Rate Plan Advisor Guide

Microsoft Windows 2000® Operating Systems
Sun Solaris Operating Environment™ Software
and the BEA WebLogic® Server

eaSuite

V1.0
Document ID: RPGN-04-1.0-01
Date Published: 3.1.04

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Printed in the USA.

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Preface

About edocs Telecommunications Applications Suite™

edocs' Telecommunications Applications Suite includes every application that communications service providers need to enable a complete online customer-self service experience at their website. The suite includes software applications for:

- e-Billing and Payment
- Service and Order Management
- Point-of-Sale
- Reporting and Analytics
- Rate Plan Advice

edocs' Customer Self-Service applications for the telecommunications industry combine edocs' unrivaled Customer Self-Service and e-Billing software suite with its extensive industry domain expertise. The packaged, out-of-the-box applications are tailored to solve communications service providers' distinct business problems and to meet communications industry-specific process requirements.

edocs' Telecommunications Applications Suite includes:

Telco e-Billing Manager

edocs' Telco e-Billing Manager is a complete e-billing application for communications service providers that gives business and consumer customers valuable and convenient access to their communications bills along with the ability to easily make online payments.

Telco Service Manager – Business Edition

edocs' Telco Service Manager – Business Edition enables business customers of communications service providers to manage every aspect of their service relationship online. From a single convenient interface, customers can easily activate and manage subscriptions, order new products and services, and report and resolve problems for individual employees, as well as company departments and divisions, across the entire organization.

Telco Service Manager – Consumer Edition

edocs Telco Service Manager – Consumer Edition enables consumer customers to activate and manage service, buy new products and services, resolve problems and manage their own accounts online using virtually any communications device.

Telco Service Manager – Channel Edition

edocs' Telco Service Manager – Channel Edition delivers self-service capabilities to communications dealers and point-of-sale locations, allowing them to improve the effectiveness of the retail sales channel by quickly and easily activating customers online, selling new products and services, and responding to service requests.

Telco Analytics Manager

edocs' Telco Analytics Manager is a reporting solution for business customers that empowers both individual employees and business managers to analyze and understand their communications costs and usage by investigating and identifying trends and patterns across multiple views of their own unique organization.

Rate Plan Advisor

edocs' Rate Plan Advisor is a web-based application that recommends the ideal rate plan for wireless subscribers in real-time or as a batch process. Individual consumers as well as large businesses can analyze their actual historical voice/mobile/data usage, find the best-fit rate plans, and compare the features offered by those plans. With its intuitive wizard user interface, Rate Plan Advisor quickly guides end-customers or customer service representatives through the entire analysis process.

About This Guide

This guide describes the tasks required to install, configure, and integrate a Rate Plan Advisor application for analyzing rate plan usage. It provides instructions on how to install and use the Rate Plan Advisor foundation application.

This guide is intended for system administrators and those involved in the process of installing and configuring a Rate Plan Advisor application.

This guide assumes you have:

- Installed eaDirect and all supporting platform software
- Installed and configured ILOG JRules **for development environments**

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- What is your phone number and best times to call you?
- What is your e-mail address?
- In which edocs product did a problem occur?
- What is your Operating System version?
- What were you doing when the problem occurred?
- How did the system respond to the error?
- If the system generated a screen message, please send us that screen message.
- If the system wrote information to a log file, please send us that log file.

If the system crashed or hung, please tell us.

1 Installation

About Rate Plan Advisor

RPA is a customer-facing, web-based solution that recommends the ideal rate plans for B2C and B2B wireless telco subscribers in real-time. Rate Plan Advisor can be tailored for your customer base and allows customers and CSRs to access and analyze critical rate plan information such as historical summary usage data, rate plan catalog, and customer profiles.

Tip Rate Plan Advisor includes an ILOG project with a preconfigured rule set for the RPA foundation application, which you can run without installing ILOG. You must install ILOG to view ILOG projects or change ILOG rules.

Supported Platforms for Rate Plan Advisor 1.0

Caution Rate Plan Advisor requires eaDirect **4.2.1** and WebLogic **7** or **8** (not 6.1). Make sure you apply any required patches before installing RPA.

Confirm that your system meets or exceeds the minimum recommended hardware and software requirements for Rate Plan Advisor. **Be sure to check the Release Notes for any updates to these requirements.**

The following table lists the platform combinations supported for Rate Plan Advisor 1.0. **Required JDK versions, system patches, fix packs and other updates are not listed in this section.** See the Release Notes for a detailed list of system requirements for each platform.

Server O/S	Database	App Server
Solaris 8, 9	Oracle 8.1.7, 9.20	WebLogic 7.0 SP4, 8.0 SP2
Windows 2000 Server SP4	SQL 2000 SP3	WebLogic 7.0 SP4, 8.0 SP2

Installing Rate Plan Advisor with InstallAnywhere

Use the instructions in the eaDirect *Install Guide* to run the InstallAnywhere installer for Rate Plan Advisor, `rpainstr.bin` (UNIX) or `rpainstr.exe` (Windows).

edocs recommends that you accept the default RPA installation directory **`EDCSrpa`** (**`RPA_HOME`**). Installing in the eaDirect home directory **`EDCSbd`** will overwrite required configuration files and is not recommended.

When you have finished installing Rate Plan Advisor **on all servers**, proceed to Configuring Your Database Server.

Where to Go From Here

Distributed Environments

If you are installing in a **distributed environment**, be sure that you have installed all Rate Plan Advisor components as follows before proceeding to Configuring Your Database Server.

- **Database** components on database server(s)
- **App Server** components on application server(s)
- Database **client software** on application server(s)

Configure Your Database

If you have installed Rate Plan Advisor **on a single machine** using the **Full** installation option, you can proceed directly to Configuring Your Database Server.

Configuring Your Database Server

Creating the RPA Database for SQL Server (Windows)

MSSQL database auto numbering for the master table IDs is turned off by default in order to load sample data. As a result, IDs will not be generated automatically if data is inserted. If you need to insert data to your MSSQL RPA database, please see your Professional Services representative.

To create and configure the RPA database for SQL Server:

If you are reinstalling RPA, you should recreate your database schema (steps 1-6), but if you have previously created the offline batch job, you need not recreate it (step 7).

1. Open the MSSQL Enterprise Manager, for example **Start>Programs>SQL Server 7.0>Enterprise Manager**.
2. Open **Tools>SQL Query Analyzer** and connect to your database server as your DB user, **`edx_dba`** and not, for example, as **`sa`**.

3. Navigate to the database subdirectory of your RPA installation, for example **C:\RPA\db\mssql**.
4. In a text editor, open the SQL script to create the RPA schema, **create_rpa_schema.sql** and copy the contents.
5. Switch to MSSQL Enterprise Manager and paste the contents of **create_rpa_schema.sql** into the Query Analyzer window.
6. Select the RPA database and click the green triangle to run the script.
7. Repeat steps 4-6 for the SQL script to create the offline batch job, **create_job.sql.**

Creating the RPA Database for Oracle (Solaris)

If you are reinstalling RPA, you should recreate your database schema (steps 1-5), but if you have previously created the offline batch job, you need not recreate it (steps 2 and 6).

To create and configure the RPA database for Oracle:

1. On your database server, navigate to the database directory of your RPA installation, for example **$RPA_HOME/db/oracle**.
2. Copy the two files **create_rpa_schema.sql** and **create_job.sql** to your Oracle home directory, for example **export/home/oracle/product/9.2.0**.
3. Change user to **oracle**.

   ```
   # su - oracle
   ```

4. Log on to your database server as your DB user, **edx_dba** and not, for example, as **sa**.

   ```
   $ sqlplus edx_dba/edx
   ```

5. Execute the SQL script to create the RPA schema, **create_rpa_schema.sql.**

   ```
   SQL> @create_rpa_schema.sql
   ```

6. Execute the SQL script to create the offline batch job, **create_job.sql.**

   ```
   SQL> @create_job.sql
   ```

7. Commit your changes to the database.

   ```
   SQL> commit;
   ```

8. Exit your SQL session.

   ```
   SQL> exit
   ```

Where to Go From Here

Before you can upload sample data into the database you have created, you must configure your application server with the required JDBC and JMS resources. See Configuring Your Application Server.

Once your application server is configured, you should populate your RPA database with sample data. See Populating the RPA Database with Sample Data.

Configuring Your Application Server

Use the settings below with the instructions in the eaDirect *Application Server Configuration Guide* to create Java resources for Rate Plan Advisor.

Remember to move the Targets-Server from **`Available`** to **`Chosen`** for each resource as you configure it.

WebLogic 7 users may **clone** additional Java resources. Right-click a resource and select **`Clone <name>`**, then change the resource name and properties as required.

RPA JDBC Connection Pool for SQL Server

General Tab	
Pool Name	**`edxrpaConnectionPool`**
URL	**`jdbc:inetpool:inetdae7://localhost:1433`**
Driver Classname	**`com.inet.pool.PoolDriver`**
Properties	Substitute your **`localhost:port:SID`**, user and password: **`poolurl=jdbc:inetpool:inetdae7://localhost:1433`** **`user=edx_dba`** **`password=edx`**
Targets Tab	

General Tab	
Move from Available to Chosen	**myserver**

RPA JDBC Connection Pool for Oracle

General Tab	
Pool Name	**edxrpaConnectionPool**
URL	**jdbc:oracle:thin:@localhost:1521:edx0**
Driver Classname	**oracle.jdbc.driver.OracleDriver**
Properties	Substitute your **localhost:port:SID**, user and password: **poolurl=jdbc:oracle:thin:@localhost:1521:edx0** **user=edx_dba** **password=edx** **dll=ocijdbc9** **protocol=thin**
Targets Tab	
Move from Available to Chosen	**myserver**

RPA JDBC Transaction Datasource

If not otherwise specified, you may accept the default **Properties** or consult your application server administrator to tune these values.

General Tab	
Name	**edxRPATXDataSource**
JNDI Name	**edx.rpa.databasePool**
Pool Name	**edxrpaConnectionPool**
Targets Tab	
Move from Available to Chosen	**myserver**

RPA JMS Connection Factory

If not otherwise specified, you may accept the default **Properties** or consult your application server administrator to tune these values.

General Tab

General Tab	
Name	**edxRPATaskFactory**
JNDI Name	**edx/jms/RPATaskFactory**
Default Delivery Mode:	**Non-persistent**
Messages Maximum:	**1000**
Targets Tab	
Move from Available to Chosen	**myserver**

RPA JMS Template

If not otherwise specified, you may accept the default **Properties** or consult your application server administrator to tune these values.

General Tab	
Name	**edxRPATaskTemplate**
Destination Keys	**[none]**

RPA JMS Server

If not otherwise specified, you may accept the default **Properties** or consult your application server administrator to tune these values.

General Tab	
Name	**edxRPATaskServer**
Store	**[none]**
Targets Tab	
Target	**myserver**

RPA JMS Destination Queue

If not otherwise specified, you may accept the default **Properties** or consult your application server administrator to tune these values.

General Tab	
Name	**edxRPATaskQueue**
JNDI Name	**edx/queue/RPATaskQueue**
Enable Store	**[default]**

General Tab	
Template	**edxRPATaskTemplate**
Targets Tab	
Move from Available to Chosen	**myserver**

Populating the RPA Database with Sample Data

In this step, you create a custom java command or script file that will automatically upload preconfigured usage data and rate plan users to your RPA database.

Before running your custom data load command or script, check that:

- RPA database has been successfully created with **create_rpa_schema.sql**
- your application server is running
- **edxRPATXDataSource** has been successfully created and targeted

Use the appropriate procedure for your operating system, UNIX or Windows.

To populate the RPA database with sample data for UNIX:

1. Edit the following example java command to reflect your environment. For example:

   ```
   java -cp
   $RPA_HOME/lib/edx_common.jar:$RPA_HOME/lib/edx_rpa.jar:/weblog
   ic/wlserver700/server/lib/weblogic.jar
   -Djava.naming.factory.initial=weblogic.jndi.WLInitialContextFa
   ctory -Djava.naming.provider.url=t3://localhost:7001/
   com.edocs.rpa.utils.RPADataLoad $RPA_HOME/samples/rpa/data
   ```

   Make sure that the path to each variable corresponds to your system configuration.

2. On your application server, execute your java command from the command line or as a batch file.

3. Log in to the RPA consumer or business foundation application URL. If account numbers appear, data upload was successful.

To populate the RPA database with sample data for Windows:

1. Edit the following example java command to reflect your environment. For example:

   ```
   java -cp
   C:\%RPA_HOME%\lib\edx_common.jar;c:\%RPA_HOME%\lib\edx_rpa.jar
   ;C:\weblogic\wlserver70\server\lib\weblogic.jar
   -Djava.naming.factory.initial=weblogic.jndi.WLInitialContextFa
   ctory -Djava.naming.provider.url=t3://localhost:7001/
   com.edocs.rpa.utils.RPADataLoad C:\%RPA_HOME%\samples\rpa\data
   ```

   Make sure that the path to each variable corresponds to your system configuration.

2. On your application server, execute your java command from a DOS prompt or as a batch file.

3. Log in to the RPA consumer or business foundation application URL. If account numbers appear, data upload was successful.

2 Deploying the RPA Foundation Application

Use the eaDirect *Application Server Configuration Guide* to deploy the Rate Plan Advisor sample J2EE application, **`ear-rpa.ear,`** in the application server subdirectory of your RPA installation:

`.\RPA\J2EEApps\weblogic\ear-rpa.ear` (UNIX)

`C:/RPA/J2EEApps/weblogic/ear-rpa.ear` (Windows)

Stop and restart your application server to pick up the changes.

Rate Plan Advisor Sample Files

The Rate Plan Advisor foundation application ships with sample files for ILOG rulesets and a sample eaDirect application (DDN) for B2B. These files are located in the **`/samples/rpa`** subdirectory of your RPA installation.

ILOG Rulesets

RPA leverages the rules engine of ILOG JRules through predefined rulesets. Each ruleset must be customized to the plan data being analyzed. The RPA foundation application ships with four sample rulesets that calculate eligible plans, approximate monthly cost, and compare the results to the current rate plan.

Name	Description
`eligibility.ilr`	Returns a fully constructed SQL statement object to return all the rate plans for which the subscriber is eligible (**`eligibility`**).
`calculations.ilr`	Based on **`eligibility`**, approximates the hypothetical monthly cost for each plan for the given analysis period (**`calculations`**). For plans that support rollovers, this ruleset must also evaluate the minutes, money, or data to roll over to the next period.
`score.ilr`	Based on **`eligibility`** and **`calculations`**, compares the current plan definition and approximate monthly cost to that of eligible plans and assigns a cost score to each plan (**`score`**).
`business.ilr`	Based on **`eligibility`** and **`score`**, presents the subscriber with eligible plans with a lower cost score than the current plan, including the current plan.

To use these sample rulesets with the RPA foundation application, please see Configuring ILOG Rulesets.

To customize ILOG rules for your Rate Plan Advisor deployment, please consult your edocs Professional Services representative and your ILOG documentation.

B2B eaDirect Application (DDN)

The **`/samples/rpa/b2b`** directory of your RPA installation contains sample ALF, DDF, and HTML files to publish a version set for your DDN. These files use the sample data uploaded with the **`RPADataLoad`** java command.

Name	Description
`rpa_business.alf`	Application Logic File (ALF) for use with RPA sample data.
`rpa_business.ddf`	Data Definition File (DDF) for use with RPA sample data.
`rpa_business.html`	HTML template for displaying results of B2B online analysis.
`rpa_business_group.html`	HTML template for displaying results of B2B online analysis for business groups.

Configuring ILOG Rulesets

Rate Plan Advisor requires ILOG rulesets as application server system properties. These rulesets are sourced automatically in **`edx_rpa.config`** (called by **`edx.config`** in your application server startup script). However, you must manually extract the ruleset from the **`.zip`** file included in your RPA installation to make it available to **`edx_rpa.config`**.

Rate Plan Advisor also requires additional memory to use ILOG rulesets. You should increase the memory allocation in **`startWebLogic.sh.`**

Rate Plan Advisor includes an ILOG project with a preconfigured rule set for the RPA foundation application, which you can run without installing ILOG. You must install ILOG to view ILOG projects or change ILOG rules.

To extract the ILOG sample ruleset:

1. On your application server, navigate to the ILOG samples subdirectory of your RPA installation, for example **`$RPA_HOME/samples/rpa/ILOG (UNIX)`** or **`%RPA_HOME%\samples\rpa\ILOG`** (Windows).

2. Extract the **project.zip** file into an **/ilog** subdirectory. When extraction is complete, your installation should contain the directory **$RPA_HOME/samples/rpa/ILOG/ilog/rpa_rules** (UNIX) or **%RPA_HOME%\samples\rpa\ILOG\ilog\rpa_rules** (Windows).

RPA ILOG rules are automatically picked up by eaDirect through the file **edx_rpa.config**, which is sourced at application server startup. Do not move the ILOG rules from their default installation folder.

To increase JVM memory for your application server:

1. Stop your application server.
2. On your application server, navigate to your domain home directory, for example **$WL_HOME/config/mydomain** (UNIX) or **%WL_HOME%\config\mydomain** (Windows).
3. Open your application server startup script, for example **startWebLogic.sh** (UNIX) or **startWebLogic.cmd** (Windows), in a text editor and save a backup copy.
4. In the MEM_ARGS section, increase the memory allocated to the JVM. For example:

   ```
   MEM_ARGS="-ms256m -mx512m -Xss1m -noclassgc"
   ```

5. Save and close your updated application server startup script.

(Windows only) During installation of eaDirect, you should have added the **Opta2000** jar file to the classpath in **startWebLogic.cmd**. Check your settings and, if needed, insert this classpath setting above the call to start WebLogic as shown:

```
set CLASSPATH=C:\RPA\lib\Opta2000.jar
call "C:\weblogic\wlserver70\server\bin\startWLS.cmd"
```

To view, edit, and publish ILOG rulesets:

1. Make sure you have a licensed installation of ILOG.
2. To view sample rules, open the ILOG Rule Builder, navigate to the **RPA/ILOG** directory, and open the project **rpa_rules**.
3. To edit a rule set, open the ILOG Rule Builder, right click on the project, and select **extract Rule Service.**
4. To publish a rule set, in the Rule Services window, right click on **New Project Rule Service** and select **Publish>Rule sets only**.
5. If you make additional changes after publishing the first time, select **Update from Project** before publishing the rules again.

3 Using Rate Plan Advisor

Rate Plan Advisor Overview

edocs Rate Plan Advisor is a web-based application that recommends the ideal rate plan for wireless subscribers in real-time. Individual consumers as well as large businesses can analyze their actual historical usage, find their optimal rate plans, and compare the features offered by those plans. With its intuitive wizard user interface, RPA quickly guides end users or Customer Service Representatives (CSRs) through the entire analysis process.

Complete User Experience

RPA includes two complete web-based applications: one geared for the consumer market (B2C), and the other targeted for the business market (B2B). Both enable users (either an individual subscriber or a telecommunications manager on behalf of many subscribers) to find the best rate plan, guiding users through the entire analysis process, providing usage charting, drilldown to bill history, feature comparisons, and links to online ordering. Customer service representatives (CSRs) also have access to a version of this application, which has a customizable pane to show CSR messages and other internal information (e.g. customer profitability).

Real-time Optimization Engine

The RPA on-demand, real-time optimization engine recommends optimal rate plans for subscribers based on their actual historical usage, eligible rate plans, and customer profiles. The definition of the “optimal” rate plan depends heavily on a service provider’s current corporate objectives and associated policies.

Data Modeling and Integration

RPA references three key types of information: usage data, rate plan catalog, and customer profile information. To optimize a rate plan, RPA analyzes the actual historical usage patterns for existing customers as well as projecting usage for prospects and existing customers.

Rate plans are by nature highly specific and volatile. RPA fully leverages a very flexible data model, a rules engine (ILOG JRules) for processing, and a J2EE struts and tiles framework for presentation.

Overview of RPA Analysis

1. For a particular subscriber number, search all available rate plans and select all eligible plans for that user.
2. For each eligible plan and each month[1] in the historical analysis period, approximate the hypothetical monthly cost. If applicable also calculate the rollovers (minutes, data, money, etc).
3. For each eligible plan, calculate the approximate average monthly costs.
4. Compare to the existing rate plan and select optimal recommended plans.
5. Format the output.

The RPA Foundation Application supports both consumer (B2C) and business (B2B) scenarios. B2B customers are treated as a group of individual (B2C) subscribers. RPA generates an individual subscriber analysis for each subscriber in the B2B group. The Business Foundation Application also includes an Offline Batch Job for the Command Center, to process results offline before presentation.

Creating Applications, Jobs, and Views for the RPA Foundation Application

The RPA Consumer Foundation Application demonstrates online analysis of rate plan data. The RPA Business Foundation Application demonstrates both online and offline analysis of rate plan data.

Both require you to create an eaDirect application, or DDN, and an HTML web view as a version set. For details, see Publishing an HTML View for RPA.

For B2B **offline** (batch) analysis in the **business** foundation application, you must also create and run an offline batch job. For details, see Creating an Offline Batch Job for RPA.

Before you access the RPA foundation application), edocs recommends creating both the web view and the batch job. For your custom application, select the type of analysis you plan to use and create the appropriate view and/or batch job.

Creating a DDN for RPA

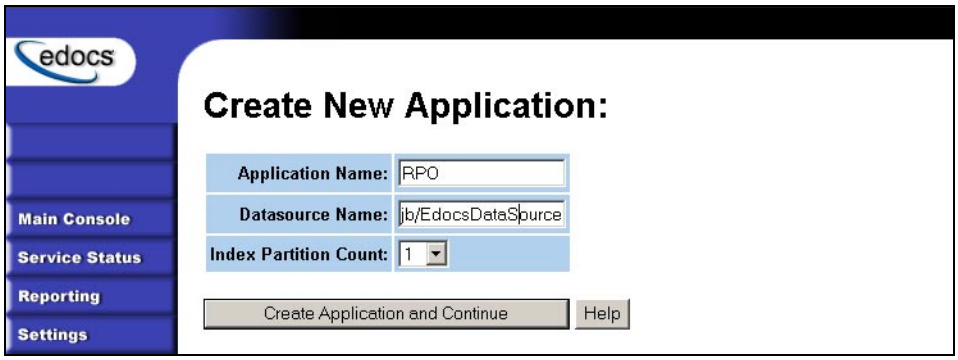
For detailed information about creating applications and using the Command Center, please see the *eaDirect Data Presentation Production Guide.*

To create an eaDirect application for Rate Plan Advisor:

1. Start the eaDirect Scheduler if it is not already running.

[1] The sample application assumes the bill period is one month.

2. Log in to the eaDirect Command Center.
3. From the **Main Console**, click **Create New Application**.
4. The Create New Application screen appears. Enter your application name, datasource, and index partition count.



Caution

The RPA Foundation Application requires the application name to be **`RPO`**. To specify a different application name for your DDN, you must modify the DDN form-property for the business form bean in the **`struts-config.xml`** file. For more information, see Struts and Tiles Configuration Files.

RPA does not use the eaDirect **`IDataSource`** interface. You may enter any valid **`IDataSource`** JNDI name when defining the DDN. The default is **`edx/ejb/EdocsDataSource`**.

5. Click Create Application and Continue. The **Create New Job** screen appears.
6. B2B users who wish to create a batch job at this stage should proceed to Creating an Offline Batch Job for RPA before publishing an HTML view.
7. B2C users may skip the batch job step and proceed directly to Publishing an HTML View for RPA.

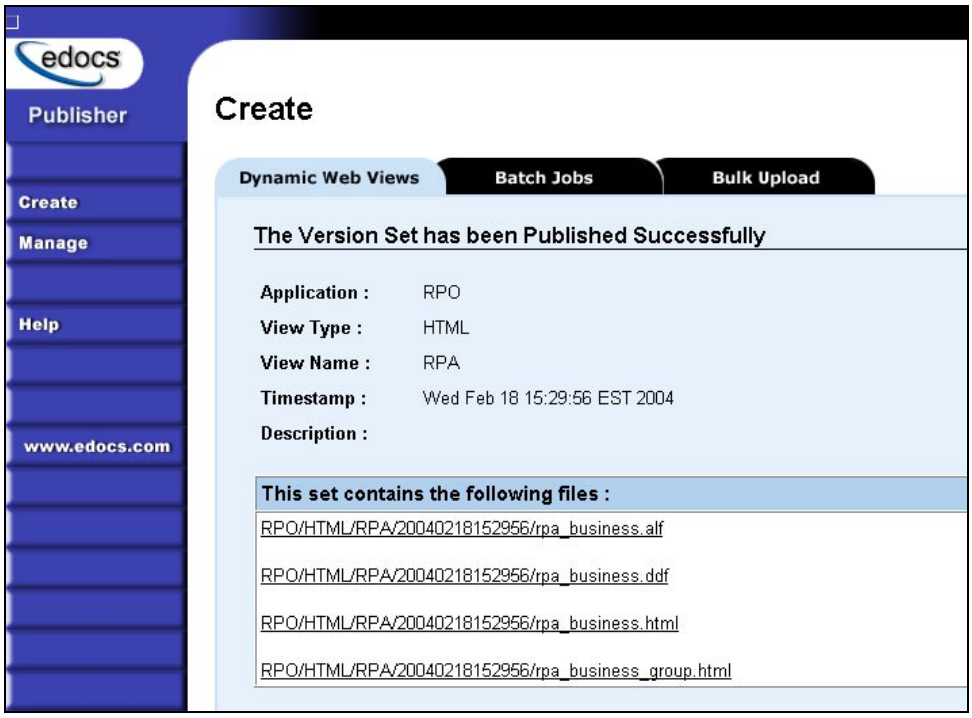
Publishing an HTML View for RPA

Use the *eaDirect Data Presentation Production Guide* with the RPA sample files to publish HTML views for Rate Plan Advisor.

The RPAbusiness foundation application ships with sample ALF, DDF, and HTML files to publish a version set for your eaDirectapplication, or DDN. These files use the sample data uploaded with the **`RPADataLoad`** java command. See Rate Plan Advisor Sample Files.

The RPA oundation Application equires the DDN name to be **`RPO`** and the HTML view name to be **`RPA`**. To specify a different name for your DDN or HTML view, you must modify the form-properties for the business form bean in the **`struts-config.xml`** file. For more information, see Struts and Tiles Configuration Files.

The following screen illustrates a successfully published version set for RPA.



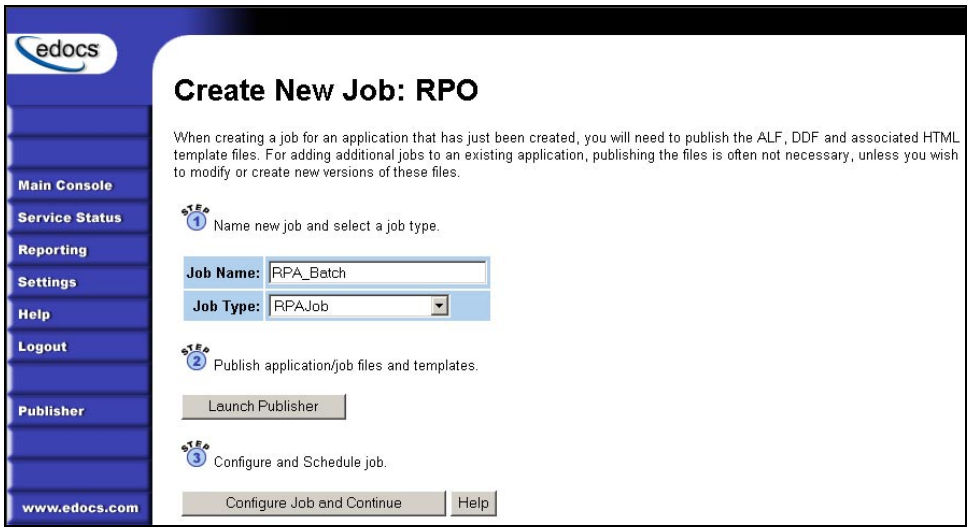
Creating an Offline Batch Job for RPA

Before running your offline batch job, check that both your application server and the eaDirect Scheduler are running.

For detailed information about creating DDN applications and using the eaDirect Command Center, please see the *eaDirect Data Presentation Production Guide.*

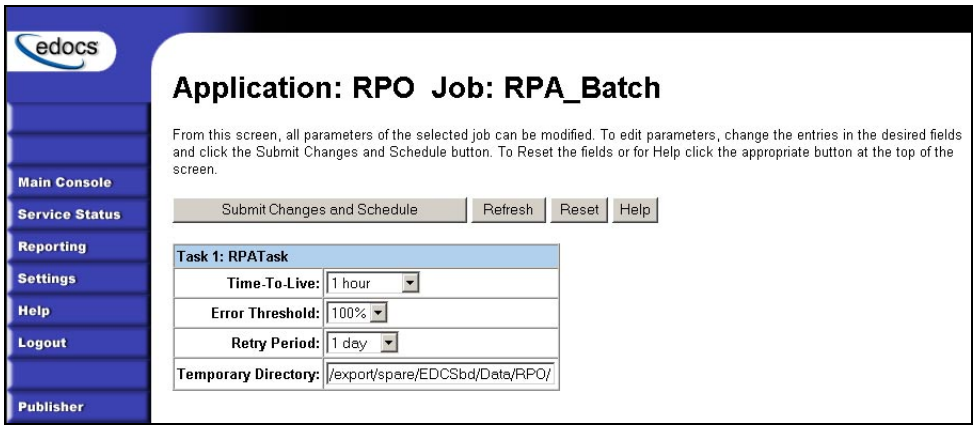
To create an offline batch job for RPA:

1. In the Command Center, select your application, for example **`RPO`**. The **Edit Application** screen appears.
2. Click **Add New Job**. The **Create New Job** screen appears.
3. Enter your job name and select the job type **`RPAJob`** from the drop-down list. The RPA Foundation Application does not require a specific job name. This example uses the job name **`RPA_Batch`**.



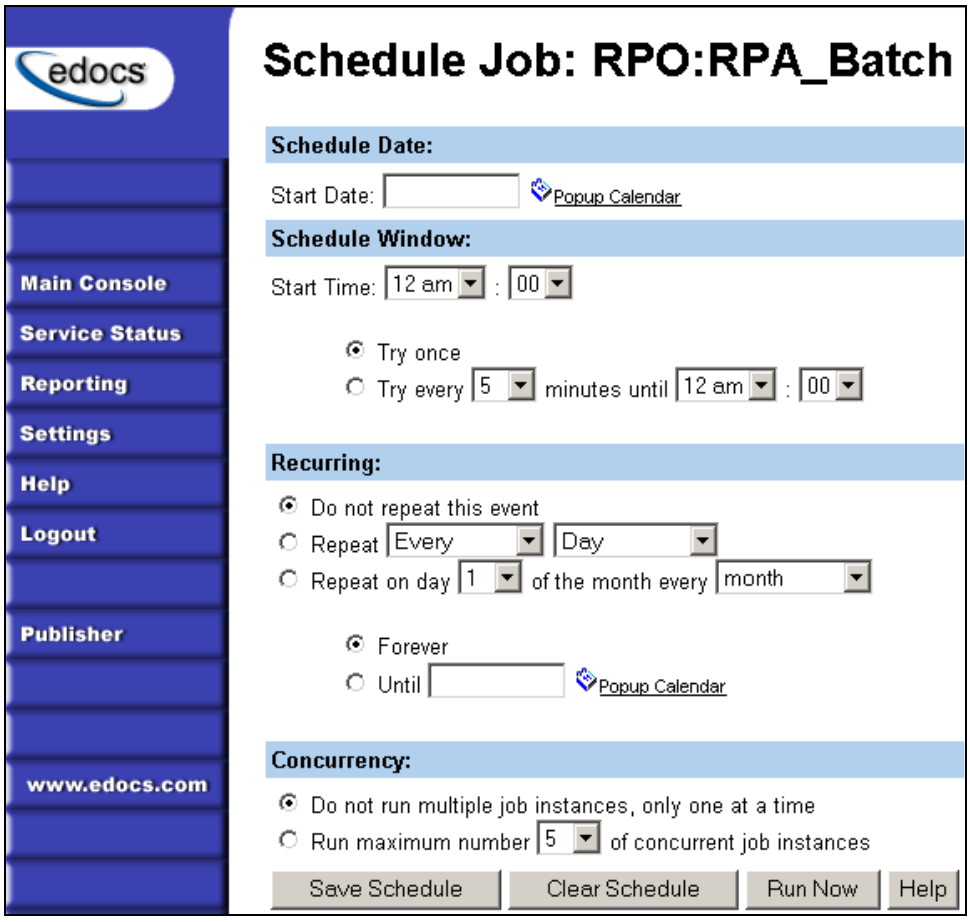
4. Skip the Publisher at this step, as you do not need to publish any files before running this job. Click **Configure Job and Continue**.

5. The job configuration screen appears. Enter the task parameters as shown.



Parameter	Description
`Time-To-Live`	The time to process each request before marking it as failed.
`Error Threshold`	Percentage of failed requests allowed until the job itself fails. 100% will cause the job to ignore all failed requests, and 0% will cause the job to fail at the first failed request. As this task is multi-threaded, the number of requests that actually fail may be higher than the threshold.
`Retry Period`	Define the period to retry failed requests. Failed requests older than the retry period will be ignored.
`Temporary Directory`	The name of the directory to store the temporary analysis.

6. When you are finished entering task parameters, click **Submit Changes and Schedule.** The **Schedule Job** screen appears.



7. Schedule the job and click **Run Now**.

8. Log in to the RPA Business foundation application and Select Account for Offline Analysis. Once the batch job has run, the status of the Rate Plan Advice should change from **Pending** to **View**.

Using the RPA Consumer Foundation Application

About Sample Users and Accounts

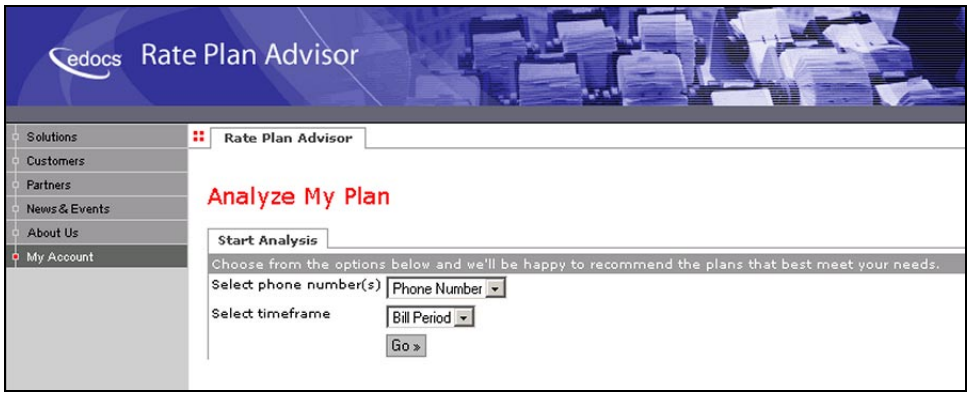
The data load script populates your RPA database with sample plan and account usage data. For the **consumer foundation application,** this data includes four users: **`Pierre`**, **`Jane`**, **`Bob`**, and **`Nicole`**. Each username must be specified in the URL to test the sample data for that user.

Consumer Foundation Application URL

Use the following URL for your local host to access the Consumer Foundation Application:

`http://localhost:7001/rpa/consumer/historical/show.do?uid=Pierre`

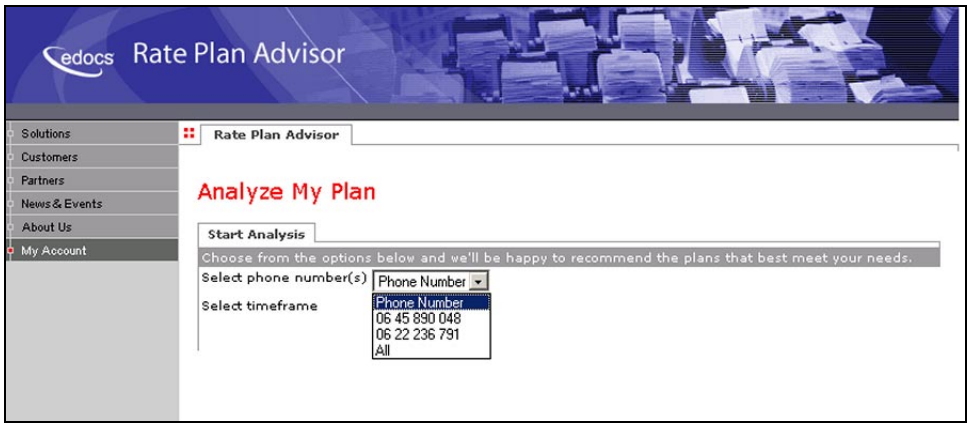
The Analyze My Plan screen appears.



Substitute **`Pierre`** with **`Jane`**, **`Bob`**, or **`Nicole`** to see data for the other sample users.

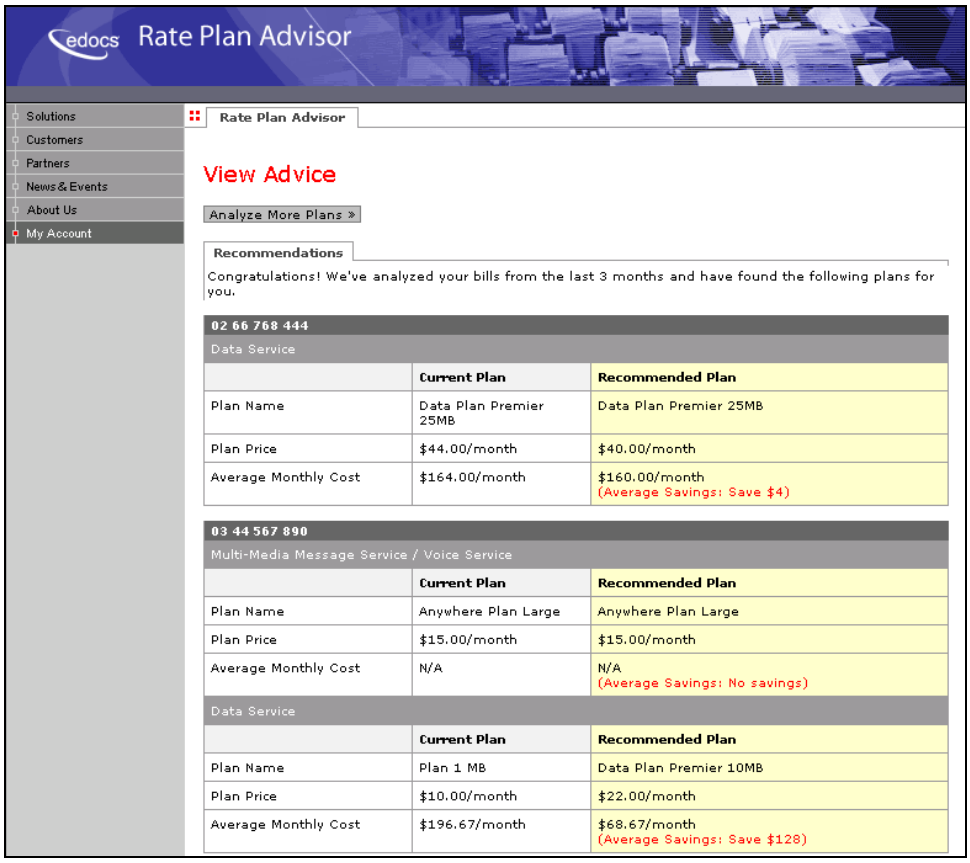
Select Phone Number and Bill Period

Select a phone number and a timeframe from the drop-down menus, and click **Go**.



View Rate Plan Advice Results

The **View Advice** screen appears with current and recommended plans for the phone number you selected.



Click **Analyze More Plans** to use another time period or telephone number.

Using the RPA Business Foundation Application

Sample Users and Accounts

The data load script populates your RPA database with sample plan and account usage data. For the **business foundation application**, the account `2` specified in the sample URL includes two account numbers, which will appear in the drop-down list. The first account number provides an example of online analysis, while the second illustrates offline analysis.

The account number specified is in the format:

```
<service provider>/<customer number>/<payment agreement>
```

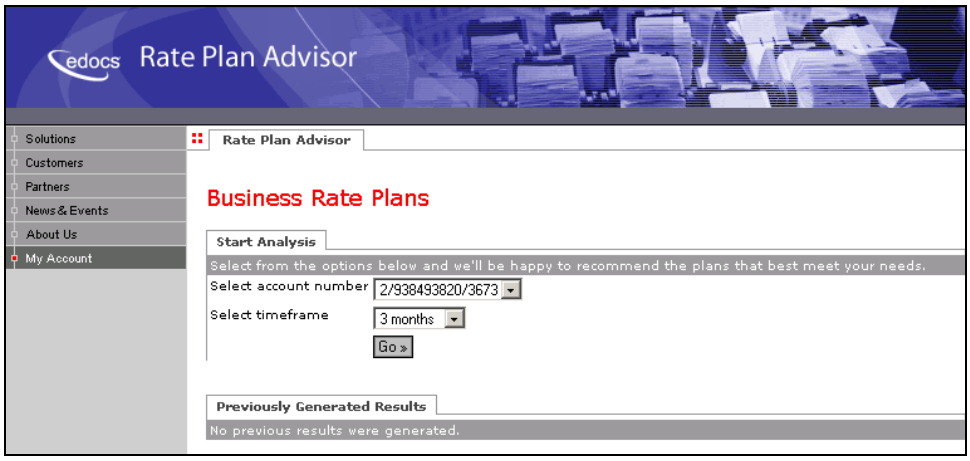
Valid account values for RPA sample data include: 2, 2/938493820, 2/938493820/3673, 1, etc.

Business Foundation Application URL

Use the following URL for your local host to access the Business Foundation Application:

http://localhost:7001/rpa/business/show.do?account=2

The **Business Rate Plans** screen appears.



Select Account for Online Analysis

Caution Unlike the consumer application, the business application requires you to publish a version set with these files in order to view rate plan advice. See Publishing an HTML View for RPA.

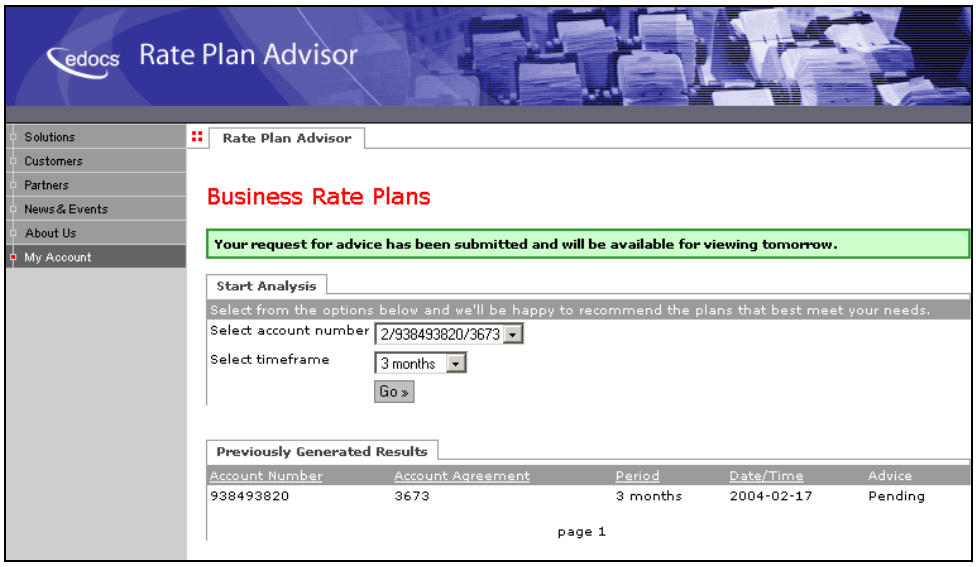
When you select the first account number, your account data will be analyzed immediately and the **View Advice** screen appears.

Select Account for Offline Analysis

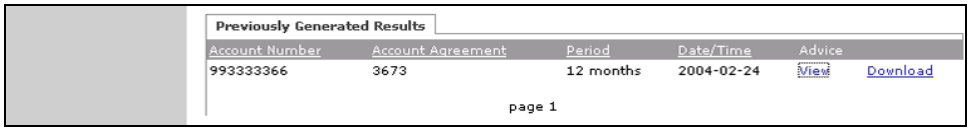
When you select the second account number, you will receive the message:

```
Your request for advice has been submitted and will be
available for viewing tomorrow.
```

You will also see that the rate plan Advice is **Pending**.



To process the off-line advice, you will need to create and configure an Offline Batch Job as described in Creating an Offline Batch Job for RPA. Once the batch job has run, the status of the Rate Plan Advice should change from **Pending** to **View**.



Troubleshooting Rate Plan Advisor

Error	What To Do
`RPADataLoad` java command fails when populating sample data	Run **`create_rpa_schema.sql`** on your database server to drop and recreate RPA database tables before populating the database with sample data using **`com.edocs.rpa.utils.RPADataLoad.`** See Configuring Your Database Server.
RPA consumer or business application does not change account data when changing users in URL	Close and reopen your browser window to pick up the new user.
RPA consumer application displays **User Pierre is not a valid RPA user**	Make sure you have successfully created your database schema and uploaded sample data. Repopulate your database if necessary.
RPA consumer application displays **User null is not a valid RPA user**	Check URL and replace **`localhost`** or your host name with the IP address of your server.
RPA business application displays **User null is not a valid RPA user**	Use **`account=2`** and not **`uid=Pierre`** or other sample user. Check URL and replace **`localhost`** or your host name with the IP address of your server. See Business Foundation Application URL.
RPA consumer **OR** business	Check to see that ILOG rulesets are properly extracted for sourcing at

Error	What To Do
application displays **Unable to analyze your rate plan at this time**	application server startup. Stop and restart your application server if necessary. See Configuring ILOG Rulesets.
RPA business application displays **Unable to analyze your rate plan at this time**	Be sure you have published a version set for the **RPO** application you created in eaDirect. See Publishing an HTML View for RPA.
RPA batch job does not run, or fails with **No-op** status	Start the eaDirect Scheduler if it is not running. See the *eaDirect Data Presentation Production Guide.* Check to see that ILOG rulesets are properly extracted for sourcing at application server startup. Stop and restart your application server if necessary. See Configuring ILOG Rulesets. Check the JMS settings for RPA. Make sure each JMS resource is correctly configured and has targeted your server (in Targets tab, move server from **Available** to **Chosen**). See Configuring Your Application Server. Check to make sure that a batch job is **Pending** in the RPA business foundation application. If no **Previously Generated Results** are pending, or all results display **View**, submit a new advice request. See Using the RPA Business Foundation Application.

4 Integrating Rate Plan Advisor

About RPA and Custom Web Applications

Rate Plan Advisor is designed for integration into custom web applications based on the edocs Reference Implementation (RI). This template framework uses J2EE struts and tiles, and RPA developers are expected to be familiar with these advanced J2EE features. This chapter describes the configuration files included with the RPA foundation application **`ear-rpa.ear`**.

The RPA sample web application is designed to demonstrate basic functionality and is not intended as a standalone design template. To use Rate Plan Advisor, your edocs Professional Services team will work with you to integrate and customize RPA sample code into your own custom web application.

For more information on designing custom web applications with the edocs RI, including RPA integration, please consult your edocs Professional Services representative.

Login Considerations

User authorization for RPA should occur in the calling application. Once user authentication has been verified, there are two approaches to user access for RPA.

A request object or action form can specify the user id (**`uid`**), in which case the **`uid`** will appear as cleartext in the URL. To hide and/or encrypt the user id, you may set it in the session as an **`HttpSession`** object. Consult your edocs Professional Services representative to design the login approach that best fits your custom web application.

For more information about login and user management, please see the edocs SDK guide to *Implementing a User Management Framework*.

Struts and Tiles Configuration Files

Struts files define the struts actions for dynamic form elements to retrieve live data. **Tiles** files define the tiles actions to display page sections and elements and to analyze data.

Use the examples in these RPA sample XML files to edit your custom struts and tiles actions. Make sure that your web application archive (WAR) properly references your updated struts and tiles files.

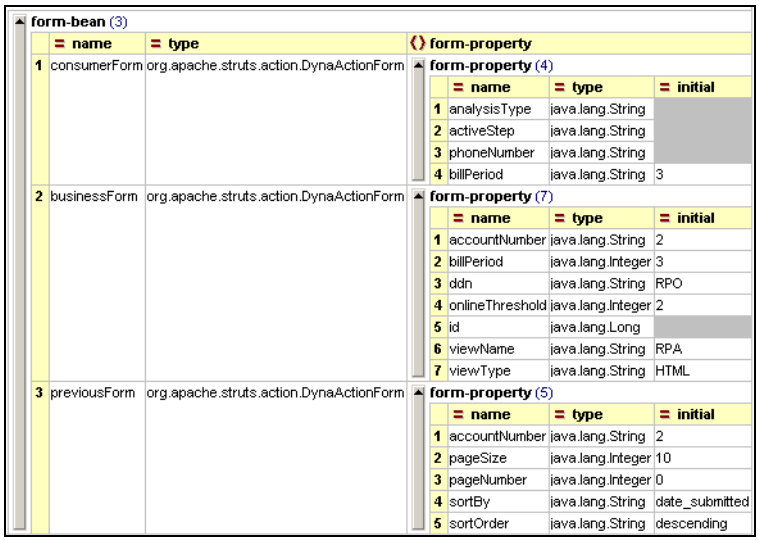
struts-config.xml

The example **`struts-config.xml`** contains default configuration values for all RPA struts actions, including form beans, global forwards, action mappings, controllers, message resources, and plug-ins.

This file is located in the WAR file **`war-rpa.war`** here:

`WEB-INF/classes/com/edocs/rpa/app/`**`struts-config.xml`**

Edit the values in **`struts-config.xml`** to control, among other values, the properties of the **`consumer`**, **`business`**, and **`previous`** forms. This example displays the form properties of these three default form beans (illustration created with Altova XML Spy).



form-bean (3)

	= name	= type	{} form-property
1	consumerForm	org.apache.struts.action.DynaActionForm	**form-property** (4)

	= name	= type	= initial
1	analysisType	java.lang.String	
2	activeStep	java.lang.String	
3	phoneNumber	java.lang.String	
4	billPeriod	java.lang.String	3

2	businessForm	org.apache.struts.action.DynaActionForm	**form-property** (7)

	= name	= type	= initial
1	accountNumber	java.lang.String	2
2	billPeriod	java.lang.Integer	3
3	ddn	java.lang.String	RPO
4	onlineThreshold	java.lang.Integer	2
5	id	java.lang.Long	
6	viewName	java.lang.String	RPA
7	viewType	java.lang.String	HTML

3	previousForm	org.apache.struts.action.DynaActionForm	**form-property** (5)

	= name	= type	= initial
1	accountNumber	java.lang.String	2
2	pageSize	java.lang.Integer	10
3	pageNumber	java.lang.Integer	0
4	sortBy	java.lang.String	date_submitted
5	sortOrder	java.lang.String	descending

tiles-defs.xml and tiles-defs-rpa.xml

The example **`tiles-defs.xml`** contains definitions for all custom tiles actions **based on the edocs Reference Implementation**, including templates for page, tab, module, and error tiles. Elements specifically added or modified for Rate Plan Advisor include buttons, wizard steps, and side modules.

The example **`tiles-defs-rpa.xml`** contains definitions for all custom tiles actions **specific to Rate Plan Advisor**, including buttons, tabs, and page definitions. It also defines tiles actions for the Consumer Foundation, B2B Foundation, and Charting modules, including current and historical plans, statement history, analysis wizards, and results comparisons.

Application Resources Properties File

Application resource properties are specified in **`struts-config.xml`**. Use the examples in this RPA sample properties file to edit your custom application resource properties. Make sure that your web application archive (WAR) properly references your updated properties file.

ApplicationResources.properties

This file defines the static text for the RPA user interface. The example **`ApplicationResources.properties`** contains definitions for all screen displays and messages, including form names, page headers, menu text, user prompts, column headings, and any custom page elements.

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