Title used in the application's main menu.
<instructions>	Instructions that will be displayed in the application's main menu.
<modules>	List of modules that make up the application.
frame	Specify whether you want the Get.It! Base banner to frame your windows. frame="true" causes the banners to display. frame="false" causes the banner to not display.

## <module>

The <module> element defines an application component designed to offer users a specific application function. For instance, a request module could define interfaces that permit users to create purchase requests. This element can contain the following attributes and nested elements:

Attribute	Description
name	A unique name for the module. The name should be a single word starting with a letter.
access	Defines the name assigned to a user-access definition that is required in order to access the module. User access is defined by UserRights in AssetCenter and is set for each user profile. Enter a valid capability word or UserRight, or for more general access enter one of the following: anonymous = The module can be accessed by any user, regardless of the user's profile capabilities. The module can even be accessed by users who are not logged into the Weblication. all = The module can be accessed by all users who are logged into Get.It! Base.
access-redirect	The URL displayed when a user is denied access based on the "access" attribute (above). If no default URL is specified then e_login_main_refuse.jsp is used.
appmenu	Controls whether the module is included in the header shortcut menu. When set to <i>false</i> the module is not listed in the Weblication's header shortcut menu. The default is <i>true</i> .
apphead	Controls whether the module is included on the main menu. When set to <i>false</i> the module is not listed in the weblication's main menu form. The default is <i>true</i> .
<title>	The title used to identify the module.
<description image="X" short="Y" long="Z">	This element defines attributes that further describe the module. <ul style="list-style-type: none"><li>• The <b>image</b> attribute defines an image that can be used as a module logo or link. This is a URL (relative or absolute) pointing to a specific image of browser-supported file type.</li><li>• The <b>short</b> attribute should be defined by one or two words that can be used in a link that takes a user to the module.</li><li>• The <b>long</b> attribute should contain a longer description.</li></ul>

Attribute	Description
<target URL>	Link a different module into this module. You can link any URL. See “Adding a URL as a Module” on page 5-23 for details.
<components>	The list of forms and subforms that can be used in activities. These must be defined as components. See “Reusable Form Components (Subforms)” on page A-33 for details.
<activities>	List of activities that comprise the module.

Note: If you did not want this module included in the header menu, you would have included

<appmenu="false"> before the <title> attribute.

## <activity>

The <activity> element defines a step within a module’s functionality. For instance, the **home** activity in the Portal module defines actions the user can take on his home page.

This element can contain the following attributes and nested elements:

Attribute	Description
name	A unique name for the activity. The name should be a single word starting with a letter.
access	The name of a user <i>capability word</i> that is required to access the activity. The default value is <b>anonymous</b> , meaning that the activity may be accessed by any user, regardless of that user’s profile capabilities. An <b>anonymous</b> activity can be accessed by users that are not even logged into the webpublication.
<title>	Title used to identify the activity.

Attribute	Description
<pre>&lt;description   image="X"   short="Y"   long="Z"&gt;</pre>	<p>This element defines attributes that further describe the activity.</p> <ul style="list-style-type: none"> <li>• The <b>image</b> attribute defines an image that can be used as an activity logo or link.</li> <li>• The <b>short</b> attribute should be defined by one or two words that can be used in a link that takes a user to the activity.</li> <li>• The <b>long</b> attribute should contain a longer description that is used as balloon help for links to the activity.</li> </ul>
<pre>&lt;target URL&gt;</pre>	<p>Link a module as an activity. You can link any URL. See “Adding a URL as an Activity” on page 5-24 for details.</p>
<pre>&lt;forms&gt;</pre>	<p>List of forms that comprise the activity.</p>

See Figure A.1 for a sample of how the `<activity>` weblication tag can be used.

```
<activity name="home">
<description short="My Home Page" long="Personal links, reports, and
information" />
```

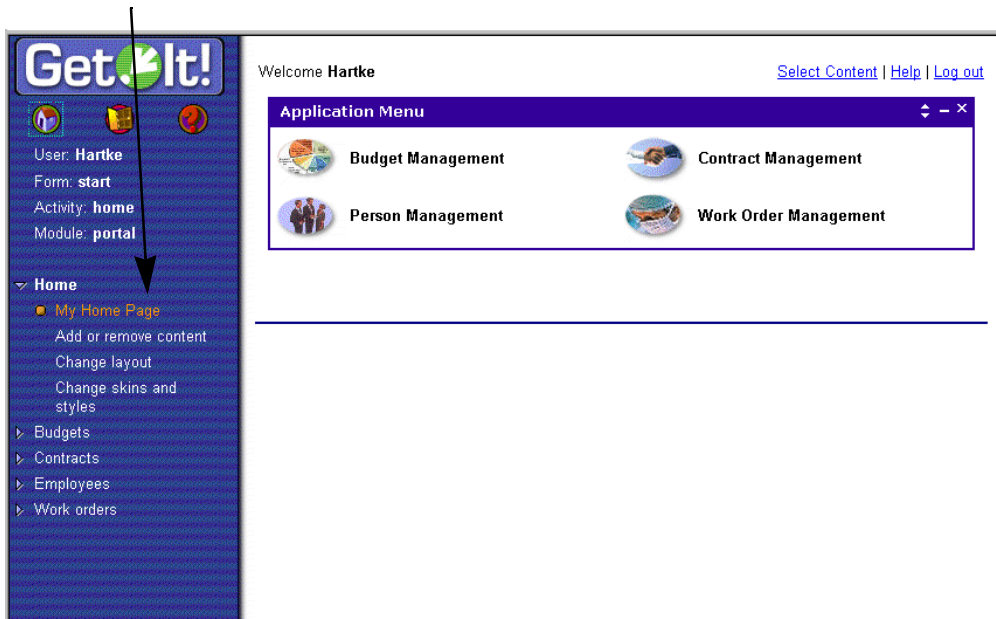


Fig. A.1 Using the `<activity>` tag

## <form>

The specific contents for a screen are defined in the `<form>` element. For instance, the browser activity in a request module could have a number of forms used to show product categories, product lists, product details, and so forth.

This element can contain the following attributes and nested elements:

Attribute	Description
<code>name</code>	A unique name for the form. The name should be a single word starting with a letter.
<code>onload</code>	Name of script to invoke before displaying the form. The message returned by the script is used to populate fields in the form.
<code>param</code>	When a script is defined with the <code>onload</code> attribute then it can define parameters that are included within the request message sent to the script. The string value should be constructed as <code>key=value</code> pairs with multiple parameters separated by ampersands (&). Because an ampersand is a special character in XML, you should use <code>&amp;(_amp)</code> . The plus sign (+) is converted into a space character. Special characters can be encoded as a three character string beginning with the percent sign followed by a two-digit hexadecimal representation of the lower 8-bits of the character. For example: <pre>&lt;application onload="login.login" param="p1=yada\$_amp)p2=what+ever"&gt;</pre>
<code>onbrowserload</code>	Name of the script to invoke on the client before displaying the form.
<code>homepage</code>	If set to <i>true</i> , the form is created to become the weblication's homepage. Only one form should be given this attribute.
<code>&lt;redirect&gt;</code>	This element defines a condition that is evaluated before displaying the form. If the condition is <i>true</i> , an alternative form is displayed instead. See " <code>&lt;redirect&gt;</code> " on page A-8 for more information.
<code>&lt;title&gt; TEXT &lt;/title&gt;</code>	Title used to identify the form.
<code>&lt;instructions&gt; TEXT &lt;/instructions&gt;</code>	Text giving the user instructions for the form.

Attribute	Description
<form fields>	One or more elements that make up the form, such as entry fields, labels, tables, menus, etc. See “form fields” on page A-10 for more information.
<actions>	Definition of actions that a user may take when viewing the form. These are typically displayed as buttons or links that submit the contents of the form or send the user to another form.
type="frameset"	Specifies number of frames. Also accepts rows="" and cols="" attributes.
sidebar	Sidebar refers to the leftmost frame. Setting this attribute to false eliminates this frame.  <form name="xyz" sidebar="false">
frame	Frame refers to the uppermost frame. Setting this attribute to false eliminates this frame.  <form name="xyz" frame="false">

Note: When a form is loaded to send to a client, it is supplied with an input document. The input document is a representation of an XML document containing the data to be displayed in the form. In most cases, the form’s input document is obtained by executing the form’s `onload` script. The script returns a message object which represents the document.

Another important point to understand is that a form is frequently invoked with a number of parameters. Normally these parameters are made up of the values entered in input fields within the previous form. These parameters are passed on to the form’s `onload` script.

See Figure A.2 for a sample of how the `<form>` tag can be used.

The screenshot shows a web application interface with a sidebar on the left and a main content area on the right. The sidebar contains a navigation menu with items like Home, Admin, Request, and B2BAdmin. The main content area displays search results for a category, with a table listing items with columns for Count, Brand, and Model. A code snippet is overlaid on the right side of the screenshot, showing the HTML code for a form tag that includes a redirect condition and a table of search results.

**Search Results**

Here are the items found in this category. You may click on any one to see a detailed

Count	Brand	Model
<input type="checkbox"/>	IBM	THINKPAD 390E PII/300 PE 4.3GB 64MB
<input type="checkbox"/>	IBM	THINKPAD 390E PII/333 PE 6.4GB 64MB
<input type="checkbox"/>	IBM	THINKPAD 570 PII/333MHZ 4.0GB 64MB
<input type="checkbox"/>	IBM	THINKPAD 570 PII/300MHZ PE 4.0GB
<input type="checkbox"/>	IBM	THINKPAD 570 PII/265MHZ 6.4GB 64MB

```

<form name="catalog" onload="procure.getCatalog">
  <redirect target-form="catalognone" condition="catalognone"/>
  <title> ${$(Title)} </title>
  <instructions>
    Here are the items found in this category. You may click on any one to
    see a detailed description, or you may simply enter a count to add items
    to your request.
  </instructions>
  <table record="Product" rows="10">
    <link target-form="product" field="Id"/>
    <column label="Count" type="select" field="nCount" key="Id"
      record="Combo" valuelist="Value" displaylist="DisplayValue" />
    <column label="Brand" field="Brand"/>
    <column label="Model" field="Model"/>
    <column label="Price" field="Price"/>
  </table>
  <actions target-activity="review">
    <submit name="bTable"> Add to shopping cart </submit>
    <back/>
  </actions>
</form>

```

Fig. A.2 Using the `<form>` tag

## `<redirect>`

This element defines a condition that is evaluated before displaying the form. If the condition is true, an alternative form is displayed instead.

For instance, a weblication could have the following:

```

<form name="hello" onload="weather.getTemperature">
  <redirect target-form="coats" condition="cold"/>
  <redirect target-form="shorts" condition="hot"/>
</form>

```

The code above would redirect the user to the `coats` page when `weather.getTemperature` returns a condition of `cold`.

It redirects to `shorts` when the condition is `hot`. It is the script's responsibility to establish a condition value that makes the redirection work. This is accomplished via the `Message.setCondition()` method.



The `<redirect>` element can take the following attributes:

Attribute	Description
TARGET	Defines the target location for the form.
condition	The condition value that makes the statement execute. If the condition value matches the value set in the form's script return message, the redirection will take place. If no condition is provided, the redirection is always executed.

In the previous example, we used the following string, which includes the `<redirect>` tag:

```
<form name="catalog" onload="procure.getCatalog">  
  <redirect target-form="catalognone" condition="catalognone"/>  
  <title> $$ (Title) </title>
```

When no catalog can be found (the condition of "catalognone") the following string of tags is used:

```
<!-- This form is shown when the search found nothing -->  
  <form name="catalognone">  
    <title>Search Results</title>  
    <instructions>  
      No catalog entries were found to match search criteria.  
    </instructions>  
    <actions>  
      <back/>  
      <home> Home </home>  
    </actions>  
  </form>
```

*Fig. A.3 Using the `<redirect>` tag*

## component

A component is an element that can be used (and reused) within an activity's form. The component is defined separately and then referenced in the form by name. It may contain a number of fields or elements that are used to display and input data.

Attribute	Description
<name>	The unique name for the component used as reference within an activity's form using the tag <component name=" <name> " />.
{form fields}	One or more elements that comprise a form, such as entry fields, labels, tables, menus, and other (these elements are described in {form fields}).

## form fields

A form may contain a number of fields or elements that are used to display and input data. Each is described in detail separately below. The following is the list of possible elements:

Attribute	Description
<fields>	Groups one or more "field" elements, which include <input> and <field> elements. Sample fields include text boxes, combos, check boxes, static text fields, and input fields. When fields are grouped they are treated as a group by the weblication, meaning the field labels are aligned and the input fields are aligned in the window automatically.
<menu>	A menu of links.
<table>	A table whose rows are obtained dynamically at run time from the form's input message.
<listbox>	A table whose rows are pre-defined within the weblication.
<html>	Allows the insertion of arbitrary HTML code.
<entry table>	A table that allows entries in one column and contains descriptions in another.
<plug in>	Allows you to plug in content from any web page that is accessible through a URL.

The screenshot shows a web application with a sidebar on the left containing navigation links like Home, Admin, Request, and Browse Catalog. The main content area is titled "Search Results" and displays a table of items. The table has columns for Count, Brand, and Model. Below the table is an "Add to shopping cart" button. A callout box highlights the HTML code for the table, showing a form with instructions and a table element with columns for Count, Brand, Model, and Price.

```

<form name="catalog" onload="procure.getCatalog">
  <redirect target-form="catalognone" condition="catalognone"/>
  <title> ${Title} </title>
  <instructions>
    Here are the items found in this category. You may click on any one to
    see a detailed description, or you may simply enter a count to add items
    to your request.
  </instructions>
  <table record="Product" rows="10">
    <link target-form="product" field="Id"/>
    <column label="Count" type="select" field="nCount" key="Id"
      record="Combo" valuelist="Value" displaylist="DisplayValue" />
    <column label="Brand" field="Brand"/>
    <column label="Model" field="Model"/>
    <column label="Price" field="Price"/>
  </table>
  <actions target-activity="review">
    <submit name="bTable"> Add to shopping cart </submit>
    <back/>
  </actions>
</form>

```

Fig. A.4 Using the table element of the form fields

## <fieldtable>

A <fieldtable> element allows the creation of a formatted table of entry fields. This element is used in the following manner:

```

<fieldtable>
  <heading> Section heading ... </heading>
  <row>
    <input> or <field>
    <input> or <field>
    ...
  </row>
  ...
</fieldtable>

```

Refer to page A-27 for a description of the attributes that can be used with the <input> element.

The following attributes can be specified within the <input> or <field> elements in a row:

Attribute	Description
colspan=N	<p>Normally an input field fills out two columns in a table: a column for its label, and a column for the field. However, you can use colspan to specify that the field should take up both columns. For example:</p> <pre>&lt;input type="textarea" field="description" colspan="2" ...&gt;</pre> <p>The field above is given no label and is defined to span two columns. Therefore, the text area takes up both the label and entry columns in a table. Typical values for colspan are 2 or 4.</p>
rowspan=N	Allows a field to span more than one row in height. This is also typically used with textarea fields in a fieldtable.

The page shown in Figure A.5 is an example of the kind of page you can create using the <fieldtable> element.

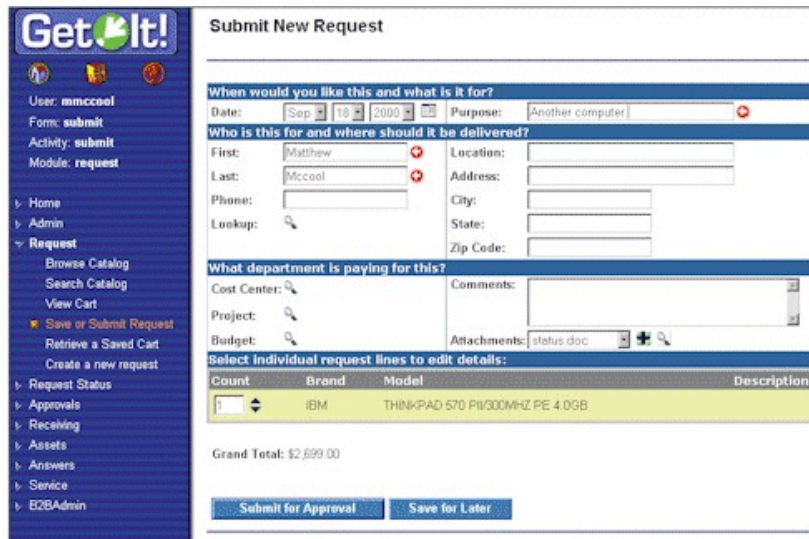


Fig. A.5 The <fieldtable> tag in use.

## <action>

The <action> element contains actions that a user may take when viewing the form. These are typically displayed as buttons or links that submit the contents of the form or send the user to another form.

The element may contain several attributes and nested elements. Consider the following example which is referenced by the descriptions of these attributes and elements below:

```
<actions target-activity="review">
  <submit> Add to shopping cart" </submit>
  <submit name="Remove"> Remove from cart </submit>
  <link target-form="help"> Help </link>
  <back/>
</actions>
```

Attribute	Description
TARGET	Defines the destination where the user is taken when the current form is submitted. Currently, each form may only have one submit destination. In the sample above, the TARGET for the actions is the <i>review</i> activity of the current module.
<submit>	<p>Defines a submit button for a form. In the example code above, the first submit entry displays a button with the caption <i>Add to shopping cart</i>. Clicking the button sends you to the form's action target (the <i>review</i> activity). Any data entered in the form is sent along to the target form and will be available to the target form's onload script.</p> <p>Forms typically have one submit button. However, forms with more than one submit button can differentiate between them using the optional name attribute.</p> <p>For example, notice the second submit button. It also sends the user to the form's target destination (the <i>review</i> activity). However, the script of the target form can distinguish that it was invoked with the <i>Remove from cart</i> button because the button's name is sent along with the form. The script can check for this as follows:</p> <pre>if ( msg.get( "Remove" ) != "" ) // form called with the "Remove" button ...</pre>
<link>	Link actions are displayed by the weblication just like any submit button. However, a link button offers a way to sent the user to any arbitrary TARGET destination. However, when a link is used, the form's data is not submitted to the target.
<back>	Creates a button that takes the user to the previous form.
<home>	Creates a button that takes the user to the home menu.

The screenshot shows a web application interface with a sidebar menu on the left and a main content area. The sidebar menu includes items like 'Home', 'Admin', 'Request', 'Browse Catalog', 'Search Catalog', 'View Cart', 'Retrieve a Saved Cart', 'Create a new request', 'Request Status', 'Approvals', 'Receiving', 'Assets', 'Answers', 'Service', and 'B2BAdmin'. The main content area displays search results for 'IBM' laptops, with columns for 'Count', 'Brand', 'Model', and 'Price'. A code window is overlaid on the right, showing the following HTML code:

```

<form name="catalog" onload="procure.getCatalog">
  <redirect target-form="catalognone" condition="catalognone"/>
  <title> $$$(Title) </title>
  <instructions>
    Here are the items found in this category. You may click on any one to
    see a detailed description, or you may simply enter a count to add items
    to your request.
  </instructions>
  <table record="Product" rows="10">
    <link target-form="product" field="Id"/>
    <column label="Count" type="select" field="nCount" key="Id"
      record="Combo" valuelist="Value" displaylist="DisplayValue" />
    <column label="Brand" field="Brand"/>
    <column label="Model" field="Model"/>
    <column label="Price" field="Price"/>
  </table>
  <actions target-activity="review">
    <submit name="bTable"> Add to shopping cart </submit>
    <back/>
  </actions>
</form>

```

Fig. A.6 Using the <action> tag

## TARGET

Various weblication elements support a set of TARGET attributes that are translated into links to a browser destination. One of the powerful concepts in a weblication is its ability to make navigation between pages easy without requiring the developer to hard code actual destination page names.

The goal behind the target's design is to encapsulate the contents of each module and activity, reducing interdependencies. Therefore, the targets listed in the following table allow a developer to say something like "take me from the current activity to some other activity in this module." This is done without specifically listing the target form name, thus reducing dependencies which would make a weblication harder to maintain as modules and activities are added or rearranged.

The following are possible TARGET attributes:

Attribute	Description
target-form	Leads to a named form. This target is used for navigation within the current activity. That is, the target form must be in the current activity.
target-activity	Leads to the first form of the named activity. This target is used for navigation within activities of the current module. That is, the target activity must be in the current module.
target-module	Links to the first form of the first activity in the named module.
target-url	Links to any URL. Anything that could be used in an HTTP href tag can appear here.
target-script	Executes a client-side script when the button is pushed.
target-field	<p>Sometimes the target is not known until run time. This attribute causes the weblication to look for an input document field that contains a target URL. For example:</p> <pre data-bbox="396 947 1198 974">&lt;link target-field="VendorURL"&gt; More information &lt;/link&gt;</pre> <p>The target above is evaluated at run time by retrieving the VendorURL from the form's input document.</p>
param	<p>This attribute can accompany any of the target attributes mentioned above. It defines additional parameters that should be sent to the target form. For example:</p> <pre data-bbox="396 1184 1227 1241">&lt;link target-form="catalog" param="Certification=Desktop"&gt; Desktop Computers &lt;/link&gt;</pre> <p>The link above passes a parameter named Certification with a value of <i>Desktop</i> to the target catalog form.</p>

## TEXT

Various Weblication elements support the display of arbitrary text. For example, form instructions are specified by the `<instructions>` element with some embedded text:

```
<instructions>Press button with mouse</instructions>
```

However, wherever an element is documented to support `TEXT`, you can enter more than just plain words. The text can contain embedded HTML mark-up elements, and it may also contain references to values in the form's input document. For instance:

```
<instructions>Press button with mouse. <br/>
If nothing happens <b>repeat until it works!!</b>
</instructions>
```

The instructions above have embedded HTML tags `<br/>`, `<b>`, and `</b>`. Embedded HTML must be XML compliant. This means that each starting HTML tag should have an ending tag (e.g., `<b> ... </b>`) or use the XML shorthand for the tag (e.g., `<br/>` rather than `<br>`). Attributes inside HTML elements also must be quoted (e.g., `<a href="x.htm">` rather than `<a href=x.htm>`).

In addition, you can embed field values in text. For example:

```
<instructions>Hello $$ (UserName),
How are you doing?
</instructions>
```

The `$(X)` syntax is used to extract a field from the form's input document.

## \$(X)

The `$(X)` element is used to extract information from a field in the form's input document. It embeds field values in text. For example:

```
<instructions>Hello $$ (UserName),
How are you doing?
</instructions>
```

This example will display the value in the `UserName` field within the form instructions.

Within the HTML contents, you can use `$(X)` expressions to include values of fields in the form's input document.



## <menu>

The <menu> element creates a menu of links in a form. For example, the request module uses a menu to show catalog categories. The <menu> element can accept a series of <links>. This is supported if a record attribute is not specified for the menu. When a record attribute is specified it behaves similar to the <table> element. This means that it accepts a rows=10 attribute so that when there are more than ten items you can insert both Next and Previous buttons on the bottom of the page.

```
<menu record="{MessageElement}" rows="{max-rows-displayed}"
  image="{field-with-image-path}"
  label="{field-with-display-string}">

<link target-form="{target-form}" field="{field-with-ID-key}"
  content="{optional-context-value}"/>
</menu>
```

OR

```
<menu record="Category" rows="10" image="ImageName" label="Name">
<link target-form="subcategory" field="Id"/>
</menu>
```

If this is implemented as a table then it will appear as in the following.

```
<table record="Category" rows="10">
<link target--form="subcategory" field="Id"/>
<column field="ImageName" type="image"/>
<column field="Name"/>
</table>
```

Attribute	Description
<link>	Defines an item in the menu. Each <menu> tag should have one or more embedded <link> tags. Link attributes are described in the following table.

## Link Attributes

Attributes	Description
<code>&lt;link TARGET&gt;</code>	Defines the destination target of the link.
<code>&lt;link image=X&gt;</code>	An image URL to use for the menu link.
<code>&lt;link window="true"&gt;</code>	If this attribute is set, the target of the link is displayed in a separate browser window.
<code>&lt;link&gt; TEXT &lt;/link&gt;</code>	The text used in the link.

Note: `<link>` elements may also appear inside a `<fields>` collection.

## `<table>`

The `<table>` element provides a concise way to create tables in the form. This tag is specialized in generating tables that are populated with XML documents obtained from database queries. The following attributes and embedded elements are supported:

Attribute	Description
record	<p>This attribute identifies the specific record the table is designed to display. This record type is found in the form's input XML document. For instance, consider the following document:</p> <pre>&lt;recordlist&gt;   &lt;Product&gt;     &lt;Brand&gt; X &lt;/Brand&gt;     &lt;Price&gt; 1 &lt;/Price&gt;     &lt;ProductId&gt; 1356 &lt;/ProductId&gt;     &lt;nCount&gt; 1 &lt;/nCount&gt;   &lt;/Product&gt;   ... &lt;/recordlist&gt;</pre> <p>To display a table with a list of products, the <i>record</i> attribute is set to <code>Product</code>. (This sample XML is used in the examples below.)</p>

Attribute	Description
rows	<p>The maximum number of rows to display in the table. If the query result set for the table is larger than this number of rows, the table automatically displays “Next” and “Previous.” If this attribute is not specified, the table is made as large as needed to display all rows in the record set.</p>
<p>&lt;link TARGET field=X&gt;</p> <pre>&lt;link target-form="details" field="ProductId" target="detail"/&gt;</pre>	<p>Table element used to make the rows in a table into links to another form. For example, a catalog table has rows that when clicked display each product's detail. This element takes two attributes. The <code>TARGET</code> attribute determines where the link is to take the user. The <code>field</code> attribute is used as a parameter passed to the target page. It is intended to uniquely identify the row. For example:</p> <p>The link above is an example from a <i>catalog</i> table. It creates row links that take the user to the <code>details</code> form. In addition, the <code>ProductId</code> field of the row's record is sent along as a parameter to the target form. This way, the target form can be initialized to display the correct details. The <code>detail</code> field is for inserting a URL.</p>
<column>	<p>Each table should have one or more columns. Columns can be used to display a variety of things, including static text, pictures, and entry fields.</p>
<submit>	<p>Allows the transmission of data when the relevant button is activated. When set to true, the form's contents are submitted to the target of the link. User global settings are updated. Other changes may be saved.</p>
<submit target-X>	<p>This supplies a target-X in a &lt;submit&gt; element. For instance,</p> <pre>&lt;actions target-form="someDefault" &lt;submit&gt;Save&lt;/submit&gt; &lt;submit target-activity="review"&gt; Review Before Saving&lt;/submit&gt; &lt;/actions&gt;</pre>

## Column Types

Type	Description
Static Text	<p>The default content of a column is static text. The <code>label</code> attribute specifies the column's heading. The <code>field</code> attribute defines the record field to display in the column. For example,</p> <pre>&lt;column label=X field=X&gt;</pre>
Entry Field	<p>These columns display a text <i>entry</i> field where the user can type in some text. The <code>label</code> and <code>field</code> attributes serve the same purpose as those of static text columns. The <code>key</code> attribute should contain the name of a record field that uniquely identifies each row in the column.</p> <pre>&lt;column type="entry" label=X field=X key=X size=X&gt;</pre> <p>The optional <code>size</code> attribute defines how wide to make the entry fields (in number of characters). For example:</p> <pre>&lt;column label="Count" field="nCount" type="entry" key="ProductId" size="3"/&gt;</pre> <p>This is a column in a product catalog table that lets users enter a count with the number of products to order. The column displays the <code>nCount</code> field from the table's record. The column uses each row's <code>ProductId</code> to uniquely identify the entry fields. This is necessary so that scripts that interpret the input entered in a table can match up table entries with an application or item context.</p>

Type	Description
Select Box (populated dynamically)	<pre data-bbox="634 367 1242 420">&lt;column type="select" label=X field=X key=X record=X valuelist=X displaylist=X &gt;</pre> <p data-bbox="634 430 1323 661">You can display a select box or combo-box in a column with a list of valid entry choices from which the user can choose. The choices are obtained dynamically from the form's input document. The attributes listed here work the same way as described for entry field columns. There are two additional attributes: <code>valuelist</code> and <code>displaylist</code>. These are used to specify the name of the record field containing the choices for the select box. For example:</p> <pre data-bbox="397 682 1161 766">&lt;column label="Project" type="select" field="ProductProject" record="Project" valuelist="Id" displaylist="Title"/&gt;</pre> <p data-bbox="634 787 1291 871">This column displays select boxes with a list of <code>Project</code> choices. For this to work, the form's input document should include <code>Project</code> entries such as:</p> <pre data-bbox="634 903 1193 1102">&lt;recordlist&gt;   &lt;Project&gt;     &lt;Id&gt; 123 &lt;/Id&gt;     &lt;Title&gt; New Development 99 &lt;/Title&gt;   &lt;/Project&gt;   ... &lt;/recordlist&gt;</pre> <p data-bbox="634 1113 1323 1249">The selected choice is associated with the <code>ProductProject</code> field of the table's <code>Product</code> record. The choices displayed are determined by the <code>Title</code> field on the <code>Project</code> records, and the actual values submitted for each choice are those of the <code>Id</code> field in the <code>Project</code> records.</p>
Select Box (populated statically)	<pre data-bbox="634 1281 1274 1312">&lt;column type="select" label=X field=X key=X&gt;</pre> <p data-bbox="634 1323 1291 1396">Columns can display select boxes with statically defined choices. The label, field, and key attributes are the same as those defined above. Here is an example:</p> <pre data-bbox="397 1428 1193 1543">&lt;column label="Approval" type="select" field="Approve"&gt;   &lt;option value="1"&gt; Yes &lt;/choice&gt;   &lt;option value="0"&gt; No &lt;/choice&gt; &lt;/column&gt;</pre> <p data-bbox="634 1564 1226 1585">This column displays <code>Approval</code> choices of <i>Yes</i> and <i>No</i>.</p>
Lookup	Opens a searchable, pop-up window.

Type	Description
Image	<pre data-bbox="776 365 1122 390">&lt;column label=X field=X&gt;</pre> <p data-bbox="776 401 1455 459">This column displays an image. The image's URL is obtained from the specified field in the table's input record.</p>
Radio Button	<pre data-bbox="776 483 1422 541">&lt;column label="Current employee" type="radio" field="Field1"/&gt;</pre> <p data-bbox="776 552 1430 636">The <code>field</code> attribute specifies the record field in the form's input document that should be used to populate the field's value. See “&lt;columns&gt;” on page A-23 for more information.</p>
<pre data-bbox="537 659 716 718">&lt;link TARGET field=X&gt;</pre>	<p data-bbox="776 659 1463 852">Table element used to make the rows in a table into links to another form. For example, a catalog table has rows that when clicked display each product's detail. This element takes two attributes. The <code>TARGET</code> attribute determines where the link is to take the user. The <code>field</code> attribute is used as a parameter passed to the target page. It is intended to uniquely identify the row.</p>
Label	<p data-bbox="776 875 976 903">The column label.</p>
Image	<p data-bbox="776 926 1450 984">This is a static image file name, which can be provided as an alternative to “<code>field</code>”</p>
Balloon	<p data-bbox="776 1005 1463 1064">Used only when <code>target-X</code> is defined. This specifies balloon help for the image link</p>

## <columns>

It is possible to split a weblication form into columns, as shown in the following:

```
<columns>
  <column>
    Weblication elements for this column ....
  </column>
  <column>
    Weblication elements for this column
  </column>
</columns>
```

The Get.It! Base Portal is an example of the use of the <columns> element.

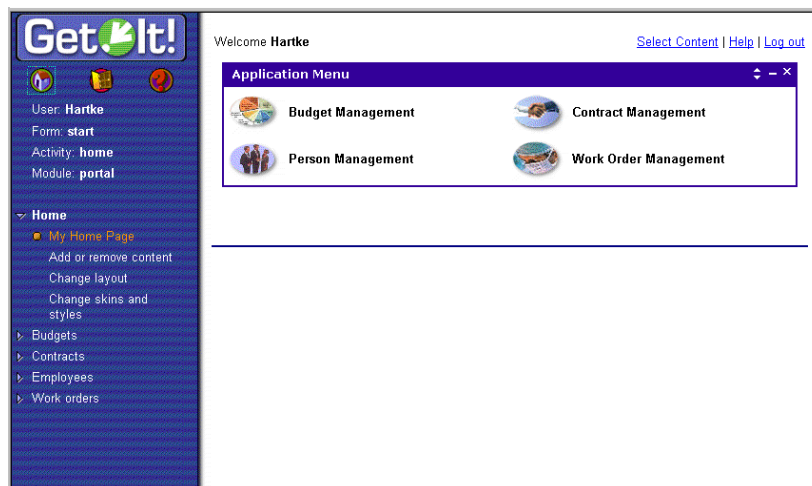


Fig. A.7 The <columns> tag in use.

## <listbox>

The <listbox> element is used to display a table in a form. However, unlike the <table> element, listbox tables contain rows that are statically defined in the weblication.

The following attributes and nested elements are supported:

Attribute	Description
<code>&lt;heading&gt;</code>	Defines the listbox headings. This element should be followed by one or more nested <code>&lt;field&gt;</code> elements that describe each heading.
<code>&lt;row&gt;</code>	Defines a row in a listbox. This should be followed by one or more nested <code>&lt;field&gt;</code> elements that are part of the row.
<code>&lt;field image=X field=X&gt; Text &lt;/field&gt;</code>	A single element that may be placed in a heading or row cell. The optional <code>image</code> attribute may point to an image URL to display for the field. The <code>field</code> attribute may point to a field from the form's input document. Otherwise, the field displays its text contents.
<code>&lt;input&gt;</code>	You can enter any valid input element. See “ <code>&lt;input&gt;</code> ” on page A-26 for types of input elements.

Here is a sample listbox that results in a small table with phone numbers to call to contact support or sales.

```
<listbox>
  <heading>
    <field> Name </field>
    <field> Phone </field>
  <heading>
  <row>
    <row>
      <field> Customer Support </field>
      <field> 123-4567 </field>
    </row>
    <field> Sales </field>
    <field> 765-4321 </field>
  </row>
</listbox>
```



## <field>

The <field> element creates a static text or image field on a form. These elements must be placed within the <fields> parent element. The following attributes are supported:

Attribute	Description
label	Specifies the label for the field.
field	Used to determine the value of the field. This attribute specifies the record field in the form's input document that should be used to populate the value text field.
type	Specifies the type of data expected for this field. The default is text type data. If the type is set to <i>image</i> , the field's value is assumed to be a URL to an image.
<link TARGET field=X>	Table element used to make the rows in a table into links to another form. For example, a catalog table has rows that when clicked display each product's detail. This element takes two attributes. The <i>TARGET</i> attribute determines where the link is to take the user. The <i>field</i> attribute is used as a parameter passed to the target page. It is intended to uniquely identify the row.
<submit>	Allows the transmission of data upon pressing the relevant button. When set to <i>true</i> the form's contents are submitted to the target of the link. User globals are updated. Other changes may be saved.
<submit target-X>	This supplies a target-X in a <submit> element. For instance, <pre>&lt;actions target-form="someDefault"   &lt;submit&gt;Save&lt;/submit&gt;   &lt;submit target-activity="review"&gt;Review Before   Saving&lt;/submit&gt; &lt;/actions&gt;</pre>
<field>TEXT </field>	The value displayed in the field, displayed if no <i>field</i> attribute is already defined.

Using the <submit> element will depend upon your data transmission destination. When set to *true*, the form's contents are submitted to the target of the link. The <submit> tag sends data to the default destination. The <submit target-x> tag sends data to a defined destination.

## <input>

The <input> element is used to create a variety of entry fields. Each type of field is described in its own section. Here we define a list of attributes shared by all input fields:

Attribute	Description
label	Specifies the label for the input field.
field	Used to determine the value of the field. This attribute specifies the record field in the form's input document that should be used to populate the field's value.
type	Specifies the type of field. Examples include submit, spinner, password, and composite. Additional examples can be found in the ... \apps\service\weblications\servicelookup.xml file.
class	Denotes the value of input, such as Action Button.
value	Normally the value is taken from the field attribute to extract a field value from the form's input document. However, if a value is specified explicitly, it will be used when displaying the form.
scope	Normally data entered in fields is sent along to the server and then forgotten. However, fields can be given a longer term scope, making their values available beyond a single submit. Right now, only one scope is supported: <i>scope="user"</i> . When set, the values entered in a field are stored in the current user session scope. When the form is displayed again, or when other forms display <input> elements for a field with user scope, the last value entered is always remembered.
required	If <i>true</i> , the field is flagged as being required. The form will not be submitted unless the user provides data for the field.

### **<input> (Text Field)**

The <input> element is used to create a variety of entry fields. Below are the attributes used to define a single line entry field.

<b>Attributes</b>	<b>Description</b>
label	Specifies the label for the input field.
field	Used to determine the value of the field. This attribute specifies the record field in the form's input document that should be used to populate the field's value.
type="text"	To create text entry fields, type should be set to "text". This is the default value.
value	Normally the value is taken from the field attribute to extract a field value from the form's input document. However, if a value is specified explicitly, it will be used when displaying the form.
size	Defines the width of the text entry field in characters.
readonly="true"	Removes ability to edit. If this attribute is set, the text area will not be editable. This works only with the Internet Explorer browser.

### **<input> (Text Area)**

The <input> element is used to create a variety of entry fields. Below are the attributes used to define a multiline entry text area.

<b>Attribute</b>	<b>Description</b>
label	Specifies the label for the input field.
field	Used to determine the value of the field. This attribute specifies the record field in the form's input document that should be used to populate the field's value.
type="textarea"	To create multiline text entry fields, type should be set to "textarea".
value	Normally the value is taken from the field attribute to extract a field value from the form's input document. However, if a value is specified explicitly, it will be used when displaying the form.

Attribute	Description
rows	Number of rows in the textarea.
cols	Width of the textarea in number of characters.
readonly="true"	Removes ability to edit. If this attribute is set, the text area will not be editable. This works only with the Internet Explorer browser.

### **<input> (Combo/Selection Box)**

The <input> element is used to create a variety of entry fields. Below are the attributes used to define a select box.

Attribute	Description
label	Specifies the label for the select box.
field	Used to determine the value of the field. This attribute specifies the record field in the form's input document that should be used to populate the field's value.
type="select"	To create text entry fields, type should be set to "text". This is the default value.
record	Specifies the record in the form's input document that contains the list of display and value lists.
valuelist	Specifies the field in the select box record that contains the values for each of the select choices.
displaylist	Specifies the field in the select box record that contains the labels for each of the select choices.

For example, consider:

```
<input label="Budget" type="select" field="RequestBudget"
record="Budget" valuelist="BudgetId" displaylist="Name"/>
```

This generates a combo box with a label of *Budget*. The choices in the combo box are populated by looking at records of type *Budget*. The current selection is obtained from the RequestField field in the form's input document.

You can also define selection boxes with static choices (instead of populating the choices from a database record). Here is a sample:

```
<input type="select" label="Approval" field="Approve">
  <option value="1"> Yes </option>
  <option value="0"> No </option>
</input>
```

### `<input>` (check box)

The `<input>` element is used to create a variety of entry fields. Below are the attributes used to define a check box:

Attribute	Description
label	Specifies the label for the check box.
field	Used to determine the value of the field. This attribute specifies the record field in the form's input document that should be used to populate the field's value.
type="checkbox"	To create check box text entry fields, type should be set to "checkbox".
value	Specifies the value that the check box field should have when the check box is selected.
valueoff	When this attribute is specified two radio buttons are generated. The first displays the value ("value=<text>") when the check box is selected. The second displays the value when the check box is not selected. This form is also used for selecting one of two items. When valueoff is used the check box description is ignored.
<code>&lt;checkbox&gt;</code> Text <code>&lt;/checkbox&gt;</code>	The check box description.

For example:

```
<input type="checkbox" label="Remember me" field="remember" value="true"> Enable automatic login </input>
```

This generates a check box associated with the form's *remember* field. If *remember* is set to *true* upon building the form, the check box will appear selected. If the user selects the check box, the *remember* field is posted as *true* with the form.

### **<input> (Radio)**

The `<input>` element is used to create a variety of entry fields. Below are the attributes used to define a radio button:

Attribute	Description
label	Specifies the label for the radio button.
field	Used to determine the value of the field. This attribute specifies the record field in the form's input document that should be used to populate the field's value.
type="radio"	To create radio buttons, type should be set to "radio".
value	Specifies the value that the radio button should have when the radio is selected.
<code>&lt;radio&gt;</code> Text <code>&lt;/radio&gt;</code>	The radio button description.

For example:

```
<input type="radio" label="Remember me" field="remember"
value="true"> Enable automatic login </input>
```

This generates a radio button associated with the form's `remember` field. If `remember` is set to `true` upon building the form, the radio button will appear selected. If the user selects the radio button the `remember` field is posted as `true` with the form.

### **<input> (Hidden)**

Sometimes it is useful to create a hidden field in a form whose only purpose is to add some data that should be posted when the form's contents are sent back to the server. Below are the attributes used to define such a hidden field.

Attribute	Description
field	Used to determine the value of the field. This attribute specifies the record field in the form's input document that should be used to populate the field's value.
type="hidden"	To create text entry fields, type should be set to <code>text</code> . This is the default value.
value	Normally the value is taken from the <code>field</code> attribute to extract a field value from the form's input document. However, if a value is specified explicitly, it will be used when displaying the form.

### **<input> (Date)**

The <input> element can be used to create a Date entry field. The field contains drop-down lists for day, month, and year. A calendar button can be pressed to display a calendar that can be used to select a specific day. Below are attributes to define a single line entry field.

<b>Attribute</b>	<b>Description</b>
label	This optional attribute specifies the label for the <input> field.
field	Used to determine the value of the field. This attribute specifies the record field in the form's input document that should be used to populate the field's value.
type="date"	To create date entry fields.
value	This is an optional attribute. Normally the value is obtained from the field attribute to extract a field value from the form's input document.
startyear	Number representing the last year in the drop-down list. This value can be a positive or negative number, whereby the given number is added to or subtracted from the current year. If this is omitted the default value will be 20 years prior to the current year.
endyear	Number representing the last year in the drop-down list. This value can be a positive or negative number, whereby the given number is added to or subtracted from the current year. If this is omitted the default value will be 20 years prior to the current year.

### **<input> (Money)**

The <input> element can be used to create a Money entry field. The field contains drop-down lists displaying currency names as defined in the Currency property of the archway.ini file..

<b>Attribute</b>	<b>Description</b>
label	This optional attribute specifies the label for the input field.
field	Used to determine the value of the field. This attribute specifies the record field in the form's input document that should be used to populate the field's value.

Attribute	Description
type="money"	To create money entry fields. Specifies the type of data expected for this field. The default is "text" type data. If the type is set to "image," the field's value is assumed to be a URL to an image. If the type is "date" or "money," the value of the field is formatted to user's preferred locale.
value	Normally the value is taken from the field attribute to extract a field value from the form's input document. However, if a value is specified explicitly, it will be used when displaying the form.

## <link>

The <link> element creates a hyperlink field in a form. For example, the request module uses a menu to show catalog categories. The following attributes and tags are supported in a menu:

Attribute	Description
<link <i>TARGET</i> >	Defines the destination target of the link. See "TARGET" on page A-14 for details about the TARGET attribute.
<link <i>image=X</i> >	An image URL to use for the menu link.
<link <i>window="true"</i> >	If this attribute is set, the target of the link is displayed in a separate browser window.
<link> <i>TEXT</i> </link>	The text used in the link.



## Reusable Form Components (Subforms)

It is common for a weblication to have several forms that need to display a common set of components. To address this need, weblications support the definition of reusable component blocks, or subforms, that can be included wherever necessary. Reusable components are defined at the beginning of a module definition as shown in this example:

```
<module name="login">
...

    <components>
    <!-- Basic "login" screen -->
    <component name="login">
    <fields>
    <input type="text" label="User Name" field="loginuser"
    record="Employee" valuelist="Name" displaylist="Name"
    required="true"/>
    <input type="password" label="Password"
    field="loginpass"/>
    <break/>
    <input type="checkbox" label="Remember me"
    field="remember" value="true"> Enable automatic login
    </input>
    </fields>
    </component>
...
    </components>
```

This example defines a reusable subform named `login`. This block can then be inserted in any form as shown below:

```
<!-- This form lets the user logon -->
<form name="start" onload="login.init">
<title> Welcome </title>
<instructions>
Please enter your user name and password to enter the
Get,It! site
</instructions>
<component name="login"/>
<actions target-url="appmenu.jsp">
<login> Login </login>
<link target-activity="register"> Register </link>
</actions>
</form>
```

The contents of a `<component>` definition can be anything that is a valid form component, including tables, listboxes, and fields, etc. Forms can use any number of embedded component blocks, and they may include other form components as well.

Note: Components referenced in a form must be declared in the form's module. This makes most blocks reusable across all forms in a module. To define components that can be reused across modules, you should define the components in their own files and use `<import>` statements to add them at the top of a `<module>` definition.

A component definition can include an `onload` attribute. This optional attribute names a script that should be invoked to provide data used by the component code. If this is provided, the document returned by the `onload` script is used for fields and `$$()` expressions in the component instead of using the form's input document.

## Additional Tags

### <html>

The `<html>` tag allows the insertion of any arbitrary HTML code. This should be used with care and only when the use of existing Weblication components is not sufficient. Within the HTML contents, you can use `$$ (X)` expressions to include values of fields in the form's input document.

The following attributes are supported:

Attribute	Description
onload	Names a script that should be invoked to provide data used by the HTML code. If this is provided, the document returned by the onload script is used in <code>\$\$ (X)</code> expressions instead of using the form's input document.
param	When a script is defined with the onload attribute, it can define parameters that are included within the request message sent to the script. The string value should be constructed as <code>key=value</code> pairs with multiple parameters separated by ampersands (&). Because an ampersand is a special character in XML, you should use <code>&amp;(_amp)</code> . The plus sign (+) is converted into a space character. Special characters can be encoded as a three character string beginning with the percent sign followed by a two-digit hexadecimal representation of the lower 8-bits of the character. For example: <pre>&lt;application onload="login.login" param="p1=yada\$\$(_amp)p2=what+ever"&gt;</pre>

# Additional Functionality

## Searchable Popup Window

Searchable Popup Windows (Lookup Window) are used for searching entries in a form. Implementing the Lookup field allows you to reuse it throughout the webapplication. To use this function you must add a `lookup` input field to any form. The following example illustrates an Employee Lookup:

```
<input label="User"
      field="UserId"
      displayfield="UserFullName"
      type="lookup"
      readonly="true"
      balloon="Change User"
      target-module="commonlookup"
      target-activity="employee" />
```

The `label` is the label or name of the field. `Field` is the hidden field that is to be returned to the server. The `displayfield` field is an optional display field name. The `type` field is the lookup type. The `readonly` field controls the edit/read function. The `balloon` field is for lookup help when the cursor is placed over an icon. The `target-module` field is for generic searching. The `target-activity` field is for searching activity.

### Defining New Popup Windows

The first step to defining a new searchable popup window is to add an activity to `commonlookup.xml`., unless the lookup is module-specific whereby the activity can be added elsewhere. Searching activities take two forms. The first is to display search results. The second is to process the results. The following is an example of an Employee search:

```
<activity name="employee" menu="false">
  <forms>

    <!-- Basic search and result screen-->
    <form name="start" onload="lookup.getEmployees"
          frame="false" sidebar="false">
      <table record="Employee" rows="10">
        <link target-form="process" field="Id"/>
        <column label="Last" field="Name"/>
        <column label="First" field="FirstName"/>
      </table>
    </form>
```

Once the `lookup.getEmployees` function is in the code the `getX` and `selectX` scripts must be implemented. For generic activities this occurs in `common/js/script/lookup.js`. The following is an example of this script for the Employee search:

```
function getEmployees( msg )
{
    return archway.sendDocQuery( "ac", "Employee", msg );
}
```

The `selectX()` script processes and returns both the selection field ID and the selection display field.

```
function selectEmployee( msg)
{
    var msgResponse = new Message();
    var strId = msg.get( "Id" );

    // Return selected ID as the searchable field
    var strField = user.get ( "_lookupfield" );
    msgResponse.set( strField, strId );

    // Return employee's Full Name as the display field
    var strDisplayField = user.get ( "_lookupdisplay" );
    var msgEmp = archway.sendDocQuery( "ac",
        "SELECT FirstName,LastName,FullName FROM Profile WHERE Id=" +
        strId, 0, -1 );
    msgResponse.add( strDisplayField, msgEmp.get( "FullName" ) );
}
```

This script returns the selected Employee ID as the Lookup Field and then returns the Employee Full Name field as the LookupDisplay field. These values update all fields in the calling browser window. The lookup field is a hidden field returned to the server when a form is submitted. The Lookup Display field is a text or entry field to display a user-friendly version of the selection.



# Appendix B

## Document Schema DTD

---

This chapter is a specification reference for defining document schemas. See Chapter 3, "Introduction to Document Schemas," for additional information, including background and a complete example of a schema.

This chapter addresses:

- The Document Schema file template
- Schema attribute tags
- ServiceCenter-specific attributes

### Document Schema Files

Define each document in its own schema file. The name of the schema file must match the document's name.

The structure of a schema file must fit the following template:

```
<?xml version="1.0"?>

//filename.xml
<schema>

//Generic Schema Definitions
<documents name="base">
  <document name="XXX">
    ...
  </document>
</documents>

//derivations; you may have several of these sections (for //
servicecenter, assetcenter, user derivations, and so on)
<documents name="DERIVED_TARGET">
  <document name="XXX">
    ...
  </document>
</documents>
</schema>
```

## Schema Attributes

The following describes all applicable document schema attributes.

### <document>

This tag defines a document. The document may contain nested <attribute>, <collection>, and <document> tags.

A schema file should only define a single top-level document and its derivations.

The <document> tag can contain the following attributes:

Attribute	Description
name <i>(required)</i>	Uniquely identifies the document being defined. The name of the schema file must match the document's name.
table	Defines the primary database table associated with this document. While not all document fields have to come from this table, the Primary Key (ID) for the document must reside in this table. This attribute is normally only defined by derived document schemas. That is, the derivations for ServiceCenter, AssetCenter, and so forth, must define where to get the document.

### Nested <document> Tags

Top-level documents may include one or more nested documents. These children (or nested) documents may be defined in two ways.

The first way is to define nested documents in-place. For instance:

```
<document name="TopLevel">
<document name="Child">
  <attribute name="x">
    ...
  </document>
</document>
```



More typically, nested documents will reference a document defined in its own schema file. For instance:

```
<document name="Product">
  <document name="Vendor"/>
</document>
```

Here the **Product** document contains a nested **Vendor** description. But because the nested **Vendor** document is defined to be empty, we assume that its definition should be looked up in the proper schema file (in other words, `vendor.xml`).

You can find nested documents by doing a search of the following type:

```
SELECT <Fields> FROM <NestedDocTable>
WHERE <joinfield>=<joinvalue>
```

The `joinfield` and `joinvalue` settings come from the schema's `<collection>` entry. For example:

```
<collection name="Assets">
  <document name="Asset" joinfield="lUserId" joinvalue="Id"/>
</collection>
```

The entry above defines a nested collection of assets that could appear within a parent "User" document. The `joinfield` and `joinvalue` specify that we want to find entries in the asset table whose "lUserId" field matches the parent table's ID field. (The parent's `joinvalue` is specified as a logical document field name).

If no "joinfield" or "joinvalue" are defined, the default is to use the parent table's ID field name as the join field.

## **<attribute>**

The `<attribute>` tag defines a field within a document. This tag can only appear within a `<document>` tag. All documents must define at least one mandatory attribute:

```
<attribute name="Id">
```

This attribute defines the unique key for locating document instances.

The <attribute> tag can have the following XML attributes:

Attribute	Description
name <i>(required)</i>	Uniquely identifies an attribute within a document.
type <i>(optional)</i>	Identifies the type of the field being defined. Possible values are: id, string, number, date, url
field	<p>The name of the physical field to use in when building queries or updating the document table. This can be a simple name in the document's primary table, or it can be linked field name (AssetCenter only).</p> <pre data-bbox="776 730 1464 898">&lt;document name="Request" table="amRequest"&gt;   ...   &lt;attribute name="TotalCost" field="mTotalCost"/&gt;   &lt;attribute name="Budget" field="Budget.Name"/&gt;   ... &lt;/document&gt;</pre> <p><b>TotalCost</b> is associated with the <i>mTotalCost</i> field in amRequest. <b>Budget</b> is associated with the linked field <i>Budget.Name</i>.</p>
link, linktable, linkfield, linktype, linkkey	<p>These attributes work together to define how a field from a linked table should be accessed. Consider the following attribute in the Request document definition for AssetCenter:</p> <pre data-bbox="776 1157 1383 1209">&lt;attribute name="Budget" field="Budget.Name" link="lBudgId" linktable="amBudget" linkfield="Name"/&gt;</pre> <p>Now consider a request to insert a Request document such as:</p> <pre data-bbox="776 1283 1268 1392">&lt;Request&gt;   &lt;Budget&gt; 1999 IS Budget &lt;/Budget&gt;   ... &lt;/Request&gt;</pre> <p>When the DocumentManager updates of inserts a Request document, the schema tells it to:</p> <ul data-bbox="800 1503 1464 1619" style="list-style-type: none"> <li>• search the linktable (amBudget) for an entry where the linkfield (Name) matches "1999 IS Budget".</li> <li>• use the link entry ID (lBudgId) to update the Request document table.</li> </ul>

## <collection>

The <collection> tag allows the nesting of collections inside a top level document. For example:

```
<document name="Request">
  ...
  <collection name="RequestLines">
    <document name="RequestLine"/>
  </collection>
</document>
```

A collection can only have one thing inside of it: a nested document.

This example shows a Request document with a nested collection of Request-Line documents.

Nested documents are found by doing a search of the following type:

```
SELECT <Fields> FROM <NestedDocTable> WHERE <joinfield>=<joinvalue>
```

The "joinfield" and "joinvalue" settings come from the schema's <collection> entry. For instance:

For instance, consider a list of assets owned by a user:

```
<collection name="Assets" joinfield="lUserId" joinvalue="Id">
```

The entry above defines a nested collection of assets that could appear within a parent "User" document. The joinfield and joinvalue specify that we want to find entries in the asset table whose "lUserId" field matches the parent table's Id field. (The parent's joinvalue is specified as a logical document field name).

If no "joinfield" or "joinvalue" are defined, the default is to use the parent table's Id field name as the join field.

## ServiceCenter-Specific Attributes

Several attributes have been defined specifically for supporting ServiceCenter derived schemas. These are necessary for the following reasons:

- Documents should not be inserted directly into the ServiceCenter database. Instead, they should be created and updated by related EventServices calls.
- The basic elements of the schema DTD assumes a relational organization of data. ServiceCenter's non-relational database introduces some requirements.

Consider the following example or a derived Problem schema where Service-Center specific attributes are shown in bold:

```
<document name="Problem" table="probsummary" insert="pmo"
update="pmu">

<attribute name="Id" field="number"/>

    <attribute name="OpenTime"    field="open.time"/>
    <attribute name="Status"      field="status"/>
    <attribute name="AssignedTo"  field="assignee.name"/>
    <attribute name="Priority"    field="priority.code"/>

    <attribute name="Description" field="brief.description"
        insert="$ax.field.name" update="_null"/>
    <attribute name="Updates"    field="update.action"/>
    <attribute name="Resolution" field="resolution"/>

</document>
```

The following attributes are used by SCDocManager, a derived DocManager class that is used by the SCAdapter:

Attribute	Description
insert	<p>This attribute ties a document to a specific input event. The attribute can be used in two ways.</p> <p>Within a &lt;document&gt; tag, the insert attribute names the event to use for inserting document instances.</p> <p>Within an &lt;attribute&gt; tag, the insert attribute names an event parameter name to use for a document field. If no insert attribute is defined, the default field setting is used instead.</p>
update	<p>This attribute ties a document to a specific update event. It can be used within &lt;document&gt; and &lt;attribute&gt; tags in the same way as insert.</p>

Note: A field, update, or insert setting with a value of `_null` tells the DocumentManager that the particular document element is not supported by the system.

# Appendix C

## JavaScript



---

This chapter contains JavaScript functions for a variety of processes.

### Script Polling Manager

There are several classes in Archway that can be used as utilities to facilitate workflow between two or more systems. The following is an overview of the polling package.

Script Polling is a function that establishes a repetitive routine. A scheduler initiates a routine at a specified time as opposed to every  $n$  seconds. For example, a scheduler can run a routine at midnight, every Sunday night, at the end of the month or quarter or every hour (meaning the top of the hour, not 60 minutes from the last run).

You can define Script Pollers in each package. At run time, Archway processes all `scriptpollers.ini` files in the registered packages.

### Initialization File Format

The format of the ScriptPollers initialization file is XML, located within the `...\getit\apps\common\` directory. The following is a sample file, specifying two scripts to run. Note the `vpollShowTime` script.

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<!--=====
Name:    ScriptPollers.ini
Specifies a collection of scripts to run at periodic intervals
(seconds) and a parameter to pass to the script.
=====-->
<pollers>
  <poller>
    <name>vpollPmoSco2Q</name>
    <interval>4</interval>
    <parm></parm>
```

```

</poller>
<poller>
  <name>vpollShowTime</name>
  <interval>1</interval>
  <parm></parm>
</poller>
</pollers>

```

### Writing A Polling Routine

To create a polling routine, write an FESI script and save it in the `...getit\apps\user\jscript` directory. Add the script name and polling interval to the `scriptpollers.ini` file in the `...getit\apps\common\` directory. You can perform a quick test by adding the following line of code to the `ArchwayDebug` class:

```
ScriptPollingManager.test( m_archway );
```

Put the same functionality that is in the `test()` function into a more mainstream class (as discussed above).

### Read History Array

This function requests the `UniversalBrowserRead` privilege to enable it to read the array elements of the `History` object.

```

function openHistoryWindow(){

//open a new window
var w=window.open("", "historyWindow",
"width=500,height=300,menubar,resizable");
var d=w.document;

//request a privilege
netscape.security.PrivilegeManager.enablePrivilege("
UniversalBrowserRead");

//output the browsing history as links in the new
for (var i=0;i<history.length;i++) {
d.write('<A TARGET="new" HREF="' + history[i] + '>');
d.write(history[i]);
d.writeIn('</A>');
}
d.close();

//return the new window
return.w;

```

```
//the privilege is automatically disable with function returns  
}
```

## Extract URL Argument

The following sample parses comma-separated name=value argument pairs from the URL query string. It stores the name=value pairs in properties of an object and returns that object.

```
//get arguments  
function getArgs() {  
    var args=new Object();  
  
    //get query string  
    var query=location.search.substring(1);  
  
    //break at comma  
    var pairs=query.split(",");  
  
    for(var i=0; i<pairs.length; i++) {  
  
        //look for "name=value"  
        var pos=pairs[i].indexOf('=');  
  
        //if not found, skip  
        if (pos==-1) continue;  
  
        //extract name  
        var argname=pairs[i].substring(0,pos);  
  
        //extract value  
        var value=pairs[i].substring(pos+1);  
  
        //store as property  
        args[argname]=unescape(value)  
    }  
}
```

You can also use the `getArgs()` function to parse optional animation parameters from the URL.

```
//get arguments  
var args=getArgs();  
  
//if arguments are defined  
if (args.x) x=parseInt(args.x);  
  
//...override default values  
if (args.y) y=parseInt(args.y);
```

```

if (args.w) w=parseInt(args.w);
if (args.h) h=parseInt(args.h);
if (args.dx) dx=parseInt (args.dx);
if (args.dy) dy=parseInt(args.dy);
if (args.interval) interval=parseInt(args.interval);

```

## Searchable Popup Window

Searchable Popup Windows (Lookup Window) are used for searching entries in a form. Implementing the Lookup field allows you to reuse it throughout the webapplication. To use this function you must add a lookup input field to any form. The following example illustrates an Employee Lookup.

```

<input label="User" field="UserId" displayfield="UserFullName"
type="lookup" readonly="true" balloon="Change User"
target-module="commonlookup" target-activity="employee"/>

```

The `label` is the label or name of the field. `Field` is the hidden field that is to be returned to the server. The `displayfield` field is an optional display field name. The `type` field is the lookup type. The `readonly` field controls the edit/read function. The `balloon` field is for lookup help when the cursor is placed over an icon. The `target-module` field is for generic searching. The `target-activity` field is for searching activity.

Once the `lookup.getEmployees` function is in the code, the `getX` and `selectX` scripts must be implemented. For generic activities this occurs in `common\jscript\lookup.js`. The following is an example of this script for the Employee search.

```

function getEmployees( msg )
{
return archway.sendDocQuery( "ac", "Employee",msg);
}

```

The `selectX()` script processes and returns both the selection field ID and the selection display field.

```

function selectEmployee( msg)
{
var msgResponse = new Message();
var strId = msg.get( "Id" );

// Return selected ID as the searchable field
var strField = user.get ( "_lookupfield" );
msgResponse.set( strField, strId );

// Return employee's Full Name as the display field
var strDisplayField = user.get ( "_lookupdisplay" );

```



```
var msgEmp = archway.sendDocQuery( "ac",
"SELECT FirstName,LastName,FullName FROM Profile WHERE Id=" +
strId, 0, -1 );
msgResponse.add( strDisplayField, msgEmp.get( "FullName" ));
```

This script returns the selected Employee ID as the Lookup Field and then returns the Employee Full Name field as the LookupDisplay field. These values update all fields in the calling browser window. The lookup field is a hidden field returned to the server when a form is submitted. The Lookup Display field is a text or entry field to display a user-friendly version of the selection.

## Passing External JavaScript

If you want to pass a JavaScript function to the `archway.ini` file that is not in the `...\getit\apps\` directory then you must define the following path.

```
derivedscriptpath=<path...>
```

Inserting this line will cause Archway to seek alternative paths for user-defined scripts. This also becomes the path that Archway uses to locate “derived” scripts that override standard out-of-box scripts. If you define this in the `archway.ini` file then the new path replaces the `...\getit\apps\user\jscript\` path. Original or out-of-the-box scripts reside in the same place.





# Index

## Symbols

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