

Volume

1

Getting Started

Rintagi
Applications

**User
Guide**



robocoder*corporation*

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Introducing Rintagi

This and subsequent user-guides are intended to provide usage and technical details to a wide range of audiences. Because Rintagi is intended to bring business users and professional developers together to quickly deliver enterprise grade applications, some information here may be too technical or too business oriented. If you are a business manager and you find some details overwhelming, you may ignore those and focus on the major functionality of Rintagi. On the contrary, some professional developers may need more details and they should contact Robocoder Corporation for more information.

To successfully compete in this global economy, every business tries to be unique to differentiate their products and services. Yet the service provided is often hindered by me-too technologies. Custom software is often cited as expansive and time consuming to build and many are either not built to last or failed to deliver.

The solution is Robocoder Corporation's anti-aging .NET code generator platform - Rintagi, which embraces late changes. Robocoder has embedded in Rintagi all its knowledge and experience in delivering custom business process management (BPM) software applications to large enterprises so that it can generate the desired application with performance and standards using agile methodology. The code produced is consistent and can replicate the same look and feel throughout

the application's user interface automatically. Complex and interactive web pages can be created with database-connected components including forms, reports, filters, and navigation features. Rintagi in the cloud is designed to be self-served so that custom BPM enterprise applications with complex functionalities can be built in hours or days, instead of months or years.

Decreased time-to-market, ease of modification, and low maintenance are inherent benefits. Standardization, process controls and continuity are easily achieved using Rintagi. Security and superior enterprise architecture are inherited when generating desired applications. Bridging the gap between business and technical personnel may be its greatest advantage. Using intuitive interfaces business people may complete a significant portion of the applications design as a blueprint for Rintagi to generate enterprise-ready code. Screen painting, business rules description can be done by business people while technicians focus on data modeling, business rules implementation and systems integrations to create seamless and structured cloud-based or on-premises applications.

Rintagi's ability to self-generate allows customization for itself and the applications it creates. Your corporate standards and requirements are met easily and efficiently. This customizable code generator has successfully developed and is currently maintaining mission-critical enterprise applications for many reputable organizations in the financial and energy sectors.

Rintagi Applications consist of three major components:

1. User interfaces that capture data and display information.
2. Business rules that transform data into valuable information.
3. Data storage and retrieval.

Rintagi uniquely generates itself to keep pace with users' needs and technological advancement. In fact, Rintagi has 'grown organically' so that it can

adapt easily to any changing environment. And upgrading Rintagi allows it to regenerate all other applications to latest interfaces and technology, and to some extent, new architecture or languages. In theory, your generated software applications should never be obsolete again.

Rintagi rapidly generates standard Microsoft .NET web applications source code that:

1. Uses existing or brand new application-specific data models.
2. Delivers bug-free source code; everything required for enterprise-ready functional applications that link seamlessly.
3. Provides a complete and well-organized source code platform that is easy to modify.
4. Promotes application regenerations by enabling modifications and customizations.
5. Allows Rintagi to be enhanced as easily as the applications it generates.

Database Applications Customization

Code generation is ideal for any organization looking for consistencies in business process management (BPM) applications. For organizations adopting standard and easy to use user interactions, Rintagi can deliver quality high performance database applications fast and inexpensively with low maintenance. Although additional steps must be taken to provide unique features, Rintagi can be 'taught' to generate custom modifications. If a new feature is required on an application the following steps can be followed:

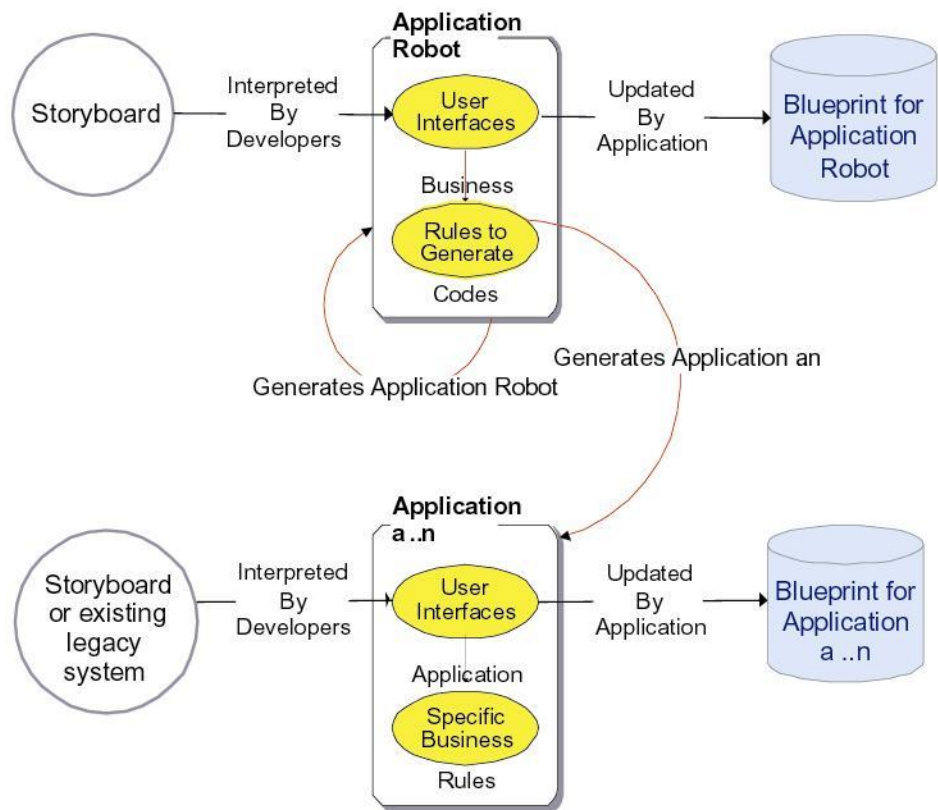
Custom Modifications to Rintagi Possible

1. Hand code the new feature on the generated application and perform all tests to verify that it meets requirements.
2. Generalize the design of this new feature so that simple meta-data information can be captured to reproduce the same feature onto all other applications.
3. Hand code the generalized new feature into Rintagi's generator and the user interface to capture the required meta-data, generate this feature to replace the hand code in step 1, make sure codes generated are exactly the same; only then perform unit and integration testing again.
4. Where applicable, use Rintagi to generate the new feature to Rintagi itself and perform unit and integration testing again.

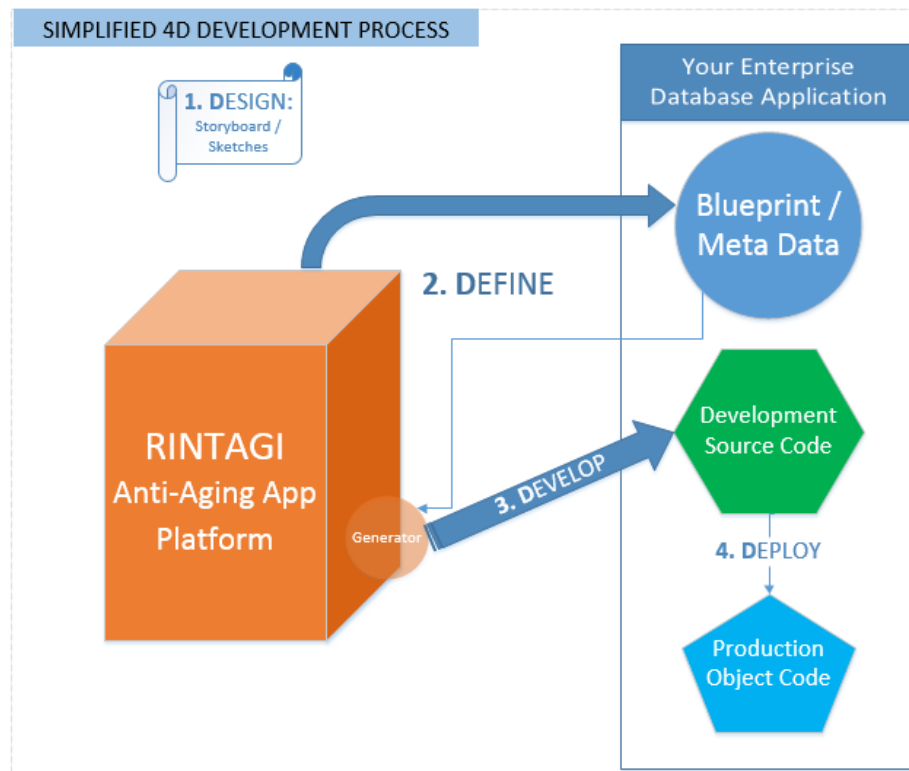
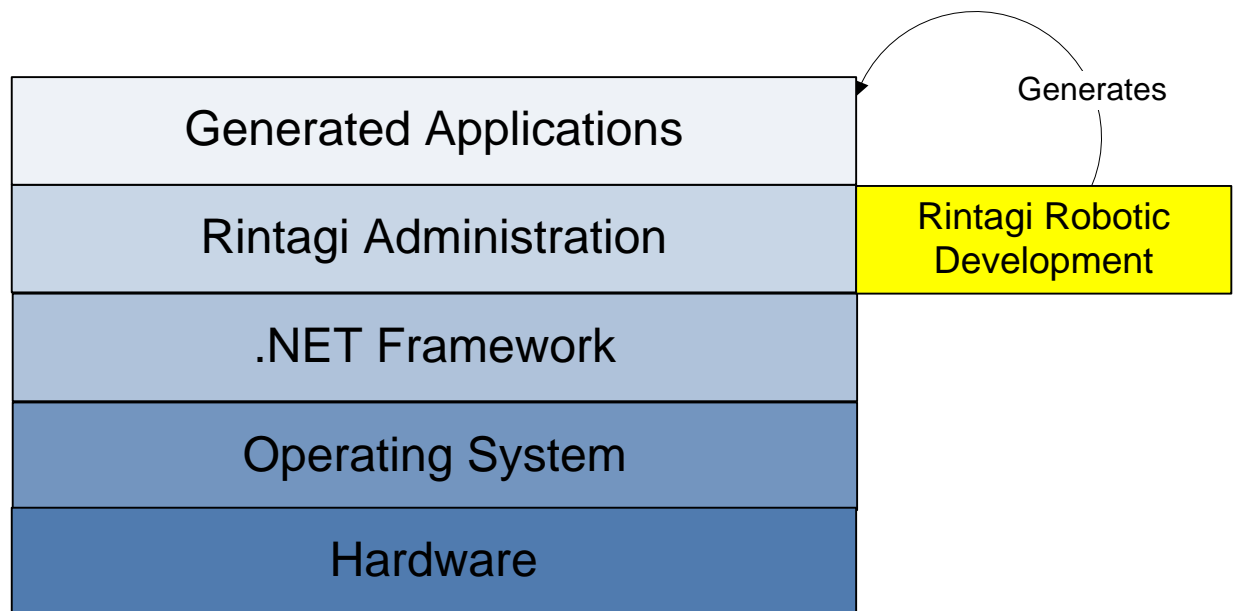
Although Rintagi can be modified as easily as the applications it generates, you can see from the above that steps 2 and 3 are extra steps to be taken in order for Rintagi to 'learn' and apply new features to self and other applications. Although these extra steps require more time, if the same feature is needed in many other areas of the same or different applications, it becomes very economical for Rintagi to 'learn' and do the repetitive work. This only applies to features not included in the original Rintagi.

Rintagi allows software developers to intuitively translate user requirements into a set of "blueprints" and uses them to generate the desired application. In fact, Rintagi itself is generated by a set of "blueprints" captured over time as depicted in the following diagram. Unlike other code-generation technology, this self-generating ability has enabled Rintagi to be enhanced just as easily as the applications it generates. As a matter of fact Rintagi has organically 'grow' itself over the years.

Robot Explained



Rintagi as a Platform



Rintagi does not migrate or transform legacy systems. In order for a Rintagi generated application to replicate the functionality of a legacy system there must be some degree of re-development or

re-factoring. The overall legacy system must be well understood and it must exhibit some degree of variability before it can be interpreted into an effective blueprint. Although existing legacy code can be “templated”, the Rintagi philosophy discourages taking inefficient or “bad” legacy code to create a generator that can recreate the same legacy code because no efficiency will be gained. Consideration should be given as to why the legacy system needs to be migrated in the first place. Typically it means the system needs to be evolved, including its internal structure. Therefore the effort invested in making it “model-driven” is probably well spent, since it helps to achieve the goals of improving the structure of the system. Once converted Rintagi can maintain the system’s fitness and avoid the need for migration in the future.

Agile development methodology, familiar to developers, is the basis for Rintagi. It was designed by Scrum master. It generates much of the basic code so that more functionality can be added at a faster rate, embracing late-change-no-penalty. It produces standard N-tiered web applications on a service-oriented architecture, including the user interface pages and the code behind, web-services, SQL queries, stored procedures and transaction management code. Rintagi produces a custom working application, not just a prototype or individual components. The application can be built in just a few hours. Modifications and enhancements to the user interface are instantly incorporated with each re-generation of the code which occurs dynamically with just-in-time compilation. In another word, you see what you have changed immediately with instant feedback, all the time.

Rintagi builds native Microsoft .NET applications like these with the standard N-tier architecture preferred by most corporate developers.

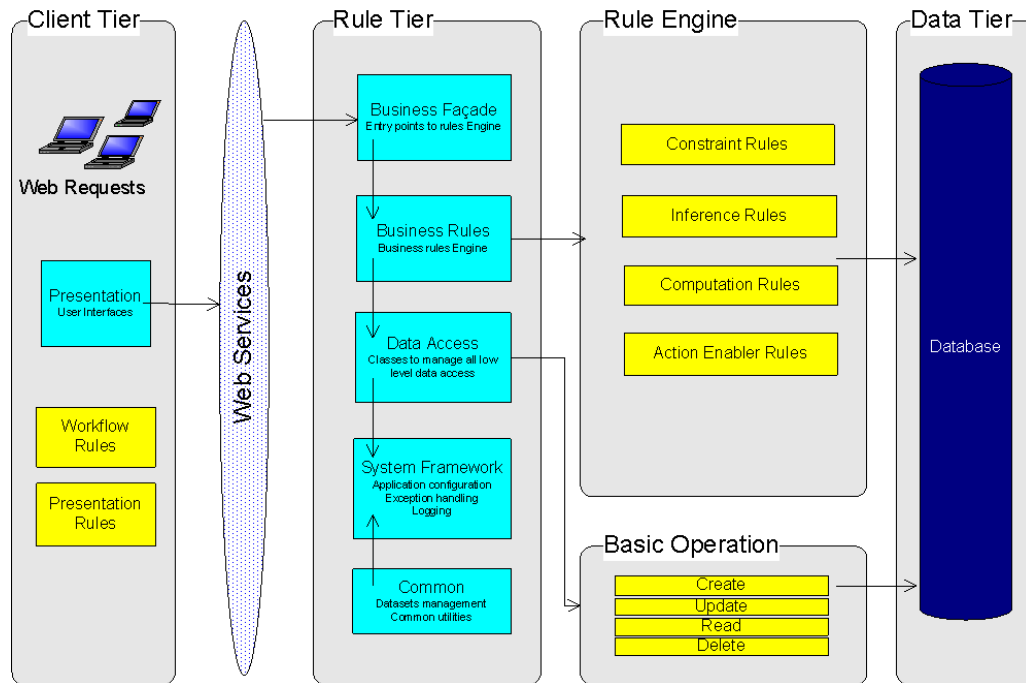
Typical Rintagi Screen Interface

The generated code includes complex features like multi-table joins, multi-table access and distributed update on multi-servers, user interface functionality like search and navigation, and security. Rintagi generates native Microsoft .NET code, with ASPX pages, ASCX controls, SQL stored procedures and C# code. Developers enjoy unrestricted access to 100% of the generated code, and modifications to the generated code via metadata changes are automatically preserved when an application is re-generated. You may run your Rintagi generated applications anytime, anywhere without concerning hardware, servers, network, security, etc.

Application generated by Rintagi is automatically multi-tenant. Many companies and their data can coexist on the same database.

Rintagi builds complete N-tier applications on a Service-Oriented Architecture.

Rintagi Service-Oriented Enterprise System Architecture



Enterprise-ready web-based service-oriented N-Tier applications

Self-generated Rintagi creates an enterprise-ready, web-based N-Tier application on a service-oriented architecture. Rintagi generates this same N-Tier application for its enterprise applications including:

Web Pages

Data Access Layer

Presentation Layer

Database Layer

Business Rules Layer

Framework

Web Pages: Based on user-specific design, Rintagi generates applications user interface, including the web pages, dialog pages, menus, and search and navigation components. Rintagi generates complex display components including tab folders with data from multiple database tables and from multiple servers.

Presentation Layer: Rintagi generates the code behind each of the ASPX pages and the user controls as modules from those pages.

Rintagi can generate a data grid comprised of data joined from multiple database tables and servers. A single update can simultaneously update multiple tables on different servers.

Reporting criteria is available to all reports, providing additional reporting flexibility to end-users. Last selected criteria are also cached for individual users. Users may designate each set of criteria with a name for the ease of running reports with the same criteria at a later time or at intervals.

Rintagi generates all of the user interface code necessary to support the application's web-based user interface, including filtering criteria and data validation logic for built-in data types. User-defined constraint rules can be set up to perform custom validation.

All web pages and presentation layers run on the client tier can be on a separate server from other tiers.

Business Layer: Adding custom application logic to applications generated by end-users is easy. Rintagi builds applications that are specifically designed to support all types of business rules: Constraints, Computation, Inference and Action Enablers. These rules can be applied

Business Rule Types

- Constraints
- Computation
- Inference
- Action Enablers

- instantly on the web page as **client rules** in JavaScript,
- upon post-back as **web rules** in C#, and
- before or after data manipulation as **server rules** as stored procedures.

Applications can be regenerated repeatedly without re-integrating these code extensions. In fact, this is why Rintagi can deliver applications with the highest performance because the data are manipulated where it is currently located, resulting in highest throughput and minimum network traffic.

Data Access Layer: As part of data security, all data manipulation must to go through this layer and can only be called via a business façade layer. Only the business façade layer is exposed. The data access codes on this layer encapsulate the characteristics of the databases so that the calling functions can focus on business logic issues.

These business façade and data access layers are wrapped inside web-services on a separate server and are available to both Rintagi generated client tiers or other user interfaces from other systems.

Database Layer: SQL stored procedures and queries needed for storing, retrieving, and filtering data are contained in the database. Rintagi will even generate complex queries including multi-table joins with one-to-many and many-to-many relationships. Most of the generated SQL is packaged as a set of database stored procedures in order to provide the best execution and performance with the fewest round trips to the database.

Rintagi automatically constructs the SQL queries required for each screen, import wizard and report. Rintagi also generates the database access logic that executes the SQL queries, including all data storage management.

Although this database layer can be a separate server like the previous two layers, all three tiers can run on a single server with superb performances because of the optimized codes which become well-tuned over time.

Framework: Rintagi generates web-based applications that run on the Microsoft .NET framework, making applications easier to integrate, deploy, and manage. The industry-standard codes generated can be modified easily using Microsoft Visual Studio. Development time is dramatically reduced leaving the developers to focus on customization and integration. Reports can be generated to run on Crystal Report engine or SQL Reporting Service.

Bridging the Business/Technical Chasm

Using Rintagi, business users may create simple applications using the interfaces provided, much like running any business application. They can then turn to technical staff to complete the applications using Rintagi-provided interfaces to add sophisticated business rules, advanced user interactions, etc.

Rintagi can create most advanced database applications. If you encounter features that Rintagi cannot address, we recommend either modification of Rintagi and notifying us so that we can incorporate your modifications into the next version of Rintagi; or you can make the change directly onto your generated code and mark the changes so that they can be reapplied after the next upgrade from Rintagi.

Unlike other enterprise systems, the older Rintagi gets, the ‘wiser’ it becomes and the more functional it and its generated applications will be.

Creating an Application

Application creation is part of the automated deployment process. The following executable installation process will create a new application for development of production. It can also be used to upgrade existing application or to create a new Rintagi.

Rintagi Installer

The screenshot shows the Rintagi Installer window with the following configuration options:

- RC Installer** (Title Bar)
- Rintagi Installer** (Logo and Title)
- Version:** R5.17.10802, V2.3.91123
- Administration Common Area**
- New** (Checkbox) **db Path:** E:\SQLData
- Developer** (Selected) **Production** (Unselected)
- Namespace from:** RO **to:** (Empty) **Web Server:** localhost
- Client Tier**
 - Path:** C:\inetpub\wwwroot\RO\Web **Browse...**
 - DotNet 2.0** (Unselected) **DotNet 3.5** (Selected)
- Regular Web Service Tier**
 - Path:** C:\inetpub\wwwroot\ROWS
- XLS Import Web Service Tier**
 - Path:** C:\inetpub\wwwroot\WsXls
- Rule Tier**
 - Path:** C:\Rintagi\RO **Browse...**
 - DotNet 2.0** (Unselected) **DotNet 3.5** (Selected)
- Data Tier**
 - Server Name:** (Empty) **MsSql 2005** (Selected)
 - User Name:** (Empty) **MsSql 2008** (Unselected)
 - Password:** (Empty) **Sybase 12.5** (Unselected)
- Client:** K:\Backup **Server:** K:\Backup **Backup** (Button)
- Cancel** (Button) **Install** (Button)
- Footer:** V3.0.10221 ©1999-2011 robocoder corporation. All rights reserved.

Customizing an Application

Web pages generated by Rintagi can be modified in many ways:

1. Screen, report or wizard
2. Menu style and structure
3. User preference
4. Style sheets

The ASPX web pages generated by

Rintagi are CSS 3.0 and HTML5 compliant. All pages generated are browsers independent. They have been well tested on many versions of IE, Firefox and Netscape. Using Web Rule, the following can be applied in addition to modifying web page layout by the above:

1. Add any number of database-bounded components.
2. Change the look and feel or style of the generated components.
3. Create component and page templates that can be applied to other pages.
4. Integrate with other applications.

Adding a New Screen

Log into the application as a developer, then

Select “Administration” system left of the login button. Then select “Screen Definition” as follows:

Screen Definition

Operation		
Screen	>	Screen Tab
Report	>	Screen Definition
Wizard	>	Screen Column
Menu	>	Screen Filter
Button	>	Screen Grouping
Custom	>	Screen Criteria
		Screen Criteria Map

Select the desired screen types:

1. Tab-Folder Only: single record update
2. Tab-Folder with Grid: single record update for tab-folder tables and multiple records update for grid tables
3. Data-Grid Only: multiple records for grid tables

Screen Layout

Sunday, August 17, 2008

Screen Definition Export

Screen Definition 3 of 3

Main Info Represent

Screen ID: 9 Detail Table: Adm - Screen Default Messages

Program Name*: AdmScreen Rows for Grid: 3

Screen Type*: Tab-Folder with Grid

Master Table: Adm - Screen Definition

Search Column: Screen - ScreenDesc

Search Width:

Ascending Order: ☒

Generate: ☒

Validate Request: ☒

CssClass for Grid:

Title for Grid:

DeleteAll Visible: ☒

1 of 2 Filter All On

Culture*	Help Message*	Foot Note	Screen Title*	Add Message	Update Message	M
U.S. English	Please select the appropriate screen, edit the contents, click the Save Button to make the		Screen Definition	A new screen has been created	The screen has been updated to database	The beer succ
Mainland Chinese	请选择合适的屏幕,编辑内容 点击更新按钮使更改永久或创建一个新的屏幕允许.		屏幕维修	已成功地创造了新的屏幕.	屏幕已经成功更新数据库.	屏幕i
French	Veuillez choisir l'écran approprié, éditer le contenu, cliquer le bouton de mise à jour pour rendre le		Entretien d'écran	Un nouvel écran a été créé avec	L'écran a été mis à jour à la base de	L'écr supp succ

The “Program Name” provided would be used as a prefix to all of the programs generated for this screen. A list of all the programs generated for the above screen can be obtained by Systems -> Program Listing and selecting the appropriate human language.

Program Listing Report

Order	Menu	Type	Program Name	Access
3.0.1	Screen Definition (ClnScrDef)	Screen	AdmScreen.aspx	Everyone
Client Tier List:	AdmScreen.aspx, AdmScreen.aspx.cs, AdmScreenModule.ascx, AdmScreenModule.ascx.cs			
Rule Tier List:	AdmScreenSystem.cs, AdmScreenRules.cs, AdmScreenAccess.cs			
Data Tier List:	GetLisAdmScreen9, GetDdlScreenTypeId3\$45, GetDdlSearchId3\$46, GetDdlCultureId3\$53, GetDdlMasterTableId3\$59, GetDdlDetailTableId3\$60, GetExpAdmScreen9, GetAdmScreen9ById, GetAdmScreen9Dt1ById			
Client Rule:				
Web Rule:	Get Default Culture for Screen Title			
Server Rule:	Ir_DelOldScronDel, Ir_DelOldScronRen, Ir_InitScreenObj			

In case you wants to know, the programs generated are distributed to three separate tiers identified in Web.config:

1. Client Tier: **key="ClientTierPath"**
2. Rule Tier: **key="RuleTierPath"**
3. Data Tier: **key="DataTierPath"**

```
<appSettings>
  <add key="ClientTierPath" value="C:\inetpub\wwwroot\RO\Web\"/>
  <add key="RuleTierPath" value="E:\RoboCoder\DotNet\RO\"/>
  <add key="DesServer" value="SERVER123"/>
</appSettings>
```

Modifying Page Layout

Page layout can be modified with Client Tier -> Screen -> Screen Columns Maintenance. Screen groups determine the layout of

columns and their labels, width and height. The Display Mode designates the appropriate controls for presentation of this column, etc.

Screen Column Design

Screen Column Properties Export

Screen: Screen Definition

AdmScreen 20: ProgramName

Object Id: 49	Screen*: <u>Screen Definition</u>	Default Value:
Master Table: <input checked="" type="checkbox"/>	Screen Group*: <u>ScrT1G1S1</u>	System Value:
Mandatory: <input checked="" type="checkbox"/>	Database Column: <u>Screen - ProgramName</u>	Aggregate:
Wrap: <input checked="" type="checkbox"/>	Column Name*: <u>ProgramName</u>	Refresh on CUD: <input type="checkbox"/>
Justify*: <u>Left</u>	Display Mode*: <u>TextBox</u>	Input Mask:
Width: 300	DropDown Key Column:	Range Type:
Height:	DropDown Ref Column:	Range Max:
Tab Folder: <u>Main Inf</u>	DropDown Sort Column:	Range Min:
Tab Order*: 20	DD Additional Column:	Trim On Entry: <input checked="" type="checkbox"/>
Sort Order:	= Screen Filter Column:	
	Search Link:	

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Culture*	Column Header	Width	Error Message	Tool Tips
U.S. English	Program Name	110	Please enter a unique User Program Name 20 characters or less.	This is the unique Program Name for t screen 20 characters or less.
French	Nom de programme	110	Veuillez entrer dans les caractères uniques ou moins d'un nom 20 de programme utilisateur.	C'est les caractères uniques ou moins nom 20 de programme.
Mainland Chinese	节目名称	110	请用户进入一个独特的节目名称或少于20个字。	这20个字是独一无二节目名称或更少。

Each column can further be designated as visible/invisible, read-only/editable and exportable/non-exportable for each individual user or groups.

Behavior Personalization

Visible*	Read Only*	Export*
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Modifying Style Sheets

Rintagi uses Cascading Style Sheet (CSS) files to specify the styles used for the web pages, panels and controls created for the application, providing a standard look-and-feel to the application. The style sheet files are located in the css directory. `_base.css` has all the underlying css base classes. `_screen.css` has the overriding css classes for screen related interfaces. `_print.css` is for reporting and printing use. All these can be overridden by user preference css described below, if any.

Modifying User Preference

User Preference should be used to change the functionality or look-and-feel of overall design theme. The colors, fonts, positioning, and other stylistic elements specified by the above style sheet can be overridden by the style sheet text box in this User Preference area. Splash image, menu options, shortcuts settings, quick launch, etc. can also be specified.

Each user-defined preference can be assigned to individual users, user groups or the entire system. A particular user may hide the company and/or system selection.

User Preference Configuration

User Preference

Administration Default Theme 1 of 1

Main Info Stylesheet Represent

Preference Name*:

Menu Option*:

Splash Image:

Page Image:

Company List Visible*:

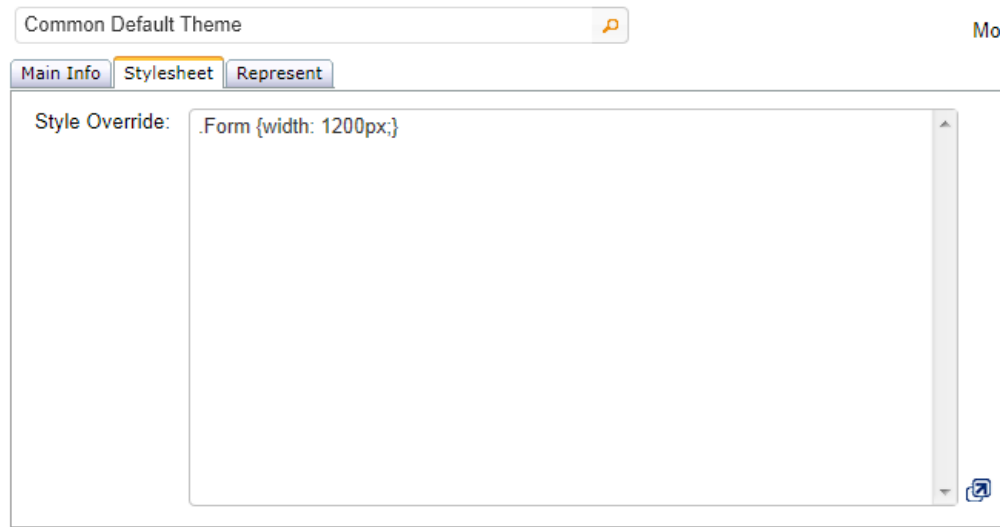
Project List Visible*:

System List Visible*:

Default for System: ☒

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Location*	Popup*	Hyperlink URL*	Hyperlink	Image URL
Page	<input checked="" type="checkbox"/>	http://canada411.ca	Yellow Page	
Page	<input checked="" type="checkbox"/>	AdmUsr.aspx?id=14	Change Password	
Page	<input checked="" type="checkbox"/>	http://www.google.com	Google	
Login	<input checked="" type="checkbox"/>	http://www.wellsfargo.com		images/speci.
Shortcut	<input type="checkbox"/>	AdmUsr.aspx?id=14		images/shorti
Shortcut	<input type="checkbox"/>	http://www.robocoder.com		images/shorti
Shortcut	<input checked="" type="checkbox"/>	http://www.qooqle.com		images/shorti




Multilingual Ready

Rintagi generated enterprise applications are multilingual. Once the application is built in English then labels, tool tips, messages, etc. in many other human languages can be automatically generated with Rintagi. Human translators may inspect and change to preferred phrases and wordings without involving technical staff. For those languages not provided automatically, translation into any Unicode supported language can be accomplished via Rintagi's user-friendly interface.

Each human language can be translated within minutes by the press of a button. It utilizes the Google automatic translation engine. The cost is minimal. Although not all translations are done properly, it is improving and correcting them using Rintagi interface is much faster and easier than translating from scratch.

Translator Screen

Culture Description*		Delete A
U.S. English		
French		
German		Delete
Mainland Chinese		Delete
Mexican Spanish		Delete
<input type="text" value="Russian"/>		Cancel Delete
U.K. English		Delete

Click here to translate all not-yet-translated items from default culture to this culture. This could take more than a few minutes.

If the above translation is not satisfactory, built-in screens provide editing capability for each individual translation.

Translation Editing

Culture*	Column Header	Width	Error Message	Tool Tips
U.S. English	Program Name	110	Please enter a unique User Program Name 20 characters or less.	This is the unique Program Name for this screen 20 characters or less.
French	Nom de programme	110	Veuillez entrer dans les caractères uniques ou moins d'un nom 20 de programme utilisateur.	C'est les caractères uniques ou moins du nom 20 de programme.
Mainland Chinese	节目名称	110	请用户进入一个独特的节目名称或少于20个字。	这20个字是独一无二节目名称或更少。

Each user is designated one or more user-defined user groups and a specific human language with a country-specific locale. Although each user may belong to many user groups, only one human language can be designated at a time.

User Management

The screenshot displays the 'User Manager' web interface. At the top, there's a header bar with 'User Manager' on the left and 'Export' and 'R' buttons on the right. Below the header, there are input fields for 'Email Address:', 'User Name:', and 'User Group:'. A search bar shows 'Nelson Lin' with a dropdown arrow and a '1 of 1' indicator. Below the search bar, there are three tabs: 'Main Info' (selected), 'Status', and 'Represent'. The 'Main Info' tab contains the following fields:

- User Id: 55
- Login Name*: Nelson Lin
- User Email: nelson.lin@robocoder.com
- User Name: Nelson Lin
- User Groups*: A list box containing 'Software Specialist', 'Solution Developer', 'Sys. Administrator', and 'Systems Engineer'. 'Solution Developer' is currently selected.
- User Culture*: U.S. English
- Default Company: robocoder corporation
- Default Project: (empty)
- Default System*: Administration

On the right side of the 'Main Info' tab, there are three checkboxes: 'Internal User:' (checked), 'Technical User:' (checked), and 'Impersonating*:' (set to 1).

Integrating Other Applications

Applications generated by Rintagi can be easily integrated with other existing applications and web pages. Rintagi-generated applications can operate as separate, independent applications because of the stateless nature of web programming. One application may call into another via the URL mechanism inherent in all web applications.

For example, Rintagi-generated applications can call any web page from within its menu.

Menu Access Screen

Menu Name*	Screen	Report	Wizard	Miscellaneous
GenCodScr				GenScreens.aspx
GenCodRpt				GenReports.aspx
GenCodWiz				GenWizards.aspx
GenCodCom				ComProgram.aspx
GenDplMst	Prepare Release			
GenDplIns				ComInstall.aspx
GenPorDb				GenDbPorting.aspx
GenPorSql				GenConvSql.aspx
Google	<input type="text"/>	<input type="text"/>	<input type="text"/>	http://www.google.com
OprRel				
OprEnr				EncryptPwd.aspx
OprManPwd	Change Password			
OprManUsr	User Manager			
OprManGrp	User Groups			
	Maintenance			
OprManPrf	User Preference			

Other applications can call any Rintagi-generated programs via a standard html anchor. For example: `testing`.

Integration can also be done via web rule, as well, where other web pages and web services of other applications can be called and the results integrated into Rintagi-generated applications.

Web Rule

Web Rule

Screen:

My Dashboards: Additional folder managment buttons and events 1 of 2

Main Info Represent

Web Rule Id: 35

Rule Name*: Additional folder managment buttons and events

Description: Additional Ascx code and event handlings

Rule Type*: Action Enabler

Screen*: My Dashboards

Screen Criteria:

Screen Column:

Screen Button:

Event*: Custom Function/Procedure

Server-side integration can be done via the database level with stored procedures, etc.

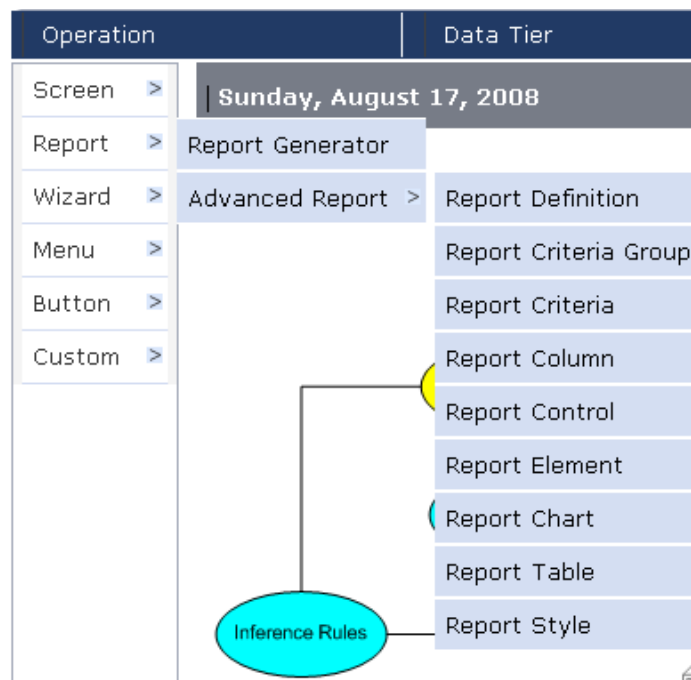
Adding a New Report

Rintagi enables business users to create simple list, tabular reports, charts, and dashboard gauges in minutes. Subsequently, if the business users determine that more sophisticated reports are required these simple reports can be forwarded to technical staff for further modification. The Report Generator can build simple reports as follows:

Report Generator

Operation	Data Tier	Rule Tier	Client Tier	Code Table	Report	Generation
Screen >	Sunday, August 17, 2008					
Report >	Shortcuts					
Wizard >	Report Generator					
Menu >	<div> <div>Nelson Report</div> <div>Module: Administration</div> </div>					
Button >	<div> <div>Main Info</div> <div>Layout</div> <div>Selected</div> <div>Sorting</div> <div>Grouping</div> <div>Charting</div> <div>Criteria</div> </div>					
Custom >	<div> <div>Report Name*: Nelson Report</div> <div>Description*: Testing report for Howard.</div> <div>Owned By: Nelson Lin</div> <div>Report Type*: List Report</div> <div>Changeable: <input checked="" type="checkbox"/></div> <div>e.g.:</div> <div>Active Users and User-Group</div> <div>This is the simplest and fastest way to list your data, grouped or ungrouped.</div> <div>Data Category: Administration: User Information</div> <div>Report on user information.</div> <div> <div>Login Name</div> <div>User E-Mail</div> <div>User Name</div> </div> <div> <div>User Group: Solution Developer</div> <div>Culture: en-US</div> <div>D</div> <div>BZ Developer</div> <div>bz@robocoder.com</div> <div>BZ Developer</div> <div>Roboc</div> <div>Impersonating Active User - Gary Wong</div> </div> </div>					

Selecting some of the followings can attain further sophistication:



Configuring Navigation Controls

Rintagi has a convenient built-in screen for configuring navigation menu panels.

Navigation Menu Screen

Menu Item

15 5 of 7 Filter All On

Menu ID	Parent Item	Menu Index*	Menu Name*	Screen	Report	Wizard	Miscellaneous
185	OprMan	400	OprManImp	User Impersonation			
212	OprRel	100	OprRelInf	Release Tracking			
213	OprRel	200	OprRelItm	Release Content			
233	Rpt	100	RptSys				
235	Rpt	300	RptPri	My Reports			
275	Rpt	350	DshPri	My Dashboards			
201	Rpt	400	RptBat				WfBatchRpt.aspx
205	RptSys	100	RptSysBizRule		Business Rules Listing		
210	RptSys	200	RptSysMsg		Message and Label Listing		
31	RptSys	300	RptSysDbTable		Tables and Columns		
211	RptSys	400	RptSysDataDict		Data Dictionary		
218	RptSys	500	RptSysPrgList		Program Listing		

Screen buttons can also be configured via a built-in screen. Not only display names and tool tips can be overridden by culture-specific and user-specified phrases but also they can be replaced with favorite or branded images.

Button Modification Screen

Button Characteristic Override

Culture: U.S. English

10 1 of 2 Filter All On

Culture*	Screen	Report	Wizard	Button Type*	Alternate Name	Alternate Tool Tip	Visible*	Image*
U.S. English	Change Password			Screen Export Txt			<input type="checkbox"/>	<input type="checkbox"/>
U.S. English	Change Password			Screen Export Rtf			<input type="checkbox"/>	<input type="checkbox"/>
U.S. English	Data Table and Columns			Screen Show Import Panel			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
U.S. English	Data Table and Columns			Screen Hide Import Panel			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
U.S. English	Report Generator			Screen Export Rtf			<input type="checkbox"/>	<input type="checkbox"/>
U.S. English	Report Generator			Screen Export Txt			<input type="checkbox"/>	<input type="checkbox"/>
U.S. English	Report Generator			Screen Save		Press this to save this record permanently and generate report definitions for advanced handling	<input checked="" type="checkbox"/>	<input type="checkbox"/>
U.S. English	Report Generator			Screen Preview		Press this to preview this report after save button is pressed	<input checked="" type="checkbox"/>	<input type="checkbox"/>
U.S. English	User Group			Screen Hide Import Panel			<input checked="" type="checkbox"/>	<input type="checkbox"/>
U.S. English	User Group			Screen Show Import Panel			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Building and Running Application

Application generation in Rintagi is easy. All screen, report, and wizard programs are automatically regenerated upon changes. All changes are dynamic seamless to the developers. When necessary, using the interface below, they can also be generated explicitly one by one or all at once, or in batches, allowing iterative modification of the application and quick regeneration to see changes.

Screen Auto Generation


Coding >
Porting >
Deployment >

Sunday, August 17, 2008

Generate Screens

Entity: Robot

Please select the appropriate project and database; then select one or more screens or check 'All Screens'. Click the 'Create' button to generate the respective programs. All default client/rule/data tiers will be regenerated regardless of the selected targets.



Client Tier: RO DotNet 3.5 C#

Rule Tier: RO DotNet 3.5 C#

Data Tier: RO MsSql Local

Database: Administration

All Screens: ☐

Search:

Advanced Rule

Button Characteristic Default

Button Characteristic Override

Change Password

Client Rule

Column Authority Assignment


Column Authority Default

Culture Type Code

Custom Code

Custom Content

Create

 robocoder corporation

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3/23/2015

During the application generation process, a variety of programs are generated for the application, including:

1. Web pages consisting of ASPX pages with ASCX controls and their code-behind classes.
2. Web rules embedded in the ascx code behind. Client rules are dynamic.
3. A set of database stored procedures composed of standard SQL queries for a designated database vendor. The principle of ACID is adhered. Transactions only commit if all business rules have been passed without error.
4. Server rules as explicit stored procedures.

Although compilation is automatic and seamless to Rintagi users, you may use Visual Studio to compile and perform low level diagnostic.

Rintagi generated applications can be tested on the development platform or be published to a test server for user acceptance testing. Deployment to production server is also just a press of a button in the cloud.

On-premises deployment, if so desired, is also as simple as generating one installer, and running it on the designated servers. The installer is one simple .exe file embedding all of the changes required for application to the target servers and databases. Clicking on a URL will run Rintagi-generated applications like any other web-based application. Each application developed will have its own separate URL to be distributed to those end-users who need access.

Prepare On-premises Deployment Package

Prepare Release Export Rich Text

Releases On or After: August 2008 Entity: Release Type:

RO: 3.16.80819: Robot runtime [PDT] 1 of 1

Main Info Script Comment

Release Id: 63 Release O/S*: Microsoft Windows Create Package:

Release Name*: Robot runtime Entity*: Robot Deploy Path: E:\DeployRO\

Release Build: 3.16.80819 Release Type*: Production Upgrade

Release Date: Friday, August 15, 2008

10 1 of 1 Filter: All On

Tier Type*	Run Order	Objects to deploy*	Source Object	Objects Exempted	Source Client	Target Client	Source Rule	Target Rule	Source Data	Target Data
Client	20	*, *		*.config data	RO DotNet 3.5 C#	RO DotNet 3.5 C#				
Data	30	RODesign		CtColAuthority CtRowAuthority Custom CustomDtl DataTier Printer					RO MsSql Local	RO MsSql Local
Data	40	RODesign		CtColAuthority CtRowAuthority Custom CustomDtl DataTier Printer					RO MsSql Local	RO Sybase Local

Document Control Audit

Rintagi automatically provides and updates four kinds of documentations that are usually difficult to keep up-to-date when applications are being enhanced frequently.

Data Dictionary

Program Listing

**Business Rules
Listing**

Message Listing

Data Dictionary

Each application generated by Rintagi keeps its own data model as meta-data or a blueprint. If a description has not been entered for each data column, the tool tips are copied to describe the data columns as they are entered. These descriptions can be modified from time to time to reflect the current definitions. As the application grows and changes, each additional data table or column is tracked and updated to the data dictionary.

Data Dictionary Screen

Data Dictionary

Name*:

1 of 30 100% Find | Next Select a format

8/17/2008 7:26:55 PM

Data Dictionary

Table: Adm - Advanced Rules

This captures all the advanced rules and contents for adding and replacing generated codes in Business Facade, Business Rule and Data Access layers.

Column Name	Data Type	Length	Null	PK	Description
AdvRuleId	Int	4	N	Y	This is the internal ID uniquely represents this Advanced Rule.
RuleLayerCd	Char	1	N	N	This is the rule layer to apply this Advanced Rule.
RuleName	NVarChar	100	N	N	This is the unique name or brief description for this advanced rule.
RuleDesc	NVarChar	150	Y	N	This is the unique description of the advanced rule for searching.
RuleDescription	NVarChar	500	Y	N	This is the detail description for this advanced

Business Rule Listing

Business rules will be covered in later volumes of advanced topics. For sophisticated developers, many different kinds and different types of business rules may apply to Rintagi-generated applications. In the traditional programming world, these business rules are usually embedded or hidden in the programs and are very difficult to extract. Thanks to the blueprint structure used by Rintagi, not only can business rules be extracted easily for modification, they can be listed anytime for reference and communication.

Business Rules Listing Report

Business Rules Listing

Navigation icons: Previous, Next, First, Last, 2 / 12, Main Report, 100%, Business Objects logo

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Business Rule Listing for Administration System

Order	Rule Type			Table Applied	Business Rule Name
Before	Add	Upd	Del	Procedure Name	Description
Screen: Culture Type Code					
100	Constraints			Adm - Culture Type Code Table	One and Only One Default Check
N	Y	Y	N	CrOneCultureDefaultOnly	
Total Screen Count: 1					
Screen: Custom Code					
100	Inference			Adm - Custom Code	Initialize Custom Code
N	Y	Y	N	Ir_InitCustom	Initialize Custom Code description
Total Screen Count: 1					
Screen: Custom Content					
50	Constraints			Adm - Custom Code Detail	Check language code, path format, etc.
N	Y	Y	N	Cr_ChkCustomDtl	Check language code, path format, etc.
100	Inference			Adm - Custom Code Detail	Update description, etc.
N	Y	Y	N	Ir_UpdCustomDtl	Update description, etc.
Total Screen Count: 2					
Screen: Data Table and Columns					
10	Constraints			Adm - Data Table Characteristic	Check Duplicate Table Name
Y	Y	Y	N	Cr_ChkDupTblByName	Ensure unique table names are referenced
20	Constraints			Adm - Data Table Characteristic	Check Primary Keys
N	Y	Y	N	Cr_ChkPrimaryKey	Make sure there is one and only one primary key column.
30	Constraints			Adm - Data Table Columns	Prevent keywords being used as column name
N	Y	Y	N	Cr_ChkDbColumn	Prevent keywords being used as column name
40	Constraints			Adm - Data Table Columns	Prevent column from being deleted when referenced
Y	N	N	Y	Cr_DelDbColumn	Do not delete if referenced by screen, etc.
50	Inference			Adm - Data Table Characteristic	Update Data Column Description by table change
N	Y	Y	N	Ir_UpdDbColumn	Update data column Description by table change
60	Inference			Adm - Data Table Columns	Update Data Column information by column change
Y	N	Y	N	Ir_UpdColByCol	Update Data Column information by column change
70	Inference			Adm - Data Table Columns	Update Column order and default by column change
N	Y	Y	N	Ir_UpdIndByCol	Update Column order and default by column change
80	Inference			Adm - Data Table Columns	Erase delete references of column
Y	N	N	Y	Ir_DelRefColumn	Cascade delete references of this column
Total Screen Count: 8					

Program Listing

In the past the tracking of computer programs was an arduous process. Not so with Rintagi as programs are being generated and maintained constantly by itself. Custom programs can be added but they will not be listed here.

Program Listing Report

Program Listing

Navigation icons: Previous, Next, First, Last, Search, Print, Zoom (100%), Business Objects logo.

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Programs Listing for Administration in U.S. English




Order	Menu	Type	Program Name	Access
1.0	Table and Column (DatTbl)	Screen	AdmDbTable.aspx	Everyone
Client Tier List:	AdmDbTable.aspx, AdmDbTable.aspx.cs, AdmDbTableModule.ascx, AdmDbTableModule.ascx.cs			
Rule Tier List:	AdmDbTableSystem.cs, AdmDbTableRules.cs, AdmDbTableAccess.cs			
Data Tier List:	GetLisAdmDbTable2, GetDdlDataType3S17, GetDdlSystemId3S430, GetDdlModifiedBy3S1451, GetExpAdmDbTable2, GetAdmDbTable2ById, GetAdmDbTable2DtlById			
Client Rule:				
Web Rule:	Synchronize by the physical database, Confirm message for Synchronization icons, Analyze database changes prior to synchronization, Synchronize to the physical database			
Server Rule:	Cr_ChkDbColumn, Cr_ChkDupTblByName, Cr_ChkPrimaryKey, Cr_DelDbColumn, Ir_DelRefColumn, Ir_UpdColByCol, Ir_UpdDbColumn, Ir_UpdIndByCol			

Message Listing

By selecting a desired human language, an up-to-date listing of all of the screen online help messages, labels, tool tips and error messages are immediately available.

Message Listing Report

Message and Label Listing  [View](#) [PDF](#) [Word](#)

1 / 42  Main Report  100% 

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Message and Label Listing for Administration System in U.S. English

Master	Order	Column Heading	Tool Tip	Error Message
System: Administration				
Screen: Advanced Rule		Help: Please select the appropriate Screen and layer to apply this rule, edit the advanced rule, then click the Save Button to add or Save permanently.		
Menu: Advanced Rule				
Y	10	Rule Id	This is the internal ID uniquely represents this Advanced Rule.	
Y	20	Rule Layer	This is the rule layer to apply this Advanced Rule.	Please select the rule layer to apply this Advanced Rule.
Y	30	Screen	This is the screen to apply this advanced rule.	Please select the screen to apply this advanced rule.
Y	40	Rule Name	This is the engine name or brief description for this advanced rule.	Please enter a unique name or brief description for this advanced rule.
Y	50	Description	This is the detail description for this advanced rule.	
Y	60	To Remove	Please specify the name of the function/ procedure to be removed, if applicable.	
Y	70	To be Added	This is the well tested functions/ procedures to add to the specified layer.	Please copy to here the well tested functions/ procedures to add to the specified layer.
Screen: Button Characteristic Default				
Menu: Button Default		Help: Please add, edit or delete the appropriate button characteristic defaults, click the Save Button to make all changes permanent. Please make sure all buttons have a representation in English.		
Y	10	Hlp Id	This is the internal ID uniquely represents this button characteristic default.	
Y	20	Culture	This is the culture for this button characteristic default.	Please select the culture for this button characteristic default.
Y	30	Button Type	This is the button type this button characteristic override should apply.	Please select the button type this button characteristic override should apply.
Y	40	Button Name	This is the default name to be displayed on this button type.	Please enter the default name to be displayed on this button type.
Y	50	Button ToolTip	This is the default tool tip to be displayed on this button type.	Please enter the default tool tip to be displayed on this button type.

Usage and Version Tracking



Because of the robust design of Rintagi, daily, weekly and monthly releases are common. Rintagi automatically tracks the usage and the contents of each release:



1. Usage Report
2. Release Tracking

Usage Report

A comprehensive list of criteria is available to the administrator for tracking the usage of the applications. This includes Rintagi itself, as it is self-generated.

Usage Report Criteria

Usage Report  [View](#) [PDF](#) [Word](#) [Excel](#) [Export](#) [Print](#) HP LaserJet 3300 

Summary: ☒ System: **Administration** From:  November 2007 To:  August 2008

Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
28	29	30	31	1	2	3	27	28	29	30	31	1	2
4	5	6	7	8	9	10	3	4	5	6	7	8	9
11	12	13	14	15	16	17	10	11	12	13	14	15	16
18	19	20	21	22	23	24	17	18	19	20	21	22	23
25	26	27	28	29	30	1	24	25	26	27	28	29	30
2	3	4	5	6	7	8	31	1	2	3	4	5	6

Agent: Customer:





Broker: Investor:

Vendor: Member:

User Group: User: **Nelson Lin**

Usage Report

Usage Report

1 / 2  Main Report   100% 

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Usage Report for Administration

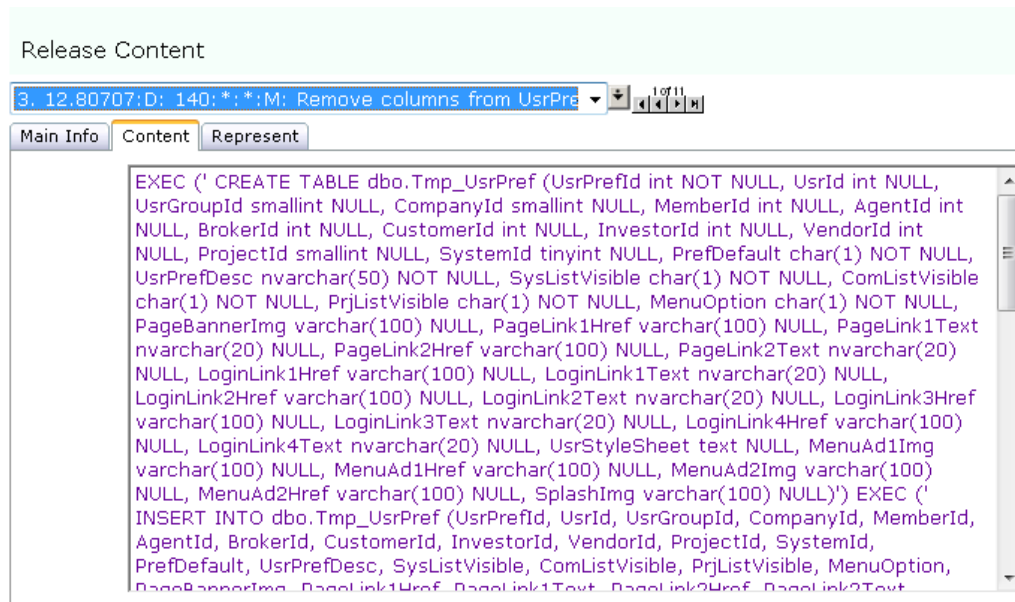
of Times

Advanced Rule	30
Business Rules Listing	40
Button Characteristic Default	18
Button Characteristic Override	50
Change Password	322
Client Rule Maintenance	36
Column Authority Assignment	52
Column Authority Default	2
Column Authorization Assignment	6
Culture Type Code Maintenance	10
Custom Code	12
Custom Content	8
Data Category	20
Data Dictionary	76
Data Table and Columns Maintenance	870
Default Column Authority	14
Default Row Authority	42
Display Type Code Maintenance	6
Encrypt Password	28
Entretien d'utilisateur	2
Foreign Keys Maintenance	154
Howard Report	4
Import Templates	12
Menu Item	2
Menu Items Maintenance	216
Menu Labels Maintenance	82
Menu Permission Maintenance	34
Message and Label Listing	14
Message Center Maintenance	48
My Dashboards	378
My Reports	586
Password Override Type	4
Peter Report	246
Prepare Release	296
Program Listing	14
Release Content	416
--	--

Release Tracking

Rintagi automatically creates the necessary change script to be executed on the next release each time the data model is modified. No hand-coding is necessary although you may add more to them at your own will.

Release Tracking



A report is also available as readme for tracking manually prepared release notes:

Release Readme File

Release Readme Notes

Name*:

2 of 2 100% Find | Next Select a format

8/17/2008 7:57:47 PM

Release Readme Notes

Version #	Date	Prerequisite
3. 10.80326	2008.03.26	
3. 11.80415	2008.04.15	Add Application Service Database to SQL Server: 1. Run cmd: C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727\aspnet_regsql.exe -E -S localhost -A all 2. Insert to Web.config just below AppSettings: <connectionStrings> <clear/> <add name="LocalSQLServer" connectionString="Server=RND08;Database=aspnetdb;trusted_connection=no;User ID=Persona;password=Persona"/> </connectionStrings> 3. Add login and user "Persona" to database "aspnetdb" to own and run everything 3. 12.80707 2008.07.07 Add to Web.config: <add key="SmtpServer" value="pop.robocoder.com"/> Delete DeployMgr*,* and DeployWs*,* from development client. Modifv Web.config:

Security & Policy

In the old days when enterprise applications are on-premises, physical access was on the top of the list of major concerns when it comes to computer security. Then Virtual Private Network becomes a security concern, when the private network is extended across a public network, such as the Internet. Today many of our clients are running their enterprise applications from the cloud. Literally anyone knowing the URL can access their applications from any browsers on any computer in the world. As part of the access control, Rintagi addresses that by IP Allow List, customized password complexity requirements, CAPTCHA, etc.

Once authenticated, authority is assigned based on role, organization, responsibility and business rules. These security controls have enable generated applications that are not only multi-tenant, but also connecting customers and vendors to share valuable data online and real time for effective and efficient communications.

In addition, with the exception of authorized developers, all data entry screens are protected from script injection attack.

Access Policy

The access policy includes the following aspects of access management:

- User authentication controlled solely by user account and password combination;

- User may have multiple login sessions simultaneously;
- Multiple user accounts can share the same email address;

Password Policy

The password policy includes the following aspects of password management:

- All passwords are stored via secured salted one-way hash;
- Users are prohibited from login after five (5) consecutive unsuccessful login attempts, regardless if the login name is found;
- User may change password at any time; Administrator may set it up to be changed every n days via password expiration, default is 180 days;
- Administrator may inactive a user login at any time;
- User cannot reuse existing password as default; Administrator may set it up so that User cannot reuse n existing passwords used in the past;
- Force new user to change password upon first login;
- Enforce custom password complexity policy (eg. minimum length, mix of case and alphanumeric, etc.); Typical minimum length (8 characters at least one alpha, one numeric and a capital letter); this can be configured easily in Web.config;
- Email user on unsafe IP address upon login; user may respond positively to keep this IP on the safe list or change password right away.

Login Audit

Successful and unsuccessful logins are tracked and can be reported as follow.

Login Audit Report

Login Audit Report

CRITERIA

Successful:

Valid User:

Login Name:

From Date:

To Date:

☒

Login Audit Report

Success:Y From:2015.03.01


Date & Time	IP Address	Login Name	Valid User	Successful
3/18/2015 6:33:30	[REDACTED]		Y	Y
3/18/2015 6:41:26	[REDACTED]	nelson lin	Y	Y
3/18/2015 6:49:31	[REDACTED]	nelson lin	Y	Y
3/18/2015 6:56:21	[REDACTED]	nelson lin	Y	Y
3/18/2015 6:57:32	[REDACTED]	nelson lin	Y	Y
3/20/2015 5:47:14	[REDACTED]	nelson lin	Y	Y
3/21/2015 12:20:42	[REDACTED]	nelson lin	Y	Y
3/21/2015 12:53:51	[REDACTED]	nelson lin	Y	Y
3/23/2015 3:25:57	[REDACTED]	nelson lin	Y	Y
3/23/2015 4:49:52	[REDACTED]	nelson lin	Y	Y

Permission Listing

By selecting a desired human language, an up-to-date listing of all authorization permitted to access or denied from access are displayed. It covers four sections: Menu, Report, Screen, and Import Wizard. Checking Active-User-Only will exclude user groups or other entities that have no users assigned to them. Details of authorizations and permission management can be found in the User Guide Volume 6 – Rights Management.

Permission Listing Report

Permission Listing

CRITERIA 

Active User Only: ☒ Human Language*: System*: ☒ Administration ☐ Common App

1 of 12

Find | Next

3/23/2015 10:01:52 AM

Permission Listing

Active User Only:Y System:Administration Culture:English (United States)


	TITLE	ENTITY / USER NAME	VIEW	ADD	UPD	DEL
MENU						
	Client Tier	** EVERYONE **	YES	N/A	N/A	N/A
	Data Tier	** EVERYONE **	YES	N/A	N/A	N/A
	Generation	UsrGroup: Sys Administrator: Nelson Lin	YES	N/A	N/A	N/A
	Help	** EVERYONE **	YES	N/A	N/A	N/A
	Maintenance	** EVERYONE **	YES	N/A	N/A	N/A
	Operation	** EVERYONE **	YES	N/A	N/A	N/A
	Report	** EVERYONE **	YES	N/A	N/A	N/A
	Rule Tier	** EVERYONE **	YES	N/A	N/A	N/A
	>Advanced Report	** EVERYONE **	YES	N/A	N/A	N/A
	>Advanced Topics	UsrGroup: Sys Administrator: Nelson Lin	YES	N/A	N/A	N/A
	>Architectural Design	UsrGroup: Sys Administrator: Nelson Lin	YES	N/A	N/A	N/A

User Listing

This is a list of all the users, their general authorization levels and who they may be impersonating. Details of authorizations and permission management can be found in the User Guide Volume 6 – Rights Management.

User Listing Report

Users Information

CRITERIA


Active Users*:
User Group:
Company:

Yes
Robocoder Corporation

Users & Impersonation Listing

Active Users and User-Group: ALL and Company: Robocoder Corporation

Login Name	User E-Mail	User Name	Company	Investor	Customer	Vendor	Agent	Broker	Member
<div> User Group: Anonymous Culture-en-US Default Row Authority:No access Default Col Authority: </div> <div> Anonymous Anonymous@robocoder.com Anonymous </div> <div> Total Anonymous 1 </div>									
<div> User Group: Rintagi Viewer Culture-en-US Default Row Authority:View all only Default Col Authority: </div> <div> Tester1 nelson.lin1@gmail.com Tester1 </div> <div> Total Rintagi Viewer 1 </div>									
<div> User Group: Software Specialist Culture-en-US Default Row Authority:View self, Add, Edit and Delete Default Col Authority: </div> <div> IT Developer it@robocoder.com IT Developer </div> <div> Impersonating Active User ... BZ Developer </div> <div> Total Software Specialist 1 </div>									