

# System Administration

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## S200 System Administration | Advanced

### Training Guide

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Software Version - 2017 R2

# Introduction

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An understanding of Windows Administration Tools is required for this course. Also, you should be familiar with the processes of installing, supporting, and maintaining servers or other computer systems.

This course introduces the basic aspects of Acumatica ERP 2017 R2 system administration. The course is based on a set of examples that demonstrate how to install the system, apply updates, publish customizations, create snapshots, manage user security, and perform the initial system configuration. The course consists of lessons that guide you step by step from the preparation of the installation to the configuration and use of Acumatica ERP.

After you complete the course, you will have an understanding of how to deploy an Acumatica ERP website from scratch and what has to be done before other users get access to it.

This course introduces the advanced functionality of the Acumatica ERP financial modules (General Ledger, Cash Management, Accounts Payable, and Accounts Receivable). In this course, you will set up the financial modules for two related companies (legal entities) based on their organizational structure and the reporting and transaction processing requirements. You will set up automatically balanced intercompany transactions for the companies. Then you will implement the advanced business processes for the companies, including budgeting, reconciling cash accounts, tracking payments to 1099 vendors, and managing customer prices and discounts.

The course also describes how you can import data into the system in order to migrate the companies to Acumatica ERP from other systems. The data import includes the import of trial balances or general ledger transactions, import of vendor and customer records, and import of open documents.

The course consists of lessons that will guide you step by step through the configuration and use of Acumatica ERP, and data migration. After you complete the course, you will have an understanding of how you can set up Acumatica ERP for financial accounting in related companies, how you can implement advanced processes in the system, and how you can migrate financial data to Acumatica ERP.

# How to Use This Course

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You will learn about the Acumatica ERP system administration, starting with system installation and proceeding to maintenance and initial configuration.

To complete the course, perform the lessons from each part of the course in the order they are presented in and pass the assessment tests as follows:

1. Start with Part 1, and complete Lessons 1–5, which are dedicated to the installation of the system.
2. On Acumatica University, take *Test 1: Installation*.
3. Complete Part 2, which is focused on the maintenance of the system and the configuration of the system that is performed on the server side.
4. On Acumatica University, take *Test 2: Maintenance*.
5. Complete Part 3, which is focused on system users, user roles, and system security.
6. On Acumatica University, take *Test 3: System Security*.
7. Complete Part 4, which is focused on system configuration and management.
8. On Acumatica University, take *Test 4: System Configuration and Management*.

After you pass all four assessment tests, you will get the Acumatica University certificate that reflects the completion of the course.

## What Is in a Part?

Each of the four parts of the course is dedicated to a particular area of system administration and consists of lessons you are supposed to complete.

## What Is in a Lesson?

The lessons consist of steps that outline the procedures you are completing and describe the related concepts you are learning. At the end of each step, under the *Related Information* section, you can find links to detailed information about the concepts and forms used in the step. At the end of each lesson, the *Additional Information* topic provides links to additional concepts that you might be interested in but that are outside of the scope of the course.

## How Should I Use Review Questions?

Review questions help you remember the key ideas of a lesson. After you have completed a lesson, answer the review questions. Then review the related parts of the lesson, if needed.

## What Are the Documentation Resources?

All the links listed in the *Related Links* sections refer to the documentation available on the <https://help.acumatica.com/> website. These and other topics are also included in the Acumatica ERP instance and can be found under the **Help** menu.

## Part 1: Installation

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In this part of the course, you will learn the system requirements and receive detailed instructions for installing Acumatica ERP in data centers and also how to create an Acumatica Self-Service Portal. In particular, you will learn about the following tasks:

- Deploying the Acumatica Self-Service Portal
- Deploying Acumatica ERP on Windows Azure
- Deploying Acumatica ERP on AWS

## Lesson 1: Self-Service Portal

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In this lesson, you will learn the installation and deployment options for the Acumatica Self-Service Portal.

Acumatica ERP gives your company's employees a complete set of business software applications that your users can use anytime, from anywhere, on virtually any device. Although your employees have been able to communicate information with your customers through emails, phone calls, and postal mail, customers expect to have the information they need from your company at their fingertips anytime.

The Acumatica Self-Service Portal provides a solution for you to work and communicate with your customers more efficiently. By using this site, your customers can view all the relevant information about their interactions with you as a vendor and perform needed activities.

The process of setting up Acumatica Self-Service Portal is similar to that of creating a new Acumatica ERP instance.

### Lesson Objectives

You will do the following:

- Learn about the deployment of the Acumatica Self-Service Portal
- Learn about activating a Acumatica Self-Service Portal license
- Learn about specifying the company that is visible for Acumatica Self-Service Portal users

## Step 1.1: Installing Acumatica ERP

In this step, you will install the Acumatica ERP Configuration Wizard. Normally, the Acumatica ERP Configuration Wizard is installed on a dedicated application server or servers. In this training, you will use your computer as the server hosting application and database.

Perform the following instructions:

1. Open the [Acumatica Partner Portal](#).

You will need your partner user name and password to access the site.

2. Under **Product Links** in the left pane, click **Download Acumatica**.

3. Under **Current Products** in the left pane, click **Acumatica 2017 R2**.

The page where you can download the selected version and read the release notes is displayed, as shown in the screenshot below.

Click the download link, and save the Windows installer package (.msi).

The screenshot shows the Acumatica Partner Portal homepage. On the left, there's a sidebar with links like 'Current Products', 'Add-Ins', 'Pre-Release Software', 'Documentation', 'Previous Versions', and 'Acumatica 1.2'. The main content area has a heading 'Acumatica 2017 R2 is now available for download.' Below it, three download links are listed: 'Acumatica ERP 2017 R2 (231 MB)', 'Acumatica Framework 2017 R2 (239 MB)', and 'Acumatica Report Designer 2017 R2 (3 MB)'. The first link is highlighted with a yellow box. To the right, there are sections for 'Build' (Version 17.202.0016, Published November 20, 2017), 'Tips' (recommend installing OS updates), and 'Links' (User License Agreements, PCP, PCS, SaaS, Release Notes, Known Issues, SalesDemo data). At the bottom, it says 'Acumatica 2017 R2 requires .NET 4.7.' and provides a link to 'Instructions for installing .NET 4.7.'

**Figure: Page where you download Acumatica Partner Portal**

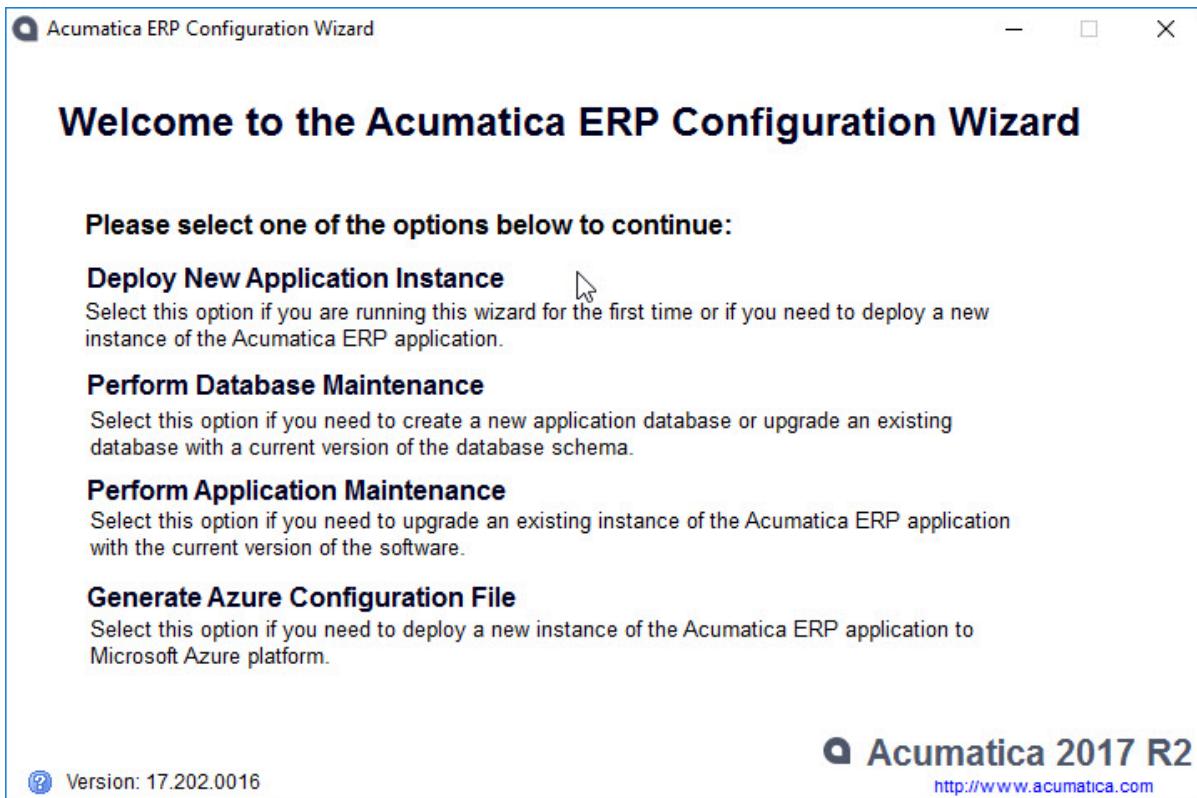
4. Run the `AcumaticaERPIinstall.msi` file that you have downloaded in the previous instruction. The Welcome page of the installer is displayed.
5. Click **Next**.
6. On the License Agreement page, read the license agreement.
7. To accept the license agreement, click **I Agree** and click **Next**.
8. On the Main Software Configuration page, select the **Launch the Acumatica ERP Configuration Wizard** check box, and click **Next**.
9. On the Select Installation Folder page, specify the location where you want to install Acumatica ERP, and then click **Next**.



Before you clicked **Next**, you could have clicked **Disk Cost** to view the list of the drives where you can install Acumatica ERP, along with the available and required disk space on each drive.

- 10.** On the Confirm Installation page, click **Next**. Wait while the Acumatica ERP software is being installed.

When the installation process has completed, the Acumatica ERP Configuration Wizard is started automatically and the Welcome page of the Acumatica ERP Configuration Wizard is displayed, as shown in the screenshot below.



**Figure: Welcome page of the Acumatica ERP Configuration Wizard**

You can also run the Acumatica ERP Configuration Wizard anytime by selecting **Acumatica > Acumatica ERP Configuration** from the Windows Start menu.

## Step 1.2: Deploying an Acumatica ERP Instance

In this step, you will create an Acumatica ERP application instance with the demo dataset inserted.

You will also sign in to this instance and create a new user (*Edward Perry*) who is supposed to be the Self-Service Portal user. In this step, you, as an administrator, will assign the sufficient access rights to this user by assigning the user the *Portal User* built-in user role. With this role assigned, the user will be able to sign in to the Self-Service Portal and perform the changes you permit.

Perform the following instructions:

1. Run the Acumatica ERP Configuration Wizard by clicking **Start > Acumatica > Acumatica ERP Configuration**.
2. On the Welcome page, click **Deploy New Application Instance**.
3. On the Database Server Connection page, specify the following settings, and click **Next** to proceed to the next page:
  - **Server type:** Microsoft SQL Server
  - **Server name:** (local)
  - **Windows Authentication:** Selected
4. On the Database Configuration page, specify the following settings, and click **Next** to proceed to the next page:
  - **Create a new database:** Selected
  - **New database's name:** AcumaticaDB
5. On the Company Setup page, double-click in the **Insert Data** column in the automatically created row with *Company*, and select *I100* from the dropdown list, as shown in the following screenshot.

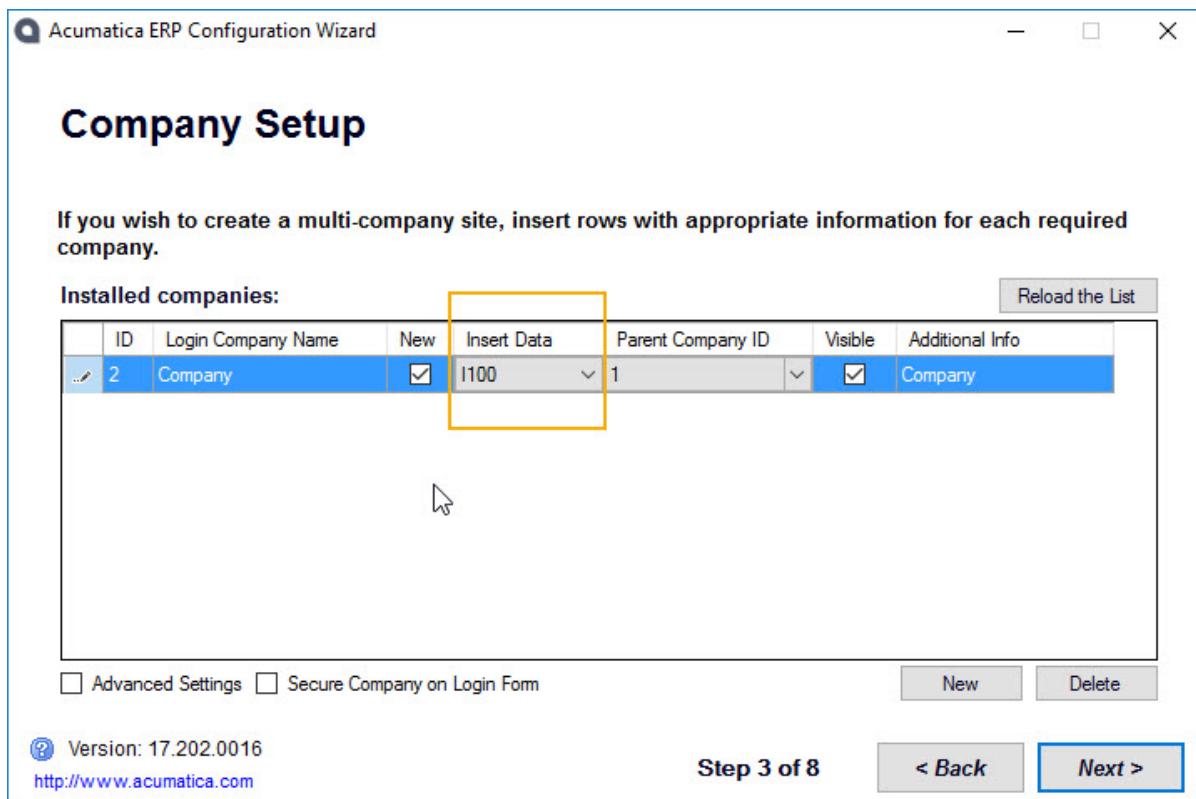


Figure: Selection of the demo dataset

6. Click **Next** to proceed to the next page.

7. On the Database Connection page, select **Windows Authentication** and click **Next**.
8. On the Instance Configuration page, specify the following settings, and click **Next** to proceed to the next page:
  - **Instance Name:** AcumaticaERP
  - **Create Portal:** Cleared
  - **Local Path of the Instance:** The path on the local computer to the application instance
9. On the Web Site Configuration page, specify the following settings, and click **Next** to proceed to the next page:
  - **Web Site Settings:** Default Web Site
  - **Use Existing Application Pool:** Selected
  - List of existing application pools: DefaultAppPool
10. On the Confirm Configuration page, click **Finish**, and wait while the new application instance is created.
11. After the installation has completed, click **OK** in the dialog box, which opens, to return to the Acumatica ERP Configuration Wizard, and then click **Perform Application Maintenance**.

The list of existing application instances now contains one site: *AcumaticaERP*, as shown in the following screenshot.

Instance Name	Database	Site Version	DB Version	Site Path
✓ AcumaticaERP	MSK-WS-88\Acumatica...	17.202.0016	17.202.0016	C:\Program Files (x86)\Acumatica ERP\Acuma...

**Installed sites:**

**Reload the List**

**New** **Delete** **Upgrade** **Change Database** **Instance Info**  
**Launch** **Company Maintenance**

Version: 17.202.0016 [< Back](http://www.acumatica.com)

**Figure: List of application instances**

12. Click the *AcumaticaERP* instance, and click **Launch**.
13. On the Welcome page of the *AcumaticaERP* instance, sign in as *admin* with the *setup* password; then change the default password to *123*, and sign in to the instance.
14. To create the future Self-Service Portal user, open the Contacts form (CR3020PL; Organization > Customer Management > Manage).

**15.** On the form toolbar, click **New Record**, and on the Contacts form (CR302000), which opens, specify the following settings:

- **Business Account:** C000000002 - Microchip Restaurant
- **First Name:** Edward
- **Last Name:** Perry
- **Email:** Your email address
- **Country:** US

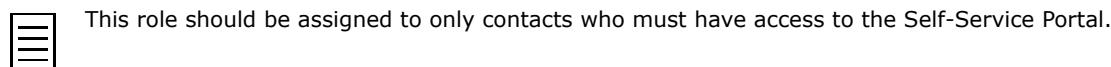
**16.** On the form toolbar, click **Save**.

**17.** On the **User Info** tab, click the pencil icon right of the **User Type** box.

**18.** On the User Types form (EP202500), which opens, specify the following settings and save your changes:

- **User Type:** Portal User
- **Linked Entity:** Contact
- **Description:** Portal User

**19.** On the **Allowed Roles** tab, click **Add Row**, and in the **Role Name** column, select *Portal User*.



**20.** Select the **Default** check box next to the added row, as shown in the screenshot below.

Because this check box is selected, the role in this row will be assigned to any new user of the type.

The screenshot shows the 'Software Inc User Types' form with the 'ALLOWED ROLES' tab selected. A new row has been added to the grid:

	Default	*Role Name	Role Description
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Portal User	Portal user

**Figure: Creation of a user type**

**21.** On the form toolbar, click **Save & Close**.

**22.** On the **User Info** tab of the Contacts form (CR302000), select *Portal User* in the **User Type** box.

**23.** In the **Login** box, type *perry*.

**24.** Clear the **Generate Password** check box, and type *123* in the **Password** box.

**25.** On the form toolbar, click **Save**.

Notice that the *Portal User* built-in role is automatically assigned to the *perry* user that you have just created. This user also has *Edward Perry* specified in the Linked Entity box.

Now you are ready to deploy the Self-Service Portal instance that is connected to the *AcumaticaERP* instance.

## Related Links

[Built-in Roles](#)

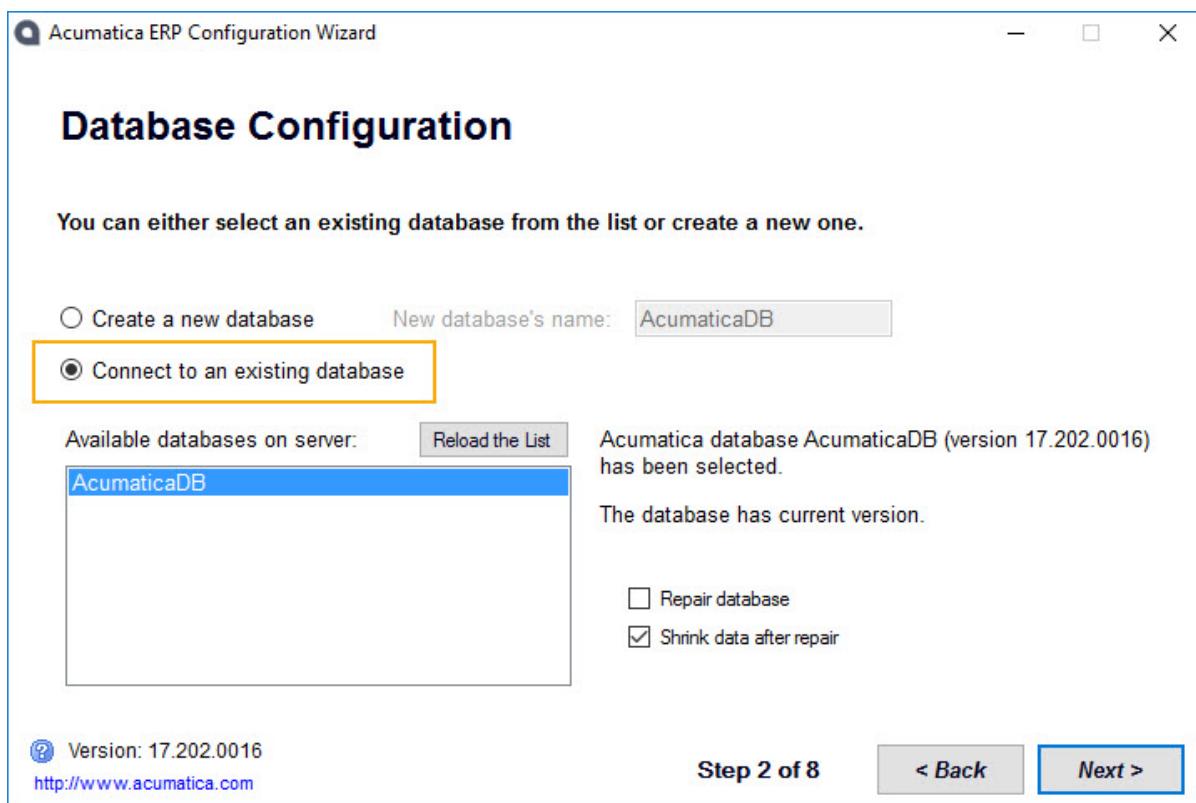
## Step 1.3: Deploying a Self-Service Portal Instance

In this step, you will deploy a Self-Service Portal application instance.

You will also sign in to this instance as *Edward Perry* and make a change to the business account to which this user has access. Then you will open the application instance that uses the same database as the Self-Service Portal application instance and make sure that the change has appeared.

To create a Self-Service Portal instance, perform the following instructions:

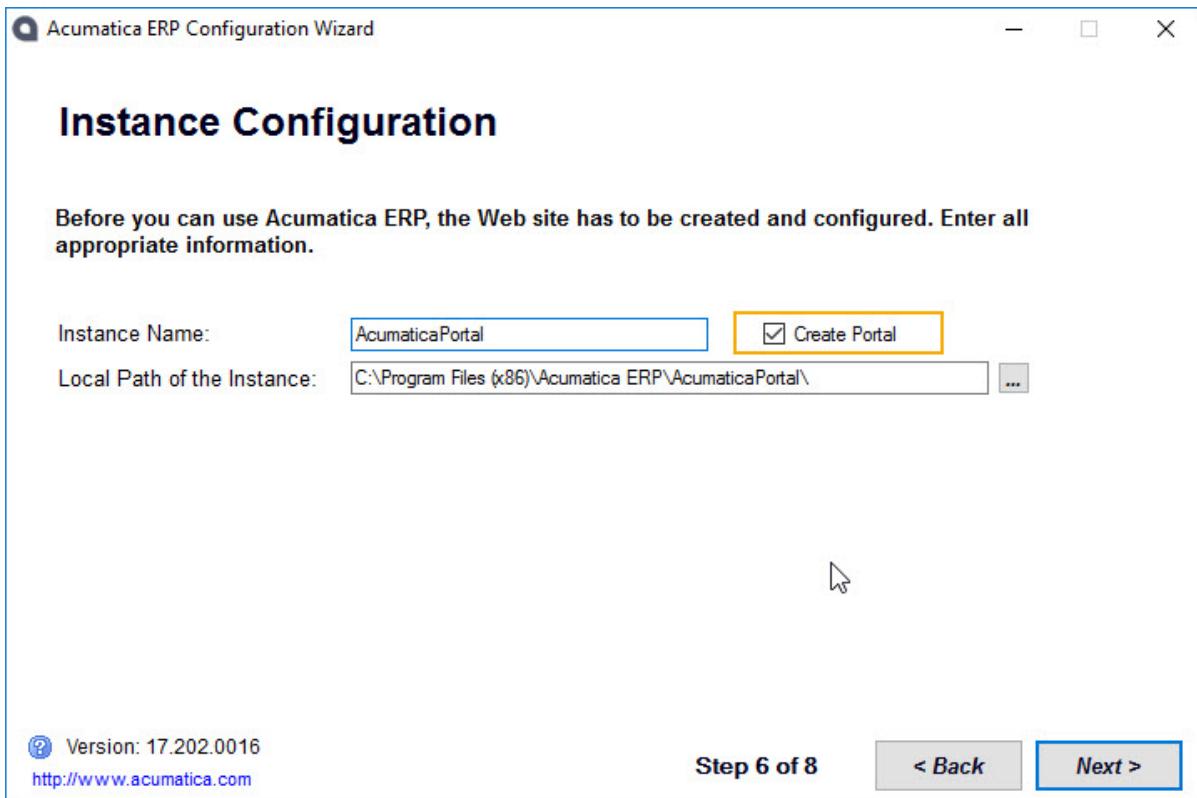
1. Run the Acumatica ERP Configuration Wizard by clicking **Start > Acumatica > Acumatica ERP Configuration**.
2. On the Welcome page, click **Deploy New Application Instance**.
3. On the Database Server Connection page, specify the following settings, and click **Next** to proceed to the next page:
  - **Server type:** Microsoft SQL Server
  - **Server name:** (local)
  - **Windows Authentication:** Selected
4. On the Database Configuration page, specify the following settings, as shown in the screenshot below, and click **Next** to proceed to the next page:
  - **Connect to an existing database:** Selected
  - **Available databases on server:** AcumaticaDB



**Figure: Self-Service Portal setup**

5. On the Company Setup page, click **Next** to proceed to the next page.
6. On the Database Connection page, select **Windows Authentication** and click **Next**.
7. On the Instance Configuration page, specify the following settings, as shown in the following screenshot, and click **Next** to proceed to the next page:

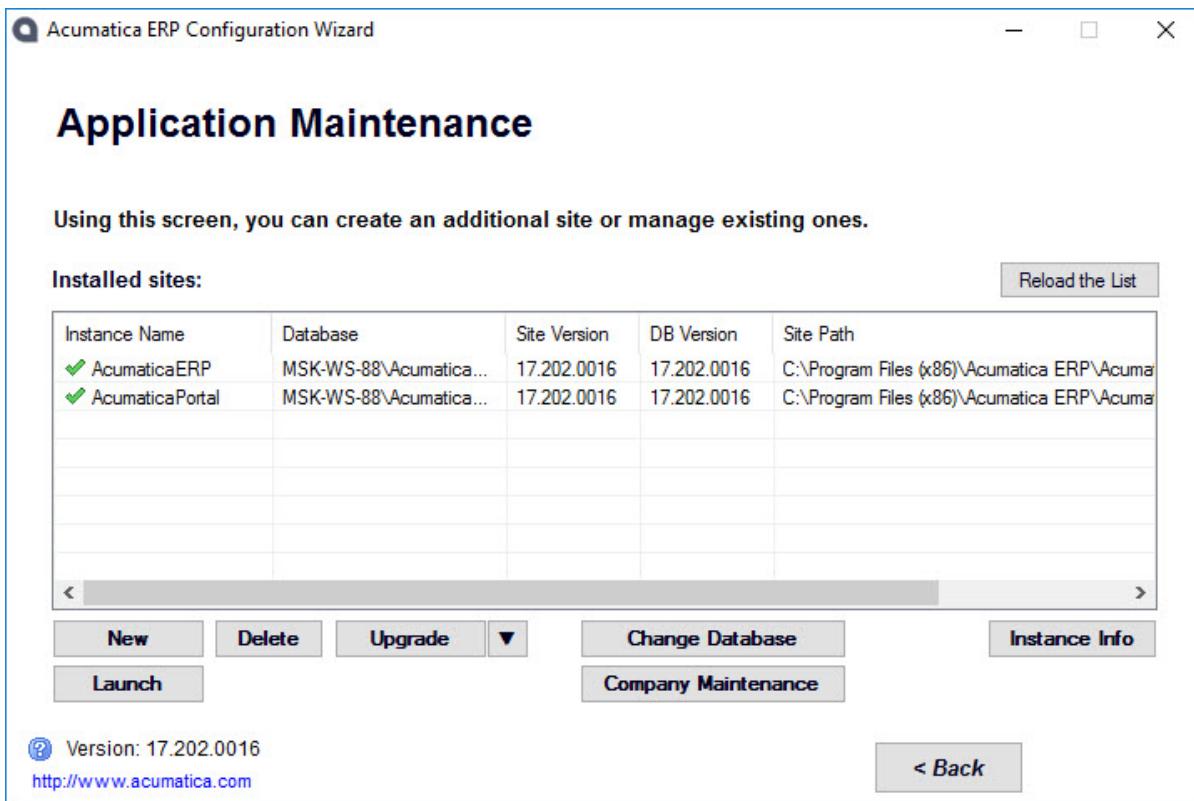
- **Instance Name:** AcumaticaPortal
- **Create Portal:** Selected
- **Local Path of the Instance:** The path on the local computer to the application instance



**Figure: Creation of the Self-Service Portal instance**

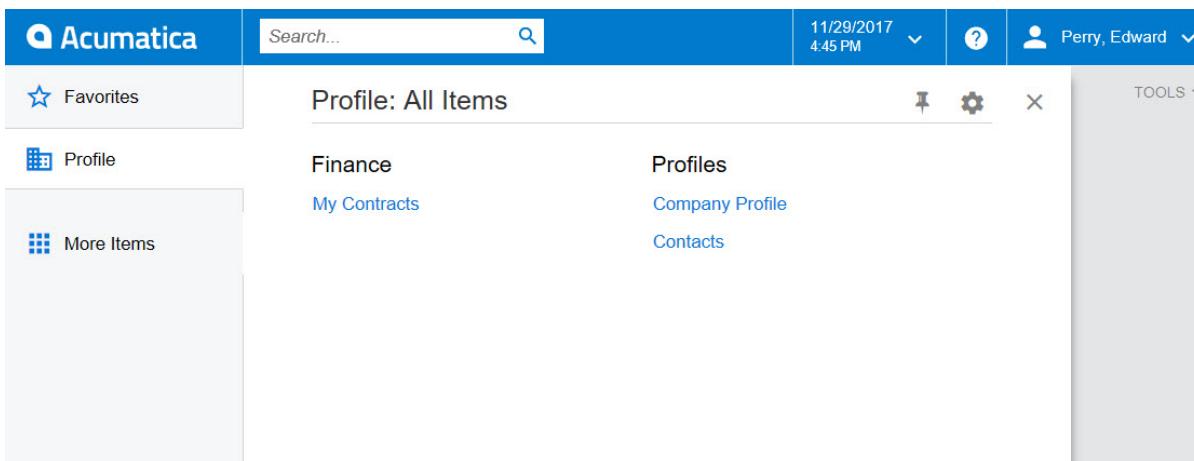
8. On the Web Site Configuration page, specify the following settings, and click **Next** to proceed to the next page:
  - **Web Site Settings:** *Default Web Site*
  - **Use Existing Application Pool:** Selected
  - List of existing application pools: *DefaultAppPool*
9. On the Confirm Configuration page, click **Finish**, and wait while the new application instance is created.
10. After the installation has completed, click **OK** in the dialog box, which opens, to return to the Acumatica ERP Configuration Wizard, and then click **Perform Application Maintenance**.

The list of existing application instances now contains two sites: *AcumaticaERP* and *AcumaticaPortal*, as shown in the following screenshot.



**Figure: Application instances**

11. Click the *AcumaticaPortal* instance, and then click **Launch**.
12. On the Welcome page of the *AcumaticaPortal* instance, sign in with the *perry* user name and the *123* password.
13. On the main menu, click **Profile**, as shown in the screenshot below.



**Figure: Self-Service Portal after sign-in**

14. Click **Company Profile**.
15. On the Company Profile form (SP408030), which opens, verify that you see the details of the *Microchip Restaurant* company—the business account linked to the *Edward Perry* contact in the *AcumaticaERP* instance.

Notice that as the *perry* user, you do not see all information stored in the database of the *AcumaticaERP* instance for this business account.

- 16.** In the **Phone 2** box, type **+1 (777) 777-77-77** and save your changes.
- 17.** Launch the **AcumaticaERP** instance, and on the Welcome page, sign in as **admin** with the **123** password.
- 18.** Open the Business Accounts form (CR3030PL; Organization > Customer Management > Manage).
- 19.** On the **All Records** tab, click **C000000002**.
- 20.** On the Business Accounts form (CR303000), which opens for the selected entity, verify that the new value has appeared in the **Phone 2** box on the **Details** tab, as you can see in the following screenshot.

The screenshot shows the Acumatica Business Accounts form for record C000000002. The form is titled "Software Inc - Business Accounts". The top navigation bar includes "NOTES", "FILES", "CUSTOMIZATION", and "HELP". Below the title, there are standard toolbar icons for "SAVE & CLOSE", "PRINT", "ADD", "DELETE", "FIND", "REFRESH", and "PREFERENCES". The main content area is divided into sections: "DETAILS", "ATTRIBUTES", "ACTIVITIES", "CONTACTS", "DELIVERY SETTINGS", "RELATIONS", "OPPORTUNITIES", and "CASES". The "DETAILS" tab is selected. Under the "MAIN CONTACT" section, the "Phone 2" field contains the value "+1 (777) 777-77-77", which is highlighted with a yellow border. Other contact fields include Company Name (Microchip Restaurant), Attention (John Elbow), Email, Web, and Phone 1 (+1 (777) 459-4255). Under the "MAIN ADDRESS" section, the address is listed as "1 Kalisa Way, Paramus, NJ - NEW JERSEY, US - United States of America". The "CRM" section shows Class ID (DEFAULT), Account Ref.#, Parent Account, Last Incoming Activity, Last Outgoing Activity, and Source Campaign. The status bar at the bottom indicates "1 row(s) found" and "1 row(s) displayed".

**Figure: Updated business account details**

## Related Links

[Setting Up Acumatica Self-Service Portal](#)

## Step 1.4: Activating a Self-Service Portal License

The Acumatica Self-Service Portal is a separate application instance that requires licensing. The license is required for the company that has the Acumatica ERP license.

By default, the Self-Service Portal is installed in trial mode, which means that only two users may concurrently use the system. Each time a third user signs in to Self-Service Portal, one of the current users is forcibly signed out.

When you obtain the license for using Acumatica Self-Service Portal and apply this license to an instance, the trial mode restrictions are removed.

For a license to be validated, the licensing server requires port 443 to be opened on the computer that is running the Acumatica Self-Service Portal instance you use to enter the key. If the server has a firewall enabled, this port may be closed by default.

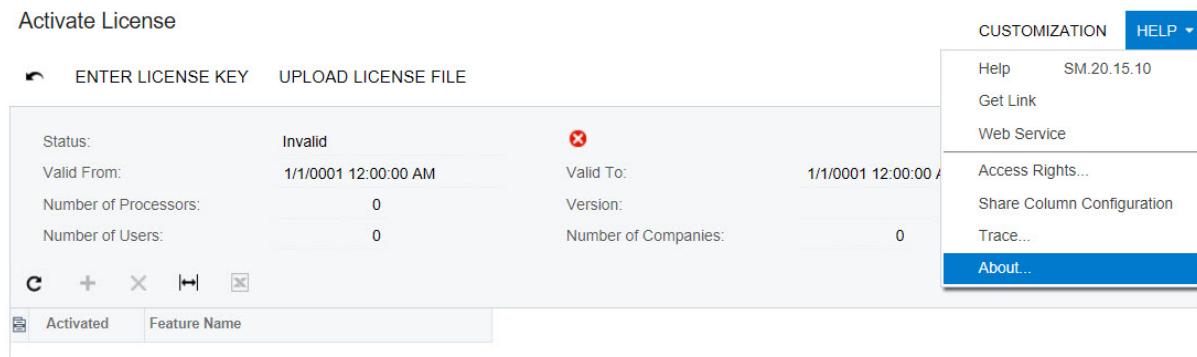
-  During licensing and activation, the Self-Service Portal instance is restarted. When you apply a license on a non-testing environment, make sure that all users of your website are warned that the site will be restarted.

This step describes how you can activate a full product license.

-  You do not have to perform these instructions to pass the training, because all of the features are available in trial mode; you should simply read the instructions while reviewing the applicable forms.

To activate the license for the Acumatica Self-Service Portal instance, you would perform the following instructions:

1. Obtain a product key by creating a support case through the [Partner Portal](#) and submitting the following information:
  - **Installation ID:** You can find the installation ID in the **About** dialog box of the Acumatica ERP or Self-Service Portal instance. To open this dialog box, on any Acumatica Self-Service Portal form, select **Help > About**, as shown in the following screenshot.
  - **Contract ID:** You can find this ID on your Acumatica ERP sales invoice.



**Figure: Retrieval of the installation ID**

2. Sign in to the Self-Service Portal instance with a user account that is assigned the **Administrator** role.

For example, you can use the default *admin* user credentials because the Self-Service Portal uses the same database as the corresponding application instance does.

3. Open the Activate License form (SM201510; **Configuration > Administrator > Portal Site Management**).
4. Depending on the license type that you have obtained from your sales representative, do one of the following:

- If you have obtained a license key, click **Enter License Key**, and enter the license key in the **Activate New License** dialog box.

The system contacts the licensing server and validates the license online. Each license can be used to activate a predetermined number of instances. If you reach the limit for your

license, you generally won't be able to use this license. Alternatively, depending on your license settings, the system may give you the option to deactivate the license from the oldest instance.

- If you have obtained a license file, click **Upload License File**, and then select and upload the license file by using the **Upload New License File** dialog box.

When you use a license file, the system validates the license without contacting the licensing server.

5. In the table at the bottom of this form, review the features that this license supports, and make sure that the feature list is correct.
6. On the form toolbar, click **Apply License** to activate your instance.

#### Related Links

[\*To License the Self-Service Portal Instance\*](#)

## Step 1.5: Specifying the Company That Is Visible for the Self-Service Portal Users

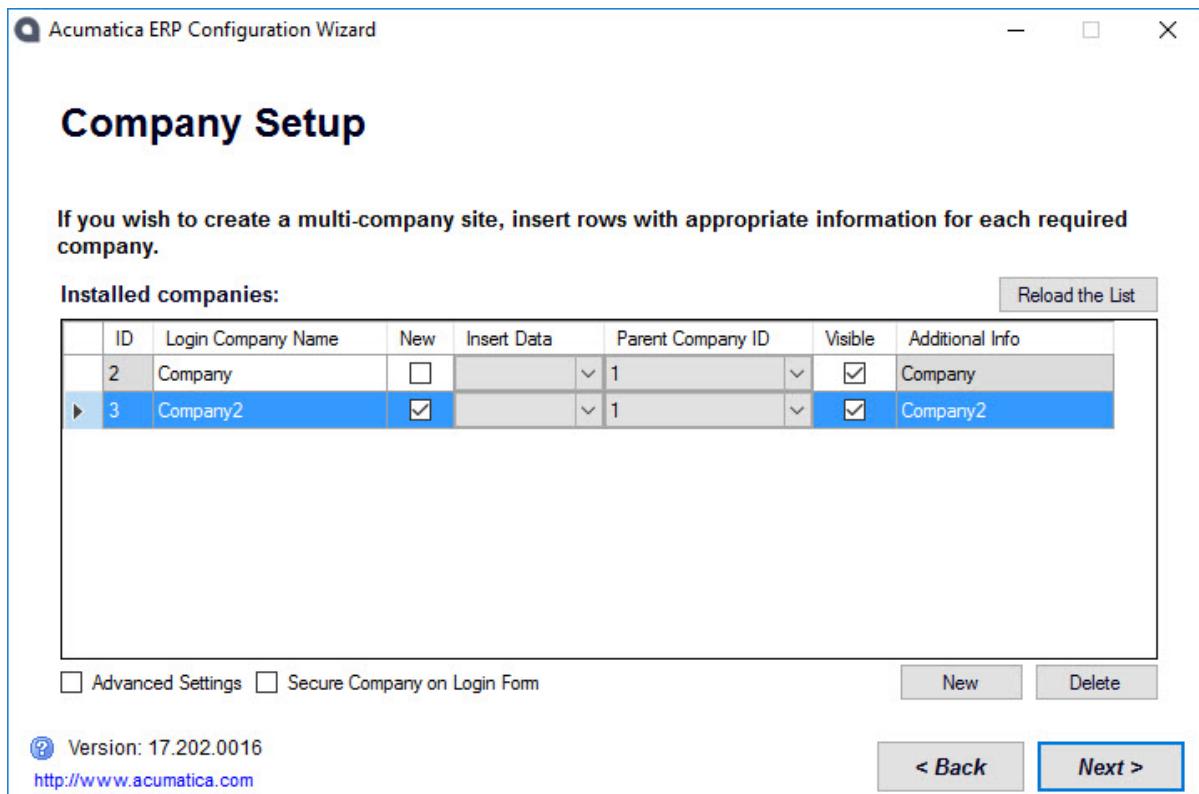
If you use a multi-company Acumatica ERP configuration, after you deploy a Self-Service Portal instance, you can define the specific company that will be available for the Self-Service Portal users of the instance. Alternatively, you can add a dropdown list to the self-service portal Welcome page where a user can select a company to sign in.

In this step, you will add one more company to the *AcumaticaERP* instance and set the new company to be visible for the users of the *AcumaticaPortal* Self-Service Portal. Then you will make both of the companies visible for the users.

To create another company and select it to be visible for Self-Service Portal users, perform the following instructions:

1. Run the Acumatica ERP Configuration Wizard by clicking **Start > Acumatica > Acumatica ERP Configuration**.
2. On the Welcome page, click **Perform Application Maintenance**.
3. Click the *AcumaticaERP* instance, and then click **Company Maintenance**.
4. On the SQL Server Authentication page, which opens, select **Windows Authentication** and click **OK**.
5. On the Company Setup page, click **New** to add one more company, as shown in the following screenshot.

Notice that the ID of the newly created company (*Company2*) is 3, and the ID of the existing company (*Company*) is 2.



**Figure: Creation of multiple companies**

6. On the Confirm Configuration page, click **Finish**, and wait while the new application instance is created.
7. After the installation has completed, click **OK** in the dialog box, which opens, to return to the Acumatica ERP Configuration Wizard.

**8.** Open the `web.config` file for your Self-Service Portal instance.

The configuration file for your Self-Service Portal instance is located in `%Program Files%\Acumatica ERP\AcumaticaPortal`.

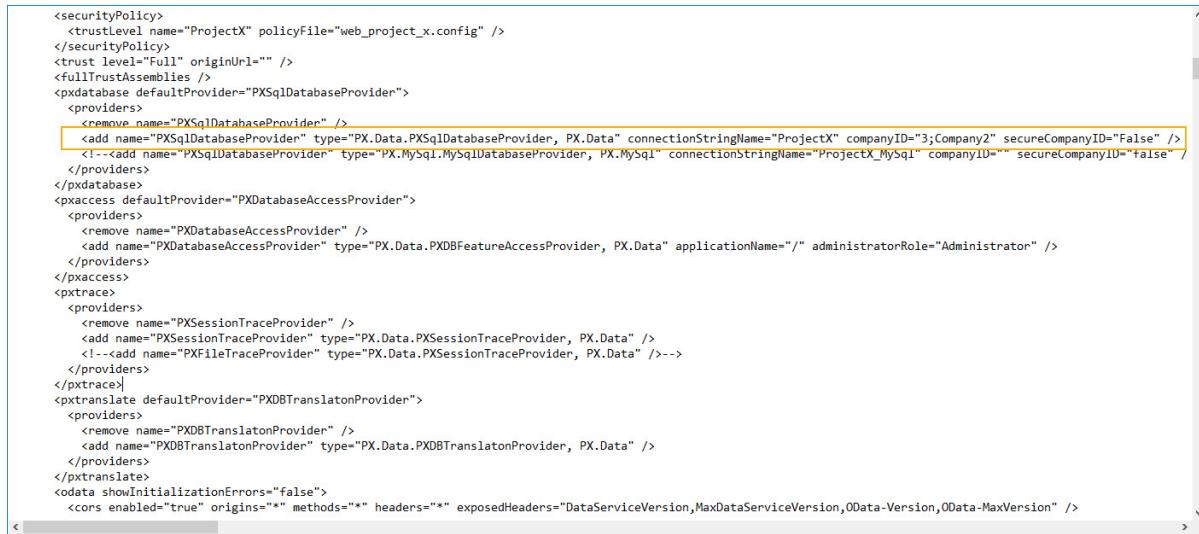
**Important:** You might need to provide administrative permissions to be able to save the changes you will make to the `web.config` configuration file.

**9.** In the file, find the snippet in the `<providers>` section that starts with the following parameters.

```
<add name="PXSqlDatabaseProvider" ... .../>
```

**10.** Change the `companyId="2; Company"` setting to `companyId="3; Company2"`.

The following screenshot demonstrates the updated settings.



The screenshot shows a portion of the `web.config` file with a yellow box highlighting the provider configuration. The highlighted code is:

```

<add name="PXSqlDatabaseProvider" type="PX.Data.PXSqlDataProvider, PX.Data" connectionString="ProjectX" companyId="3;Company2" secureCompanyId="False" />
<!--<add name="PXSqlDatabaseProvider" type="PX.MySql.MySqlDataProvider, PX.MySql" connectionString="ProjectX_MySql" companyId="3" secureCompanyId="False" /-->

```

**Figure: The updated company visibility settings**

**11.** Save the `web.config` file.

This causes the website to restart automatically.

**12.** In the Acumatica ERP Configuration Wizard, click the `AcumaticaPortal` instance, and then click **Launch**.

**13.** On the Welcome page of the `AcumaticaPortal` instance, try to sign in with the `perry` user and the `123` password.

You cannot sign in because only `Company2` is visible to Self-Service Portal users. `Company2` does not have any dataset inserted, and you have not created the `perry` user for this new company. Thus, you cannot sign in as `perry`.

**14.** Again open the `web.config` file for your Self-Service Portal instance.

**15.** In the file, find the snippet in the `<providers>` section that starts with the following parameters.

```
<add name="PXSqlDatabaseProvider" ... .../>
```

**16.** Change the `companyId="3; Company2"` setting to `companyId="2; Company,3; Company2"`.

**17.** Save the `web.config` file.

This causes the `AcumaticaPortal` instance to restart automatically.

**18.** Verify that the company selection box has appeared on the `AcumaticaPortal` instance Welcome page, as shown in the screenshot below.

Now, with the updated `web.config` settings, the users can select the company to which they want to sign in.



**Acumatica**  
The Cloud ERP

Invalid credentials. Please try again.

**Sign In**

[Forgot Your Credentials?](#)

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Acumatica 2017 R2  
Build 17.202.0016

**Figure: The updated company visibility settings**

## Additional Information

The following concepts are outside of the scope of this course but may be useful to some readers. You can use the links below to get additional information.

### **Managing Access to Self-Service Portal**

To give a contact access to the Acumatica Self-Service Portal, you add a user account to the contact account in Acumatica ERP. This user account must have a contact-related user type and the *Portal User* role assigned. The settings of the *Portal User* role define which functionality is available to the portal users. The user type settings determine the ability of the contact users to manage contact user accounts.

For more information on managing access to the Self-Service Portal—including configuring the *Portal User* role, managing the contact's user accounts, managing contact-related user types, and delegating user management—see [Management of Self-Service Portal Users](#) in the Acumatica ERP User Guide.

### **Managing Hierarchy of Customer Accounts**

In Acumatica ERP, the hierarchy of customer accounts is the group of relationships between parent and child customer accounts. A customer account can have a virtually unlimited number of child customer accounts but only one parent customer account.

For more information, see [Hierarchy of Customer Accounts](#) in the Acumatica ERP User Guide.

### **Handling Online Orders**

If you want to make online ordering available for your customers, you select the default settings for the Self-Service Portal Orders suite. These defaults affect all portal users.

For more information, see [Managing Online Orders](#) in the Acumatica ERP User Guide.

### **Handling Cases with Self-Service Portal**

The Acumatica Self-Service Portal gives your customers the ability to add cases online and track case processing.

For more information on managing cases with Self-Service Portal, see [Case Management with Self-Service Portal](#) in the Acumatica ERP User Guide.

### **Managing Self-Service Portal Wikis**

Acumatica ERP uses wikis to provide certain information for Acumatica Self-Service Portal users, such as marketing and informational documents, support reference materials, and Self-Service Portal Help.

For more information on managing the wikis for the Self-Service Portal, see [Management of Self-Service Portal Wikis](#) in the Acumatica ERP User Guide.

### **Configuring and Updating the Self-Service Portal Home Page**

The Self-Service Portal home page is the first page a user sees after signing in to the Self-Service Portal. You design the home page and apply changes to it any time you want to. A home page may contain marketing materials, product documentation, and any other information you want your customers to see.

For more information on configuring the Self-Service Portal home page, see [To Select the Self-Service Portal Home Page](#) in the Acumatica ERP User Guide.

### **Managing the Localization of the Self-Service Portal**

If your organization's customers and partners who use Acumatica Self-Service Portal speak different native languages, you can localize the user interface, user input, and wiki articles to these languages.

For more information, see [\*Localization of Self-Service Portal\*](#) in the Acumatica ERP User Guide.

## Lesson Summary

In this lesson, you have been introduced to the concepts of the Acumatica Self-Service Portal, and you have learned how to deploy Acumatica Self-Service Portal instance and give the system users access to the Self-Service Portal.

### Review Questions:

- In brief, how will you deploy an Acumatica Self-Service Portal instance for Acumatica 2017 R2?
- Is the Acumatica Self-Service Portal a separate application instance?
- How will you update the Acumatica Self-Service Portal instance?
- What are the options of using the Acumatica Self-Service Portal if you run a multi-company Acumatica ERP instance?

## Lesson 2: Deploying Acumatica ERP on Windows Azure

---

Acumatica ERP can be deployed on Windows Azure, which is a cloud services platform hosted through Microsoft data centers. The platform includes the Windows Azure operating system and a set of developer services. Also, you can access the storage services that are provided through the Windows Azure Management Portal. To use them, you must have a storage account.

### System Requirements

Deploying Acumatica ERP on Microsoft Azure imposes additional limitations to Acumatica ERP system requirement, described in [System Requirements for Acumatica ERP 2017 R2](#).

The performance and capabilities of Microsoft Azure SQL databases depend on the service tier you select for the database, with the performance levels expressed in database throughput units (DTUs). To successfully run Acumatica ERP on Azure, the database must have at least 50 DTUs. Taking into account the requirement for databases, you should select at least *Standard S2* service tier. For more information on service tiers, see [Service Tiers](#) on Microsoft Azure.

### Lesson Objectives

You will learn how to do the following (you do not need to perform the steps to pass the training):

- Download the service package file.
- Prepare for deployment on Windows Azure.
- Set up the database options and create an Acumatica ERP Service Package on your local computer.
- Deploy the Acumatica ERP Service Package on Windows Azure.

## Step 2.1: Creating a New Cloud Service

Before you deploy an Acumatica ERP instance on Windows Azure, you must purchase or create an SSL certificate, purchase services on Windows Azure, and perform the installation process described below.

For more information about deploying a cloud service, see [How to Create and Deploy a Cloud Service](#) on Microsoft Azure portal.

To purchase Windows Azure, go to [www.windowsazure.com](http://www.windowsazure.com) and sign up for an account. You will need to purchase a *Cloud Service* on Windows Azure, a SQL database, and bandwidth to communicate with your service.

With Acumatica, the size of the Web and Worker Role Instance that you select is contractually linked to the Acumatica edition that you choose. External storage is not required unless you want to store files outside the SQL database using the external file storage feature in Acumatica.

To create a new cloud service on Windows Azure:

1. In **Management Portal**, click **New, Cloud Service**, and then **Quick Create**.
2. In **URL**, enter your company name to use in the public URL for accessing your cloud service in production deployments. The URL format for production deployments is `http://myCompany.cloudapp.net`, where *myCompany* is the company name.
3. In **Region/Affinity Group**, select **Acumatica Group**.
4. Click **Create Cloud Service**.

## Step 2.2: Uploading an SSL Certificate

Before you can use a Windows Azure service certificate, you must upload it to a cloud service. Export a new certificate into a PFX file by using the Internet Information Services (IIS) Manager or OpenSSL command-line tools, and then upload this file to Windows Azure by using the Windows Azure Management Portal or the Windows Azure Service Management API. The uploaded certificate can then be used by a service or stored in the hosted services certificate store.

To add an SSL service certificate to the certificate store on Windows Azure, perform the following instructions:

1. In **Management Portal**, click **Cloud Services**. Then click the name of the cloud service you created in Step 2.1 to open the dashboard.
  - a. Open the **Certificates** page and click **Add new certificate**.  
The **Add a Certificate** dialog box opens.
  - b. In **Certificate file**, use **Browse** to select the certificate (PFX file) to use.
  - c. In **Password**, enter the private key for the certificate.
  - d. Click **OK**.
  - e. Copy and paste the thumbprint of the certificate into a file.

You will need it during a later step, when you're configuring database settings.

## Step 2.3: Configuring Remote Access to Role Instance

This step is optional for partners who want to make changes to `web.config` and modify other IIS settings directly through Windows Server.

To configure remote access to the role instance, perform the following instructions:

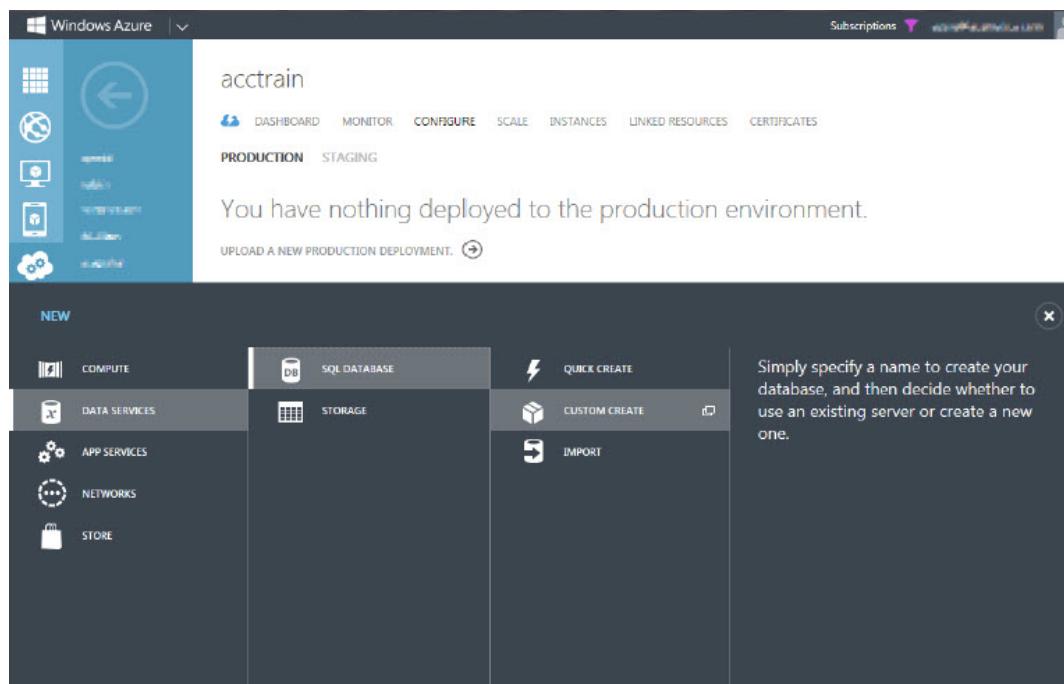
1. In **Management Portal**, select **Cloud Services**. Then click the name of the cloud service you created in Step 2.1 to open the dashboard.
2. Open the Configure page for the cloud service, and click **Remote**.
3. On the Configure Remote Desktop Settings page, make the following changes:
  - Select the **Enable remote desktop** check box.
  - Create an account to use in Remote Desktop connections to the role instances.
  - In the **Certificates** dialog box, select the certificate you uploaded in the previous step.
4. Click **OK**.
5. Connect to a role instance as follows:
  - Click **Instances** to open the Instances page.
  - Click the role instance that has Remote Desktop configured to select the instance.
  - Click **Connect**, and follow the instructions to open the desktop of the virtual machine.

## Step 2.4: Creating SQL Database

In this step, you will create a SQL database on Windows Azure.

To create a SQL database on Windows Azure, perform the following instructions:

1. In the Management Portal, click Cloud Services. Then click the name of the cloud service you've created in step 2.1 to open the dashboard.
2. Click **+NEW** at the bottom of the page.
3. Click **Data Services**.
4. Click **SQL Database**.
5. Click **Custom Create**.



**Figure: Creating SQL database**

6. In the **Name** box, enter a database name for the new instance.
7. In the **Edition** box, select the *WEB* edition.
8. Select the **Subscription** box, depending on your company contract.
9. In the **Service Tiers** and **Performance Level** boxes, choose the service tier you want to use.
  -  For running Acumatica ERP you should select at least the *Standard S2* service tier.
10. In the **Collation** box, specify the collation for your database.  
The *SQL\_Latin1\_General\_CI\_AS* collation is selected by default.
11. In the **Server** box, select *New SQL Database Server*.
12. Click the check mark to go to the next page.
13. In the **Server Settings** box, enter a SQL Server authentication login name and password.
14. Click the check mark at the bottom of the page when you are finished.

NEW SQL DATABASE - CUSTOM CREATE

### SQL database server settings

LOGIN NAME  
 ?

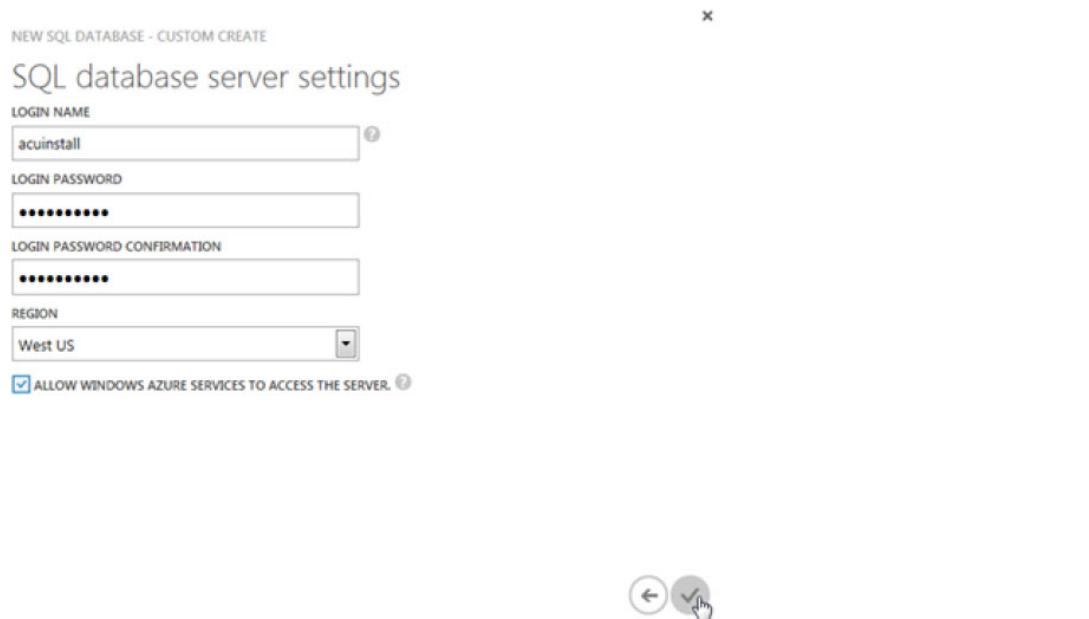
LOGIN PASSWORD

LOGIN PASSWORD CONFIRMATION

REGION  
 ▼

ALLOW WINDOWS AZURE SERVICES TO ACCESS THE SERVER. ?

← ✓ ✖



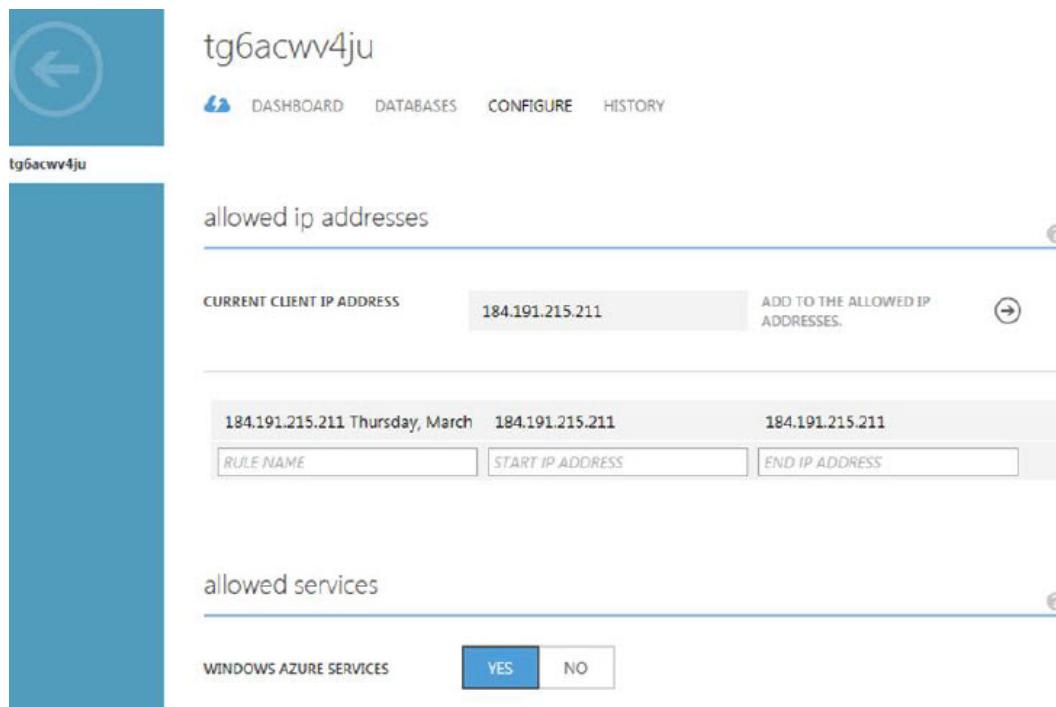
**Figure: SQL database server settings**

## Step 2.5: Configuring Remote Access to the Database Server

In this step, you will configure remote access to the database server.

Perform the following instructions:

1. In the Management Portal, click **SQL Databases**.
2. Click the name of your server from the list to get to your **Server Dashboard**.
3. Click **Configure** in the top menu.
4. Setup two rules to allow access to the database:
  - Allow access from Windows Azure Services (this should already be set to **Yes** if you allowed it when you set the options to create the server).
  - Allow access from the IP address of your deployment machine. This machine will be writing data to the SQL database and will therefore need access to the server. By default Windows Azure provides access from the IP address from your computer, so you will not have to add an addition IP address if you are deploying from the same machine you used to create your Windows Azure services.



**Figure: Setting remote access to database server**

Now you have created an empty database and captured the administrative login and password for accessing the server.

## Step 2.6: Downloading the Azure Service Package File

Before you begin installing Acumatica ERP as a service on Windows Azure, you need to get the Azure service package file that you can download on the [Partner Portal](#). The package file should correspond to the version of Windows Azure that you purchased as shown in the following table.

### **Configuration package options**

Azure Deployment	Acumatica ERP Edition	Configuration Package
Small	Standard	SmallService.cspkg
Medium	Advanced	MediumService.cspkg
Large	Enterprise	LargeService.cspkg
90 day free trial	Unlicensed	SmallService.cspkg

To download the configuration package:

1. Open the [Acumatica Partner Portal](#).

You will need your partner user name and password to access the site.

2. Under **Product Links** in the left pane, click **Download Acumatica**.
3. Under **Current Products** in the left pane, click **Acumatica 2017 R2**.

The page where you can download the selected version and Azure configuration packages is displayed, as shown in the screenshot below.

The screenshot shows the Acumatica Partner Portal interface. On the left, there's a sidebar with links like Current Products, Add-Ins, Pre-Release Software, Documentation, Previous Versions, and more. The main content area has tabs for Build, Tips, and Links. Under 'Build', it says 'Acumatica 2017 R2 is now available for download.' with three download buttons: 'Acumatica ERP 2017 R2 (231 MB)', 'Acumatica Framework 2017 R2 (239 MB)', and 'Acumatica Report Designer 2017 R2 (3 MB)'. Below that is a 'Mobile applications' section with links to iOS and Android app stores. A large yellow box highlights the 'Azure Configuration Packages' section. It contains the text: 'Acumatica ERP Configuration Packages for Windows Azure are available. The package file should correspond to the version of Windows Azure that you purchased:' followed by a bulleted list: '• Small', '• Medium', and '• Large'. To the right of this box are sections for 'System Requirements' (with a note about .NET 4.7), 'Upgrade Note' (about clearing browser cache), and 'Links' (User License Agreements, PCP, SaaS, Release Notes, Known Issues, SalesDemo data).

**Figure: Page where you download Acumatica Partner Portal**

4. Click the service package you plan to use and download the Azure service package file (.cspkg) to your computer.

## Step 2.7: Creating an Acumatica ERP Service Package

You install the Acumatica ERP Tools on the local computer and use the Acumatica ERP Configuration Wizard to set up database options and create an Acumatica ERP Service package.

To Set Up Database Options and Create an Acumatica ERP Service Package, perform the following instructions:

1. Install the Acumatica ERP Tools on the local computer.
2. Open the Acumatica ERP Configuration Wizard.
3. On the Welcome page of the Acumatica ERP Configuration Wizard, click **Generate Azure Configuration File**.
4. On the Database Server Connection page, enter the host name of the Microsoft Azure SQL server and the administrator account credentials.
5. Click **Next**.
6. On the Database Configuration page, do one of the following:
  - To create a new database, click **Create a new database** and then type the name in the **New database's name** box.
  - To connect to an existing database, do the following:
    1. Click **Connect to an existing database**.
    2. In the **Available databases on server** list, select a database name.
    3. Depending on the schema of the database you have selected, select the relevant check box to update, repair, or set up the database.
    4. If you want to shrink data after the database maintenance, select the **Shrink data** check box.
7. On the Company Setup page, do the following:
  - a. Do the following to configure the new company (named *Company*) that the Acumatica ERP Configuration Wizard created by default:
    - a. To rename the company, double-click the company name in the **Login Company Name** column, type a new company name, and press Enter.
    - b. If you want to fill the database with demo data or template data, select *Demo* or *Template* in the **Insert Data** column.
  - b. Optional: If you want to create a multi-company Acumatica ERP instance, add more companies. For more information about company setup, see [Managing Companies](#).
  - c. Optional: For a multi-company Acumatica ERP instance, if you want to restrict the list of companies a user can see only to the companies the user has access to, select the **Secure Company on Login Form** check box. In this case, the **Company** box does not appear on the Welcome screen by default and all users first authenticate themselves by entering their login and password.
  - d. Optional: For a multi-company Acumatica ERP instance, if you want to configure data sharing between companies, select the **Advanced Settings** check box. For more information, see [Multi-Company Instances](#)
8. Click **Next**.
9. Optional: On the Tables Configuration page, you can specify whether you want the database tables to be shared by different companies, and then click **Next**.
 

 This page is displayed only if you have selected the **Advanced Settings** check box on the previous page.
10. On the Instance Configuration page, specify the following options:
  - a. **Instance Name:** Type a name for this Self-Service Portal instance.

- b. **Create Portal:** Select this check box.
  - c. **Local Path to the Instance:** Enter the path on the local computer to this application instance.
  - d. **Select an account to access ASP.NET application:** Select one of the following accounts to be used to access the ASP.NET application:
    - **Default (anonymous user):** To use the user account that IIS uses by default.
    - **Specify:** To use another user account. Specify the login and password of the user account.
- 11.** On the Instance Configuration page, specify the following options:
- a. **Instance Name:** Enter a name for this application instance of Acumatica ERP.
  - b. **Local Path to the Instance:** Enter the local path to the configuration files folder.
  - c. **Select an account to access ASP.NET application:** Select one of the following accounts to be used to access the ASP.NET application:
    - **Default (anonymous user):** The user account that IIS uses by default.
    - **Specify:** Another user account. Specify the login and password of the user account.
  - d. **SSL Certificate Thumbprint:** Enter the thumbprint of the SSL service certificate that you saved to a text file in [To Prepare for Deployment on Windows Azure](#).

**12.** Click **Next**.

**13.** On the Confirm Configuration page, verify the configuration settings, and then click **Finish**.

**14.** On the Confirm Configuration page, do the following:

- a. Check the configuration settings you have specified.
- b. Optional. To make any changes, click **Back** to return to the required wizard page, and then make necessary changes.
- c. Click **Finish**.

The service package (.cspkg) file is generated and stored on your computer.

## Step 2.8: Deploying the Acumatica ERP Service on Windows Azure

To deploy the Acumatica ERP Service on Windows Azure, use the Windows Azure Management Portal to upload the following files:

- The service package file (.cspkg) that you downloaded from the Partner Portal.
- The service configuration file (.cscfg) you created in Step 2.7.

To deploy the packaged Acumatica ERP Service on Windows Azure, perform the following instructions:

1. In the **Management Portal**, click **Cloud Services**. Then click the name of the cloud service to open the dashboard.
2. Click **Quick Start** to open the Quick Start page.
3. Click **New Production Deployment** or **New Staging Deployment**.
4. In **Upload a Package**, make the following changes:
  - a. In **Deployment name**, enter a name for the new deployment.
  - b. In **Package**, use **Browse** to select the service package file (.cspkg) to use.
  - c. In **Configuration**, use **Browse** to select the service configuration file (.cscfg) to use.
5. Click OK (check mark) to begin the cloud service deployment.

Uploading the service package file and the service configuration file may take several minutes. You can track the upload progress on the Azure Management Portal.

When you create an application in Windows Azure, Windows Azure provides a friendly subdomain on the clouddapp.net domain so your users can access your application by using a URL such as <http://<myUrl>.clouddapp.net>. However, you can also expose your application and data on your own domain name. For more information, see [Configuring a custom domain name for a Windows Azure cloud service or storage account](#) on Microsoft Azure portal.

## Additional Information

The following concept is outside of the scope of this course but may be useful to some readers. You can use the link below to get additional information.

### **Configuring Domain Name for Your Application**

When you create an application in Windows Azure, Windows Azure provides a friendly subdomain on the cloudapp.net domain so your users can access your application by using a URL such as `http://<myUrl>.cloudapp.net`. However, you can also expose your application and data on your own domain name.

For more information, see [\*Configuring a custom domain name for a Windows Azure cloud service or storage account\*](#) on Microsoft Azure portal.

## Lesson Summary

In this lesson, you have learned how to deploy Acumatica ERP on Windows Azure

### Review Questions:

- Compare and contrast deployment of Acumatica ERP on Windows Azure over local installation.
- How are `web.config` settings accessed in Windows Azure?
- Discuss optimal configuration for Acumatica ERP on Windows Azure.
- Why would you deploy a customer on Azure using this process instead of purchasing the Acumatica SaaS solution?

## Lesson 3: Deploying Acumatica ERP on AWS

---

You can launch Acumatica ERP on Amazon Web Services (AWS). In this case, you use the Amazon Elastic Compute Cloud (Amazon EC2) to host the web server and Amazon Relational Database Service (Amazon RDS) to host the databases. This section includes our recommendations for configuring the EC2 and RDS instances and the details about deploying Acumatica ERP on AWS.

### Lesson Objectives

You will learn how to do the following (you do not need to perform the steps to pass the training):

- Launch an Amazon EC2 Instance.
- Create a Database Instance on Amazon RDS.
- Deploy the Acumatica ERP on Amazon EC2.

## Step 3.1: Launching an Amazon EC2 Instance

Before you deploy an Acumatica ERP instance on Amazon Web Services, you should do the following:

- Sign up for Amazon Web Services.
- Create a key pair, which you will need to get access to your Amazon EC2 instance.
- Create a security group that will specify your Amazon EC2 instance and that can access your Amazon RDS instance.
- Investigate the system requirements for the server computer and software and be sure they are met: [System Requirements for Acumatica ERP 2017 R2](#).
- Investigate the recommended parameters of virtual machines: [Typical Hardware and Virtual Machine Configurations for PCS and PCP Licenses](#).

The overall process of installation Acumatica ERP on Amazon Web Services consists of the following three steps:

- 1.** Launch an Amazon EC2 instance.
- 2.** Create a database instance by using Amazon RDS.
- 3.** Install Acumatica ERP Tools and deploy a new application instance.

In this step, you will read how to launch an Amazon EC2 instance.

Do the following:

- 1.** Sign in to the AWS Management Console and open the Amazon EC2 console.
- 2.** In the top right corner of the Amazon EC2 console, select the region for your EC2 instance.
 

 You must select the same region for your EC2 and RDS instances and for the key pair you use to sign in to your instances.
- 3.** From the console dashboard, click **Launch Instance**.
- 4.** On the Select an Amazon Machine Image (AMI) page, select the *Windows Server 2012 Base 64-bit* AMI.
- 5.** On the Select an Instance Type page, select the *m1.medium* hardware configuration for your instance.
- 6.** On the Security Groups page, select the security group that you've prepared to launch Acumatica ERP.
- 7.** On the Review Instance Launch page, review the settings for your instance, and then click **Launch**.
- 8.** In the **Select an existing key pair or create a new key pair** dialog box, select *Choose an existing key pair*, and then select the prepared key pair.
- 9.** When you are ready, select the acknowledgment check box, and then click **Launch Instances**. A confirmation page lets you know that your instance is launching.
- 10.** Click **View Instances** to close the confirmation page and return to the console.
- 11.** On the Instances page, view the status of your instance. It takes a short time for an instance to launch. When you launch an instance, its initial state is *pending*. After the instance starts, its state changes to *running*, and it receives a public DNS name.
- 12.** On the Instances screen, select the instance and click **Connect**.
- 13.** In the **Connect to Your Instance** dialog box:
  - Select the prepared key.
  - Download the Remote Desktop file.
- 14.** Run the Remote Desktop file you've downloaded to access the web server you have launched.

- 15.** For the operating system of the virtual machine, turn on the Microsoft Internet Information Services (IIS) and make sure the required IIS features are turned on.

## Step 3.2: Creating a Database Instance on Amazon RDS

After you set up the EC2 instance, you can create a database instance by using the RDS console.

To create a database instance on Amazon RDS, do the following:

1. Sign in to the AWS Management Console and open the Amazon RDS console.
2. In the top right corner of the Amazon RDS console, select the region in which you want to create the database instance.
 

 You must select the same region for your EC2 and RDS instances and for the key pair you use to sign in to your instances.
3. In the navigation pane, click **Instances**.
4. Click **Launch DB Instance** to start the Launch DB Instance wizard.  
The wizard opens on the Engine Selection page.
5. If you want to use MS SQL database, do the following:
  - In the **Launch DB Instance Wizard** window, click the **Select** button for the *MS SQL Server Web Edition*.
  - On the DB Instance Details page, specify your database instance information, including the following settings:
    - **DB Instance Class:** *db.m1.medium*
    - **Allocated Storage:** *20 GB*
    - **DB Instance Identifier**
    - **Master User Name**
    - **Master Password**
6. If you want to use MySQL database, do the following:
  - In the **Launch DB Instance Wizard** window, click the **Select** button for the *MySQL Community Edition*.
  - On the DB Instance Details page, specify your database instance information, including the following settings:
    - **DB Engine:** as specified in *System Requirements for Acumatica ERP 2017 R2*
    - **DB Instance Class:** *db.m1.medium*
    - **Allocated Storage:** *20 GB*
    - **Multi-AZ Deployment:** *No*
    - **DB Instance Identifier**
    - **Master User Name**
    - **Master Password**
7. Click **Next Step**.
8. On the Additional Configuration page, provide the additional information that RDS uses to launch the SQL Server database instance, including the following setting:
  - **DB Security Groups:** Select the prepared security group you used when launching the EC2 instance.
9. Click **Next Step**.
10. On the Management Options page, you can specify backup and maintenance options for your database instance.
11. Click **Next Step**.

12. On the Review page, review the options for your database instance. When you're certain of all the settings, click **Launch DB Instance**.
13. On the final page of the wizard, click **Close**.
14. On the RDS console, the new database instance appears in the list of instances. The database instance will have a status of *creating* until it is created and ready for use. When the state changes to *available*, you can connect to the database instance. Depending on the database instance class and store allocated, it could take several minutes for the new instance to be available.
15. On the RDS console, select the database and check the DNS name of the instance in the **Endpoint** box; you will need this name during Acumatica ERP installation.

## Step 3.3: Deploying Acumatica ERP on Amazon EC2 Instance

After you launch the Amazon EC2 and RDS instances, you can install Acumatica ERP Tools and deploy application instances.

Do the following:

1. Use the Remote Desktop Connection to connect to the web server running on your Amazon EC2 instance.
2. Copy the Acumatica ERP installation package to the web server.
3. Install the Acumatica ERP Tools, as described in [To Install the Acumatica ERP Tools](#).
4. On the Welcome page of the Acumatica ERP Configuration Wizard, click **Deploy New Application Instance**.
5. On the Database Server Connection page, specify the database server that will be used by the Acumatica ERP instance:
  - a. In the **Server Type** box, select the server type you used to deploy the database on Amazon RDS. The following options are available: *Microsoft SQL Server* or *MySQL Server*.
  - b. In the **Server Name** box, enter the DNS name of the Amazon RDS database instance you've launched. Also, you can specify a custom port number after a comma.  
If you cannot connect to the server, check the security groups you've selected for the EC2 and RDS instances: You must select the same group for both services.  
For a MySQL server, the port number defaults to 3306.
  - c. Select the **SQL Server Authentication** method, and specify the login that you created while you set up the Amazon RDS database instance:
    - **Login:** *Master User Name*
    - **Password:** *Master Password*
6. Click **Next**.
7. On the Database Configuration page, connect to the database that you've launched on Amazon RDS. Do the following:
  - a. Click **Connect to an existing database**.
  - b. In the **Available databases on server** list, enter the database name.
  - c. Depending on the schema of the database you have selected, select the relevant check box to update, repair, or set up the database, if required.
  - d. If you want to shrink data after the database maintenance, select the **Shrink data** check box.
8. Click **Next**.
9. On the Company Setup page, do the following:
  - a. Configure the new company, named *Company*, that the Acumatica ERP Configuration Wizard created by default:
    - To rename the company, double-click the company name in the **Login Company Name** column, type a new company name, and press Enter.
    - If you want to fill the database with demo data, select *SalesDemo* in the **Insert Data** column.
  - b. Optional: Add more tenants if you want to create a multi-company Acumatica ERP instance.
  - c. Optional: For a multi-company Acumatica ERP instance, if you want to restrict the list of companies a user can see only to the companies the user has access to, select the **Secure Company on Login Form** check box. In this case, the Company box does not

appear on the Welcome page by default and all users first authenticate themselves by entering their login and password.

- d. Optional: For a multi-company Acumatica ERP instance, if you want to configure data sharing between companies, select the **Advanced Settings** check box.

**10.** Click **Next**.

**11.** Optional: On the Tables Configuration page (which is displayed only if you have selected the **Advanced Settings** check box on the Company Setup page), configure data sharing between companies, and then click **Next**.

Table configuration is a dangerous operation that can result in database corruption. Any changes you make are at your own risk. If you configure tables, be sure to first back up the database.

**12.** On the Database Connection page, specify the authentication method that this instance of Acumatica ERP will use to connect to the database. Do the following:

- a. Select the **SQL Server Authentication** authentication method.
- b. Select **Use Existing Login** option and specify the login you created while you set up the Amazon RDS database instance:
  - **Login:** *Master User Name*
  - **Password:** *Master Password*

**13.** Click **Next**.

**14.** On the Instance Configuration page, specify the following options:

- **Instance Name:** Type a name for this Acumatica ERP instance.
- **Create Portal:** Leave the check box cleared.
- **Local Path to the Instance:** Enter the path on the local computer to this application instance.

**15.** Click **Next**.

**16.** On the Web Site Configuration page, do the following:

- a. In the **Web Site Settings** section, configure the list of websites and create a virtual directory. To use the URL of the Internet Information Services (IIS) default site (that is, <http://www.domain.com>), clear the **Create Virtual Directory** check box.
- b. In the **Application Pool Settings** section, specify the application pool. You may want to use a dedicated application pool to better isolate instances and fine-tune resources that are allocated for the instance by IIS. To specify the dedicated application pool, select one of the following options:
  - To create a new application pool, click **Create New Application Pool** and type the name in the **Application Pool Name** box.
  - To use an existing application pool, click **Use Existing Application Pool** and select the name of the application pool in the list of available application pools.

The list of application pools includes all the application pools you can use to install Acumatica ERP from the list of pools configured in Web Server (IIS), either classic or integrated.

Acumatica ERP employs the application pools that use one of the supported .NET Framework versions.

**17.** Click **Next**.

**18.** On the Confirm Configuration page, do the following:

- a. Check the configuration settings you have specified.
- b. Optional: To make any changes, click **Back** to return to the required wizard page, and then make necessary changes.

- c. If you want to save the configuration settings in an XML file on your computer, click **Save Configuration**.
- d. Click **Finish** to deploy this Acumatica ERP instance.

## Lesson Summary

In this lesson, you have learned how to deploy Acumatica ERP on Windows Azure

### Review Questions:

- Compare and contrast deployment of Acumatica ERP on Windows Azure over local installation.
- How are `web.config` settings accessed in Windows Azure?
- Discuss optimal configuration for Acumatica ERP on Windows Azure.
- Why would you deploy a customer on Azure using this process instead of purchasing the Acumatica SaaS solution?

## Part 2: Configuring User Authentication with External Applications

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In this part of the course, you will learn how to integrate Acumatica ERP with external applications. In particular, you will develop an understanding of the possible options of integration with external identity and access management systems and learn about the following tasks:

- Integrating Acumatica ERP with Active Directory
- Integrating Acumatica ERP with Azure Active Directory
- Configuring Single Sign-On with Google
- Configuring Single Sign-On with Microsoft Accounts
- Synchronizing Acumatica ERP with Microsoft Exchange Server

## Lesson 4: Integration with Active Directory

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The integration of Acumatica ERP with Microsoft Active Directory (AD) provides centralized management of users and access. After integration, your domain users can use their domain user names and passwords to sign in to Acumatica ERP. You can set up integration with AD if Acumatica ERP is installed in your organization's intranet.



If your Acumatica ERP instance is deployed in the external network, you must use Active Directory Federation Services to provide access to the system for your domain users.

You can create, delete, and manage user accounts by using Active Directory. Users' access rights to Acumatica ERP are determined based on the mapping rules between AD groups and Acumatica ERP roles.

In this lesson, you will learn how to configure and manage Acumatica ERP integration with Active Directory.

### Lesson Objectives

You will learn how to do the following (you do not need to perform the steps to pass the training):

- Enable Active Directory Integration
- Map Active Directory groups to roles in Acumatica ERP instance
- Set up role assignment for domain users

# About Integration with Active Directory

You can integrate Acumatica ERP with Microsoft Active Directory (AD) to manage users and access in one place. You can create, delete, and manage user accounts by using AD. During integration you map AD groups with user roles in Acumatica ERP to determine users' access rights.

**Important!** Enabling integration with AD does not affect the standard authorization and authentication mechanism of Acumatica ERP. With the AD integration enabled, you still can create regular (non-AD) users in Acumatica ERP.

## Configuration Steps

To integrate an instance of Acumatica ERP with AD, you do the following:

1. Enable integration with Active Directory by modifying the `web.config` file of the application instance.
2. Map the user roles configured in Acumatica ERP to the groups configured in the Active Directory domain by using the User Roles (SM201005) form in Acumatica ERP.
3. Optional: If you need to override roles assigned to AD users, manually add the AD user accounts to the system (if necessary) and specify the roles for the accounts.

## User Accounts of Domain Users in Acumatica ERP

After you have enabled integration with the identity management system, user accounts for domain users are created automatically when the users sign in to your Acumatica ERP instance for the first time.

The accounts of domain users in Acumatica ERP are based on their accounts in the domain. The password of a domain user in Acumatica ERP is the same as the domain account password. The email address and the first and last name of the user are populated from the domain account as well. However, the login, password, email address, and first and last name are managed through the domain and cannot be changed in Acumatica ERP.

**Important!** You cannot restore the passwords of domain users by using Acumatica ERP tools. You should restore users' domain credentials by using tools of Active Directory (AD).

If the number of users or groups in AD is greater than or equal to 1000, information about users and groups from AD is automatically cached by Acumatica ERP to speed authentication of users. When you make any changes in AD, you can manually synchronize the cached lists of users and groups with AD in Acumatica ERP. If the number of users and groups in AD is less than 1000, Acumatica ERP retrieves the lists of users and groups directly from AD.

## Domain User Authentication

Generally, to sign in to Acumatica ERP, AD users type their domain credentials without specifying the domain name. But some employees may have both a local user account and a domain user account with the same user name. In this case, Acumatica ERP will authenticate the users based on the password they specify (assuming that the local and domain passwords differ).

If both the user names and the passwords are the same for a local user account and a domain user account, on the Welcome screen, the user can select the account to sign in with as follows:

- To sign in with a local account, the user enters the user name of the local account (as usual).
- To sign in with a domain account, the user enters the login in the `<Domain_Name>\<User_Name>` format, where `<Domain_Name>` is the NetBIOS domain name of the integrated domain and `<User_Name>` is the user account name in the integrated domain.



If there is a local account with the name which includes a domain name and a user name from this domain, for example, `Terra\User1`, a domain user with the name `User1` from domain `Terra` will be mapped to this local account and will inherit all permissions of this account. In this case passwords of

a local user and a domain user may differ but they both will access the same user account. To prevent confusion, we recommend that you disable or delete the local accounts of employees who do not perform any administration or configuration tasks in Acumatica ERP.

## Domain User Authorization

When a domain user tries to access Acumatica ERP, user authorization occurs as follows:

1. The application instance sends an authentication request to the AD server to validate the user's credentials.
2. When validation has completed successfully, the AD server sends Acumatica ERP the list of AD groups to which the user is assigned.
3. Acumatica ERP compares the list of AD groups with the internal Acumatica ERP roles, based on the mapping rules defined on the User Roles (SM201005) form.
4. The system finds any Acumatica ERP roles that are associated with AD groups to which the domain user account is assigned. If Acumatica ERP finds at least one role, the user is authenticated to sign in to the Acumatica ERP instance.

The user access rights within the Acumatica ERP application instance are based on the internal list of roles.

## Access Rights of Domain Users

Domain users inherit access rights from the AD groups that you mapped to Acumatica ERP user roles. In addition, you can assign specific user roles to each domain user if the access rights for this user should differ from the AD group rights.

New domain users automatically get the rights to sign in to Acumatica ERP when they join a domain. The membership of these users in Acumatica ERP roles is then automatically updated to comply with the membership of the users in the domain groups.

## Step 4.1: Enabling Active Directory Integration

In this step you will enable integration in Acumatica ERP to be able to integrate your Acumatica ERP instance with Active Directory (AD).



After you save changes to the `web.config` file, the website is automatically restarted. Make sure that all users are warned about the restart so that they can save their documents in advance.

To enable Active Directory integration, do the following:

1. Create an AD user account that has *Read* permissions throughout the entire AD forest.

This user account must be included in the *Domain Users* group or have at least *Read* permissions to the following properties defined in the AD schema: `objectSid`, `distinguishedName`, `sAMAccountName`, `displayName`, `description`, `lastLogon`, `pwdLastSet`, `primaryGroupID`, and `memberOf`.

2. Modify the `web.config` file as follows:

- Open the `web.config` file, which is located in the folder that contains the application instance website.



After you save changes to the `web.config` file, the website is automatically restarted. Make sure that all users are warned about the restart so that they can save their documents in advance.

- In the file, find the `activeDirectory` section within the `system.web` section and edit it similarly to the example shown below.

```
<activeDirectory
    enabled="true"
    path="Domain_Path"
    dc="Domain_Name"
    user="User_Name"
    password="User_Password" />
```

In the code shown above:

- *Domain\_Path* is the DNS name or the IP address of the domain controller (DC).
- *Domain\_Name* is the domain name, such as *terra*, *terra.com*, or *sing.terra.com*. This setting affects the visibility of the data of Acumatica ERP to the domain users. Preferably, you should use the highest-level domain of the domain name. For example, in the *sing.terra.com* domain name, the highest level domain is *sing*, and you would have to specify `dc="sing"`. For the *terra.net* domain, the highest level domain is *terra* and you would have to specify `dc="terra"`.
- *User\_Name* is the name of the user account you created in Step 1. Depending on the AD settings, you should use one of the following formats: *User\_Name*, *User\_Name@Domain\_Name*, or *Domain\_Name\User\_Name*.
- *User\_Password* is the AD password of the user account you created in the first instruction.
- Save the `web.config` file. The website restarts automatically.

Now you can proceed to mapping AD groups to Acumatica ERP roles.

## Step 4.2: Mapping Active Directory Groups to Roles in Acumatica ERP

In this step, you will map AD groups to Acumatica ERP roles. Before you start configuring your system, make sure that all the domain users have email addresses configured in AD.



Enabling AD integration does not affect the standard authorization and authentication capabilities of Acumatica ERP. With AD integration enabled, you can still create internal users in Acumatica ERP.

To map Active Directory groups to Acumatica ERP roles, do the following:

1. Sign in to your Acumatica ERP instance.
2. Navigate to the User Roles form (SM201005; Configuration > User Security > Manage).

3. In the **Summary** area, in the **Role Name** box, select the role you want to associate with an Active Directory group (or with multiple groups).

4. On the **Active Directory** tab, click **Add Row**.



The **Active Directory** tab appears on this form if the integration of Acumatica ERP with AD has been enabled in the web.config file.

5. In the **Group** column on the new row, select the AD group that you want to associate with the role.

6. On the form toolbar, click **Save**.

You have to repeat the above instructions for every role that should be mapped to AD groups.

If you need, you can remove mapping on the same User Roles form (SM201005).

After you have mapped AD groups with user roles in Acumatica ERP you can assign specific roles for a particular domain user

## Additional Information

The following concept is outside of the scope of this course but may be useful to some readers. You can use the link below to get additional information.

### **Integrating Acumatica ERP with Microsoft Active Directory Federation Services**

The integration of Acumatica ERP with Microsoft Active Directory Federation Services (AD FS) provides centralized user and access management (by using Active Directory) and single sign-on (SSO) for your domain users. You can integrate Acumatica ERP with AD FS if you use an Acumatica ERP instance that is deployed on the Internet but not in the your organization's intranet. With such integration in place, users of Acumatica ERP can access the instance with their domain credentials.



You can integrate your Acumatica ERP instance with AD FS or Azure AD, but not with both. These two identity management systems are mutually exclusive because they use the same functionality to connect to Acumatica ERP.

For detailed information on the integration of Acumatica ERP with AD FS, see [\*Integration with AD FS\*](#) in the Acumatica ERP User Guide.

## Lesson Summary

In this lesson, you learned about integration between Acumatica ERP and Active Directory.

### Review Questions:

- What are the benefits of AD integration in Acumatica ERP?
- How would you locate AD settings in the `web.config` and enable them?
- How do AD groups and Acumatica ERP roles work together to provide user access and authentication in Acumatica ERP?
- What are the effects of turning off AD integration at a later date?

## Lesson 5: Integration with Other Identity and Access Management Systems

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The integration of Acumatica ERP with Windows Azure Active Directory (Azure AD) provides single sign-on (SSO) and centralized user and access management. You can use an instance of Azure AD, which is a cloud version of the Active Directory service, if your organization is signed up for a Microsoft cloud service, such as Azure or Office 365.

With such integration in place, users of your Acumatica ERP instance will use their Azure AD domain credentials for authorization in Acumatica ERP.

 You can integrate your Acumatica ERP instance with AD FS or Azure AD, but not with both. These two identity management systems are mutually exclusive because they use the same functionality to connect to Acumatica ERP.

Acumatica ERP also supports integration with Google and Microsoft Account by using the OAuth 2.0 standard for providing single sign-on (SSO). After you set up SSO with Google or Microsoft Account, the employees of your organization can use their Google (or Microsoft accounts) to access your Acumatica ERP instance as well as Google services (or Microsoft services). This reduces the number of logins and passwords the users have to remember, thus reducing the risk of identity theft.

With this integration, the Google account (or Microsoft account) provides the only authentication for employees of your company. You set up authorization for users in your Acumatica ERP instance by assigning user types and roles for an Acumatica ERP user account. Then users need to log in to Acumatica ERP once using the login and password there in order to assign their own Google account (or Microsoft account) to their user account.

### Lesson Objectives

You will learn how to do the following (you do not need to perform the steps to pass the training):

- Integrate Acumatica ERP with Azure AD
- Set up SSO with Google for your Acumatica ERP instance
- Set up SSO with Microsoft Account for your Acumatica ERP instance

# Integration with Azure Active Directory

You can integrate Acumatica ERP with Windows Azure Active Directory (Azure AD) to manage users and access in one place and to provide single sign-on. You can create, delete, and manage user accounts by using Azure AD. During integration you map Azure AD groups with user roles in Acumatica ERP to determine users' access rights.

## Requirements

Before you integrate Acumatica ERP with Azure AD, your company must be signed up for a Microsoft cloud service, such as Azure or Office 365, with the Azure Active Directory instance configured. For more information, see [Azure Active Directory](#) on the Windows Azure Portal.

## Configuration Steps

You can configure integration with Azure AD when you implement Acumatica ERP or at any later time. To integrate an instance of Acumatica ERP with Azure AD, you will perform the following steps:

1. Register your Acumatica ERP instance with the Azure AD instance and obtain the client ID and client secret, as described in [To Register Your Acumatica ERP Instance on Windows Azure](#).
2. Enable integration with Azure AD by modifying the web.config file of the application instance, as described in [To Enable Azure Active Directory Integration for the Acumatica ERP Instance](#).
 

 After you save changes to the web.config file, the website is automatically restarted. Make sure that all users are warned about the restart so that they can save their documents in advance.
3. Map the Azure AD groups to Acumatica ERP roles, as described in [To Map Azure Active Directory Groups to Roles in Acumatica ERP](#).
4. Optional: If required, override the roles assigned to any user automatically by selecting the required roles manually. For details, see [To Set Up Role Assignment for Domain Users](#).
5. Optional: If you want to use the Azure AD service as the default identity provider, enable silent logon with Azure AD, as described in [To Enable Silent Logon](#).

## User Accounts of Domain Users in Acumatica ERP

After you have enabled integration with the identity management system, user accounts for domain users are created automatically when the users sign in to your Acumatica ERP instance for the first time.

The accounts of domain users in Acumatica ERP are based on their accounts in the domain. The password of a domain user in Acumatica ERP is the same as the domain account password. The email address and the first and last name of the user are populated from the domain account as well. However, the login, password, email address, and first and last name are managed through the domain and cannot be changed in Acumatica ERP.

 You cannot restore the passwords of domain users by using Acumatica ERP tools. You should restore users' domain credentials by using tools of Active Directory (AD).

If the number of users or groups in AD is greater than or equal to 1000, information about users and groups from AD is automatically cached by Acumatica ERP to speed authentication of users. When you make any changes in AD, you can manually synchronize the cached lists of users and groups with AD in Acumatica ERP. If the number of users and groups in AD is less than 1000, Acumatica ERP retrieves the lists of users and groups directly from AD.

## Domain User Authentication

After integration of Acumatica ERP with Azure AD, users use single sign-on (SSO) with the domain to sign in to Acumatica ERP. By default, the users follow these steps:

1. On the Welcome page of your Acumatica ERP instance, the user selects the Azure AD icon to open the Azure AD sign-in page.
2. On the sign-in page, the user enters the domain credentials in the following format:  
`<User_Name>@<Domain_Name>`, where `<User_Name>` is the user account name in the integrated domain and `<Domain_Name>` is the UPN suffix, also known as the domain name.

To simplify the procedure, you can configure silent logon with Azure AD server. For more information, see [To Enable Silent Logon](#).

### Domain User Authorization

When a domain user tries to access Acumatica ERP, user authorization occurs as follows:

1. The application instance sends an authentication request to the AD server to validate the user's credentials.
2. When validation has completed successfully, the AD server sends Acumatica ERP the list of AD groups to which the user is assigned.
3. Acumatica ERP compares the list of AD groups with the internal Acumatica ERP roles, based on the mapping rules defined on the User Roles (SM201005) form.
4. The system finds any Acumatica ERP roles that are associated with AD groups to which the domain user account is assigned. If Acumatica ERP finds at least one role, the user is authenticated to sign in to the Acumatica ERP instance.

The user access rights within the Acumatica ERP application instance are based on the internal list of roles.

For more information about authentication in Acumatica ERP, see [User Accounts in Acumatica ERP](#). For details about roles and access rights in Acumatica ERP, see [User Access Rights](#).

### Access Rights of Domain Users

Domain users inherit access rights from the AD groups that you mapped to Acumatica ERP user roles. In addition, you can assign specific user roles to each domain user if the access rights for this user should differ from the AD group rights.

New domain users automatically get the rights to sign in to Acumatica ERP when they join a domain. The membership of these users in Acumatica ERP roles is then automatically updated to comply with the membership of the users in the domain groups.

# Single Sign-On with Google

You can integrate Acumatica ERP with Google if you want to allow employees of your organization to use their Google accounts to access your Acumatica ERP instance as well as Google services.

## Requirements

If you plan to use this integration, we strongly recommend that you host your Acumatica ERP instance (or instances) over HTTPS. For more information, see [Setting Up an HTTPS Service in Web Server \(IIS\)](#).

## Configuration Steps

The configuration of single sign-on (SSO) with Google for your Acumatica ERP instance consists of the following steps:

1. You register your Acumatica ERP instance with Google and obtain the OAuth 2.0 credentials, including the client ID and client secret. For details, see [To Register an Acumatica ERP Instance with Google](#).
2. You enable SSO with Google in your Acumatica ERP instance by using the client ID and client secret you obtained in the previous step, as described in [To Enable SSO with Google](#).
 

 You can enable and disable SSO with Google for your Acumatica ERP instance at any time because Acumatica ERP uses SSO with Google only for verifying user identities. Users can still authenticate themselves by using their Acumatica ERP credentials.
3. Optional: You activate SSO with Google on the Users (SM201010) form for each user who will use his or her Google account for authorization in Acumatica ERP. Alternatively, each user can activate SSO with Google for himself or herself on the User Profile (SM203010) form. For details, see [To Activate Your Google or Microsoft Account](#).
4. Users of your Acumatica ERP instance associate their Acumatica ERP accounts with their Google accounts. They can do this in either of the following ways:
  - Users click the **Associate User** button on the User Profile form (for details, see [To Activate Your Google or Microsoft Account](#)). The system registers the unique user key associated with the user's Google account with the user's Acumatica ERP account. This way can be used if users activate SSO with Google for their accounts on their own.
  - If the value of the `selfAssociate` parameter in the `externalAuth` section of the `web.config` file is true (which is the default value), users click the Google icon on the Welcome page of Acumatica ERP, and the system suggests that they enter the credentials of an Acumatica ERP user that should be associated with the Google account. This way can be used when you activated SSO with Google for each user.
5. Optional: You configure your Acumatica ERP instance to automatically redirect users to the Google sign-in page, as described in [To Enable Silent Logon](#).

Before you turn on silent logon with Google, ask your users if all of them can sign in to Acumatica ERP with their Google accounts.

## User Authentication

After you have integrated Acumatica ERP with Google account, users use SSO with Google services to sign in to Acumatica ERP. By default, each user follows these steps:

1. On the Welcome page of the Acumatica ERP instance, the user clicks the Google icon to open the Google sign-in page.
2. On the sign-in page, the user enters his or her Google account credentials.

To simplify the procedure, you can configure silent logon with Google. For more information, see [To Enable Silent Logon](#).

# Single Sign-On with Microsoft Accounts

You can integrate Acumatica ERP with Microsoft Account if you want to allow employees of your organization to use their Microsoft Accounts to access your Acumatica ERP instance as well as Microsoft services.

## Requirements

If you plan to use this integration, we strongly recommend that you host your Acumatica ERP instance (or instances) over HTTPS. For more information, see [Setting Up an HTTPS Service in Web Server \(IIS\)](#).

## Configuration Steps

The configuration of SSO with Microsoft account for your Acumatica ERP instance consists of the following steps:

1. You register your Acumatica ERP instance with Microsoft Account and obtain the OAuth 2.0 credentials, including the client ID and client secret. For details, see [To Register an Acumatica ERP Instance with Microsoft Account](#).
2. You enable SSO with Microsoft Account in your Acumatica ERP instance by using the client ID and client secret you obtained in the previous step, as described in [To Enable SSO with Microsoft Account](#).
 

 You can enable and disable SSO with Microsoft Account for your Acumatica ERP instance at any time because Acumatica ERP uses SSO with Microsoft Account only for verifying user identities. Users can still authenticate themselves by using their Acumatica ERP credentials.
3. Optional: You activate SSO with Microsoft Account on the Users (SM201010) form for each user who will use his or her Microsoft Account credentials for authorization in Acumatica ERP. Alternatively, each user can activate SSO with Microsoft Account for himself or herself on the User Profile (SM203010) form. For details, see [To Activate Your Google or Microsoft Account](#).
4. Users of your Acumatica ERP instance associate their Acumatica ERP accounts with their Microsoft Account credentials. They can do this in either of the following ways:
  - Users click the **Associate User** button on the User Profile form (for details, see [To Activate Your Google or Microsoft Account](#)). The system registers the unique user key associated with the user's Microsoft Account with the user's Acumatica ERP account. This way can be used if users activate SSO with Microsoft Account for their accounts on their own.
  - If the value of the `selfAssociate` parameter in the `externalAuth` section of the `web.config` file is true (which is the default value), users click the Microsoft icon on the Welcome page of Acumatica ERP, and the system suggests that they enter the credentials of an Acumatica ERP user that should be associated with the Microsoft Account. This way can be used when you activated SSO with Microsoft Account for each user.
5. Optional: You can configure your Acumatica ERP instance to automatically redirect users to the Microsoft Account sign-in page, as described in [To Enable Silent Logon](#).

Before you turn on silent logon with Microsoft Account, ask your users if all of them can sign in to Acumatica ERP with their Microsoft Account credentials.

## User Authentication

After you have integrated Acumatica ERP with Microsoft Account, users use single sign-on (SSO) with Microsoft services to sign in to Acumatica ERP. By default, the users follow these steps:

1. On the Welcome page of the Acumatica ERP instance, the user clicks the Microsoft icon to open the Microsoft sign-in page.
2. On the sign-in page, the user enters his or her Microsoft account credentials.

To simplify the procedure, you can configure silent logon with Microsoft account. For more information, see [To Enable Silent Logon](#).

## Lesson Summary

In this lesson, you learned about integration between Acumatica ERP and Azure Active Directory, Single Sign-On with Google or Microsoft Accounts.

### Review Questions:

- What are the benefits of integration between Acumatica ERP and other identity and access management systems?
- What is the process of user authentication when integration with one of such systems is configured?

## Lesson 6: Synchronizing with Microsoft Exchange Server

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In this lesson, you will learn how to configure the Acumatica ERP instance integration with an Exchange Server instance.

Microsoft Exchange Server is one of the most popular email-based collaborative communication servers for businesses. By integrating Acumatica ERP with Exchange Server, you can seamlessly and transparently synchronize contacts, tasks, appointments, and emails across platforms.

You can control the synchronization process by setting up synchronization policies and assigning those policies to your users. Automatic synchronization ensures that updates are delivered on time.

### System Requirements

Acumatica ERP can be integrated with Microsoft Exchange Server 2013 or later.

The license for your Acumatica ERP instance must include the following features, which must be enabled on the Enable/Disable Features (CS100000) form:

- *Exchange Integration*: Required for configuring and managing integration with Exchange Server
- *Scheduled Processing*: Required for setting up synchronization schedules

### Customer Management Module

We recommend that you enable the Customer Management module in your Acumatica ERP instance. Even though your employees can work with emails, tasks, events, and contacts by using other Acumatica ERP capabilities, the Customer Management module provides a single entry point for your employees. On the Contacts (CR302000) form, they can view and manage all emails, tasks, and appointments grouped by contacts.

### Lesson Objectives

You will learn how to do the following (you do not need to perform the steps to pass the training):

- Configure synchronization policies that define synchronization settings, such as the directions for synchronization and the types of records that would be synchronized across platforms.
- Set up an account for your Exchange Server in the Acumatica ERP instance.
- Set up synchronization for your Acumatica ERP users.

## Step 6.1: Adding a Synchronization Policy

Synchronization policies define the settings for synchronization between your Exchange Server and Acumatica ERP instances, such as the record types to be synchronized, the synchronization direction, and the way the synchronized records will be marked. You can create different synchronization policies to meet the needs of the employees of your company. Rather than configuring synchronization individually for each employee, you define the synchronization policies and assign them to employees. Changing a synchronization policy changes the synchronization settings for all employees with this policy assigned.

### Record Types

For a synchronization policy, you can select the types of records to be synchronized. The following table shows how record types are mapped between Acumatica ERP and Exchange Server.

#### ***Supported Record Types***

Record Types in Acumatica ERP	Record Types in Exchange Server
Contact	Contact
Email	Email
Event	Appointment/Meeting
Task	Task

### Category

Any synchronization policy includes a category to be used to mark records exported from Acumatica ERP. A category includes a color and a word (or a phrase) that you have entered for the policy.

### Synchronization Direction

A policy defines the direction for synchronization. You can select either unidirectional or bidirectional synchronization for tasks, contacts, and events. Email synchronization is bidirectional only.

### Conflict Resolution

If a policy includes bidirectional synchronization of any type of records, you need to define how the system is to resolve possible conflicts that may arise if records of the corresponding type have been updated since the previous synchronization. You can give priority to records from a particular system, or you can choose to keep copies of records from both systems.

### Contact Synchronization

For a synchronization policy that includes contact synchronization, you have to decide the following:

- Which contacts will be synchronized: all the available contacts, or specific contact groups (such as the contacts associated with the user or the user's workgroup)
- Whether a specific folder will be used for synchronized contacts

### Email Synchronization

For a synchronization policy that includes email synchronization, you have to decide the following:

- Whether a specific folder will be used to store synchronized emails
- Whether a new contact is to be created each time an employee receives an email from an unknown address

- Whether you want to synchronize attachments

You add, delete, and manage synchronization policies by using the Exchange Synchronization Policies (SM204010) form.

To add a synchronization policy, follow these instructions:

1. Sign in to your Acumatica ERP instance.
2. Navigate to the Exchange Synchronization Policies form (SM204010; Configuration > Email > Manage).
3. In the **Policy Name** box, type the name for the new policy.
4. In the **Description** box, type the policy description.
5. On the **Synchronization Settings** tab, in the **General** section, do the following (as shown in the following screenshot):
  - In the **Category Name** box, type the name of the category that will be used for marking the synchronized records in a user's mailbox.
  - In the **Category Color** box, select the color.
  - In the **Conflict Resolution Priority** box, select how conflicts will be resolved in the case of a bidirectional synchronization.

The screenshot shows the Exchange Synchronization Policies form. At the top, the policy name is set to 'TESTPOLICY' and the description is 'Test Policy'. The 'GENERAL' tab is active, displaying settings for 'Category Name' (set to 'TestCategory'), 'Category Color' (set to 'Teal'), and 'Conflict Resolution Priority' (set to 'Keep Both'). Other tabs visible include 'CONTACTS', 'EMAIL', 'TASKS', and 'EVENTS', each with their own set of synchronization options and configuration fields.

**Figure: The process of creating a synchronization policy**

6. Specify the settings for contact synchronization. In the **Contacts** section, do the following:
  - To synchronize contacts, select the **Synchronize Contacts** check box.

- If you want to store the synchronized contacts in a specific folder in user mailbox, select the **Use Separate Folder for Contacts** check box and type the name of a folder in the **Folder Name** box.
  - If you want to avoid duplicating contact accounts in Acumatica ERP, select the **Merge Contacts by Email** check box.
  - If you don't want to mark the exported contacts in each user's mailbox, select the **Synchronize New Items without Category** check box.
  - In the **Direction** box, select the direction for synchronization.
  - In the **Filter** box, select the option that indicates which contacts are to be synchronized: all contacts, the contacts associated with a user or the user's workgroup.
  - In the **Contact Class** box, select a contact class to be assigned to the contacts imported to Acumatica ERP.
- 7.** Specify the settings for email synchronization. In the **Email** section, do the following:
- To synchronize emails, select the **Synchronize Emails** check box.
  - In the **Folder Name** box, type the name of a folder in each user's mailbox to be used to store emails that are exported from Acumatica ERP.
  - If you want to synchronize attachments, select the **Synchronize Attachments** check box.
- 8.** Specify the settings for task synchronization. In the **Tasks** section, do the following:
- To synchronize tasks, select the **Synchronize Tasks** check box.
  - If you want to store the synchronized tasks in a specific folder in each user's mailbox, select the **Use Separate Folder for Tasks** check box and type the name of a folder in the **Folder Name** box.
  - If you don't want to mark the exported tasks in each user's mailbox, select the **Synchronize New Items without Category** check box.
  - In the **Direction** box, select the direction for synchronization.
- 9.** Specify the settings for event synchronization. In the **Events** section, do the following:
- To synchronize events, select the **Synchronize Events** check box.
  - If you want to store the synchronized events in a specific folder in each user's mailbox, select the **Use Separate Folder for Events** check box and type the name of a folder in the **Folder Name** box.
  - If you don't want to mark the exported contacts in each user's mailbox, select the **Synchronize New Items without Category** check box.
  - In the **Direction** box, select the direction for synchronization.
- 10.** On the form toolbar, click **Save**.

You can use the synchronization policy you have added to specify synchronization settings for the employees.

## Step 6.2: Setting Up a Connection with an Exchange Server

Acumatica ERP uses delegate access to connect to an Exchange server. For each delegate mailbox on your Exchange server, you create an account in your Acumatica ERP instance on the Exchange Server Configuration (SM204015) form and specify the connection and synchronization settings.

-  The delegate must have full access to the managed mailboxes. For the server account, you also specify the synchronization and logging settings. For details on configuring delegate access in Exchange, refer to your Exchange Server documentation. For details on configuring delegate access in applications that synchronize with Microsoft Exchange, see the application documentation.

You can specify the quantity of records sent or received during each performed synchronization, limit the synchronized attachment size, and specify the synchronization policy to be used by default. Also, to speed up the connection, you can specify the URL of the mail server.

Additionally, you select which events will be recorded in the synchronization log. You can select one of the following logging levels:

- *None*: Nothing is recorded.
- *Default*: Errors and warnings are recorded.
- *Informational*: Errors, warnings, and basic events are recorded.
- *Verbose*: All events are recorded.



You can access the event log from the Exchange Synchronization Process (SM204030) form.

To set up a connection with an Exchange server, you add an account for the Exchange Server instance to your Acumatica ERP instance by using the Exchange Server Configuration (SM204015) form. Before you start, you have to set up a delegate mailbox to be used for synchronization between the Exchange server and the Acumatica ERP instance. The delegate must have full access to the mailboxes of the users whose accounts should be synchronized.

Add an account for an Exchange Server, perform the follows:

1. Sign in to your Acumatica ERP instance.
2. Navigate to the Exchange Server Configuration form (SM204015; Configuration > Email > Manage).
3. In the **Account Name** box of the Summary area, type the name of the Exchange server account.
4. In the **Email Address** box, enter the email account to be used for synchronization.
5. In the **Password** box, enter the password of the email account to be used for synchronization.
6. In the **Logging Level** box, select *Default*.
7. Clear the **Is Active** check box.
8. In the **Default Policy Name** box, select the synchronization policy to be used if a synchronization policy is not selected for an employee account, as you can see in the following screenshot.

The screenshot shows the 'Exchange Server Configuration' screen in Acumatica. At the top, there are tabs for 'TEST SERVER' and 'INITIALIZE SERVER'. Below the tabs, there are several input fields and a table.

**Input Fields (Left Side):**

- \* Account Name: TestAccount
- \* Email Address: test@acumatica.com
- \* Password: [REDACTED]
- Logging Level: Default

**Input Fields (Right Side):**

- Is Active:
- Default Policy Name: TESTPOLICY
- Mail Server (Optional): [REDACTED]
- Accounts in Batch: [REDACTED]
- Update Batch Size: [REDACTED]
- Select Batch Size: [REDACTED]
- Max Attachment Size: [REDACTED] KB

**Sync Log Table:**

Sync Account	Employee ID	Employee Name	Email Address	Policy Name
> <input type="checkbox"/>	EP00000001	Andrews Michael, Mr.	mandrews@revisiontwo.com	
<input type="checkbox"/>	EP00000002	Baker Maxwell, Mr.	mbaker@revisiontwo.com	
<input type="checkbox"/>	EP00000003	Beauvoir Layla, Ms.	lbeauvoir@revisiontwo.com	
<input type="checkbox"/>	EP00000004	Becher, Joseph	jbecher@revisiontwo.com	
<input type="checkbox"/>	EP00000005	Bernia Martin, Mr.	mbernia@revisiontwo.com	
<input type="checkbox"/>	EP00000006	Bloom Todd, Mr.	tbloom@revisiontwo.com	
<input type="checkbox"/>	EP00000007	Brawner Pam, Ms.	pbrawner@revisiontwo.com	
<input type="checkbox"/>	EP00000008	Bujacek, Michal	mbujacek@revisiontwo.com	
<input type="checkbox"/>	EP00000009	Chubb David, Mr.	dchubb@revisiontwo.com	
<input type="checkbox"/>	EP00000010	Church Steve, Mr.	schurch@revisiontwo.com	

**Figure: Adding a new account for an Exchange Server**

9. Optional: In the **Mail Server (Optional)** box, specify the URL of your Exchange server instance.
10. On the form toolbar, click **Save** to save the account.
11. On the form toolbar, click **Test Server** to test the account settings.  
The green check box on the form toolbar indicates that the connection is set up.
12. Select the **Is Active** check box to allow synchronization with the Exchange server.
13. On the form toolbar, click **Save** to save the account.

## Step 6.3: Configuring Synchronization for the Employee Accounts

Management of synchronization with Exchange Server includes the following basic tasks:

- Selecting the employee accounts for which synchronization is to be performed
- Scheduling synchronization

You configure synchronization for an employee account by associating the employee account with the Exchange server account and assigning a synchronization policy for the employee account. After you configure the employee account, you can perform synchronization manually to check the settings, as described in Step 9.4. After you have configured synchronization with an Exchange server, you can schedule synchronization to be performed automatically, as described in Step 9.5.

A system email account of the *Exchange* type is automatically added when you enable synchronization of the employee account with an Exchange server. You can view and edit the automatically generated accounts on the System Email Accounts (SM204002) form. If you disable Exchange synchronization for an employee account, the corresponding system email account is automatically deleted.

You can associate the employee account with the Exchange Server account to be used for synchronization by using the Exchange Server Configuration (SM204015) form. The synchronization settings are defined by the synchronization policy you assign to the employee account.



Each newly created Exchange Server account must be initiated on the Exchange side before it can be synchronized with an employee account in Acumatica ERP. Also, the **Send on behalf** permission must be assigned to each of the mail accounts on the Exchange side.

To configure synchronization for employee accounts:

1. Sign in to your Acumatica ERP instance.
2. Navigate to the Exchange Server Configuration form (SM204015; Configuration > Email > Manage).
3. In the **Account Name** box, select the Exchange Server account to be used for synchronization.
4. Make sure that the account is active (the **Is Active** check box should be selected).
5. For every employee for whom you want to configure synchronization, do the following (see the following screenshot):
  - In the table, select the **Sync Account** check box in the row with the employee.
  - In the **Policy Name** column, select a synchronization policy.



If you do not specify a policy, the default synchronization policy will be applied when synchronization is performed.

Revision Two HQ - Exchange Server Configuration ★

NOTES FILES NOTIFICATIONS CUSTOMIZATION HELP ▾

TEST SERVER INITIALIZE SERVER

* Account Name:	TestAccount	<input type="checkbox"/> Is Active	
* Email Address:	vjivitsa@gmail.com	Default Policy Name:	TESTPOLICY
* Password:	*****	Mail Server (Optional):	
Logging Level:	Default	Accounts in Batch:	
		Update Batch Size:	
		Select Batch Size:	
		Max Attachment Size:	KB

**C** **H** **X**

Sync Account	Employee ID	Employee Name	Email Address	Policy Name
<input type="checkbox"/>	EP00000001	Andrews Michael, Mr.	mandrews@revisiontwo.com	
<input checked="" type="checkbox"/>	EP00000002	Baker Maxwell, Mr.	mbaker@revisiontwo.com	TESTPOLICY
<input checked="" type="checkbox"/>	EP00000003	Beauvoir Layla, Ms.	lbeauvoir@revisiontwo.com	
<input checked="" type="checkbox"/>	EP00000004	Becher, Joseph	jbecher@revisiontwo.com	
<input type="checkbox"/>	EP00000005	Bernia Martin, Mr.	mbernia@revisiontwo.com	
<input type="checkbox"/>	EP00000006	Bloom Todd, Mr.	tbloom@revisiontwo.com	
<input type="checkbox"/>	EP00000007	Brawner Pam, Ms.	pbrawner@revisiontwo.com	
<input type="checkbox"/>	EP00000008	Bujacek, Michal	mbujacek@revisiontwo.com	

**Figure: Configuring synchronization with Exchange Server**

6. On the form toolbar, click **Save**.

## Step 6.4: Setting Up Synchronization with Exchange Server

After you specify the synchronization settings, as described in the previous step, you synchronize accounts manually on the Exchange Synchronization Process (SM204030) form to check the configuration.

To synchronize employees' accounts with their Exchange mailboxes manually, do the following:

1. Sign in to your Acumatica ERP instance.
2. Navigate to the Exchange Synchronization Process form (SM204030; Configuration > Email > Schedule).
3. In the table, select the **Selected** check box in the row of the employee whose account you want to synchronize, as shown in the following screenshot.

Selected	Server ID	Email Address	Email Account ID	Employee ID	Employee Name	Policy Name
<input type="checkbox"/>	TestAccount	mandrews@revisiontwo.com	EP00000001	Andrews Michael, Mr.		
<input checked="" type="checkbox"/>	TestAccount	mbaker@revisiontwo.com	Baker Maxwell, Mr.	EP00000002	Baker Maxwell, Mr.	TESTPOLICY
<input type="checkbox"/>	TestAccount	lbeauvoir@revisiontwo.com	Beauvoir Layla, Ms.	EP00000003	Beauvoir Layla, Ms.	
<input type="checkbox"/>	TestAccount	jbecher@revisiontwo.com	Becher, Joseph	EP00000004	Becher, Joseph	

**Figure: Synchronizing employee account with Exchange mailbox**

4. On the form toolbar, click **Process**.

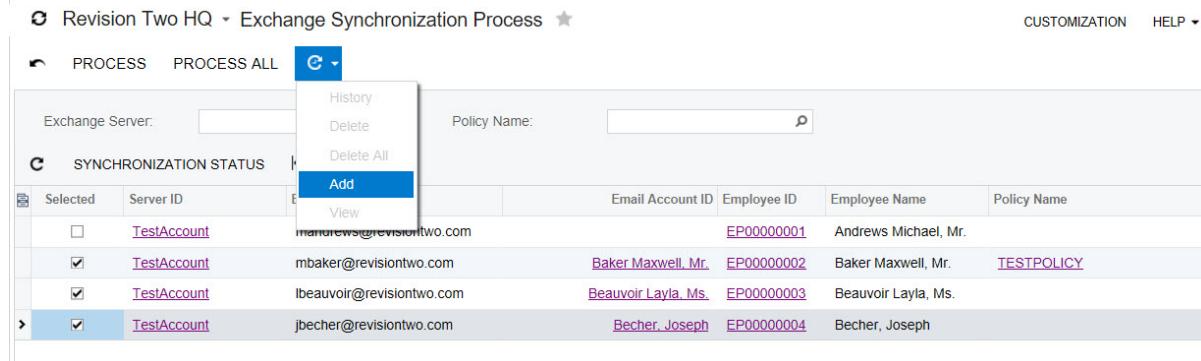
If the system performs synchronization as it should, you can schedule automatic synchronization for the employee account.

## Step 6.5: Setting Up Automatic Synchronization with Exchange Server

To set up automatic synchronization with Exchange Server, you can use the Exchange Synchronization Process (SM204030) form to select the employee accounts for synchronization, and then you use the Automation Schedules (SM205020) form to specify the schedule you want to use for automatic synchronization.

To schedule synchronization with the Exchange Server for the employee accounts, do the following:

1. Sign in to your Acumatica ERP instance.
2. Navigate to the Exchange Synchronization Process form (SM204030; Configuration > Email > Schedule).
3. For each employee whose account you want to synchronize, select the **Selected** check box.
4. On the form toolbar, click **Schedules** (see the following screenshot), and then click **Add** to open the Automation Schedules form as a pop-up window.



**Figure: The Schedule button**

5. Create a new schedule for synchronization or select an existing one.

The selected employee accounts will be automatically synchronized according to the schedule you have set up.

# Record Synchronization

After you have set up integration with the Exchange server, synchronization of all relevant records is performed automatically in accordance with the configured schedule and applied policies.

In this topic, you will find information about the basic principles that users should follow to ensure seamless synchronization of records.

## Contact Synchronization

In Acumatica ERP, all contact records available for synchronization are listed on the Contacts (CR302000) form. These contacts are synchronized with the contacts stored in the mailbox on the Exchange server, as specified in the synchronization policy settings. The following synchronization scenarios are possible:

- A new contact has been created in the system—as a result, an identical contact is added to the user mailbox on the Exchange server.
- An existing contact has been modified in the system—as a result, the corresponding contact from the user mailbox on the Exchange server is updated accordingly.
- A contact has been deleted from the system—as a result, the corresponding contact is deleted from the specific public folder on the Exchange Server.
- A contact has been added to the specific public folder on the Exchange Server—as a result, an identical contact is added to the system.
- An existing contact has been modified in the specific public folder on the Exchange Server—as a result, the corresponding contact is updated accordingly in the system.
- A contact has been deleted from the specific public folder on the Exchange Server—as a result, the corresponding contact is deleted from the system.

## Email Synchronization

In Acumatica ERP, each contact can have associated email activities listed on the **Activities** tab of the Contacts (CR302000) form. These emails can be synchronized with emails from a specific email folder on the Exchange server; the name of this folder should be specified in the synchronization policy settings. Email attachments can also be synchronized. If an email contains new contacts specified as recipients, the corresponding contact records are created automatically.

## Task Synchronization

Tasks listed on the Tasks (EP404000) form are synchronized with Exchange tasks included in a specific category that should be specified in the synchronization policy settings. New tasks assigned to a particular contact can be synchronized in both directions. Any shared task information, if updated, is also synchronized. If a task has been deleted in the system, the corresponding task is deleted on Exchange Server; likewise, if a task is deleted on Exchange Server, the corresponding task is deleted in Acumatica ERP.

Task statuses, which indicate the task processing stages, are mapped as shown in the table below. No synchronization is performed for any task whose status has no corresponding status.

### *Correspondence of statuses*

System Task Status	Exchange Task Status
<i>Open</i>	<i>Not Started</i>
<i>Draft</i>	N/A
<i>In Process</i>	<i>In Progress</i>

<b>System Task Status</b>	<b>Exchange Task Status</b>
<i>Canceled</i>	<i>Completed</i>
<i>Completed</i>	<i>Completed</i>
<i>Approved</i>	<i>In Progress</i>
<i>Pending Approval</i>	<i>Waiting On Others</i>
<i>Rejected</i>	N/A
N/A	<i>Deferred</i>

### Event Synchronization

Events listed on the Events (EP404100) form are synchronized with Exchange appointments. Appointments that correspond to canceled events are deleted from the Exchange Server. Completion of an event does not require synchronization with the corresponding appointment. Also, the following synchronization scenarios are possible:

- A new event has been created in the system—as a result, an identical appointment is added to the initiator's calendar on the Exchange server.
- The list of attendees has been updated for an existing event—as a result, the list of attendees is updated accordingly for the corresponding appointment; invitations are automatically sent to attendees.
- An event has been deleted—as a result, the corresponding appointment is deleted from the initiator's calendar on the Exchange server.
- An appointment has been deleted from the initiator's calendar on the Exchange server—as a result, the corresponding event is deleted in the system.
- All updated event information is synchronized with appointment information, and the reverse is true as well.



Event synchronization has the following limitation: If an employee (event owner) whose events are not synchronized with Exchange appointments creates an event in the system and invites an employee (attendee) whose events are synchronized with Exchange appointments, no corresponding appointment will appear on the attendee's calendar on the Exchange server. This happens because an appointment has to be created before an attendee is assigned to it, and if event synchronization is disabled for the event owner, no appointment is created at all. The best way to bypass this limitation is to enable event synchronization for all employees in your company.

## Additional Information

The following concepts are outside of the scope of this course but may be useful to some readers. You can use the links below to get additional information.

### Synchronization with Salesforce

Acumatica ERP supports bi-directional real-time synchronization of data between Acumatica ERP and Salesforce, so users can work simultaneously in both systems with changes in one system being reflected in the other.

For more information about a synchronization solution, see [Synchronization Solution Overview](#) in the Acumatica ERP User Guide, and to learn how to configure both of the systems, refer to [Quick Configuration Steps](#).

### Acumatica Add-In for Outlook

The Acumatica add-in for Outlook processes the incoming and outgoing mail in your Outlook mailbox and searches for leads, contacts, and employees in Acumatica ERP that correspond to the sender and recipient addresses in the emails. With this add-in, you can do any of the following:

- View details on lead, contact, and employee records that already exist in Acumatica ERP.
- Create new leads and contacts right from your mailbox; create opportunities and cases associated with existing contacts.
- Log your communication activities.
- Customize the appearance of the Acumatica ribbon button in Outlook in accordance with your company's branding.

For more information about a synchronization solution, see [Acumatica Add-In for Outlook](#) in the Acumatica ERP User Guide.

### Scheduled Processing

In any ERP system, such tasks as the processing of documents or the validation of accounts require significant time and system resources. As such, they should be processed at times when there are no employees at work, such as weekends or nights. Other processing, such as releasing or posting documents, takes less time but also should be performed regularly, with a frequency determined by your business needs.

In Acumatica ERP, if the *Scheduled Processing* feature is enabled on the Enable/Disable Features (CS100000) form, you can set up automated processing for most processing forms instead of initiating the processing manually.

For more information about the scheduling, see [Scheduled Processing](#) in the Acumatica ERP User Guide.

## Lesson Summary

In this lesson, you learned how to configure and manage synchronization between Acumatica ERP and Microsoft Exchange Server.

### Review Questions:

- How would you add a synchronization policy?
- How would you set up a connection with Exchange Server?
- How would you perform synchronization manually?
- How would you set up automatic synchronization with Exchange Server?

## Part 3: System Security

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In this part of the course, you will learn how to manage and administer visibility of various system entities to users, including warehouses, General Ledger accounts, customer accounts, and inventory items. You will learn how to use restriction groups to restrict visibility of these entities to users. In particular, you will learn about the following tasks:

- Using digital certificates in Acumatica ERP application instances
- Using restrictions groups to limit access to various entities
- Configuring the visibility of warehouses
- Configuring branch access

## Lesson 7: Digital Certificates

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Acumatica ERP uses digital certificates to store sensitive information in the database encrypted and to authenticate documents (PDF files) that are shared or sent electronically. These certificates can be purchased from a recognized certification authority. Each certificate has a password that is used to validate the owner of the certificate if you need to reinstall the system or move the database.

In this lesson, you will learn how to manage encryption certificates and encrypting the database of your Acumatica ERP instance, as well as how to enable PDF signing in Acumatica ERP.

### Lesson Objectives

You will do the following:

- Learn how to import a digital certificate
- Learn how to encrypt an Acumatica ERP database
- Learn how to use encryption certificates to sign PDF files generated in the system

## Step 7.1: Importing Certificates

Acumatica ERP uses digital certificates to store sensitive information in the database encrypted and to authenticate documents (PDF files) that are shared or sent electronically. These certificates can be purchased from a recognized certification authority. Each certificate has a password that is used to validate the owner of the certificate if you need to reinstall the system or move the database.

When you want to use a digital certificate in Acumatica ERP, you have to do the following:

1. You import your certificate on the Encryption Certificates (SM200530) form.
2. You apply the uploaded certificate to one of the following processes:
  - Encrypting the database: You can replace the encryption algorithm used in Acumatica ERP to encrypt sensitive data by using your encryption certificate.
  - Signing PDF documents: You can use the imported encryption certificate for signing PDF files generated in Acumatica ERP. You can specify a default certificate (which will be used for all PDF documents generated in Acumatica ERP), or you can select an imported certificate as a personal certificate (which overrides the default one).

This step describes how you can import a certificate. You do not have to perform these instructions to pass the training.

To use a certificate of either type in Acumatica ERP, you would perform the following instructions:

1. Navigate to the File Upload Preferences (SM202550; Configuration > Document Management > Configure).
2. Verify that .pfx is on the list of allowed extensions, as shown in the following screenshot.

Digital certificates used by Acumatica ERP have the .pfx extension. Before you can import digital certificates into the system, you have to make sure you are able to do this.

Subsidiary ▾ File Upload Preferences ★

File Extension	Icon URL	Forbidden	Image	Default Application
.als	~/icons/cer.gif	<input type="checkbox"/>	<input type="checkbox"/>	application/octet-stream
.cer	~/icons/cer.gif	<input type="checkbox"/>	<input type="checkbox"/>	application/octet-stream
.csv	~/icons/xls.gif	<input type="checkbox"/>	<input type="checkbox"/>	application/octet-stream
.dat	~/icons/binary.gif	<input type="checkbox"/>	<input type="checkbox"/>	application/octet-stream
.doc	~/icons/doc.gif	<input type="checkbox"/>	<input type="checkbox"/>	application/msword
.docx	~/icons/doc.gif	<input type="checkbox"/>	<input type="checkbox"/>	application/vnd.openxmlformats-officedocum...
.epl	~/icons/doc.gif	<input type="checkbox"/>	<input type="checkbox"/>	application/octet-stream
.exe	~/icons/binary.gif	<input type="checkbox"/>	<input type="checkbox"/>	application/octet-stream
.gif	~/icons/gif.gif	<input type="checkbox"/>	<input checked="" type="checkbox"/>	image/gif
.ico	~/icons/image.gif	<input type="checkbox"/>	<input checked="" type="checkbox"/>	image/x-icon
.ics		<input type="checkbox"/>	<input type="checkbox"/>	application/octet-stream
.jpeg		<input type="checkbox"/>	<input type="checkbox"/>	image/jpeg
.jpg	~/icons/jpg.gif	<input type="checkbox"/>	<input checked="" type="checkbox"/>	image/jpeg
.js		<input type="checkbox"/>	<input type="checkbox"/>	application/javascript
.mdb	~/icons/mdb.gif	<input type="checkbox"/>	<input type="checkbox"/>	application/octet-stream
.msi	~/icons/msi.gif	<input type="checkbox"/>	<input type="checkbox"/>	application/octet-stream
.ofx	~/icons/txt.gif	<input type="checkbox"/>	<input type="checkbox"/>	application/octet-stream
.pbix		<input type="checkbox"/>	<input type="checkbox"/>	application/octet-stream
.pdf	~/icons/pdf.gif	<input type="checkbox"/>	<input type="checkbox"/>	application/pdf
.pfx	~/icons/pfx.gif	<input type="checkbox"/>	<input type="checkbox"/>	application/octet-stream
.png	~/icons/image.gif	<input type="checkbox"/>	<input checked="" type="checkbox"/>	image/png
.ppt	~/icons/ppt.gif	<input type="checkbox"/>	<input type="checkbox"/>	application/octet-stream
.pptx	~/icons/ppt.gif	<input type="checkbox"/>	<input type="checkbox"/>	application/vnd.openxmlformats-officedocum...
.qbo	~/icons/txt.gif	<input type="checkbox"/>	<input type="checkbox"/>	application/octet-stream

**Figure: File Upload Preferences**

3. Navigate to the Encryption Certificates (SM200530; Configuration > User Security > Configure).
4. On the table toolbar, click **Add Row**.
5. In the **Name** box, type the certificate name that will be used in the system.
6. In the **Password** box, type the password for the certificate and save the changes.  
After you save your changes, the password will be hidden.
7. Click the paper clip icon in the **Files** column of the row with the certificate, shown in the following screenshot, and click **Add File**.

Subsidiary ▾ Encryption Certificates ★

Name	TestCertificate	Password
------	-----------------	----------

**Figure: Paper clip icon on the Encryption Certificates form**

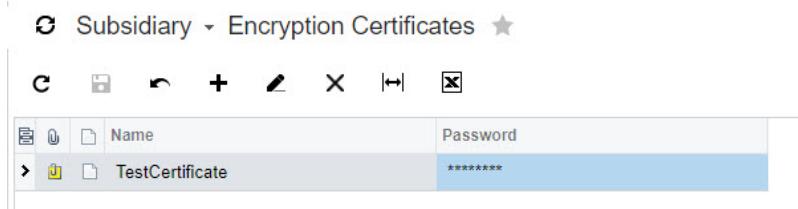
8. In the **Files** dialog box that opens, click **Browse** and select the file with the certificate you want to upload.
9. Click **Upload** to import the certificate.



Although you can upload multiple files in this dialog box, only the latest uploaded file will be used by the system. We recommend that you delete unnecessary files from the system.

10. Close the **Files** dialog box.

The selected certificate has been imported, as shown in the following screenshot. Now it can be used for encrypting the database and for signing PDF documents. You can also import more certificates if you need.



**Figure: Imported certificate**

## Step 7.2: Encrypting the Database

Acumatica ERP database stores sensitive data, such as credit card numbers, encrypted. On the Certificate Replacement (SM200535) form, you can find the current list of encrypted data and the certificates used. If the **Current Certificate** box is blank, the default encryption algorithm is being used.

Entity Type	Entity Name
PX.Objects.AR.CustomerPaymentMethodDetail	Customer Payment Method Detail
PX.Objects.CA.CCProcessingCenterDetail	Credit Card Processing Center Detail
PX.Objects.CA.PaymentTypeInstanceDetail	Payment Method Instance Detail
PX.Objects.GL.GLConsolSetup	GL Consolidation Setup
PX.SM.EMailSyncServer	EMailSyncServer
PX.SM.PreferencesIdentityProvider	PreferencesIdentityProvider
PX.SM.UploadFile	UploadFile

**Figure: Certificate Replacement form**

You can replace the encryption algorithm used in Acumatica ERP with your encryption certificate. If the database of your Acumatica ERP instance is large, encryption may take a lot of time and may cause slowdowns in responses from the database. For large databases, we recommend that you postpone the start of encryption by scheduling it at a time when nobody uses the system (for example, at night).

This step describes how you can encrypt a database. You do not have to perform these instructions to pass the training.

To encrypt the Acumatica ERP database with your digital certificate, you would perform the following instructions:

1. Navigate to the Certificate Replacement form (SM200535; Configuration > User Security > Process ).
2. In the Selection area, in the **New Certificate** box, select the certificate whose key will be used for encrypting the database.  
You can select from only the certificates that you have imported into the system.
3. On the form toolbar, click **Replace Certificate**, as shown in the following screenshot.

Subsidiary ▾ Certificate Replacement ★

REPLACE CERTIFICATE

Entity Type	Entity Name
PX.Objects.AR.CustomerPaymentMethodDetail	Customer Payment Method Detail
PX.Objects.CA.CCProcessingCenterDetail	Credit Card Processing Center Detail
PX.Objects.CA.PaymentTypeInstanceDetail	Payment Method Instance Detail
PX.Objects.GL.GLConsolSetup	GL Consolidation Setup
PX.SM.EmailSyncServer	EmailSyncServer
PX.SM.PreferencesIdentityProvider	PreferencesIdentityProvider
PX.SM.UploadFile	UploadFile

**Figure: Replacing certificate**

This initiates the process of decrypting the data with the previous encryption algorithm and encrypting it by using the new key.

## Step 7.3: Signing PDF

You can also use encryption certificates to sign PDF files generated in the system. A PDF certificate protects the authenticity of a document throughout its life cycle. For example, when a company employee emails the company's digitally signed quarterly financial statements, the recipients of the documents can be sure of the identity of the sender and the integrity of the financial information.

There are two options:

- You can specify a default certificate that will be used for signing all the PDF documents generated by the system.  
The default certificate for signing PDF files is used unless users do not specify their personal certificates.
- You (or any other user responsible for preparing and generating documents) can select another certificate to be used as a personal certificate on the User Profile (SM203010) form.

This step describes how you specify a default certificate. You do not have to perform these instructions to pass the training.

To specify a default certificate that will be used for signing all the PDF documents generated by the system, you would perform the following instructions:

1. Navigate to the Security Preferences (SM201060; Configuration > User Security > Configure).
2. In the **PDF Signing Certificate** box, select the certificate you want to use as default for signing PDF.

You can select from only the certificates that you have imported into the system.

The screenshot shows the 'PASSWORD POLICY' section with fields for 'Force User to Change Password Every' (checkbox), 'Days' (0), 'Minimum Password Length' (checkbox, value 3), and 'Password Must Meet Complexity Requirements' (checkbox). Below it is the 'ACCOUNT LOCKOUT POLICY' section with 'Lock Account After' (checkbox, value 3), 'Unsuccessful Login Attempts', 'Lock Account for' (checkbox, value 15), 'Minutes', and 'Reset Lockout Counter After' (checkbox, value 10), 'Minutes'. The 'ENCRYPTION CERTIFICATES' section shows a dropdown menu with 'TestCertificate' selected. The 'AUDIT' section includes a 'Keep Audit History for' field set to 999 months and a list of audit events with checkboxes: Login, Session Expired, Login Failed, License Exceeded, Logout, Send Email Success, Screen Accessed, and Send Email Error. At the bottom is the 'Allowed External Identity Providers' table, which lists 'Exchangeld...', 'Google', and 'MicrosoftAcc...' with their respective 'Active' status checked. The 'TestCertificate' dropdown is highlighted with a yellow border.

Provider Name	Active	Realm	Application ID	Application Secret
Exchangeld...	<input checked="" type="checkbox"/>		*****	*****
Google	<input type="checkbox"/>		*****	*****
MicrosoftAcc...	<input type="checkbox"/>		*****	*****

**Figure: Selecting PDF signing certificate**

3. On the form toolbar, click **Save**.

## Lesson Summary

In this lesson, you learned how to manage data encryption in Acumatica ERP.

### Review Questions:

- How data in Acumatica ERP is protected?
- What types of certificates are used in Acumatica ERP to protect data?
- How would you ensure that user passwords are encrypted in the database table using certificates?
- How would you enable PDF signing in Acumatica ERP?
- How would you apply a certificate to protect sensitive information stored in the database?

## Lesson 8: Restriction Groups

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Acumatica ERP implements a role-based, task-oriented approach to security. System administrators assign roles to users and give the roles appropriate access rights to the system resources—such as modules, specific forms, form elements, and toolbar buttons—that the users need to perform their work tasks. For more information about user roles, please refer to *S100 System Administration: Basic* training guide.

In addition to role-based access rights, you can use restriction groups to configure the security of information within the system. In this lesson, you will learn about ways of using restriction groups, types of restriction groups, operations that you can perform with the groups, and specific information about particular entities whose visibility you can control.

### Lesson Objectives

You will do the following:

- Learn about restriction groups
- Learn about the types of restriction groups, the difference between types
- Consider various usage scenarios of restriction groups
- Create a restriction group for customer accounts
- Create a restriction group that does not contain users
- Set up a default restriction group for a vendor class

## About Restrictions Groups

Restriction groups in Acumatica ERP provide additional flexibility to the configuration of access rights for suites, modules, and forms. You can use restriction groups when users should have access to a form, but on this form they are allowed to see one set of entities and are not allowed to see another set of entities.

A *restriction group* is a set of entities of two or more types that you define to achieve one of these goals:

- Control the visibility of sensitive data for employees of your organization. To do this, you include in a restriction group the entities for which you need to restrict the visibility, and the users who should or should not be able to view these entities.
- To relate entities to one another so that they are used only together on Acumatica ERP forms (or so that they cannot be used together). To do this, you include in a group only related entities and do not include users.

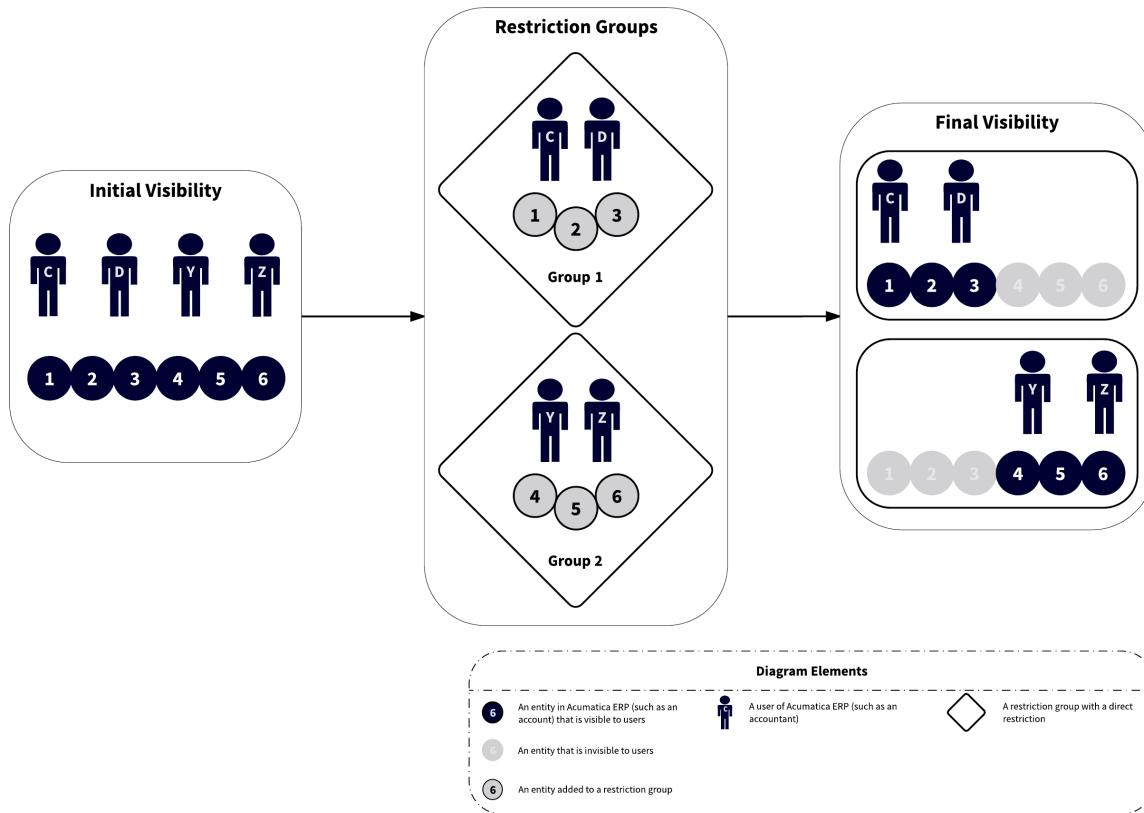
System administrator can create and modify restriction groups in the Row-Level Security module which is the part of the Configuration suite.

### Managing Visibility with Restriction Groups

To restrict employees' visibility of sensitive data processed by using Acumatica ERP, you should create restriction groups with users.

To understand how restriction groups with users are used, consider a typical case with restriction groups that include users and General Ledger (GL) accounts. Suppose that a role allows all its users to access all GL accounts, but for two groups of accounts, you want to provide visibility to only particular users.

The diagram below demonstrates how restriction groups can address these security needs. You define Group 1 as a restriction group that includes only appropriate accountants (User C and User D) and accounts (1, 2, and 3). Similarly, you create Group 2, which includes User Y and User Z, as well as the accounts they should work with (4, 5, and 6).



**Figure: Restriction groups for GL accounts and users**

Among all users in the system, only User C and User D will see the first group of sensitive accounts (1, 2, and 3), and only User X and User Z will see the second group of sensitive accounts (4, 5, and 6). Users who are not assigned to any restriction group will not see the accounts associated with either group.

### Restriction Groups Without Users

If a restriction group does not include users, all users may view the entities that are members of the group (if their roles provide access to forms with these entities), but entities included in the group become related in a way that limits their use. For example, suppose that you create two groups with GL accounts and subaccounts as follows:

- Group 1 includes Account 1, Subaccount K, Subaccount L, and Subaccount M.
- Group 2 includes Account 2, Subaccount P, Subaccount Q, and Subaccount R.

For simplicity, suppose that there are no other accounts and subaccounts in the system. The result of these settings is the following:

- If a user selects Account 1 on an entry form, he or she will be able to select only Subaccount K, Subaccount L, or Subaccount M in a box with subaccounts. The subaccounts included in Group 2 will be hidden from the list.
- If the user selects Account 2, he or she will see Subaccount P, Subaccount Q, and Subaccount R in the box with subaccounts; the user will not see Subaccount K, Subaccount L, and Subaccount M.

## Combinations of Restriction-Group Entities

Acumatica ERP supports a variety of scenarios of configuring the visibility of entities within the system. With the most common scenarios, you can create restriction groups that include the following system entities:

- Users and General Ledger (GL) accounts: With these restriction groups, if your organization has sensitive GL accounts, you can make these accounts visible to a limited number of employees.
- Users and subaccounts: As with groups that include users and GL accounts, you can limit the visibility of sensitive subaccounts to employees.
- Users and vendor accounts: You can define these restriction groups to make particular vendors visible in the system to only employees who work with these vendors.
- Users and customer accounts: With these restriction groups, you can make particular customers visible to only employees who work with these customers.
- Users and GL budget articles: With these restriction groups, you can limit the visibility of sensitive budget articles so that only particular users can see and work with these articles.
- Users and warehouses: You can create restriction groups to display a particular warehouse (or set of warehouses) for only employees who work with this warehouse (or this set of warehouses).
- Users and inventory items: You can define these restriction groups to reduce the number of items in the lists with inventory items, depending on the particular employee logged in to the system.
- Users and projects: You can define these restriction groups to configure the visibility of particular projects only to a responsible project team.
- Branches, GL accounts, and users: With these restriction groups, you can allow users to work with only branch-specific accounts.
- Branches, subaccounts, and users: You can set up these restriction groups so that the system displays to users only the branch-specific subaccounts.
- Branches and cash accounts: If there are multiple branches in your organization, with these restriction groups, you can allow users in each branch to work with only branch-specific cash accounts.
- GL Accounts and Subaccounts: If you have subaccounts that employees must use only with particular GL accounts, by defining these restriction groups, you can set up lists of available subaccounts for each GL account.

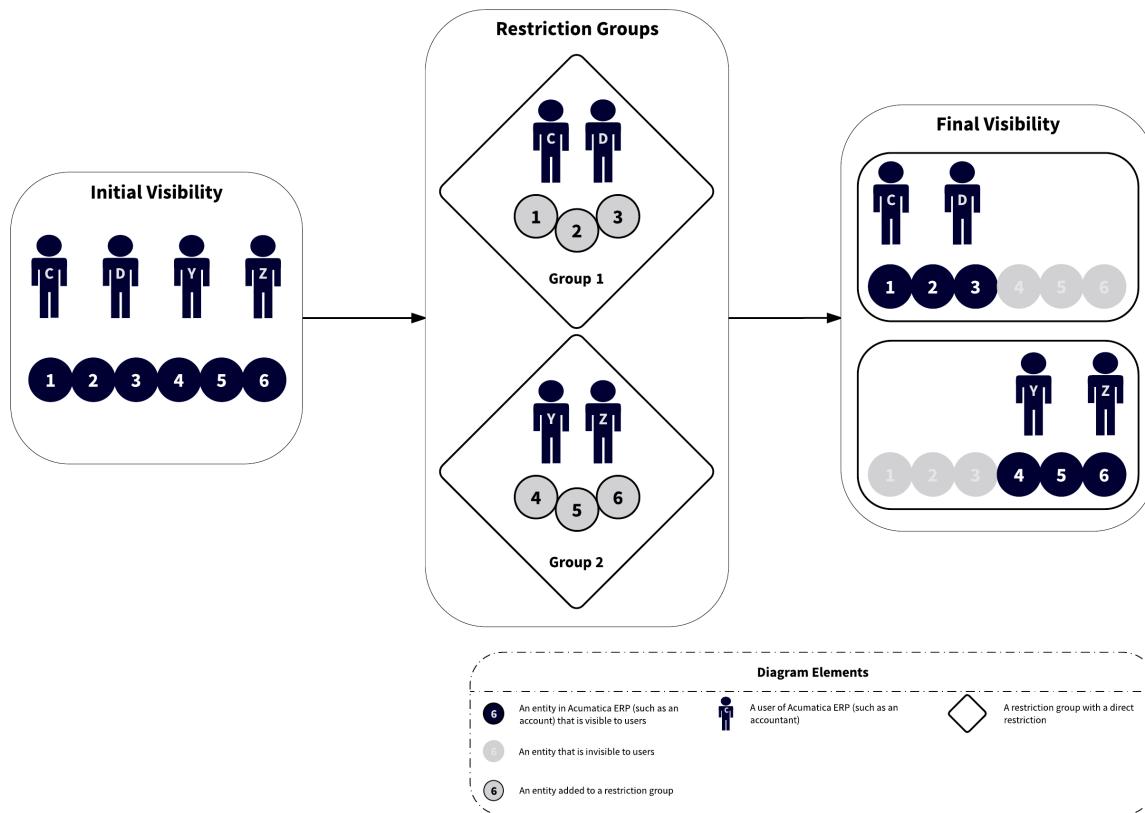
## Types of Restriction Groups

Acumatica ERP provides four types of restriction groups—*A*, *B*, *A Inverse*, and *B Inverse*. The differences between *A* and *B* and between *A Inverse* and *B Inverse* are in how these groups work if the same entity is added to multiple groups. With different types of restriction groups, you can configure simple and complicated rules of visibility for entities.

### Groups with Direct Restriction

Restriction groups of *A* and *B* types limit the visibility of system entities in a direct way. You use groups of types *A* or *B* when you need to make entities visible to users within the group. Other users cannot view these entities. For groups with only entities, the direct restriction group includes entities that must be used together.

The following diagram shows how groups with direct restriction work. In the diagram, you can see four users (for example, accountants) and six entities (for example, GL accounts). Initially, all users can see all accounts. Group 1 is defined to include Users C and D and Accounts 1, 2, and 3. These accounts are visible to Users C and D and hidden from Users Y and Z. Group 2 is defined to include Accounts 4, 5, and 6 and Users Y and Z. Users Y and Z can see Accounts 4, 5, and 6, and Users C and D cannot see these accounts.



**Figure: Example of groups with direct restriction**

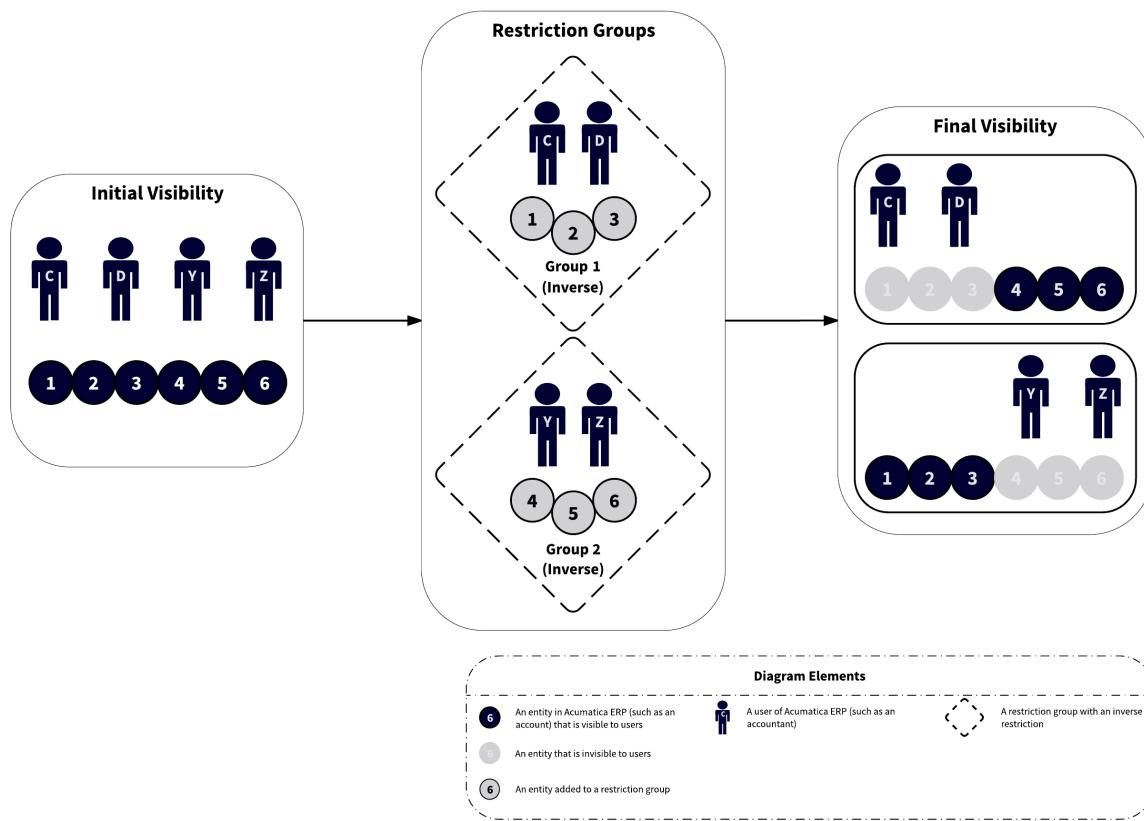
When a particular entity belongs to multiple groups of the type (*A* or *B*), and you want a user to see this entity in the system:

- you add the user to at least one of these groups for type *A*.
- you need to include this user in each of these groups for type *B*.

## Groups with Inverse Restriction

Restriction groups of *A Inverse* and *B Inverse* types limit the visibility of system entities in inverse way. You use groups of types *A Inverse* or *B Inverse* when you need to hide entities from a small number of users. Users who are not assigned to this group can view and use the entities. For groups without users, an inverse restriction group includes entities that may not be used together.

The following diagram illustrates how groups with an inverse restriction work. Group 1 is defined to include Users C and D and Accounts 1, 2, and 3. Accounts 1, 2, and 3 become invisible to Users C and D and remain visible to users Y and Z. Group 2 is defined to include Accounts 4, 5, and 6 and Users Y and Z. This hides Accounts 4, 5, and 6 from Users Y and Z, but Users C and D still can see these accounts. The final visibility for groups with inverse restriction is the opposite of the final visibility for groups with direct restriction.



**Figure: Example of groups with inverse restriction**

The difference between types *A Inverse* and *B Inverse* is the following:

- When a particular entity belongs to multiple groups of type *A Inverse*, if you don't want a user to see this entity, you must include this user in each of these groups. If you include the user in only one of the groups, this user will see the entity in the system.
- When a particular entity belongs to multiple groups of type *B Inverse*, if you don't want a user to see this entity in the system, you include the user in at least one of these groups.

## Recommendations for Selecting the Restriction Group Type

As you decide which type of restriction group best meets your security needs, consider the following recommendations:

- When you create multiple groups with entities of the same combination of types (for example, suppose that you have two restriction groups that include users and customers), use groups of the same basic type (either A or B). (Otherwise, if you were to add the same entity to multiple groups of different types, the result may not be what you expect.)
- To configure the required visibility of entities, you can combine direct and inverse restriction groups of the same basic type (either A or B). Thus, you can combine groups of types *A* and *A Inverse*, and groups of types *B* and *B Inverse*.
- If you want to hide particular entities from the majority of users, include the entities and the users who should see the entities in a group with direct restriction (type *A* or *B*).
- If you want to hide particular entities from a small number of users, add the entities and the users who shouldn't see the entities to a group with inverse restriction (type *A Inverse* or *B Inverse*).

# Usage Examples

In this topic, you will find the examples of restriction group configurations.

In the examples below, the restriction groups contain users and entities, but the same principles apply to groups that contain only entities. When you add users and entities to a group, the system restricts the visibility of the entities to the users. When you add entities of two different types to the group and don't add users, these entities can be used only with one another when users select values of the entities on forms. For example, if you add a GL account and subaccounts to the group, and a user selects the included account on a form, only the included subaccounts are available for selection.

## Usage Example 1

**Problem statement:** Suppose that as a system administrator, you have to configure the visibility of accounts to the appropriate users considering the following:

- There are four accountants in your organization: User C, User D, User Y, and User Z.
- User M is the accounting manager who controls work of the accounting department.
- There are six accounts in the General Ledger module: Account 1, Account 2, Account 3, Account 4, Account 5, and Account 6.
- Users C and D are allowed to see Accounts 1, 2, and 3.
- Users Y and Z are allowed to see Accounts 4, 5, and 6.
- User M is allowed to see all accounts.

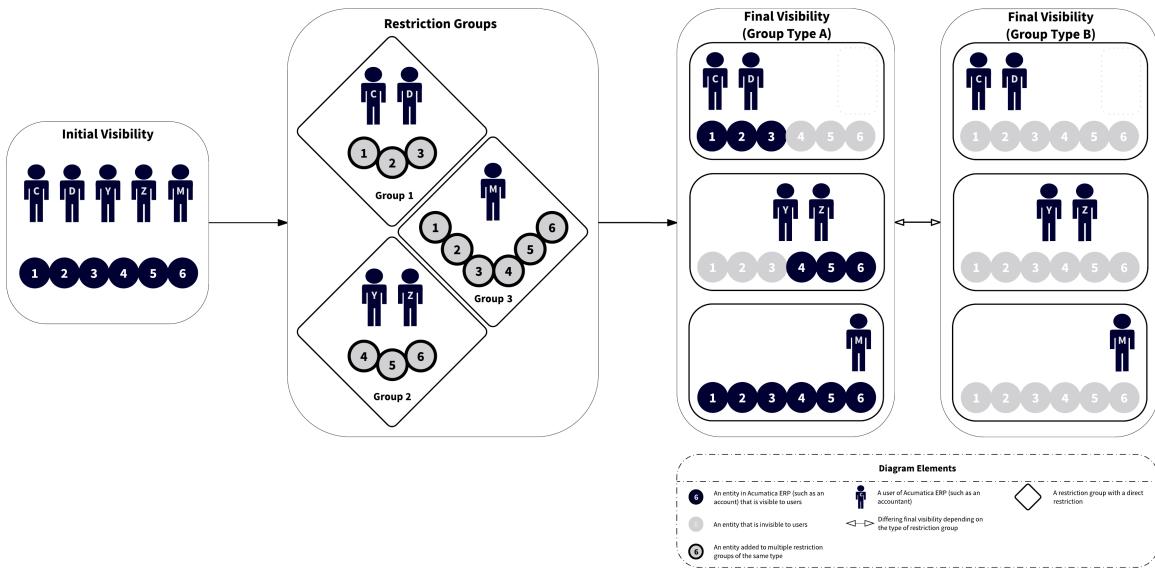
So Accounts 1, 2, and 3 should be visible to Users C, D, and M (and should be hidden from all other users), and Accounts 4, 5, and 6 should be visible to Users Y, Z, and M (and should be hidden from all other users).

You can use either of two solutions (described below) to configure the visibility of accounts to users.

**Solution 1:** To address the problem of Usage Example 1, you can create three restriction groups of type A—Group 1, Group 2, and Group 3 (see the diagram below, including the user visibility shown in *Final Visibility (Group Type A)*):

- Group 1: In this group, you include Accounts 1, 2, and 3 and Users C and D.
- Group 2: In this group, you include Accounts 4, 5, and 6 and Users Y and Z.
- Group 3: In this group, you include User M and all six accounts.

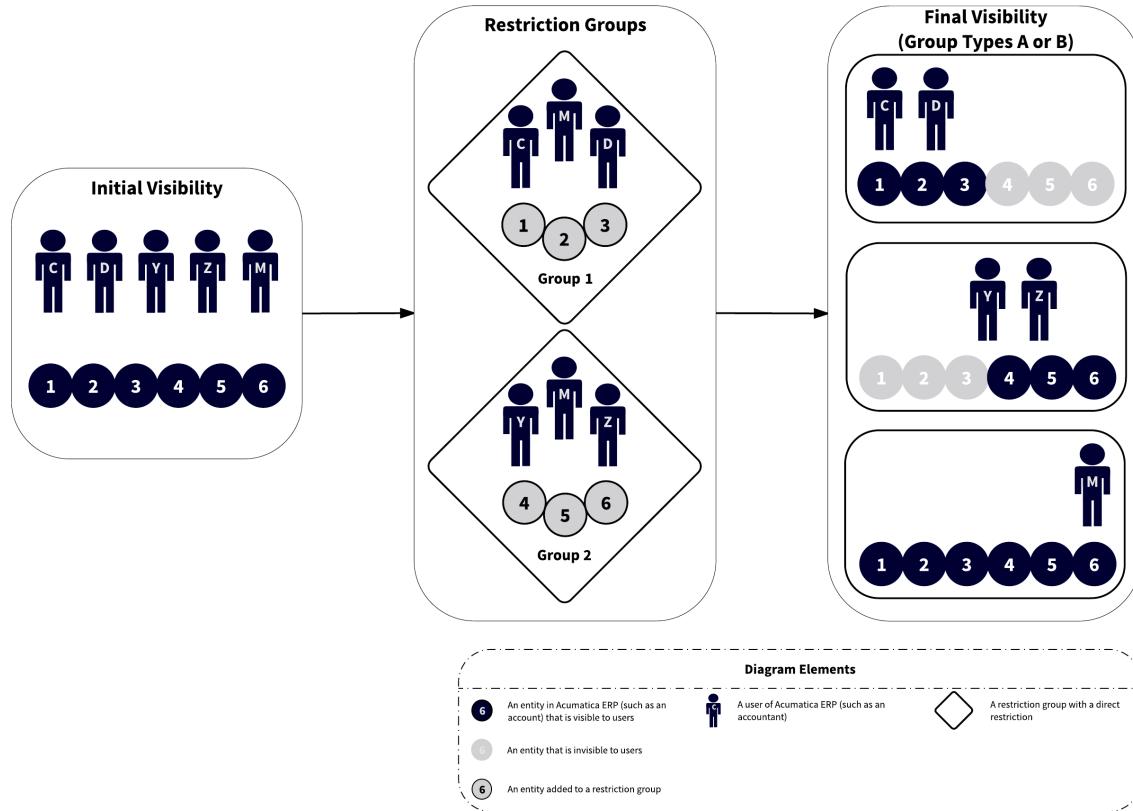
If you were to use groups of type B instead of type A, all accounts would be hidden from the users included in Groups 1, 2, and 3. See *Final Visibility (Group Type B)* in the diagram below. (To make this approach work with groups of type B, you would need to include User M in Groups 1, 2, and 3.)



**Figure: Example of groups with direct restriction and intersecting entities**

**Solution 2:** As a second way to address the problem of Usage Example 1, you can create two restriction groups of type A or B—Group 1 and Group 2 (see the following diagram):

- Group 1: In this group, you include Accounts 1, 2, and 3 and Users C and D.
- Group 2: In this group, you include Accounts 4, 5, and 6 and Users Y and Z.
- You include User M in both groups.



**Figure: Example of groups with direct restriction and no intersecting entities**

## Usage Example 2

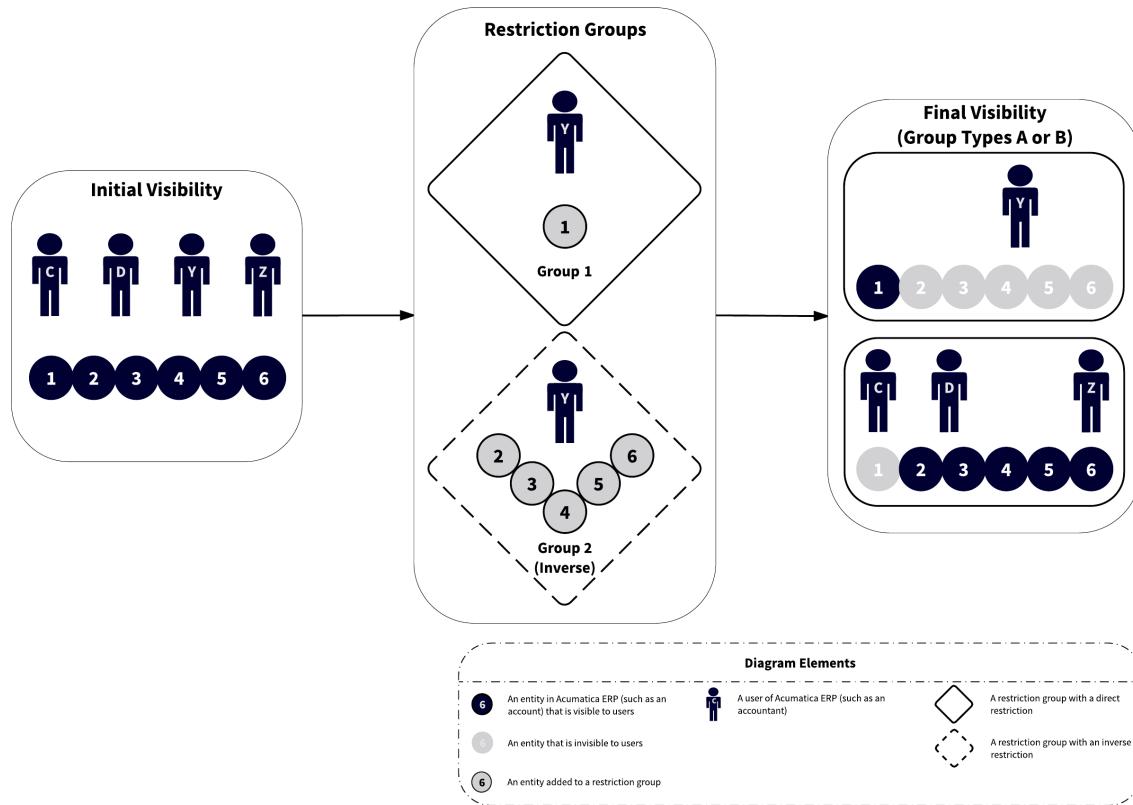
**Problem statement:** Suppose that as a system administrator, you have to configure the visibility of accounts to the appropriate users considering the following:

- There are four accountants: User C, User D, User Y, and User Z.
- There are six accounts in the General Ledger module: Account 1, Account 2, Account 3, Account 4, Account 5, and Account 6.
- User Y works with only one sensitive account, Account 1; User Y is not allowed to see the following accounts: Account 2, Account 3, Account 4, Account 5, and Account 6.
- The other accountants work with all accounts except Account 1.
- Only accountants have access to the Finance suite. (Thus, there is no need to hide accounts from other system users.)

**Solution:** To address the problem of Usage Example 2, you can create two restriction groups—Group 1 of type *A* or *B*, and Group 2 of type *A Inverse* or *B Inverse*. (If you select type *A* for Group 1, you should select type *A Inverse* for Group 2. If you select type *B* for Group 1, you should select type *B Inverse* for Group 2.) These groups are defined as follows:

- Group 1: In this group, you include User Y and Account 1. (Other users will not see Account 1.)
- Group 1: In this group, you include User Y and Account 1. (Other users will not see Account 1.)

The following diagram illustrates the proposed solution.



**Figure: Example of combined use of groups with direct and inverse restriction**

### Usage Example 3

**Problem statement:** Suppose that as a system administrator, you have to configure the visibility of accounts to the appropriate users considering the following:

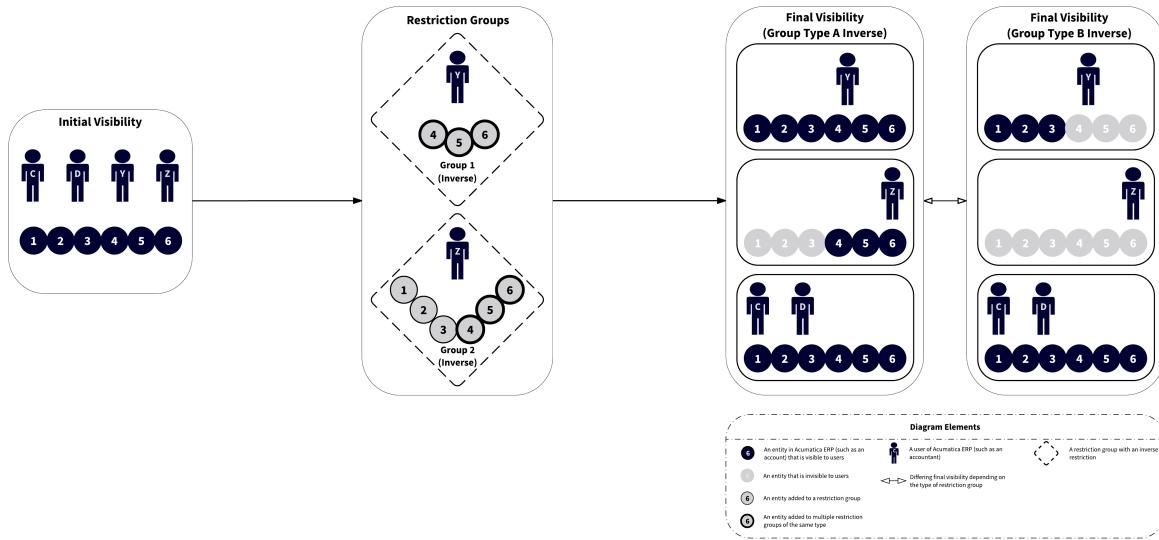
- There are four accountants in your organization: User C, User D, User Y, and User Z.
- There are six accounts in the General Ledger module of your organization: Account 1, Account 2, Account 3, Account 4, Account 5, and Account 6.
- Users C and D should work with all six accounts.
- User Y should work with Accounts 1, 2, and 3 but is not allowed to see Accounts 4, 5, and 6.
- User Z is a junior accountant, so this user is not allowed to see the accounts.

You can use either of two solutions (described below) to configure the visibility of accounts to users.

**Solution 1:** To address the problem of Usage Example 3, you can create two groups of type *B Inverse*—Group 1 and Group 2 (shown in the diagram below, with the user visibility shown in *Final Visibility (Group Type B Inverse)*):

- Group 1: In this group, you include User Y and Accounts 4, 5, and 6.
- Group 2: In this group, you add User Z and Accounts 1, 2, 3, 4, 5, and 6.

If you were to use groups of type *A Inverse* instead of *B Inverse* in this example, Accounts 4, 5, and 6 would be visible to all users because they are added in two restriction groups (see *Final Visibility (Group Type A Inverse)* in the following diagram).

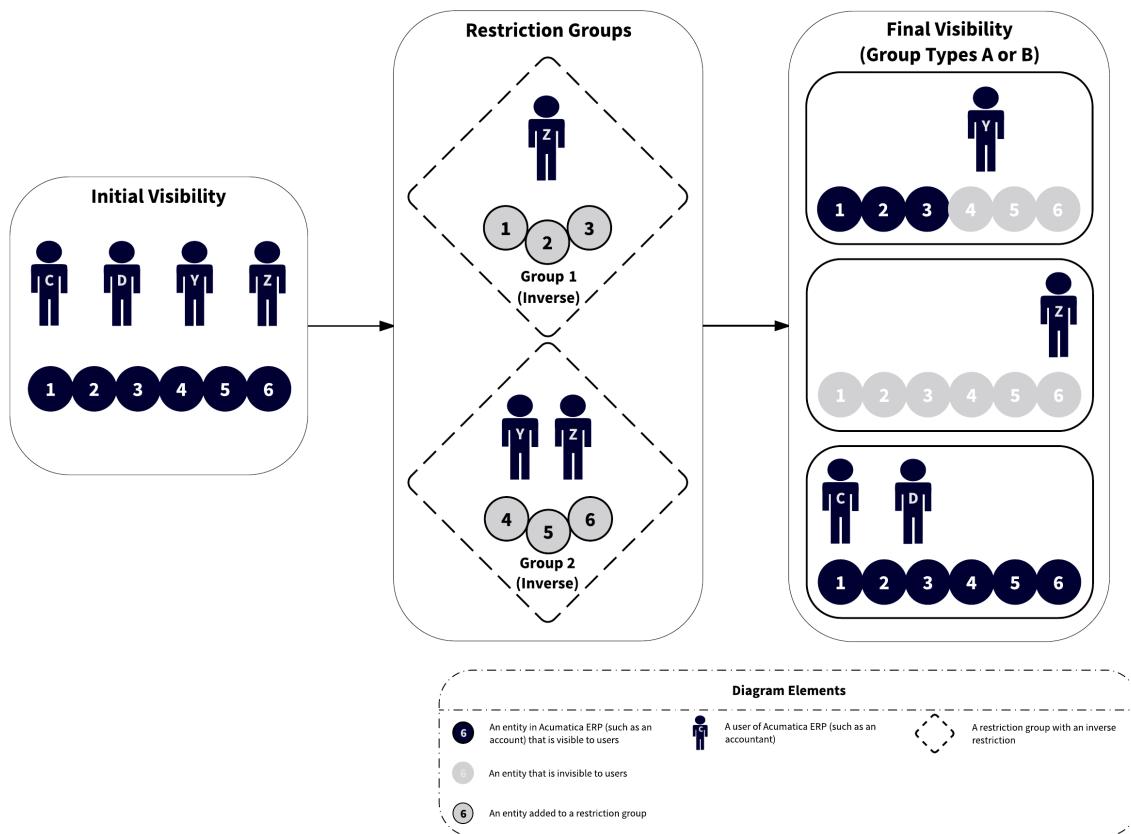


**Figure: Example of groups with inverse restriction and intersecting entities**

**Solution 2:** As a second way to address the problem of Usage Example 3, you can create two groups of the *A Inverse* or *B Inverse* type—Group 1 and Group 2:

- Group 1: In this group, you include User Z and Accounts 1, 2, and 3.
- Group 2: In this group, you include Users Y and Z and Accounts 4, 5, and 6.

The following diagram illustrates Solution 2.



**Figure: Example of groups with an inverse restriction and no intersecting entities**

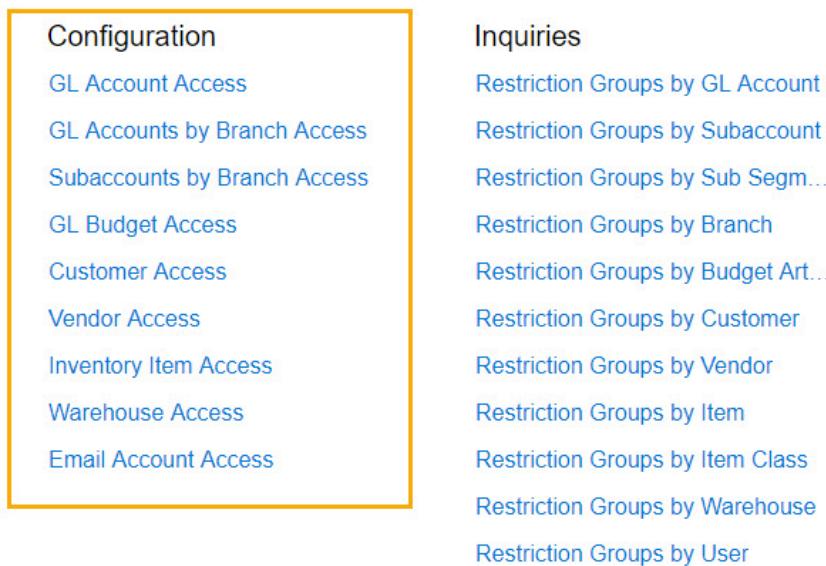
## Step 8.1: Configuring Access to Customer Accounts

The Row-Level Security module of Acumatica ERP allows system administrators to create restriction groups for managing the visibility of different entities to users, or modify existing restriction groups by adding or removing users or entities.

Depending on the entity type, the corresponding form of the Row-Level Security module should be used. For example, to restrict user access to customer accounts, you would use the Customer Access (AR102000) form. To view and create restriction groups containing vendor accounts, you would open the Vendor Access (AP102000) form.

The following screenshot demonstrates the Row Level Security quick menu in the Modern UI.

Row Level Security: Quick Menu



**Figure: Row Level Security quick menu**

In the Classic UI, you have to open one of the forms in the **Manage** node of the Row-Level Security module, as shown in the screenshot below.

The screenshot shows the Acumatica Row-Level Security module. On the left, there's a sidebar with a search bar and a tree view of security categories. The 'Customer Access' node under 'MANAGE' is selected and highlighted with a yellow box. The main panel shows a restriction group named 'Limit Access to Customers' with a description and active status. The 'CUSTOMERS' tab is selected, displaying a list of 23 customer accounts. Two specific accounts, 'C000000004' and 'C000000005', are highlighted with a blue selection bar.

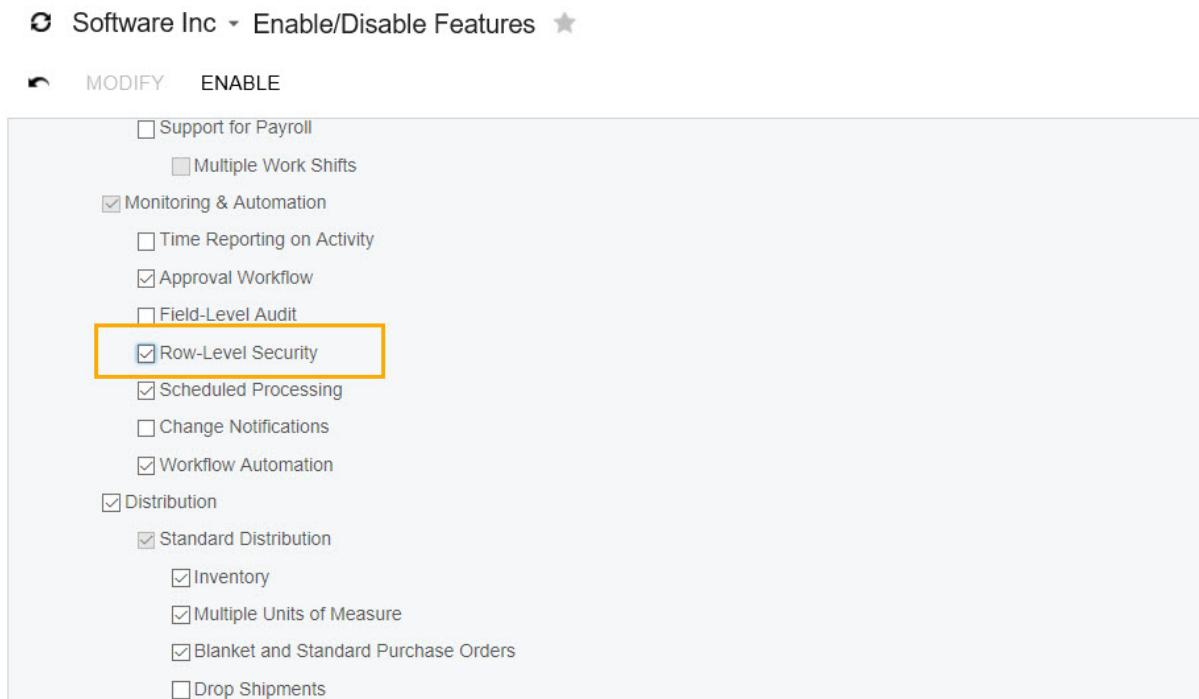
Customer ID	Status	Customer Name
C000000001	Active	Jersey Central Office Equip
C000000002	Active	Microchip Restaurant
C000000003	Active	Jevy Computers
C000000004	Active	KRK Consulting Service
C000000005	Active	Wright Corner
C000000006	Active	NETCAFE NY
C000000007	Active	Bestype Image
C000000008	Active	Digitech Printers
C000000009	Active	Precision Photos
C000000013	Active	WFAN Radio
C000000017	Active	New York Cares
C000000020	Active	Institute of Culinary Education, The
C000000023	Active	New York International Beauty School Ltd

**Figure: Row-Level Security module in Classic UI**

In this step, you will create a restriction group such that the *perry* user does not have access to two customer accounts: *C000000004* and *C000000005*. All other users should have access to all customer accounts. To achieve this goal, you will create a group of the *A Inverse* type and include the mentioned user and customers to this group.

Perform the following instructions:

1. Launch the **AcumaticaERP** application instance by clicking **Start > Acumatica > AcumaticaERP**.
2. On the Welcome page of the instance, sign in to *Company* with the *admin* username and the *123* password.
3. Navigate to the Enable/Disable Features form (CS100000; Configuration > Common Settings > Licensing).
4. On the form toolbar, click **Modify**.
5. In the **Monitoring & Automation** group, select the **Row-Level Security** check box, as shown in the following screenshot.



**Figure: Enabling Row-Level Security feature**

**6.** On the toolbar, click **Enable**.

The Row-Level Security module appears in the system, and now you are able to navigate to the forms of this module.

**7.** Open the Customer Access form (AR102000; Configuration > Row-Level Security > Manage).

By using this form, you can create restriction groups for managing the visibility of customer accounts to users, or modify existing restriction groups by adding or removing users or customer accounts.



You can also use the Restriction Groups by Customer (AR102010) form to manage the visibility of customer accounts to users, but you cannot create restriction groups on this form.

**8.** In the **Group Name** box, type `Limit Access to Customers`.

**9.** In the **Group Type** box, select *A Inverse*.

**10.** Leave the **Active** check box selected.

If you clear this check box, this makes the group inactive, which means that restrictions imposed by the restriction group do not affect the visibility of entities to users.

**11.** On the **Customers** tab, select the check boxes next to *C000000004 (KRK Consulting Service)* and *C000000005 (Wright Corner)*.

This includes the selected customer accounts into the group, as you can see in the screenshot below.

\* Group Name: Limit Access to Customers  
 Description:  
 Group Type: A Inverse  
 Active

**CUSTOMERS**

Customer ID	Status	Customer Name
C000000001	Active	Jersey Central Office Equip
C000000002	Active	Microchip Restaurant
C000000003	Active	Jevy Computers
C000000004	Active	KRK Consulting Service
C000000005	Active	Wright Corner
C000000006	Active	NETCAFE NY
C000000007	Active	Bestype Image

**Figure: Customers added to restriction group**

12. On the **Users** tab, select the check box next to *perry (Perry, Edward)*, as shown in the screenshot below.

\* Group Name: Limit Access to Customers  
 Description:  
 Group Type: A Inverse  
 Active

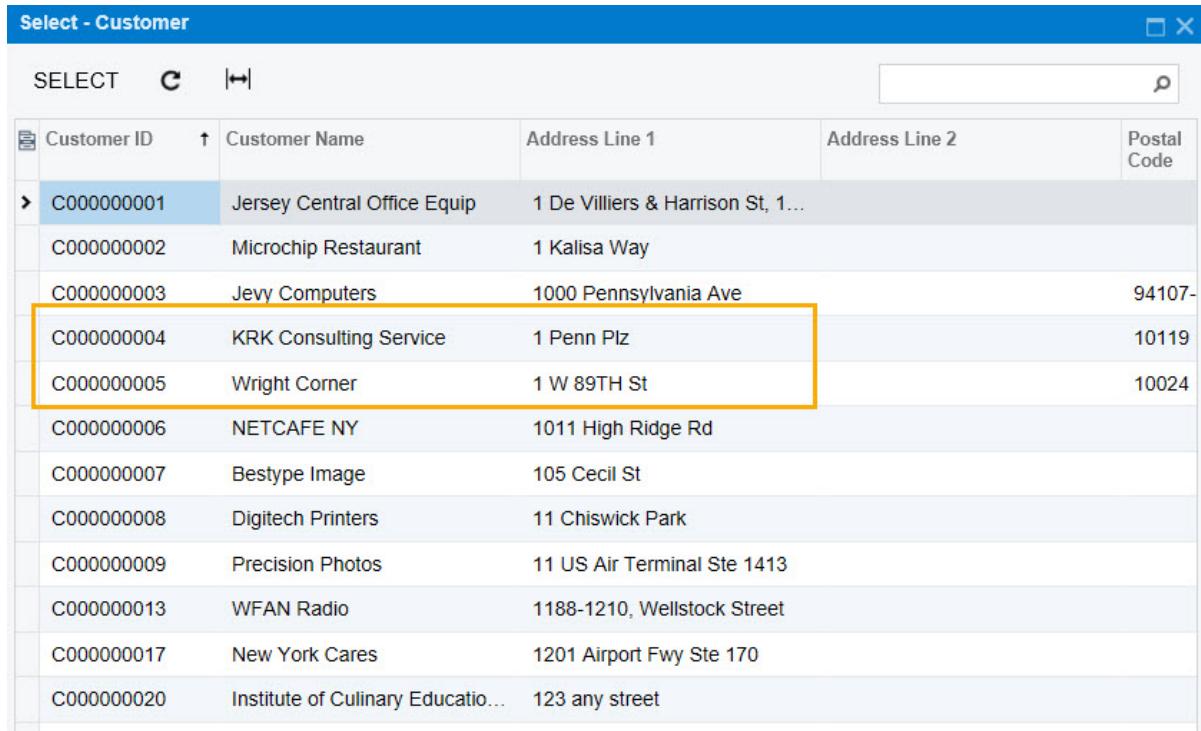
**USERS**

Login	Full Name	Comment
admin	admin, admin	Administrator
Anonymous		
baker	Baker, Maxwell	
beauvoir	Beauvoir, Layla	
becher	Becher, Joseph	
perry	Perry, Edward	

**Figure: User added to restriction group**

13. On the toolbar, click **Save**.

14. Navigate to the Sales Profitability Analysis form (AR409000; Finance > Accounts Receivable > Explorer) and click the magnifier icon in the **Customers** box.
15. Verify that as *admin* user you are able to see all the customers in the dialog box that opens, including *C000000004 (KRK Consulting Service)* and *C000000005 (Wright Corner)*, as shown in the screenshot below.



Customer ID	Customer Name	Address Line 1	Address Line 2	Postal Code
C000000001	Jersey Central Office Equip	1 De Villiers & Harrison St, 1...		
C000000002	Microchip Restaurant	1 Kalisa Way		
C000000003	Jevy Computers	1000 Pennsylvania Ave		94107-
C000000004	KRK Consulting Service	1 Penn Plz		10119
C000000005	Wright Corner	1 W 89TH St		10024
C000000006	NETCAFE NY	1011 High Ridge Rd		
C000000007	Bestype Image	105 Cecil St		
C000000008	Digitech Printers	11 Chiswick Park		
C000000009	Precision Photos	11 US Air Terminal Ste 1413		
C000000013	WFAN Radio	1188-1210, Wellstock Street		
C000000017	New York Cares	1201 Airport Fwy Ste 170		
C000000020	Institute of Culinary Educatio...	123 any street		

**Figure: All customers are visible for admin user**

16. Navigate to the Users form (SM201010; Configuration > User Security > Manage) and in the **Login** box, select *perry*.
17. On the toolbar, click **Log in as User**.
18. Again navigate to the Sales Profitability Analysis form (AR409000) and click the magnifier icon in the **Customers** box.
19. Verify that as *perry* user you don't see the *C000000004 (KRK Consulting Service)* and *C000000005 (Wright Corner)* customers, as shown in the screenshot below.

Select - Customer					
SELECT		C	H		
Customer ID	Customer Name	Address Line 1	Address Line 2	Postal Code	
C000000001	Jersey Central Office Equip	1 De Villiers & Harrison St, 1...			
C000000002	Microchip Restaurant	1 Kalisa Way			
C000000003	Jevy Computers	1000 Pennsylvania Ave		94107-	
C000000006	NETCAFE NY	1011 High Ridge Rd			
C000000007	Bestype Image	105 Cecil St			
C000000008	Digitech Printers	11 Chiswick Park			
C000000009	Precision Photos	11 US Air Terminal Ste 1413			
C000000013	WFAN Radio	1188-1210, Wellstock Street			
C000000017	New York Cares	1201 Airport Fwy Ste 170			
C000000020	Institute of Culinary Educatio...	123 any street			
C000000023	New York International Beau...	12447, The Green			

**Figure: Customers included into restriction group are invisible for perry user**

## Step 8.2: Relating Accounts and Subaccounts

For forms in Acumatica ERP, you can specify which subaccounts can be used with only a particular account ; thus, the specified subaccounts will appear for selection only if that account is selected. This limitation will help users to avoid errors when they select accounts and subaccounts on forms.

If you are using restriction groups to control the accounts and subaccounts that can be used together, you must create at least two groups and include all subaccounts in either of the groups. For example, suppose that you need to restrict visibility of subaccounts for only one account. To solve this task, you create two restriction groups. In the first group with direct restriction, you include a GL account and the list of subaccounts that should be related to this account. In the second group with inverse restriction, you include the same account and subaccounts that should not be displayed after users select this account. As a result, when users select the account on a form, they will see only one of the subaccounts included in the first group.

In this step, you will create two restriction groups: one of type *A*, and another of type *A Inverse*. You will include the *130000* account into both groups. You will also include one of subaccounts existing in the system (*000-00-00*) to the first group, and all other existing subaccounts into the second group. The result of such configuration is the following: when you select the *130000* account, only *000-00-00* can be selected as subaccount.

Perform the following instructions:

1. Launch the *AcumaticaERP* application instance by clicking **Start > Acumatica > AcumaticaERP**.
2. On the Welcome page of the instance, sign in to *Company* with the *admin* username and the *123* password.
3. Navigate to the Segmented Keys form (CS202000; Configuration > Common Settings > Segmented Keys).
4. In the **Segmented Key ID** box, select **SUBACCOUNT**.
5. In the **Lookup Mode** box, select *By Segmented Key* and save the changes, as shown in the screenshot below.

In this mode, a system user enters the entire identifier. When the user is typing the identifier on the data entry form, the system displays the list of existing identifiers. The user can select one of the existing values from the list.

Selecting this mode also makes it possible to view the list of subaccounts defined in the system and select those to be included in the restriction group.

Segment ID	*Description	Length	Align	Edit Mask	Case Conversion	Valida	Auto Number	*Separator	Cons Order	Number of characters
1	Department	3	Left	Unicode	Uppercase	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-	0	3
2	Revenue S...	2	Left	Unicode	Uppercase	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-	2	2
3	Sales Region	2	Left	Unicode	Uppercase	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-	3	2

Figure: Lookup mode for subaccounts



If the *By Segment: All Avail. Segment Values* lookup mode is selected on the Segmented Keys (CS202000) form for the SUBACCOUNT segmented key (that is, if the users of your Acumatica ERP instance enter subaccounts by segments on forms), you will manage the security of subaccount segments instead of entire subaccounts. In this case, you will need to add to a restriction group all subaccount segments that form a subaccount whose visibility should be restricted.

6. Navigate to the GL Account Access form (GL104000; Configuration > Row-Level Security > Manage).

By using this form, you can create restriction groups for managing the visibility of accounts and subaccounts to users, or modify existing restriction groups by adding or removing users, accounts, or subaccounts.



You can also use the Restriction Groups by GL Account (GL104020) and Restriction Groups by Subaccount (GL104030) forms to manage the visibility of accounts and subaccounts to users, but you cannot create restriction groups on these forms.

7. In the **Group Name** box, type Limit Access to Subaccounts.
8. In the **Description** box, type Restrict visibility of subaccounts
9. In the **Group Type** box, select A.
10. Leave the **Active** check box selected.

If you clear this check box, this makes the group inactive, which means that restrictions imposed by the restriction group do not affect the visibility of entities to users.

11. On the **Accounts** tab, select the check box next to 130000 (*Merchandise Inventory*).

This includes the selected accounts into the restriction group.

12. On the **Subaccounts** tab, select the check box next to 000-00-00 (*Non-specific*), as shown in the screenshot below.

The screenshot shows the 'GL Account Access' form with a restriction group named 'Limit Access to Subaccounts'. The 'Description' is 'Restrict visibility of subaccounts', 'Group Type' is 'A', and the 'Active' checkbox is checked. The 'SUBACCOUNTS' tab is selected, showing a list of subaccounts. The subaccount '000-00-00' is highlighted with a yellow border and has its 'Active' checkbox checked. Other subaccounts listed include 000-CO-00, 000-CO-DC, 000-CO-FL, 000-CO-NV, 000-CU-00, 000-CU-CA, and 000-CU-LA, each with their respective active checkboxes checked.

	* Subaccount	Active	Description
>	<input checked="" type="checkbox"/> 000-00-00	<input checked="" type="checkbox"/>	Non-specific
0	<input type="checkbox"/> 000-CO-00	<input checked="" type="checkbox"/>	Consulting
0	<input type="checkbox"/> 000-CO-DC	<input checked="" type="checkbox"/>	
0	<input type="checkbox"/> 000-CO-FL	<input checked="" type="checkbox"/>	
0	<input type="checkbox"/> 000-CO-NV	<input checked="" type="checkbox"/>	
0	<input type="checkbox"/> 000-CU-00	<input checked="" type="checkbox"/>	Customization
0	<input type="checkbox"/> 000-CU-CA	<input checked="" type="checkbox"/>	
0	<input type="checkbox"/> 000-CU-LA	<input checked="" type="checkbox"/>	

**Figure: Subaccount added to group**

13. On the toolbar, click **Save**.

The first restriction group is created. Now you will create the second group of the inverse type.

14. On the form toolbar, click **Add New Record**.
15. In the **Group Name** box, type Limit Access to Subaccounts Inverse.
16. In the **Description** box, type Restrict visibility of subaccounts
17. In the **Group Type** box, select *A Inverse*.
18. Leave the **Active** check box selected.
19. On the toolbar, click **Save**.

The group is created; you can populate it by using the Restriction Groups by GL Account (GL104020) and Restriction Groups by Subaccount (GL104030) forms.

20. Open the Restriction Groups by GL Account form (GL104020; Configuration > Row-Level Security > Explore).
21. In the **Account** box, select *130000*.  
You can see that this account has been already added to the *Limit Access to Subaccounts* group of type *A*.
22. Select the checkbox next to the *Limit Access to Subaccounts Inverse* group to include the account into both of groups, as shown in the screenshot below.

The screenshot shows the 'Restriction Groups by GL Account' form for account 130000. The account details are: Type: Asset, Description: Merchandise Inventory, Account Class: WAREHOUSE - Inventories. Below the details, there is a grid of restriction groups:

Group Name	Description	Activ	Group Type
<input checked="" type="checkbox"/> Limit Access to Subaccounts	Restrict visibility of subaccounts	<input checked="" type="checkbox"/>	A
<input checked="" type="checkbox"/> Limit Access to Subaccounts Inverse	Restrict visibility of subaccounts	<input checked="" type="checkbox"/>	A Inverse

**Figure: Adding GL account into the second restriction group**

23. On the toolbar, click **Save**.
24. Open the Restriction Groups by Subaccount form (GL104030; Configuration > Row-Level Security > Explore).
25. In the **Subaccount** box, select *000-00-00* and verify that this subaccount is included in the direct restriction group and not included to inverse restriction group.

The screenshot shows the 'Restriction Groups by Subaccount' form for account 000-00-00. The 'Description' field is set to 'Non-specific'. A table lists restriction groups:

Group Name	Description	Active	Group Type
<input checked="" type="checkbox"/> Limit Access to Subaccounts	Restrict visibility of subaccounts	<input checked="" type="checkbox"/>	A
<input type="checkbox"/> Limit Access to Subaccounts...	Restrict visibility of subaccounts	<input checked="" type="checkbox"/>	A Inverse

**Figure: Checking presence of subaccount in restriction groups**

26. Click the **Go to Next Record** button, and for all other subaccounts, add them to the *Limit Access to Subaccounts Inverse* group and save the changes.

When you complete, the 000-00-00 will be in the *Limit Access to Subaccounts* group, and all other subaccounts will be in the *Limit Access to Subaccounts Inverse* group. Now you can check how it works.

27. Navigate to the Chart of Accounts form (GL202500; Finance > General Ledger > Manage) and verify that the **Secured** check box is selected for the 130000 account, as shown in the following screenshot.

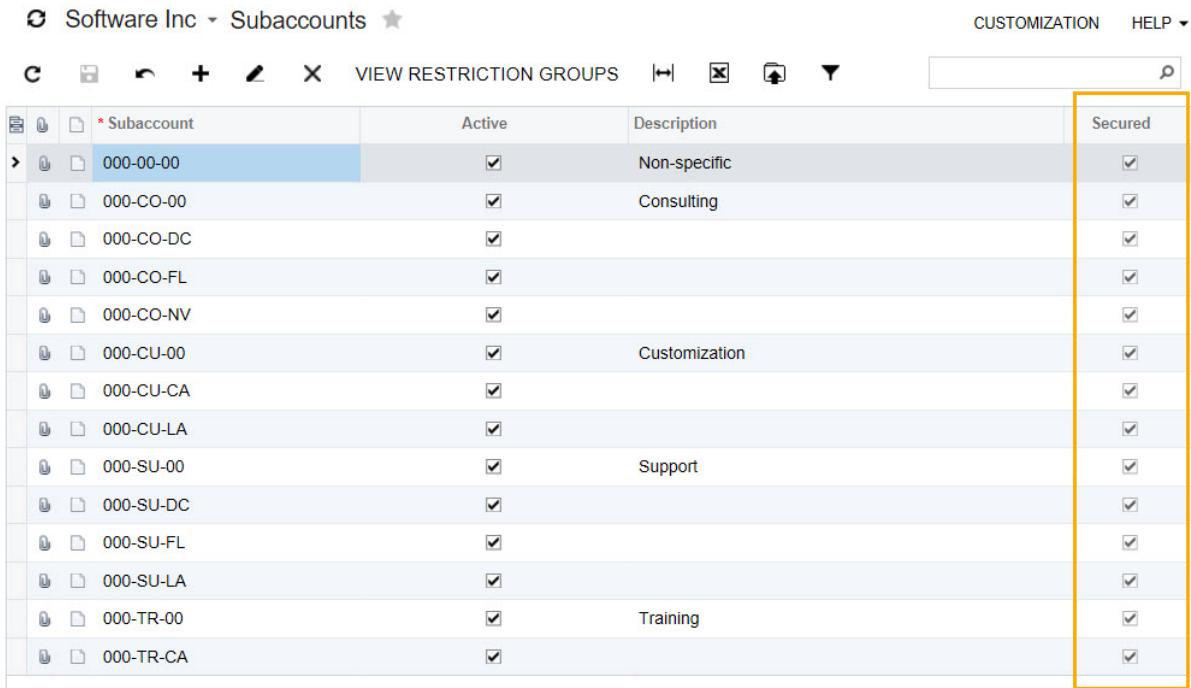
This check box indicates (if selected) that the account is included in one or more restriction groups.

The screenshot shows the 'Chart of Accounts' form. Account 130000 WAREHOUSE is highlighted with a yellow box. The 'Secured' checkbox is checked in the last column.

Account	Account Class	Type	Active	Description	Require Units	Use Default Sub	Post Option	Consolidation Account	Cash Account	Secured	Account Group
101000 CASHASSET	Asset	<input checked="" type="checkbox"/>	Cash on Hand	<input type="checkbox"/>	<input type="checkbox"/>	Detail	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
102000 CASHASSET	Asset	<input checked="" type="checkbox"/>	Checking Account	<input type="checkbox"/>	<input type="checkbox"/>	Detail	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
102050 CASHASSET	Asset	<input checked="" type="checkbox"/>	Merchant Account	<input type="checkbox"/>	<input type="checkbox"/>	Detail	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
104000 CASHASSET	Asset	<input checked="" type="checkbox"/>	Savings Account	<input type="checkbox"/>	<input type="checkbox"/>	Summary	<input type="checkbox"/>	<input type="checkbox"/>			
105000 CASHASSET	Asset	<input checked="" type="checkbox"/>	Cash in Transit Account	<input type="checkbox"/>	<input type="checkbox"/>	Summary	<input type="checkbox"/>	<input type="checkbox"/>			
110000 AR	Asset	<input checked="" type="checkbox"/>	Accounts Receivable	<input type="checkbox"/>	<input type="checkbox"/>	Summary	<input type="checkbox"/>	<input type="checkbox"/>			
130000 WAREHOUSE	Asset	<input checked="" type="checkbox"/>	Merchandise Inventory	<input type="checkbox"/>	<input type="checkbox"/>	Summary	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
138000 WIP	Asset	<input checked="" type="checkbox"/>	Work in Process Inventory	<input type="checkbox"/>	<input type="checkbox"/>	Summary	<input type="checkbox"/>	<input type="checkbox"/>			
139000 OTHERCURAS	Asset	<input checked="" type="checkbox"/>	Goods in transit	<input type="checkbox"/>	<input type="checkbox"/>	Summary	<input type="checkbox"/>	<input type="checkbox"/>			
140000 PREEXP	Asset	<input checked="" type="checkbox"/>	Prepaid Expenses	<input type="checkbox"/>	<input type="checkbox"/>	Summary	<input type="checkbox"/>	<input type="checkbox"/>			
150000 FIXEDASSET	Asset	<input checked="" type="checkbox"/>	Accrued Purchases - Fixed Assets	<input type="checkbox"/>	<input type="checkbox"/>	Summary	<input type="checkbox"/>	<input type="checkbox"/>			
190000 OTHERCURAS	Asset	<input checked="" type="checkbox"/>	AR Clearing	<input type="checkbox"/>	<input type="checkbox"/>	Summary	<input type="checkbox"/>	<input type="checkbox"/>			
200000 AP	Liability	<input checked="" type="checkbox"/>	Accounts Payable	<input type="checkbox"/>	<input type="checkbox"/>	Summary	<input type="checkbox"/>	<input type="checkbox"/>			
200010 RELCURLIAB	Liability	<input checked="" type="checkbox"/>	Due to/from Software Inc	<input type="checkbox"/>	<input type="checkbox"/>	Summary	<input type="checkbox"/>	<input type="checkbox"/>			
200011 RELCURLIAB	Liability	<input checked="" type="checkbox"/>	Due to/from Computers Inc	<input type="checkbox"/>	<input type="checkbox"/>	Summary	<input type="checkbox"/>	<input type="checkbox"/>			

**Figure: Chart of accounts**

28. Navigate to the Subaccounts form (GL203000; Finance > General Ledger > Manage) and verify that the **Secured** check box is selected for all subaccounts, as shown in the following screenshot.



* Subaccount	Active	Description	Secured
000-00-00	<input checked="" type="checkbox"/>	Non-specific	<input checked="" type="checkbox"/>
000-CO-00	<input checked="" type="checkbox"/>	Consulting	<input checked="" type="checkbox"/>
000-CO-DC	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
000-CO-FL	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
000-CO-NV	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
000-CU-00	<input checked="" type="checkbox"/>	Customization	<input checked="" type="checkbox"/>
000-CU-CA	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
000-CU-LA	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
000-SU-00	<input checked="" type="checkbox"/>	Support	<input checked="" type="checkbox"/>
000-SU-DC	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
000-SU-FL	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
000-SU-LA	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
000-TR-00	<input checked="" type="checkbox"/>	Training	<input checked="" type="checkbox"/>
000-TR-CA	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

**Figure: List of subaccounts**

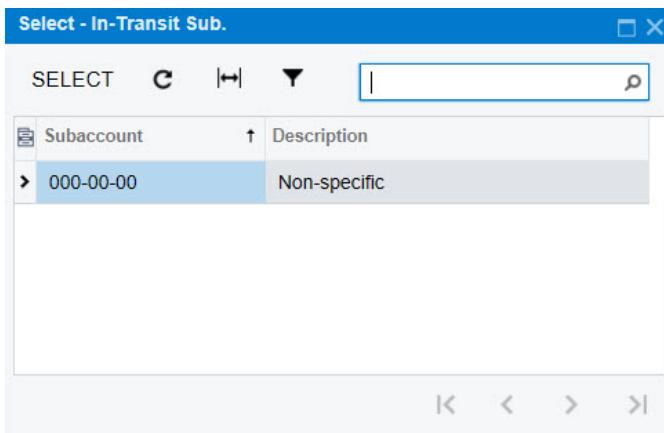
29. Navigate to the Inventory Preferences form (IN101000; Distribution > Inventory > Configuration > Setup).

Now the *139000* account is selected in the **In-Transit Account** box.

30. Click the magnifier icon in the **In-Transit Sub.** box and verify that the lookup window contains a number of different subaccounts.

31. In the **In-Transit Account**, select *130000*.

32. Verify that in the **In-Transit Sub.** box, the *000-00-00* has been automatically selected, and no other account cannot be selected in the lookup window, as you can see in the screenshot below.

**Figure: Only 000-00-00 can be used together with already selected account**

## Step 8.3: Setting Up Default Restriction Groups

Sometimes you may need to restrict user access to numerous similar entities, such as vendors of specific vendor classes, or customers of specific customer classes. To ease the addition of new vendors and customers to restriction groups, you can specify a default restriction group for a vendor or customer class, so that vendors and customers of the selected class will be included in the restriction group automatically.

For example, suppose that you have a class of vendors, and only the senior accountant is allowed to process documents from this vendor class. To configure the visibility of the vendor class, you do the following:

1. Configure a restriction group with direct restriction:
  - a. Create a group of type A or B.
  - b. Add the user account of the senior accountant to this group.
  - c. Optionally, add vendors to this group.
2. Specify the created group as default restriction group for a vendor class on the Vendor Classes (AP201000) form.

With this setting, all new vendors of the class will be automatically added to the restriction group.

3. Apply restriction settings to all vendors of the class.

Instead of including every vendor of the class in this restriction group manually, you can save time and click the **Apply Restriction Settings to All Vendors** on the Vendor Classes (AP201000) form.

In the same way, you can create a restriction group for customers on the Customer Access (AR102000) form, and then select the group as default for a customer class on the Customer Classes (AR201000) form. You can also include all customers of the class in the specified group and exclude them from the group previously specified as the default one.

In this step, you will create a restriction group for vendors, add a user account of Joseph Becher (suppose, he is a senior accountant) to this group and then specify this restriction group as default for the **DEFAULT** vendor class and apply restriction settings to all vendors of this class.

Perform the following instructions:

1. Launch the *AcumaticaERP* application instance by clicking **Start > Acumatica > AcumaticaERP**.
2. On the Welcome page of the instance, sign in to *Company* with the *admin* username and the *123* password.
3. Navigate to the Vendor Access form (AP102000; Configuration > Row-Level Security > Manage).
4. In the **Group Name** box, type *Group for Senior Accountant*.
5. In the **Group Type** box, select *A*.
6. Leave the **Active** check box selected.
7. On the **Users** tab, select the check box next to *becher (Becher, Joseph)*.  
This includes the selected user account into the restriction group.
8. Save the changes, as shown in the following screenshot.

The screenshot shows the 'Vendor Access' form with the following details:

- Group Name:** Group for Senior Accountant
- Description:** (empty)
- Group Type:** A
- Active:** checked

Below the form, there are two tabs: **USERS** and **VENDORS**. The **USERS** tab is selected, displaying a list of users:

Login	Full Name	Comment
admin	admin, admin	Administrator
Anonymous		
baker	Baker, Maxwell	
beauvoir	Beauvoir, Layla	
becher	Becher, Joseph	
perry	Perry, Edward	

**Figure: User account added to group**

9. Navigate to the Vendor Classes form (AP201000; Finance > Accounts Payable > Configuration > Setup).
10. In the **Class ID** box, select *DEFAULT*.
11. On the **General Settings** tab, in the **Default Restriction Group** box, select *Group for Senior Accountant*.
12. Save the changes, as shown in the following screenshot.

Now all newly created vendors of the *DEFAULT* class will be automatically added to the selected restriction group.

The screenshot shows the 'Vendor Classes' form with the following details:

- Class ID:** DEFAULT
- Description:** Default

The **GENERAL SETTINGS** tab is selected, showing the following settings:

- DEFAULT GENERAL SETTINGS**
  - Country: US - United States of America
  - Tax Zone ID: (empty)
  - Require Tax Zone
  - Default Restriction Group:** Group for Senior Accountant
- DEFAULT PURCHASE SETTINGS**
  - Shipping Terms: (empty)
  - Receipt Action: Accept but Warn
- DEFAULT FINANCIAL SETTINGS**
  - Terms: 30D - Net 30 days
  - Payment Method: CHECK - Check Payment
  - Cash Account: 102000-COMP - Checking A
  - Payment By: Due Date
- DEFAULT PRINT AND EMAIL SETTINGS**
  - Print Orders
  - Send Orders by Email

**Figure: Default restriction group selected**

13. On the form toolbar, click **Apply Restriction Settings to All Vendors**.

This adds all vendors of the class to the default restriction group.



To exclude vendors of the class from a restriction group they were members of, on the Vendor Classes form, clear the field for the default restriction group and click **Apply Restriction Settings to All Vendors**.

14. Navigate to the Vendor Access form (AP102000; Configuration > Row-Level Security > Manage) and in the **Group Name** box, select *Group for Senior Accountant*.
15. Verify that on the **Vendors** tab, all vendors belonging to the *DEFAULT* class (that is entities with IDs from *V000000001* to *V000000092*) have the selected check boxes. This means they are included to the group. Now you can check that other users do not have access to vendors added to the group. The *beauvoir* (*Beauvoir, Layla*) user exists in the system and has the same roles as *becher* (*Becher, Joseph*), but she has not been added to the restriction group that now includes all vendors.
16. Navigate to the Users form (SM201010; Configuration > User Security > Manage) and in the **Login** box, select *beauvoir*.
17. Navigate to the Vendors form (AP303000; Finance > Accounts Payable > Manage).
18. Verify that no vendors are shown to Layla Beauvoir by clicking **Go to Previous Record** and **Go to Next Record** buttons.
19. Sign out and sign in as *admin*.
20. Navigate to the Users form (SM201010) and in the **Login** box, select *becher*.
21. Open the Vendors form (AP303000) and verify that for Joseph Becher, all vendors are displayed, as you can see in the following screenshot.

The screenshot shows the Acumatica Vendors form (AP303000). The left sidebar menu is visible with Payables selected. The main form displays vendor information for 'Mak System France' with Vendor ID 'V000000078'. The vendor is marked as Active with a balance of 0.00 and prepayment balance of 0.00. The form includes tabs for General Info, Payment Settings, Purchase Settings, Contacts, Attributes, Activities, and GL Accounts. The General Info section contains fields for Company Name, Attention, Email, Web, Phone 1, Phone 2, Fax, Account Ref.#, Parent Account, and Address. The Financial Settings section shows the vendor class as 'DEFAULT - Default' and terms as '30D - Net 30 days'. The Vendor Properties section includes checkboxes for Landed Cost Vendor, Vendor is Tax Agency, 1099 Vendor, Foreign Entity, and FATCA. The vendor's address is listed as '105 Cecil St, Singapore'.

**Figure: Becher can access any vendor**

## Additional Information

The following concepts are outside of the scope of this course but may be useful to some readers. You can use the links below to get additional information.

### **Vendor Security**

If your organization buys goods and services from external organizations, your accountants manage vendors' information and process documents. If your organization works with more than 10 vendors, accountants may work with particular vendors only. In this case, the accountants who do not work with these vendors should not see them in the system for security reasons and to avoid entry errors. You can use restriction groups to make vendors visible to only accountants who work with these vendors in the system. For more information, see [Vendor Security](#) in User Guide.

### **Customer Security**

If your organization sells goods and provides services to customers, you may have a great deal of customer-related information stored in Acumatica ERP. When the employees of your organization create documents for customers, they have to select the required customer from the full list of customers. If certain employees work with only very important customers, and other employees are not allowed to see these customers in the system for security reasons, you can create restriction groups to manage the visibility of your customers to users of Acumatica ERP. For more information, see [Customer Security](#) in User Guide.

### **Security of GL Budget Articles**

In Acumatica ERP, organizations implement general access restrictions by assigning roles to users of the system. The roles assigned to users allow them to access the needed resources to perform specific tasks required for their jobs. If a role allows a user to view or edit General Ledger (GL) budget articles, the user can view all the articles, including those that might be sensitive. By using restriction groups, you can limit the visibility of sensitive budget articles so that only particular users can see and work with these articles. For more information, see [Security of GL Budget Articles](#) in User Guide.

### **Project Security**

Many organizations use projects to achieve their business objectives efficiently. An organization may have multiple projects in progress. By limiting users' access to and visibility of information about particular projects and related transactions, managers can properly organize the work on each project. In Acumatica ERP, you can use roles to provide access to forms according to employees' responsibilities and restriction groups to configure the visibility of particular projects only to a responsible team. For more information, see [Project Security](#) in User Guide.

### **Account and Subaccount Security**

In Acumatica ERP, you can control which users will use particular General Ledger (GL) accounts and subaccounts. To configure the security of GL accounts and subaccounts, you can use a combination of user roles and restriction groups. By using user roles, you can configure the access of users to branches and to all branch-specific accounts and subaccounts. With restriction groups, you can set up the visibility of particular accounts and subaccounts within branches and for certain users, and you can limit the use of subaccounts with particular accounts. For more information, see [Account and Subaccount Security](#) in User Guide.

### **Security of Cash Accounts**

Cash is a company's most liquid asset, which is why an organization must have adequate controls to secure it. In Acumatica ERP, you can control which users can view which particular cash accounts. For more information, see [Security of Cash Accounts](#) in User Guide.

## Lesson Summary

In this lesson, you learned about restriction groups in Acumatica ERP.

### Review Questions:

- What are restriction groups in Acumatica ERP and how they differ from roles?
- In brief, what are the types of restriction groups available in Acumatica ERP?
- What are the entities that are controlled by restriction groups?
- Is it possible to create a restriction group without users?
- How would you add a large number of customer or vendor accounts to a restriction group?

## **Lesson 9: Inventory and Warehouse Security**

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By limiting access to information about warehouses, your organization can properly control stock levels and avoid fraud. In addition to managing the visibility of warehouses in whole, you can restrict the visibility of particular inventory items.

In this lesson, you will learn about ways of using restriction groups for configuring access to warehouse and inventory items. You will also learn about subitem codes and how you can use restriction groups in the Distribution suite.

### **Lesson Objectives**

You will do the following:

- Learn about warehouse security
- Configure visibility of warehouses to users
- Learn about inventory item security
- Learn about subitem codes

# Warehouse Security

An organization can have multiple warehouses in Acumatica ERP, and different groups of employees can work with these warehouses in the system. To limit the set of employees who work with a particular warehouse, you can create restriction groups to display a warehouse for only employees who are responsible for tasks that involve this warehouse. If the employees who work with the same warehouse perform only specific tasks (such as accepting goods and creating purchase orders), you can provide access to only those forms that these employees should use.

## Usage Scenarios

The most common scenarios of managing the security of warehouses are the following:

- Managing access to forms based on functional role: If employees perform specific tasks (such as accepting goods and creating purchase orders), you can provide the employees access to the forms they use in their work, and revoke access for forms that they shouldn't use.
- Managing the visibility of particular warehouses by user: If you have created multiple warehouses in Acumatica ERP, you can restrict the visibility of warehouses to users on forms by using restriction groups.



You can create and manage multiple warehouses in Acumatica ERP only if the *Multiple Warehouses* feature is enabled on the Enable/Disable Features (CS100000) form.

## Access to Forms Based on Roles

By using the forms of the User Security module, you can use user roles in Acumatica ERP to give employees access to forms related to working with warehouses. A role can correspond to an area of responsibility for an employee who performs warehouse-related tasks, such as creating purchase orders, accepting goods, and preparing replenishment. If needed, you can assign multiple roles to an employee. For more information about user roles, see S100 System Administration: Basic guide.

Consider the following examples of roles for employees who work with the Distribution suite:

- *Supervisor*: A role for an employee who configures the Inventory module and manages work with the module. This role should have access to the forms in the **Manage** and **Explore** nodes of the **Work Area** tab and to the **Configuration** tab of the Inventory module.
- *Data Entry Clerk*: A role for an employee who creates documents on data entry forms. You should provide access to forms in the **Enter** node of the **Work Area** tab of the Inventory module for this role.
- *Purchasing Manager*: A role for an employee who is responsible for replenishment. For this role, you should provide access to the **Replenishment** node of the **Processes** tab of the Inventory module.

## Visibility of Warehouses by User

By default, all employees who have access to forms of the Distribution suite can see all warehouses created in the system. By using the forms of the Row-Level Security module, you can configure the system so that each warehouse is displayed only to users who work with this warehouse. You can use restriction groups to set up visibility of warehouses to employees.

For example, suppose that your system has the *Wholesale* and *Retail* warehouses defined, and you need to configure visibility of these warehouses to users as follows:

- User S is a supervisor and should configure and manage both warehouses.
- User C1 is a clerk who enters documents for the *Wholesale* warehouse.
- User C2 is a clerk who enters documents for the *Retail* warehouse.

To configure visibility of warehouses according to this example, you do the following on the Warehouse Access (IN102000) form:

1. You create two restriction groups of type A (with direct restriction): *Group 1* for the *Wholesale* warehouse, and *Group 2* for the *Retail*/warehouse.
2. In Group 1, you include User S, User C1, and the *Wholesale* warehouse.
3. In Group 2, you include User S, User C2, and the *Retail* warehouse.

The resulting visibility of warehouses will be the following:

- User S can see both the *Wholesale* and *Retail* warehouses.
- User C1 can see only the *Wholesale* warehouse.
- User C2 can see only the *Retail* warehouse.

## Step 9.1: Configuring Visibility of Warehouses

In this step, you will configure visibility of warehouses in your company with *I100* data set inserted. The company has two warehouses: *MAIN* and *YOGI*. You will configure visibility of these warehouses to users as follows:

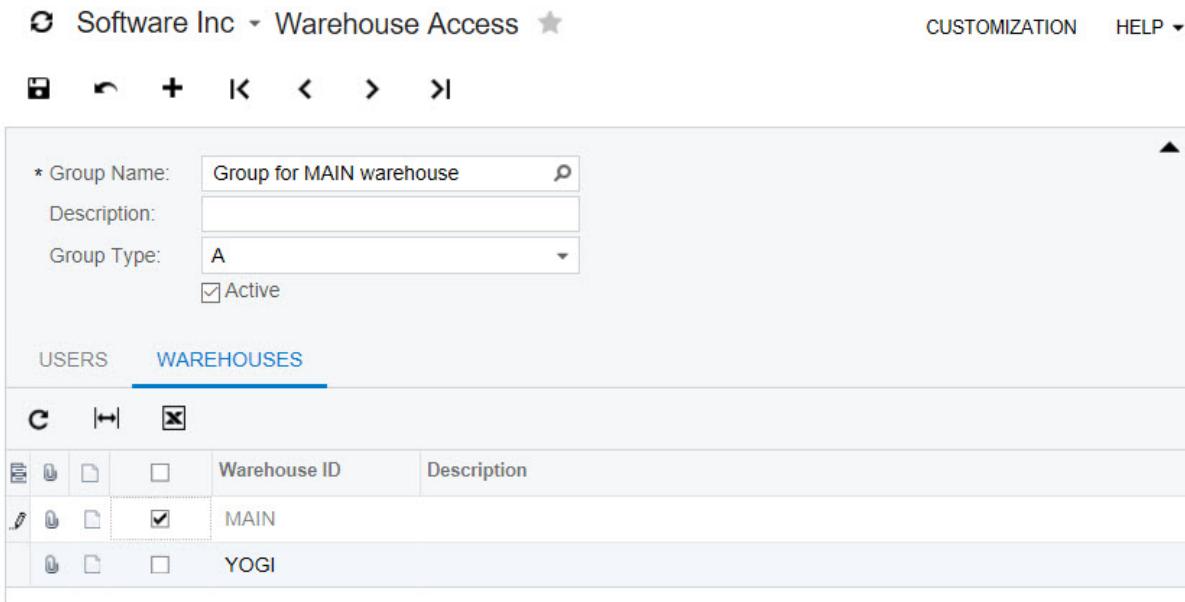
- User *baker* (*Maxwell Baker*) is a supervisor and configures and manages both warehouses.
- User *beauvoir* (*Layla Beauvoir*) is a clerk who enters documents for the *YOGI* warehouse only.

According to this example, you will do the following:

1. You create two restriction groups of type A (with direct restriction): *Group 1* for the *MAIN* warehouse, and *Group 2* for the *YOGI* warehouse.
2. In Group 1, you include user *baker* (*Maxwell Baker*) and the *MAIN* warehouse.
3. In Group 2, you include users *baker* (*Maxwell Baker*) and *beauvoir* (*Layla Beauvoir*), and the *YOGI* warehouse.

Perform the following instructions:

1. Launch the *AcumaticaERP* application instance by clicking **Start > Acumatica > AcumaticaERP**.
2. On the Welcome page of the instance, sign in to *Company* with the *admin* username and the *123* password.
3. Navigate to the Warehouse Access form (IN102000; Configuration > Row-Level Security > Manage).
4. In the **Group Name** box, type *Group* for *MAIN* warehouse.
5. In the **Group Type** box, leave *A*.
6. On the **Users** tab, select the checkbox next to *baker* (*Maxwell Baker*).
7. On the **Warehouses** tab, select the check box next to *MAIN* warehouse, as shown in the following screenshot.



**Figure: Restriction group for MAIN warehouse**

8. Save the changes.  
The first group defining access to warehouses has been created.
9. On the form toolbar, click **Add New Record**.

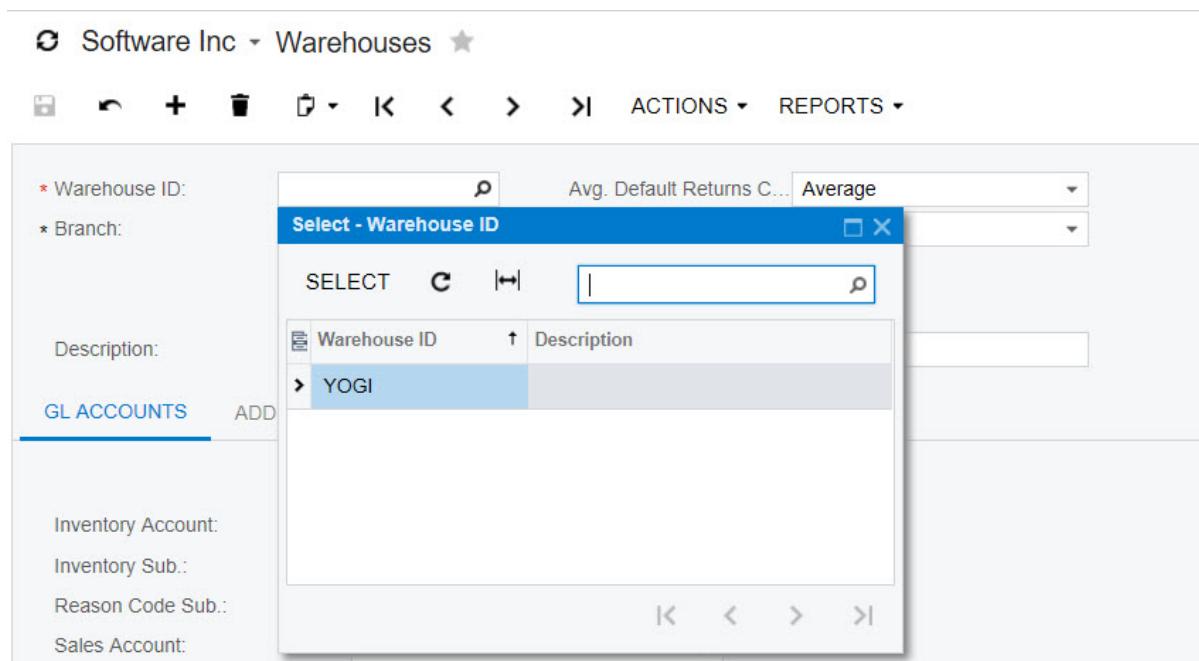
10. In the **Group Name** box, type Group for YOGI warehouse.
11. In the **Group Type** box, leave A.
12. On the **Users** tab, select the checkbox next to *baker* (*Maxwell Baker*) and *beauvoir* (*Layla Beauvoir*), as shown in the following screenshot.

The screenshot shows the 'Warehouse Access' form with a restriction group named 'Group for YOGI warehouse'. The 'Group Type' is set to 'A' and the 'Active' checkbox is checked. The 'Users' tab is selected, displaying a list of users with their logins, full names, and comments. The user 'baker' (Maxwell Baker) and 'beauvoir' (Layla Beauvoir) both have the 'checked' checkbox next to them, indicating they are assigned to the group.

Login	Full Name	Comment
admin	admin, admin	Administrator
Anonymous		
<input checked="" type="checkbox"/> baker	Baker, Maxwell	
<input checked="" type="checkbox"/> beauvoir	Beauvoir, Layla	
becher	Becher, Joseph	

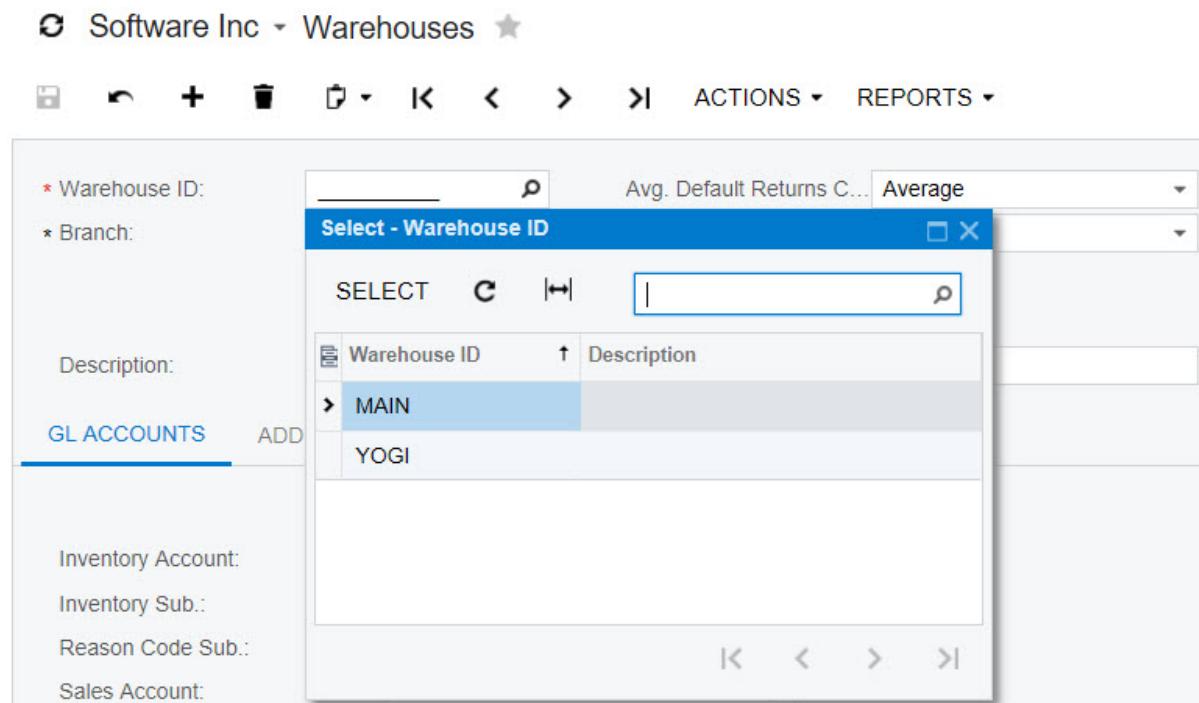
**Figure: Restriction group for YOGI warehouse**

13. On the **Warehouses** tab, select the check box next to *YOGI* warehouse and save the changes.
14. Navigate to the Users form (SM201010; Configuration > User Security > Manage) and in the **Login** box, select *beauvoir*.
15. On the form toolbar, click **Log in as User**.
16. Navigate to the Warehouses form (IN204000; Distribution > Inventory > Configuration > Manage) and verify that the only warehouse that can be selected for the **Warehouse ID** box is *YOGI*, as you can see in the following screenshot.



**Figure: Only YOGI warehouse is shown to Layla Beauvoir**

17. Sign out and sign in as **admin**.
18. Navigate to the Users form (SM201010; Configuration > User Security > Manage) and in the **Login** box, select **baker**.
19. On the form toolbar, click **Log in as User**.
20. Navigate to the Warehouses form (IN204000; Distribution > Inventory > Configuration > Manage) and verify that both warehouses can be selected in the **Warehouse ID** box, as shown in the following screenshot.



**Figure: Two warehouses are shown for Maxwell Baker**

# Inventory Item Security

An organization that distributes goods may have many items in stock. In this case, users who work with inventory items in the system may have specific tasks and work with only particular item classes. When users create a sales order, they need to enter an inventory ID for each product. You can define restriction groups to decrease the lists of inventory items a particular user sees.

## Visibility of Inventory Items to Users

The list of inventory items from which employees should select an item for the product can be very long, which increases the probability of an entry error. By using restriction groups, you can reduce the list of inventory items that users see on forms.

For example, suppose that your organization sells furniture. Each sales manager works with furniture for a particular room, such as kitchen, living room, and bedroom. When managers create a sales order, they should select items only from the list of furniture they sell to avoid entry mistakes. Further suppose that User K sells kitchen furniture, User L sells living room furniture, and User M sells bedroom furniture. To restrict the visibility of inventory items to appropriate users in the system, you would create the following restriction groups with direct restriction on the Inventory Item Access (IN103000) form:

1. Group K: In this group, include User K and all inventory IDs for kitchen furniture items.
2. Group L: To this group, add User L and all inventory IDs for items of the living room furniture.
3. Group M: In this group, include User M and all inventory IDs for the bedroom furniture items.

As a result, the visibility of the inventory items in sales orders will be restricted in the system as follows:

- User K can view and select only inventory items for the kitchen furniture.
- User L can work with only inventory items for the living room furniture.
- User M can see and select only inventory items for the bedroom furniture.
- All other users cannot see the inventory items added to the three restriction groups in the system.

## Inventory IDs and Subitem Codes

For peak efficiency, manufacturing and merchandising companies need to precisely track the types and quantities of items of every type stored in inventory. Acumatica ERP provides flexible tools for identifying and tracking various types of such items.

### Inventory IDs

Each inventory item is tracked in the system by its inventory ID. This unique identifier can be just a number, or you can configure it to provide basic information about the item type, brand, or use. Well-designed inventory IDs can help you sort and group items for reports.

As with other identifiers in Acumatica ERP, inventory IDs can be configured on the Segmented Keys (CS202000) form. Identifiers for stock and non-stock items are configured using the same segmented key: *INVENTORY*. For the key, you can define how many segments it will have, what values may be used, whether they should be validated, or whether auto-numbering should be used for generating inventory IDs. To have inventory IDs automatically generated on creating new inventory items, you can configure the *INVENTORY* segmented key as having a single segment with the **Auto-Number** option selected for this segment and a numbering sequence specified in the **Numbering ID** box. If you have a restricted number of possible items and the users will enter arbitrary inventory IDs manually, you can configure the *INVENTORY* key as having a single segment with non-validated values. If the type of items should be indicated by their IDs, consider configuring the *INVENTORY* key with two segments, for one of which you create a list of pre-defined values.

### Subitem Codes

In addition to inventory IDs, Acumatica ERP supports subitems (or subitem codes), which can be useful for otherwise-identical products that have different colors, sizes, or other properties tracked because they are important to customers. Thus, under the same inventory ID, you may have a number of subitems—products that share all the settings of the inventory record but have additional properties that differ, such as size or color.

You decide whether to use subitems on a system-wide level, based on the particular products you stock. If products with differing properties represent a small part of all products stocked in your warehouse, you can assign individual inventory IDs to each product variation. If such products represent a significant percentage of all stock, you may want to save the effort of creating and maintaining inventory records for each variation and instead use subitems, each with a subitem code. See below for a simplified example of subitems in use.

**Important!** If subitems are enabled, subitem codes should be used with every stock item, even if an item has no variations. Make sure to add for each subitem segment values that mean *no variations*.

### Example of Using Subitems

Suppose the merchandise sold by your company is men's apparel: T-shirts, shoes, and socks. While each model of T-shirts, shoes, and socks has a different inventory ID, the ID offers no information about the material used, the color, and the size. If you used a different ID for every possible permutation of size, color, and material, it would significantly increase the number of IDs in use and would require a significant effort to enter all those inventory records.

Suppose that your men's apparel company stocks and sells only three products with the following properties.

#### Products

Product Type	Color	Size	Fabric/Material
T-Shirt	Yellow, White, or Red	S, M, L, XL, or XXL	Cotton or Viscose
Socks	Black	6, 7, 8, or 9	Polyester

Product Type	Color	Size	Fabric/Material
Shoes	Black, Brown, or White	38, 39, 40, 42, 42, or 43	Nubuck or Leather

For all types of products at the warehouse, we break down all the properties—such as color, size, and fabric or material—that split the products into subitems and all possible values of these properties as shown in the table below.

Property	Property Values
Color	Yellow, White, Red, Black, Brown
Size	S, M, L, XL, XXL, 6, 7, 8, 9, 38, 39, 40, 42, 43
Material	Nubuck, Leather, Polyester, Cotton, Viscose

You would then design the subitem code. It can be segmented, with each segment describing a specific property. For the above example, we could create a subitem code that consists of the following three segments: color, size, and material.

Imagine if you added soap (with the inventory ID *SOAP*) to this merchandise; the soap has only one size and one “signature” scent. The color, size, and material properties, then, do not apply to soap. For products without specific properties, you need non-specific values (those that mean “not applicable”) for the respective segments. We recommend that you use similar non-specific values for all segments, such as zero values or *N/A* strings. In this example, we could use *000*, *000*, and *0000000000* for color, size, and material, respectively.

By using these properties, you can describe variations of all product subitems. The subitem code consists of the following possible values for the specified three segments.

Segment	Property	Length	Segment Values
1	Color	3	000, YLW, WHT, RED, BLK, BRN
2	Size	3	000, S_:_;, M_:_;, L_:_;, XL_:_;, XXL_:_;, 6, 7, 8, 9, 38, 39, 40, 42, 43
3	Materail	9	000000000, Nubuck, Leather, Polyester, Cotton, Viscose

Thus, we have the following subitems:

- For the *SHOES* inventory ID: *BLK-038-LEATHER*, *BRN-038-NUBUCK*, *BLK-039-LEATHER*, *BRN-038-LEATHER*, and so forth, with 36 total subitems
- For the *TSHIRT* inventory ID: *YLW-S\_:\_;-COTTON*, *YLW-XL\_:\_;-COTTON*, *YLW-XXL-COTTON*, and so forth, with 36 total subitems
- For the *SOCKS* inventory ID: *BLK-\_:\_;8-POLYESTER*, *BLK-\_:\_;10-POLYESTER*, and so forth, with 6 total subitems
- For the *SOAP* inventory ID: *000-000-0000000000* (the only subitem)

## Implementation of Subitems

Subitems allow you to use the same inventory ID with all financial, warehousing, and processing settings for multiple variations of an item. Subitem codes are used in addition to inventory IDs. If you decide to use subitems, subitem codes must be used with each inventory ID, even if the product does not have variations (as with soap in the above example).

Once subitems are enabled in the system, users need to enter a subitem code for every inventory transaction in the Inventory, Purchase Orders, and Sales Orders modules. When entering a subitem code for an item on any document, users browse through the possible values of each segment.

By default, the subitem code is independent of inventory items and the system permits all combinations between them, although most combinations make no sense. For example, the inventory item SOAP does not actually have the subitem MGT-XXL-Polyester, and the inventory item SOCKS doesn't have the valid subitem YLW-42-NUBUCK.

## Configuration of Subitems in Your System

To configure subitems in your system, perform the following general steps:

1. To use subitems in the system, enable the *Inventory Subitems* feature on the Enable/Disable Features (CS100000) form.  
 Once enabled, this feature cannot be disabled.
2. Define the segmented structure of subitems by using the *INSUBITEM* key on the Segmented Keys (CS202000) form.
3. Add values for each subitem segment by using the Segment Values (CS203000) form.
4. Create stock items by using the Stock Items (IN202500) form.
5. On the **Cross-References** tab, assign to each inventory ID-subitem pair alternate IDs, if such IDs are used by vendors or customers.
6. By using the **Restriction Groups** tab of this form, assign the item to appropriate subitem restriction groups.

## Additional Information

The following concept is outside of the scope of this course but may be useful to some readers. You can use the link below to get additional information.

### **Item Cross-References**

When configuring the *INVENTORY* segmented key, decide whether you will use alternate IDs for stock and non-stock items. With alternate IDs (item identifiers used by vendors and customer of the items), the users will be able to specify items by typing their alternate IDs as well as inventory IDs in the **Inventory ID** boxes on sales and purchase orders without errors.

For more information on using alternate IDs and on how to configure the *INVENTORY* segmented key in this case, see [\*Item Cross-References\*](#) in User Guide.

## Lesson Summary

In this lesson, you learned about limiting access to warehouses and inventory items in Acumatica ERP. You also learned about subitem codes and that you can configure subitem restriction groups.

### Review Questions:

- In brief, what are the options to configure warehouse security in Acumatica ERP?
- In brief, what are the options to configure inventory item access in Acumatica ERP?
- What are subitem codes?
- What is the purpose of adding subitem codes to restriction groups?

## Lesson 10: Security of Organization Branches

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If your organization has multiple branches defined in Acumatica ERP, you may need to control which employees get access to which branches. Because branches share some data, you may also need to control access to the shared data. Acumatica ERP provides user access roles, which you can use to control users' access to branches, and restriction groups to limit the visibility of shared data.

In this lesson, you will learn about ways to manage the security of a branch.

### Lesson Objectives

You will do the following:

- Create a branch role
- Configure branch access roles
- Create users and assign them to branches

## User Access to Branches

The most common scenarios of managing the security of company branches are the following:

- Managing user access to branches: If your organization has multiple branches (and you have created multiple branches inAcumatica ERP), you can configure access to branches for employees who work in these branches.
- Managing the visibility of data shared between branches: If you need to make data shared between branches (such as General Ledger accounts and subaccounts) visible only within a particular branch, you can use restriction groups to resolve this task.

### User Access to Branches

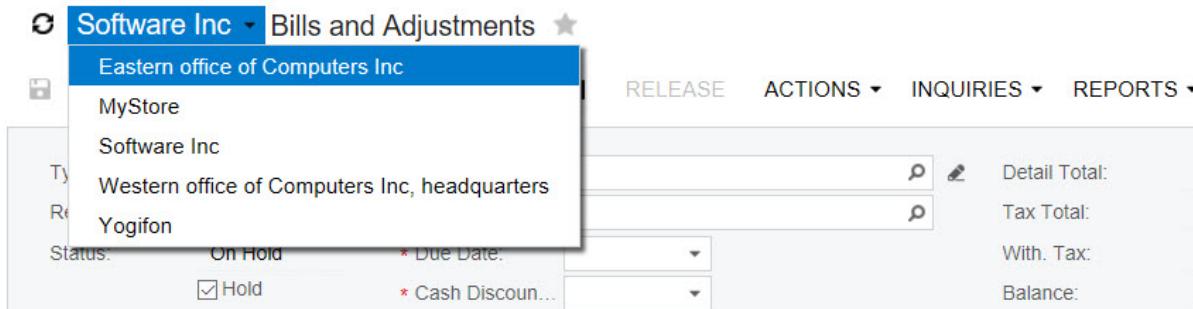
After multiple branches have been defined in the system, you provide access to the branches for users who will work in the system as follows:

1. You create branch-specific user roles (one role per branch) and assign these roles to user accounts on the User Roles (SM201505) form.  
To allow a user to access multiple branches, assign to him or her the roles for the branches to which the user should have access.
2. For each branch, in the **Access Role** box of the Branches (CS102000) form, you select the user role created for this branch.

Once a role is assigned to one of the branches, other branches also must have roles assigned. A branch with no role assigned will be inaccessible to any user.

If a user, based on his or her role, has access to a data entry form where this user enters a document and specifies the branch of origin, only the branches to which the user has access are available on the drop-down list. The users who have access to multiple branches can select the specific branch from the **Branches** menu on the form's title toolbar, as shown in the following screenshot, and create documents on behalf of the selected branch.

The following screenshot demonstrates a form of the Acumatica ERP instance where a company has multiple branches. The form title bar provides an option to select the organization branch.



**Figure: Form title bar**

No matter which branch users have access to, users who have access to the following forms, based on their roles, will see and work with all branches (because users configure system objects by using these forms):

- Inter-Branch Account Mapping (GL101010)
- Branches (CS102000)
- Buildings (CS205010)
- Assignment and Approval Maps (EP205000)
- Import Company Tree (EP204060)

- Restriction Groups by Branch (GL103020)
- GL Accounts by Branch Access (GL103040)
- Subaccounts by Branch Access (GL103060)

### **Visibility of Data Within a Branch**

Branches have some data shared between branches and some data kept as branch-specific. You may need to restrict the visibility of data that is shared but may contain sensitive information, such as General Ledger accounts and subaccounts. With restriction groups you can control which accounts and subaccounts are used with which branch.

### **Related Links**

*[Multiple Branch Support](#)*

## Visibility by Branch

If your organization has users who have access to multiple branches, you can use restriction groups to narrow the lists of accounts and subaccounts on data entry forms by branch. With restriction groups set up in this way, users will make fewer mistakes when selecting accounts and subaccounts on data entry forms.

For example, suppose that your organization has two branches—the Headquarters office (*HQ* in the system) and the Regional Sales office (*RS*). The accounting department processes documents for both branches. To configure the visibility restrictions of accounts and subaccounts by branch, you need to do the following:

- 1.** You configure user roles for each branch (for example, *Branch HQ* and *Branch RS*) and assign both roles to the user accounts of the accountants. With the roles assigned, the accountants will see information for both branches in Acumatica ERP.
- 2.** To configure the visibility of accounts within branches, you do the following on the GL Accounts by Branch Access (GL103040) form:
  - a.** You create two restriction groups of type A (with direct restriction): the *HQ Accounts* group for the Headquarters office and the *RS Accounts* group for the Regional Sales office.
  - b.** In the *HQ Accounts* group, you include the Headquarters branch (*HQ*) and the accounts that should be visible within the *HQ* branch.
  - c.** In the *RS Accounts* group, you include the Regional Sales branch (*RS*) and the accounts specific to the *RS* branch.
- 3.** To configure the visibility of subaccounts within branches, you do the following on the Subaccounts by Branch Access (GL103060) form:
  - a.** You create two restriction groups of type A (with direct restriction): the *HQ Subaccounts* group for the Headquarters office and the *RS Subaccounts* group for the Regional Sales office.
  - b.** In the *HQ Subaccounts* group, you include the *HQ* branch and the subaccounts that should be visible within this branch.
  - c.** In the *RS Subaccounts* group, you include the *RS* branch and the subaccounts specific to this branch.

We do not recommend that you add both accounts and subaccounts in the same restriction groups. If you do, included accounts could not be used with subaccounts other than those also included to the group.

After you have configured restriction groups for accounts and branches, or subaccounts and branches, the system will narrow the lists of accounts or the list of subaccounts on data entry forms after a user selects a branch. For example, suppose that an accountant is adding a bill on the Bills and Adjustments (AP30100) form and selects the *HQ* branch in the **Branch** column of the **Document Details** tab. In the **Account** column of the same tab, the accountant will see only accounts added to the *HQ Accounts* restriction group.

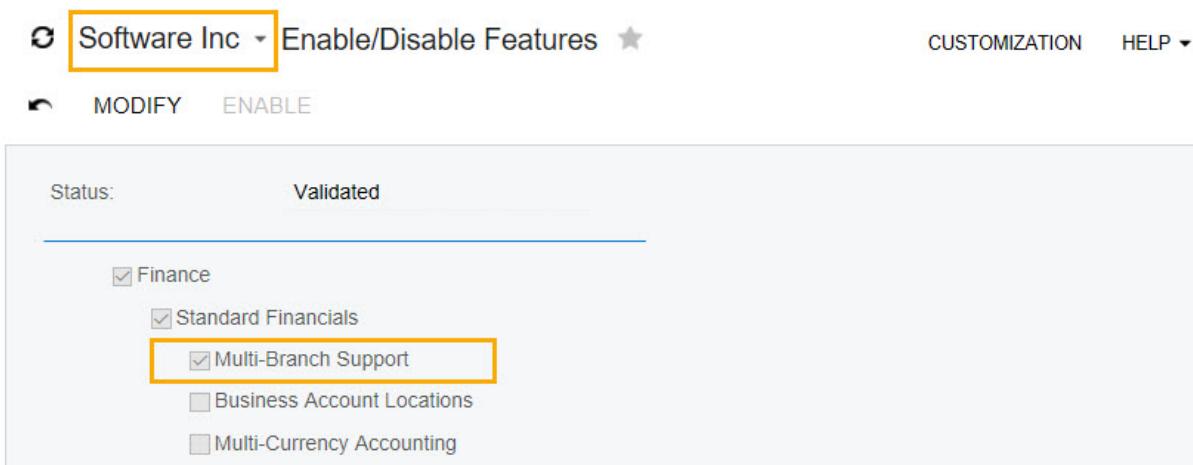
## Step 10.1: Creating a Branch Role

In this step, you will create a branch role.

Perform the following instructions:

1. Launch the *AcumaticaERP* application instance by clicking **Start > Acumatica > AcumaticaERP**.
2. On the Welcome page of the instance, sign in to *Company* with the *admin* username and the *123* password.
3. Navigate to the Enable/Disable Features form (CS100000; Configuration > Common Settings > Licensing).
4. Verify that the **Multi-Branch Support** feature is selected, as shown in the following screenshot.

With this feature enabled, you can create and maintain multiple branches in your instance of Acumatica ERP. Actually, you can see that the feature is enabled by having an option to select the organization branch; the branches are already created in the data set used in this training.



**Figure: Multi-Branch Support feature**

5. Navigate to the User Roles form (SM201005; Configuration > User Security > Manage).
6. Create a new role as follows and save the changes:
  - **Role Name:** Software Inc Users
  - **Description:** Software Inc Users
  - **Guest Role:** Cleared

The created group is shown in the screenshot below.

The screenshot shows the 'User Roles' screen in a software application. At the top, it says 'Software Inc - User Roles'. There are 'CUSTOMIZATION' and 'HELP' buttons. Below the title, there are icons for back, forward, search, and other navigation. The main area has fields for 'Role Name' (containing 'Software Inc Users - Software Inc Us') and 'Role Description' (containing 'Software Inc Users'). A checkbox for 'Guest Role' is unchecked. Below this is a 'MEMBERSHIP' section with a table header row for 'Username', 'Display Name', 'Status', and 'Comment'. The table body is currently empty.

**Figure: User Role created**

7. Create a user role as follows and save the changes:
  - **Role Name:** MyStore Users
  - **Description:** MyStore Users
  - **Guest Role:** Cleared
8. Create a user role as follows and save the changes:
  - **Role Name:** Eastern Users
  - **Description:** Eastern Users
  - **Guest Role:** Cleared
9. Create a user role as follows and save the changes:
  - **Role Name:** Western Users
  - **Description:** Western Users
  - **Guest Role:** Cleared
- 10.
11. Create a user role as follows and save the changes:
  - **Role Name:** Yogifon Users
  - **Description:** Yogifon Users
  - **Guest Role:** Cleared

## Step 10.2: Configuring Branch Access Roles

Perform the following instructions:

1. Navigate to the Branches form (CS102000; Organization > Organization Structure > Configure).
2. In the **Branch ID** box, select *SOFT*.
3. On the **General Info** tab, in the **Access Role** box, select *Software Inc Users*.
4. Save the changes.

The role for the SOFT branch is specified, as you can see in the screenshot below.

The screenshot shows the 'Branches' form with the 'GENERAL INFO' tab selected. Key fields visible include:

- \* Branch ID:** SOFT (highlighted with a yellow border)
- \* Branch Name:** Software Inc
- Active:** checked
- Access Role:** Software Inc Users - Software Inc Us (highlighted with a yellow border)
- MAIN CONTACT:** Company Name: Software Inc
- MAIN ADDRESS:** Address Line 1, Address Line 2, City: New York, \*Country: US - United States of America, State: NY - NEW YORK, Postal Code: [redacted], VIEW ON MAP button
- LEGAL INFORMATION:** Tax Registration ID: [redacted], 1099-MISC Reporting Entity checkbox (unchecked)
- CONFIGURATION SETTINGS:** Default Country: [redacted]
- BASE CURRENCY SETTINGS (SHARED):** Base Currency ID: USD, Description: United States Dollar, Currency Symbol: \$, Decimal Precision: 2
- MISC SETTINGS (SHARED):** Quantity Decimal Places: 2, Price/Cost Decimal Pla... (partially visible), \*Weight UOM: KG, \*Volume UOM: LITER, Phone Mask: [redacted]

**Figure: Access role selected for branch**

5. In the **Branch ID** box, select *MYSTORE* and in the **Access Role** box, select *MyStore Users*, then save the changes.
6. In the **Branch ID** box, select *EAST* and in the **Access Role** box, select *Eastern Users*, then save the changes.
7. In the **Branch ID** box, select *WEST* and in the **Access Role** box, select *Western Users*, then save the changes.
- 8.
9. In the **Branch ID** box, select *YOGIFON* and in the **Access Role** box, select *Yogifon Users*, then save the changes.

## Step 10.3: Creating Users and Assigning Them to Branches

Perform the following instructions:

1. Navigate to the Users form (SM201010; Configuration > User Security > Manage).
2. Create a new user as follows and save the changes:
  - **Login:** eastuser
  - **Generate Password:** Cleared
  - **Password:** 123
  - **First Name:** East
  - **Last Name:** User
  - **Email:** your email address
3. On the **Roles** tab, select the following check boxes and leave all other check boxes cleared:
  - *Administrator*
  - *Eastern Users*
  - *Internal User*

The created user is shown in the screenshot below.

The screenshot shows the SAP Fiori User Management interface. At the top, there are tabs for 'NOTES', 'ACTIVITIES (1)', 'FILES', 'CUSTOMIZATION', and 'HELP'. Below the tabs, there are fields for 'Login' (eastuser), 'User Type' (Guest Account), 'Linked Entity', 'First Name' (East), 'Last Name' (User), and 'Email' (test@test.com). To the right of these fields are checkboxes for 'Status' (Active) and several security options: 'Allow Password Recovery', 'Allow Password Changes', 'Password Never Expires', and 'Force User to Change Password on Next Login'. Below this section is a 'ROLES' tab, which is currently selected. The table below lists various roles with checkboxes next to them. The roles listed are: Administrator (checked), Anonymous, BI, Customizer, DashboardDesigner, Eastern Users (checked), Field-Level Audit, Guest, Internal User (checked), MyStore Users, Portal Admin, and Portal User. The 'Internal User' and 'Eastern Users' checkboxes are highlighted with orange boxes.

Selected	Role Name	Role Description
<input checked="" type="checkbox"/>	Administrator	System Administrator
<input type="checkbox"/>	Anonymous	Anonymous
<input type="checkbox"/>	BI	Access to Business Intelligence Views
<input type="checkbox"/>	Customizer	Customizer
<input type="checkbox"/>	DashboardDesigner	Dashboard Designer
<input checked="" type="checkbox"/>	Eastern Users	Eastern Users
<input type="checkbox"/>	Field-Level Audit	Role that can access Field-Level Audit
<input type="checkbox"/>	Guest	External Guest Role
<input checked="" type="checkbox"/>	Internal User	Allows the user to change personal settings...
<input type="checkbox"/>	MyStore Users	MyStore Users
<input type="checkbox"/>	Portal Admin	Access to portal configuration
<input type="checkbox"/>	Portal User	Portal user

**Figure: User Role created**

4. Save the changes.  
In the same way, you can create users for the other branches.
5. In the **Login** box, select the *admin* user.
6. On the **Roles** tab, select the check boxes next to the roles created for branches, as shown in the following screenshot, and save the changes:
  - *Eastern Users*
  - *MyStore Users*

- Software Inc Users
- Western Users
- Yogifon Users

The screenshot shows the 'Software Inc - Users' screen. At the top, there are tabs for NOTES, ACTIVITIES, FILES, CUSTOMIZATION, and HELP. Below the tabs, there are fields for Login (admin), User Type (Guest Account), Linked Entity (Andrews, Michael), First Name (admin), Last Name (admin), Email (administrator@acumatica.com), and Comment (Administrator). On the right, there are checkboxes for Online, Allow Password Recovery, Allow Password Changes, Password Never Expires, and Force User to Change Password on Next Login. Below these fields, there are tabs for ROLES, STATISTICS, IP FILTER, EXTERNAL IDENTITIES, and PERSONAL SETTINGS. Under the ROLES tab, a table lists various roles with their descriptions. The 'Administrator' role is selected and highlighted in blue. Other roles listed include Anonymous, BI, Customizer, DashboardDesigner, Eastern Users, Field-Level Audit, Guest, Internal User, MyStore Users, and Portal Admin.

**Figure: New roles added for admin**

This gives the *admin* user access to all branches.

7. Sign out and sign in back to *Company* as *eastuser* with *123* password.
8. Navigate to the Journal Transactions form (GL301000; Finance > General Ledger > Work Area > Enter).
9. Verify the following:
  - The branch selector on the form title bar contains only *EAST* branch, as shown in the following screenshot.

The screenshot shows the 'Journal Transactions' screen under the 'Eastern office of Computers Inc' branch. The title bar displays 'Eastern office of Computers Inc'. The form has fields for Module (GL), Branch (EAST - Eastern office of Computers Inc), Ledger (ACTUALCOMP - Computers Inc post), Type (Normal), Orig. Batch Number, Debit Total (0.00), and Credit Total (0.00). Below the title bar, there are buttons for RELEASE, ACTIONS, and REPORTS. The main area of the form includes fields for Batch Number (<NEW>), Status (On Hold), Transaction Date (12/28/2017), Post Period (12-2017), and Description. At the bottom, there is a table with columns for Accour, Description, Subaccount, Ref. Number, Quantity, UOM, Debit Amount, Credit Amount, Transaction Description, and Reclass. Batch Number.

**Figure: Only one branch is available**

- You cannot navigate between transactions by clicking **Go to Previous Record** and **Go to Next Record** buttons because all existing transactions belong to another branch.
10. Navigate to the Vendors form (AP303000; Finance > Accounts Payable > Work Area > Manage) and verify that all vendors can be viewed.

- 11.** Navigate to the Vendor Summary form (AP401000; Finance > Accounts Payable > Work Area > Explore) and verify there are nothing to view because the transactions all occurred in another branch, as you can see in the following screenshot.

The screenshot shows the 'Vendor Summary' form for the 'Eastern office of Computers Inc'. The title bar says 'Eastern office of Computers Inc - Vendor Summary'. The top section has fields for 'Branch' (set to 'EAST - Eastern office of Computers Inc'), 'Vendor Class', 'Period', 'AP Account', and 'AP Subaccount', each with a search icon. To the right are checkboxes for 'Vendors with Balance Only' (checked), 'By Financial Period' (unchecked), and summary totals: 'Total Balance: 0.00' and 'Total Prepayments: 0.00'. Below this is a table header with columns: Vendor ID, Vendor Name, Last Activity Period, Beginning Balance, Ending Balance, Prepayme Balance, PTD Purchaser, PTD Payments, and PTD Cash Discount Taken. The table body is empty.

**Figure: Vendor Summary form**

- 12.** Sign out and sign in back to *Company* as *admin* with 123 password.
- 13.** Navigate to the Journal Transactions form (GL301000; Finance > General Ledger > Work Area > Enter).
- 14.** Verify the following:

- The branch selector on the form title bar contains all branches, as shown in the following screenshot.

The screenshot shows the 'Journal Transactions' form for the 'Eastern office of Computers Inc'. The title bar says 'Eastern office of Computers Inc - Journal Transactions'. A dropdown menu is open under the 'Branch' field, listing several branches: 'MyStore', 'Software Inc', 'Western office of Computers Inc, headquarters', and 'Yogifon'. Other options like 'EAST - Eastern office of Computers Inc' and 'ACTUALCOMP - Computers Inc post' are also visible. The main form area has fields for 'Status' (set to 'On Hold'), 'Transaction Date' (set to '12/28/2017'), 'Post Period' (set to '12-2017'), and 'Description'. To the right, transaction details are listed with columns: Type (Normal), Orig. Batch Number, Debit Total (0.00), Credit Total (0.00). At the bottom is a table with columns: \*Branch\*, \*Account\*, Description, \*Subaccount\*, Ref. Number, Quantity, UOM, Debit Amount, Credit Amount, and Transaction.

**Figure: All branches available**

- You can navigate between transactions by clicking **Go to Previous Record** and **Go to Next Record** buttons.
- 15.** Navigate to the Vendors form (AP303000; Finance > Accounts Payable > Work Area > Manage) and verify that all vendors can be viewed.
- 16.** Navigate to the Vendor Summary form (AP401000; Finance > Accounts Payable > Work Area > Explore), select the *Software Inc* branch and verify there are many transactions, as you can see in the following screenshot.

Software Inc		Vendor Summary										CUSTOMIZATION	HELP
Branch:	SOFT - Software Inc	<input checked="" type="checkbox"/> Vendors with Balance Only		<input checked="" type="checkbox"/> By Financial Period		Total Balance:		245,000.00					
Vendor Class:						Total Prepayments:		0.00					
Period:													
AP Account:													
AP Subaccount:													
Vendor ID	Vendor Name	Last Activity Period	Beginning Balance	Ending Balance	Prepayme Balance	PTD Purchaser	PTD Payments	PTD Cash Discount Taken	PTD Tax Withheld	PTD Credit Adjustmen	PTD Debit Adjustmen	PTD	PTD Prepayme
<a href="#">V0000000003</a>	Glorious Food	12-2013	0.00	13,220.00	0.00	13,220.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<a href="#">V0000000004</a>	Antun's of Westchester	12-2013	0.00	1,170.00	0.00	1,170.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<a href="#">V0000000007</a>	Supply Co	12-2013	0.00	18,700.00	0.00	18,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<a href="#">V0000000008</a>	United Utilities Networks Ltd	12-2013	0.00	39,508.00	0.00	39,508.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<a href="#">V0000000010</a>	EFG Investment Bank	12-2013	0.00	63,330.00	0.00	63,330.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<a href="#">V0000000011</a>	Midwood Ambulance	12-2013	0.00	2,300.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<a href="#">V0000000015</a>	S.G. Daedalus	12-2013	0.00	4,500.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<a href="#">V0000000017</a>	Bill's Travel Agency, Inc	12-2013	0.00	420.00	0.00	420.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<a href="#">V0000000020</a>	NPC Call Center	12-2013	0.00	2,731.00	0.00	2,731.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Figure: Vendor Summary form**

## Lesson Summary

In this lesson, you learned about limiting access to warehouses and inventory items in Acumatica ERP. You also learned about subitem codes and that you can configure subitem restriction groups.

### Review Questions:

- In brief, why are branch restrictions important?
- When the branch restrictions should be used?

## **Part 4: Implementation and Configuration**

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In this part of the course, you will learn about the functionality that Acumatica ERP provides for managing various file attachments and their versions, including storing attached files on the external storage.

You will also read about the functionality that you can use to localize the system in multiple languages.

In particular, you will develop an understanding of the following tasks:

- Locales and languages supported by Acumatica ERP
- String translation process
- Configuring external file storage

## Lesson 11: Multiple Locales and Languages

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Acumatica ERP provides functionality that you can use to perform localization to one locale or multiple locales. In this lesson, you can find information on the translation process and the management of locales.

### Lesson Objectives

You will read about the following:

- How to maintain the user interface and wikis in multiple languages if you have multiple locales.
- How you can use locale-specific settings and the translation of the strings used on the application interface
- How you can translate user input to multiple languages and store translations in the database.

## Boxes that Have Multi-Language Support

Once you have enabled multilingual user input, the system displays a link with a language ISO code next to the supported text boxes in the system. When you click the link, the **Translations** dialog box appears, where you can enter translations. By default, the system supports multilingual user input for the boxes listed in this topic. You can expand this list by means of customization. Also, if the `PXDBString` attribute for a box from the list was customized in the earlier versions, after upgrade to Acumatica ERP 6 the box will not have multi-language support. For details, see [Customization of Field Attributes in DAC Extensions](#) in the Customization Guide.

In this topic, you will find lists, broken down by module, of the boxes that have multi-language support.

### Accounts Receivables Module

You can localize values for the following text boxes in the Accounts Receivable module:

- The **Description** box on the Credit Terms (CS206500) form (also available in the Accounts Payable module)
- The **Fee Description** box on the Overdue Charges (AR204500) form
- The **Description** box on the Customer Classes (AR201000) form
- The **Description** column on the Customer Price Classes (AR208000) form
- The **Description** box on the Reason Codes (CS211000) form
- The **Description** box on the Contract Templates (CT202000) form
- The **Invoice Description** column on the Contract Templates (CT202000) form
- The **Line Description** column on the Contract Templates (CT202000) form
- The **Description** box on the Customer Contracts (CT301000) form
- The **Invoice Description** column on the Customer Contracts (CT301000) form
- The **Line Description** column on the Customer Contracts (CT301000) form
- The **Credit Memo Description** box on the Accounts Receivable Preferences (AR.10.10.00) form

### Cash Management Module

You can localize values for the following text boxes in the Cash Management module:

- The **Description** box in the Summary area of the Cash Accounts (CA202000) form
- The **Description** box in the Summary area of the Payment Methods (CA204000) form

### Common Settings Module

You can localize values for the following text boxes in the Common Settings module:

- The **Country** box on the Countries/States (CS204000) form
- The **Description** box and the **Description** column on the Attributes (CS205000) form
- The **New Number Symbol** box on the Numbering Sequences (CS201010) form

### Customization Module

You can localize values for the following text boxes in the Customization module:

- The **Name** box on the Filters (CS209010) form
- The **Display** column on the **Parameters** tab of the Generic Inquiry (SM208000) form
- The **Caption** column on the **Results Grid** tab of the Generic Inquiry (SM208000) form

## Dashboards

If you have rights to edit a particular dashboard, you can localize values for the following text boxes in the **Widget Properties** dialog box:

- The **Caption** box for all widget types
- The **Scorecard Title** box for the scorecard widget type
- The **Trend Card Title** box for the trend card widget type

## Inventory Module

You can localize values for the following text boxes in the Inventory module:

- The **Description** column on the Item Price Classes (IN209000) form
- The **Description** box on the Item Classes (IN201000) form
- The **Description** box and the **Description** tab on the Non-Stock Items (IN202000) form
- The **Description** box and the **Description** tab on the Stock Items (IN202500) form
- The **Description** box on the Kit Specifications (IN209500) form
- The **Description** box on the Item Sales Categories (IN204060) form

## General Ledger Module

You can localize values for the following text boxes in the General Ledger module:

- The **Description** column on the Financial Year (GL101000) form
- The **Description** column on the Financial Periods (GL201000) form



If you have provided translations for financial periods on the Financial Year form, the system copies these translations to the **Description** column on the Financial Periods form, when you generate periods for a new year. For an existing year you need to add translations manually.

- The **Description** column on the Ledgers (GL201500) form
- The **Description** column on the Account Classes (GL202000) form
- The **Description** column on the Chart of Accounts (GL202500) form
- The **Description** column on the Subaccounts (GL203000) form
- The following text boxes on the analytical reports (ARM) forms:
  - The **Description** and **Value** columns on the Row Sets (CS206010) form
  - The Formula columns in the upper table and the **Description** and **Value** lines on the Column Sets (CS206020) form
  - The **Description** and **Value** columns on the Unit Sets (CS206030) form

## Projects Module

You can localize values for the following text boxes in the Projects module:

- The **Invoice Description** column on the Billing Rules (PM207000) form
- The **Description** box on the Projects (PM301000) form

## Sales Orders Module

You can localize values for the following text boxes in the Sales Orders module:

- The **Description** box on the Order Types (SO201000) form
- The **Description** column on the FOB Points (CS208500) form
- The **Description** box on the Shipping Terms (CS208000) form

### Taxes Module

You can localize values for the following text box in the Taxes module:

- The **Description** box on the Taxes (TX205000) form

# Use of User Input Translations

Starting with Acumatica ERP 6, you can translate user input for multiple text boxes in the system. That is, you can maintain your data in multiple languages. These data translations can later be used in printed reports and documents.

In this topic, you will read about how to print reports and documents, how to send notifications in the language preferred by the customer or vendor, and how the system searches for translations.

## Printing Localized Reports

If you have enabled multilingual user input and provided translations for the fields that supply data to a report, you can prepare a fully localized report—that is, a report whose strings (headers and footers) and data are localized. By default, the system prepares a report in the language associated with the locale you used to sign in. You can override this locale by specifying another locale on a report form in the **Locale** box.

Before you prepare a localized report, make sure that all of the following preliminary instructions have been completed:

1. All the needed locales are added and activated on the System Locales form.
2. Multilingual user input is set up.
3. The user interface is localized, including reports.
4. There are translations for the fields that supply data to the report.

Once you have finished, you can prepare a fully localized report as follows:

1. You select the needed locale in the **Locale** box on the report form.
2. You run the report.

The system prints the localized version of the report, where the report's strings and report's data are translated to the language of the locale you have selected on the report form.

If you have not selected a locale on the report form, the system prepares the report in the language of the locale you are currently signed in with.

**Important!** A user may specify a locale while constructing a report by using the Report Designer. The locale setting from the Report Designer overrides the locale you used to sign in, but not the locale you specified in the **Locale** box on the report form.

For example, suppose that your company utilizes two locales: en-US and fr-CA. English is set up as the default language, and French is the alternative language. Some of the company's personnel speak English and some speak French. Also, the company's data—such as descriptions of GL accounts and descriptions in inventory items—is maintained in two languages.

Further suppose that a user who prefers working under the English locale needs to prepare a report in French for his or her French-speaking manager. The user opens the report form, selects the French locale in the **Locale** box, and runs the report. The system prepares the report in French, regardless of the locale the user is currently signed in with.

## Printing Localized Documents

You can associate a locale with a customer or vendor. If you do, with the enabled multilingual user input, when you create a document for this customer or vendor and add a document line with an inventory item, the system does the following:

- Populates the column with descriptions of inventory items in the language specified for the customer or vendor
- Applies to the document the region-specific settings defined for the locale you are currently signed in with

- Populates the boxes for which translations are available with the values in the language of the locale you used to sign in

For example, suppose that you work under the en-US locale. You associate a customer with some French locale, such as fr-CA, and enter translations of inventory item descriptions in French. Then you create an invoice on the Invoices and Memos (AR301000) form, select the customer, and add an inventory item. The system populates the descriptions of credit terms, GL accounts and subaccounts, taxes, and the payment method of the customer in English. But the system populates the **Transaction Descr.** column with the item description in French. When you release the invoice, this item description in French is posted to the ledger as the GL transaction description.



The system supports the described behavior for documents that you create on the following forms: Bills and Adjustments (AP301000), Quick Checks (AP304000), Invoices and Memos (AR301000), Cash Sales (AR304000), Sales Orders (SO301000), and Invoices (SO303000).

You may frequently need to print reports that are versions of documents created in Acumatica ERP, as with the Invoice/Memo (AR641000) and Sales Order (SO641010) reports.

You can initiate the printing of a document directly from its entry form. If you are signed in with the locale that is specified for the customer or vendor and you have translated the strings of the report for this locale, the system will print a fully localized document. Otherwise, the system will print the document with only the description of the inventory items in a customer's preferred language.

For example, suppose that a customer wants to receive sales orders in French. You should perform the following steps:

1. Make sure that the strings of the Sales Order (SO641010) report, which corresponds to sales orders created on the Sales Orders (SO301000) form, are translated in French.
2. Make sure that descriptions of inventory items, taxes, and credit and shipping terms have French translations.
3. Specify fr-CA as the customer's locale.
4. Sign in with the fr-CA locale, and create a sales order for the customer on the Sales Orders form.
5. Initiate printing of the sales order by using **Reports > Print Sales Order/Quote**, and the system opens the ready-to-print sales order in French.

Also, you can print a document by using the corresponding report form. On the report form, you select the reference number of the document, specify locale of the customer or vendor in the **Locale** box, and run the report. The system opens the ready-to-print document in the language of the locale you have specified. For details, see the previous section in this topic.

### Sending Localized Notifications

Multilingual user input can also be used in correspondence you send to your customers and vendors by means of Acumatica ERP mailings. Starting with Acumatica ERP 6, you can specify a locale for a notification template. The system uses the assigned locale to apply region-specific settings to the text, dates, and digits in the body of the notification template. The system also retrieves the translations of the values needed to replace the placeholders in the body according to the language of the locale.

If you want to send mailings in the language preferred by a customer or a vendor, you need to set up the system as follows:

1. You create a dedicated notification template on the Notification Templates (SM204003) and specify the locale of the needed language in the **Locale** box. You also compose the notification text in the language of the locale. For details on creating a notification template, see [Notification Templates](#).
2. If you want to send a document as an attachment, you create a dedicated report for this document type—for example, a copy of the Invoice/Memo (AR641000) report—by using the Report Designer. You enter the strings of the report (headers and footers) in the same language

that you used to compose the notification and, in the report settings, specify the same locale as you specified for the notification template. For details, see [Creating and Modifying the Reports](#) in the Acumatica Report Designer Guide.

3. You group the customers or vendors who prefer the same language to one customer or vendor class. For this class, you specify a locale that is associated with the language in the **Locale** box of the Customer Classes (AR201000) or Vendor Classes (AP201010) form.p

The system will assign the locale to the new customer or vendor accounts automatically when you select the customer or vendor class for the account on the Customers (AR303000) or Vendors (AP303000) form. For existing vendors and customers, you need to manually select the preferred locale for each account.

4. You configure the mailing settings for the customer or vendor class on the **Mailing Settings** tab of the Customer Classes or Vendor Classes form. For a mailing, you specify the notification template and report you have created.

The customer or vendor class provides the default settings for the customer or vendor accounts of the class, but you can override these default settings to make the mailing configuration more specific. Mailings modified for specific accounts on the Customers or Vendors form are marked by the system as overridden (that is, the **Overridden** check box is selected on the form). If you change the configuration of a mailing for a customer or vendor class, these changes affect the mailings of all customer or vendor accounts of this class, except those mailings that were modified specifically for a customer or vendor account (overridden).

Once you have performed these configuration steps, when you initiate emailing by using a mass processing form or the corresponding action on an entry form, the system does the following:

1. Generates emails from the notification template you have created in the preferred language and specified for the customer or vendor on the **Mailing Settings** tab of the Customers or Vendors form.
2. Applies region-specific settings to each email body.
3. Replaces any placeholders with the corresponding translations (if placeholders are used for the values for which translations are available).
4. Attaches the report that you have created in the preferred language and specified for the customer or vendor on the **Mailing Settings** tab.

## Troubleshooting User Input Translations

Once you have entered translations for multiple boxes that have multi-language support and you start using these translations in documents or reports, you may realize that some translations are missing. In most cases, this means that you have not entered a translation, and the system is displaying the value entered for the default language or another alternative language. The system searches for a translation as follows:

1. If a locale is specified for the applicable customer, vendor, or report, the system searches for a translation available for the language of the locale. If this translation is available, the system ends the search and displays the translation.
2. If a translation for the language of the locale assigned to the customer, vendor, or report is not available or a locale is not specified for these entities, the system searches for a translation specified for the language of the locale you used to sign in. If a translation for the locale language is available, the system ends the search and displays the translation.
3. If a translation for the locale language is not available, the system searches for a translation specified for the language selected as the default on the System Locales (SM200550) form. If a translation for the default language is available, the system ends the search and displays the translation.

4. If the translation for the default language is not available, the system searches for a translation specified for any language selected as an alternative on the System Locales form, in the sequence specified for alternative languages in the **Sequence** column on this form. If a translation for some alternative language is available, the system ends the search and displays the translation.
5. If no translation is available, the system displays an empty value.

When the system displays a translation of a value in a box with multi-language support, it always displays the ISO code of the corresponding language on the right side of the box.

## Translation Process

Acumatica ERP provides built-in localization functionality, so you can easily translate Acumatica ERPP into any language without using third-party products. You can collect the strings used in the whole system or on a particular form, and translate them for any locale available in Acumatica ERP.

This topic explains how to translate interface strings by using the built-in localization functionality of Acumatica ERP.

### Translating Application Strings

In Acumatica ERP, various strings that are used on the application interface—such as element and column labels, error messages, and warnings—are stored within the code. Hence, the translation of the strings includes two steps: collecting strings and translating strings.

During the string collection process, the system gathers the strings used in the system (including the strings in customized system elements, such as forms) and prepares a string collection for translation. You can collect all strings in the system or the strings bound to particular forms. Because the collection process is resource- and time-consuming, we recommend that you perform string collection on the whole system after you install the system and after updates to collect the new and updated strings.

Translation of the collected strings from U.S. English, which is used as the Acumatica ERP default language, to any other language can be performed directly in Acumatica ERP. Alternatively, the filtered list of strings may be exported to an Excel file, and imported back after being translated somewhere else.

After you finish translating strings on the interface, when a user signs in to the system and selects a local language, the application will use strings translated to this language. For the strings that are not translated, the system will display the string value in the default language (U.S. English).

### Collecting the Strings for Translation

Source strings include element labels, toolbar and menu items, drop-down list options, error messages, dialog box captions, and form names. When you localize the system for the first time or after you update your instance, you should collect all the strings used in the system for translation as follows:

- Click **Collect Strings** on the form toolbar on the Translation Dictionaries (SM200540) form.

If any system functionality is updated or customized in your system that was previously localized, you can collect the new strings used on a particular form (or multiple forms) for translation. To collect these strings, you should create a translation set that includes only the required forms, and then collect the strings used on these forms for translation on the Translation Sets (SM211500) form.

You can also collect strings from multiple translation sets at once by using the Collect Translation Sets (SM511500) form.

If you are collecting strings that were previously translated and if any of these strings has not been found during the new collection process, the system marks these strings as obsolete and displays them on the **Obsolete** tab of the Translation Dictionaries form.



String collection is a time-consuming operation that should be performed during off-peak hours and never attempted on a busy production system.

### Translating Strings

Generally, translating strings is a straightforward process: In the **Default Values** table of the Translation Dictionaries (SM200540) form, type the translation for each string that must be translated in the *<Target Language>* column and select the **Do Not Translate** check box for each string that does not require translation. When you're finished, click **Save**. The fully translated (that is, translated into all languages defined in the system) strings and the strings that do not require translation are hidden from the **Default Values** table.

Despite the simplicity, the translation process has its own particularities in how you filter strings to be translated and in what you translate or not.

First of all, the strings you see on the Translation Dictionaries form are filtered in any case: You can see either *bound* or *unbound* strings. Bound strings are the strings associated with system resources bound to forms, such as table names. Unbound strings are the strings associated with resources that are not bound to forms, such as prompts. To translate all the strings on the interface, you should translate both the bound and unbound strings. The type of strings displayed on the Translation Dictionaries depends on the **Show Only Unbound** check box in the Selection area of this form as follows:

- If the check box is cleared, the system displays only bound strings. For any bound string, you can get the context of the string: By using the **Usage Details** dialog box, you can view the list of forms on which you can find the string and quickly navigate to any form in the list.

In Acumatica ERP, the contents of a form may be content-related and may depend on system configuration and on selections on the form itself. If you don't see the string immediately, you can check the corresponding reference topic in help.

Additionally, you can select a form in the **Show Used in UI** box in the Selection area of the form to view and translate only strings that are associated with the resources of the selected form.

- If the check box is selected, the system displays only unbound strings. Additionally, you can select which type (or types) of the unbound resources you want to view and translate.

To further narrow the displayed strings, you can use table filtering, described in detail in the [Filters](#) chapter of the Acumatica ERP Interface Guide.

The next particularity of the translation process relates to the contents of the source values of strings. If you open the list of collected strings, you will see that strings include the text itself and may include special formatting. The examples of the special formatting include the following:

- The `->` character: For commands in lists, the `->` character separates the name of the list from the command (for example, `State -> Completed`; the `State ->` part of the string is for informational purposes only). You should translate only the text after the `->` sign.
- HTML tags: Strings may include HTML tags that define the formatting of the string. For example, `<B>` and `</B>` tags indicate that the enclosed text should be in bold type. You should keep these tags in the translated text in their respective places to keep the formatting.
- Placeholders that use the '`{<number>}`' format: These placeholders are replaced with text when a user who works with the document gets the message. You should copy the placeholders without changes in the respective places in the translation.
- The `~` (tilde) character: When a message that you want to translate contains multiline text, the end of each line is indicated by the `~` character. You should use the tilde in the translated multiline text to mark the ends of lines.

If you do not mark the ends of lines with tildes in the translated text, the message will be displayed as one line for messages translated directly in Acumatica ERP, or the translation of this text will not be imported for messages translated in an external file (for example, in a Microsoft Excel workbook).

- The special wrapper `[a type=ACTION] [/a]`: This wrapper is used along with messages that the system displays in tables when the table is empty. It converts the text into a hyperlink. When a user clicks this link, the system performs the action specified in the wrapper (such as `clear`). You should keep this wrapper in the translated text in its initial place to keep the formatting and the action.

One additional particularity is related to handling strings that should not be translated. In terms of the effect on the UI, there is no difference between a string with the **Do Not Translate** check box selected, and a string left untranslated and with the **Do Not Translate** check box cleared: Either way, the user will see the value of the string in the default language. However, based on whether you select this check box, these strings are processed differently:

- A string with the **Do Not Translate** check box selected is hidden from the Translation Dictionaries form until you select the **Show Excluded** check box. Additionally, such strings are considered valid when you try to validate translation of strings on forms.
- A string that is not translated and for which with the **Do Not Translate** check box is cleared appears on the Translation Dictionaries form when you select a language for translation. Also, such strings are considered invalid and warnings about these strings appear on the form when you try to validate string translation on forms.

For more information on validation of translation of strings, see the **Reviewing the Translations on Forms** section in this topic.

After you add translations for a string in all the languages defined in the system or mark a string as not requiring translation and save the result, the string is removed from the work area. You can see the fully translated strings and the excluded strings by selecting the **Show Localized** and **Show Excluded** check boxes, respectively, on the Translation Dictionaries form.

### **Handling Multiple Occurrences of the Same String**

A string—such as an element label or a drop-down list option that is available on multiple forms—may be used in the interface multiple times. Depending on the context, the same string may require different translation. To address this situation, Acumatica ERP shows the resource or resources the string is associated with for each string listed in the **Default Values** table of the Translation Dictionaries (SM200540) form. These resources, which are displayed in the **Key-Specific Values** table, indicate the entities in which specific string is used. You can provide correct translations for each occurrence of the string depending on its context.



If you want to provide specific translations for different occurrences of a string, you must provide a generic translation in the **Default Values** table.

The translation you specify in the **Default Values** table is generally applied to all occurrences of the string automatically. But if you specify specific translations for certain occurrences in the **Key-Specific Values** table, the system will use the specific translations.

### **Reviewing the Translations on Forms**

To check if all the strings on a form are translated into a language defined in the system, you can turn on validation of translations on forms for the language on the System Locales (SM200550) form.

With the validation active, when you sign in with the language and open a form that has untranslated strings, you see a warning with the quantity of the untranslated strings appear at the top of the form. The warnings appear for all users of the system who sign in with the language.

You can click the warning to expand the list. Each warning includes the type and the details of the resource with which the untranslated string is associated, and a link to the Translation Dictionaries (SM200540) form. You can click the link to quickly open the Translation Dictionaries form with the locale of the untranslated string selected, and then find and translate the string. The strings with the **Do Not Translate** check box selected on the **Collected** tab of the Translation Dictionaries form are considered valid and are not listed in the warning.

After you translate all strings into a language and validate the translations, you can turn off the validation of translations.

### **Exporting and Importing Strings**

You can export strings, translate them by using third-party applications, and import back into Acumatica ERP. Translated strings are loaded into the system as a locale dictionary and are immediately applied to the user interface once a user signs into the system using a specific locale.

You can also import the file with the translations into a new instance to speed up the translation process. The new instance should have the locales translations that you want to import.



If the imported file includes strings that were not collected in the instance, these strings will be imported as unbound strings. This happens because the system is not able to reinstate the bounds between the forms and the system resources associated with the imported strings. Such strings are displayed on the interface similarly to the way other unbound strings are displayed, and you won't be able to use the **Usage Details** dialog box on the Translation Dictionaries (SM200540) to quickly view the forms the strings are used on.

To export and import strings, use the corresponding buttons on the table toolbar of the Translation Dictionaries form. The exported file includes only the strings displayed in the table, based on the filtering applied on the Translation Dictionaries form.

### Correcting Translations

At any time during the translation process you may need to change the translation of a string—for example, to correct a typo. You can use the Translation Dictionaries (SM200540) form to correct the translation. The steps to correct the translation depend on the string whose translation you want to correct:

- If the string has not been fully translated, use the filtering options to find it and correct the translation.
- If the string has been fully translated and is hidden on the form, select the **Show Localized** check box to make the fully translated strings appear on the **Collected** tab, and then find the string and correct the translation.
- If the string has been wrongly marked as not requiring translation, select the **Show Excluded** check box to make the strings that do not require translation appear on the **Collected** tab, and then find the string and clear the **Show Excluded** check box.

If you know when the translation has been added or modified, you can use filtering to view only strings with translations added and modified after the date by specifying the dates in the **Created Since** and **Modified After** boxes, respectively.

### Updating Translations

Sometimes the values of particular strings change. For example, this may happen if the functionality of a form is changed during an update of your Acumatica ERP instance or if a customization has been applied to a form by the customizers in-house. When you collect strings, if any of the previously translated strings have not been found during the new collection process, these strings are considered obsolete and displayed on the **Obsolete** tab of the Translation Dictionaries (SM200540) form. Strings with new values appear on the **Collected** tab as untranslated strings. We recommend that you collect all strings in the system by using the Translation Dictionaries form after every update of your Acumatica ERP instance.

If any functionality is updated or customized in the system regularly, you may need to regularly collect the strings from the appropriate forms for translation. To do that, you should create a translation set in which you include a required form or forms by using the Translation Sets (SM211500) form, and then add these sets to a schedule for automatic collection.

### Translating Wiki Articles

The Help wiki is created in the base language of Acumatica ERP, U.S. English. For a newly added locale, all articles will be displayed in this base language until you create locale-specific versions of the articles.

After you translate an article, only the versions of the article created in the selected locale will be listed on the **History** tab when you open the article in Wiki Editor Form for Articles.

For more information about wikis in Acumatica ERP, see [Managing Wikis](#).

## Managing Locales and Languages

In this topic you will find references for the detailed procedures related to management of locales and languages:

- To add a new locale to the application, you use the System Locales (SM200550) form.  
For more information, see [To Add a New Locale](#).
- To add a new translation set, you use the Translation Sets (SM211500) form. For every translation set, you select the system resources (that is, forms and form elements with which the strings are associated) you want to include in the set. When you collect the strings of a translation set, the system collects the strings associated with the system resources included in the set.  
For more information, see [To Add a New Translation Set](#).
- You can collect strings for translation sets one set at a time by using the Translation Sets (SM211.00) form.  
For more information, see [To Collect the Strings of a Translation Set](#).
- You can also collect strings for multiple translation sets on the Collect Translation Sets (SM511500) form.  
For more information, see [To Collect Strings of Multiple Translation Sets](#).
- To translate collected strings, you use the Translation Dictionaries (SM200540) form.  
For more information, see [To Translate Bound Strings](#).
- To translate unbound strings (those that are not bound to a form), you also use the Translation Dictionaries (SM200540) form.  
For more information, see [To Translate Unbound Strings](#).
- To exclude from the translation process strings that do not need to be translated, you use the Translation Dictionaries (SM200540) form.  
For more information, see [To Exclude Strings from Translation](#).
- To make sure you have translated all strings on forms, you can turn on validation of the translations by using the System Locales (SM200550) form. With validation turned on for a locale, when you sign in with the language corresponding to the locale and open the forms whose translation you want to review, you can see the warnings about the untranslated strings.  
For more information, see [To Turn On Validation of Translations](#) and [To Turn Off Validation of Translations](#).

## Lesson Summary

In this lesson, you learned about the functionality that you can use to perform localization to one locale or multiple locales in Acumatica ERP.

### Review Questions:

- What list of locales does Acumatica ERP use?
- How would you add a new locale to the system?
- How would you translate interface strings by using the built-in localization functionality of Acumatica ERP?

## Lesson 12: External File Storage

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With Acumatica ERP, you can conveniently store files, such as temporary internal instructions, inventory item images, or scanned images of original vendor invoices. You import the files to the system and attach them to ERP records, record details, documents, notification templates, and wiki articles. You can easily manage and track the imported files.

In Acumatica ERP, the imported files are stored in the Acumatica ERP database by default. Alternatively, you can select another place where files should be stored—in a local folder on the machine running the Acumatica ERP website or in a public storage service, such as Azure Blob or Amazon S3.

### Lesson Objectives

You will read about the following (you do need to perform the steps to pass the training):

- How to set up storing attached files by using the Azure Blob Service?
- How to set up storing attached files by using the Amazon S3 Service?
- How to set up storing attached files in a local folder on the server running the Acumatica ERP web site?
- How to set up automatic file synchronization?

# File Attachment Management

## File Types and Size Preferences

In Acumatica ERP, you can allow or deny the importing of specific file types (by their extensions) and set a maximum size for imported files. You can use the File Upload Preferences (SM202550) form to view and edit the file types and sizes that users may import to the site.

## File Attachments

To import the file and attach it to the ERP record, document, notification template, wiki article, or record detail, you use the **Upload File** dialog box.

For more information on importing and attaching files, see the following topics:

- [To Attach a File to a Record](#) and [To Attach a File to a Record Detail](#) in the Acumatica ERP Interface Guide.
- [To Add a Graphic](#) in the User Guide.

## File Name Changes

When files are imported, the system modifies their names as follows:

- For a file attached to a record, the resulting name consists of the form name, a record ID in parentheses, a backslash, and the name of the file. Example: Journal Transactions (GL333234231)\Note.txt or Bills and Adjustments (INV0023572)\Orig\_doc.jpeg.
- For a file attached to a record detail, the resulting name consists of the form name, a record ID and record detail ID in parentheses, a backslash, and the name of the file. Example: Journal Transactions (GL333234231 3)\Note.txt.
- For a file attached to a wiki article, the resulting name consists of the wiki article name and the name of the file, separated by a backslash. Example: Role-Based Access\Users.gif.

## File Searches

You can use the following forms to find the files imported to the system:

- Search Form (SE000040): On this form, you can search for a file by its name or part of the name, or by the comment specified during file upload. You can also search by the type of object it is attached to (article or system entity); you can also include in the search files not attached to any system entity.
- Search in Files (SM202520): By using this form, you can specify the following criteria in your search:
  - What the file name (or part of it) is
  - When the file was added
  - Who added the file
  - Who is editing the file (if the file is checked out for edit)
  - What document type the file is attached to

When you first use the system, the tree in the left pane of the [Search in Files](#) form may contain only one root node, which is populated as users attach files to the records, record details, or wiki articles. A module appears on the site tree only after at least one file has been attached to a record (such as a batch, bill, or invoice) created on a form of the module.

The system doesn't check the access rights to file attachments for a user who searches the files by using this form.

For more information, see [To Manage Files](#) in the User Guide.

## Version Maintenance

You can import and maintain an unlimited number of versions for any file. For each new version of the file, provide a comment to inform users about modifications to it. This will help users find the file and file version they need. For more information, see [To Manage Files](#) in the User Guide.

## File Storage Configuration

By default, the system stores the files attached to documents in the Acumatica ERP SQL Server database. Alternatively, the system can store the files outside of the database—either in a local folder on the computer running the Acumatica ERP website, or in a public cloud using Azure Blob Storage or Amazon Simple Storage Service (Amazon S3).

To use an external file storage, you must have an account with the provider and configure the file storage to be used by your Acumatica ERP instance. For more information, see [Blob Storage](#) on the Windows Azure portal and [Amazon S3](#).

You use the External File Storage (SM202540) form to configure external file storage providers and specify where files should be stored. With regard to file storage functionality, *provider* denotes the storage provider, which can be a local folder, Azure Blob service, or Amazon S3 service.

If you created multiple companies in your Acumatica ERP instance and want to store file attachments out of the database in any of these companies, you need to configure an external storage provider for each company individually. It can be the same provider for all companies or a separate provider for each company.

## Access Rights

A single file attachment can be attached to multiple wiki articles, notification templates, and templates for email.

By default, access rights are not set directly for file attachments. Access rights for the file attachment are inherited from their rights for the system entity it was first attached to. By using the File Maintenance form, you can define the primary document or article from which roles inherit access rights to this file. Also, you can make the file available to all users. For more information, see [To Manage Files](#) in the User Guide.

## File Deletions

When you actively import files into the system, you can accumulate unnecessary files if either or both of the following is true:

- You don't delete the files that were attached to the ERP records, documents, notification templates, or wiki articles that were deleted from the system.
- You update the files with versioning turned on and leave the outdated versions of files.

It is a good practice to delete outdated and unnecessary files from the system to minimize the use of file storage. Try to delete these files (and versions of files, if applicable) regularly.

## Step 12.1: Storing Attached Files by Using the Azure Blob Service

In this step, you will configure the Azure Blob provider and switch file storage to the provider.



Your company must have an Azure account with the configured blob in Azure Blob storage. For more information, see [Introduction to Microsoft Azure Storage: Blob Storage](#) and [About Azure Storage Accounts](#).

Perform the following:

1. Sign in to your Acumatica ERP instance.
2. Navigate to the External File Storage form (SM202540; Configuration > Document Management > Configure).
3. In the **Provider** box, select *Azure Blob Storage*.
4. In the table, enter the following information in the **Values** column and save the changes, as shown in the following screenshot:
  - **Account:** The name of your storage account in the Azure Blob storage service—for example, *myaccount*.
  - **Container:** The name of the container in your Azure Blob storage where you want to store files from your Acumatica ERP instance—for example, *files*.
  - **Key:** The 512-bit access key to your storage account in the Azure Blob storage service—for example, *ubYUHyb8PUdy7R7yDITILMp5NN9usQYeS5?0RPAO70ikBO09t4nVYbJeuGILN/qS72p9AmOtXb4MUh+wMu\$GKnwC*.

Name	Value
Account	myaccount
Container	files
Key	ubYUHyb8PUdy7R7yDITILMp5NN9usQYeS5?0RPAO70ikBO... (512-bit access key)

**Figure: Configuring external file storage**

5. On the form toolbar, click **Enable Provider**.
6. On the form toolbar, click **Switch Direction** to allow Acumatica ERP to save uploaded files to the external storage.
7. If you want to move all the files that are stored in the system to the external storage, click **Move Files to Storage** on the form toolbar.

## Step 12.2: Storing Attached Files by Using the Amazon S3 Service

In this step, you will configure the Amazon S3 provider and switch file storage to the provider.



Your company must have an Azure account with the configured blob in Azure Blob storage. For more information, see [Introduction to Microsoft Azure Storage: Blob Storage](#) and [About Azure Storage Accounts](#).

Do the following:

1. Sign in to your Acumatica ERP instance.
2. Navigate to the External File Storage form (SM202540; Configuration > Document Management > Configure).
3. In the **Provider** box, select *Amazon S3 Storage*.
4. In the table, enter the following information in the **Values** column and save the changes, as shown in the following screenshot:
  - *AWS Access Key*: The access key ID of the storage bucket—for example, `AKIAIOSFODNN7EXAMPLE`
  - *AWS Region Endpoint*: The short name of the AWS region—for example, `us-east-1`
  - *AWS Secret Key*: The secret access key of the S3 storage bucket—for example, `wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY`
  - *Bucket Name*: The name of the storage bucket that will be used to store Acumatica ERP files—for example, `files`
  - *Path Prefix*: The user-defined folder where the files will be stored—for example, `/mycompany/acumatica`

Name	Value
AWSAccessKey	AKIAIOSFODNN7EXAMPLE
AWSRegionEndpoint	us-east-1
AWSSecretKey	wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY
BucketName	files
PathPrefix	/mycompany/acumatica

**Figure: Configuring external file storage**

5. On the form toolbar, click **Enable Provider** to save the provider settings.
6. On the form toolbar, click **Switch Direction** to allow Acumatica ERP to save uploaded files to the external storage.
7. If you want to move all the files that are stored in the system to the external storage, click **Move Files to Storage** on the form toolbar.

## Step 12.3: Storing Attached Files in a Local Folder

In this step, you will configure the system to store files in a local folder on the server running the Acumatica ERP website.

Do the following:

1. On the server running your Acumatica ERP website, create a folder to store the files (for instance, *C:\FileStorage*) and make sure that the account used to run the Acumatica ERP website has *write* access to the folder you created.
2. Sign in to your Acumatica ERP instance.
3. Navigate to the External File Storage form (SM202540; Configuration > Document Management > Configure).
4. In the **Provider** box, select *Local Files Folder*.
5. In the table, in the **Value** box for the added row, enter the path to the folder you created in Step 1.
6. Select the **Allow Saving Files** check box.
7. On the form toolbar, click **Enable Provider** to save the provider settings.
8. On the form toolbar, click **Switch Direction** to allow Acumatica ERP to save uploaded files to the external storage.
9. If you want to move all the files that are stored in the system to the external storage, click **Move Files to Storage** on the form toolbar.

## Step 12.4: Setting Up Automatic File Synchronization

You can use automation schedules to perform periodic synchronization between a file on an Acumatica ERP site and a file on a local computer or network.

You can find the file whose synchronization you want to schedule by using the Search in Files (SM202520) form, configure file synchronization by using the File Maintenance (SM202510) form, and then schedule the synchronization on the File Synchronization (SM202530) form.

Before you start configuring synchronization between a file on your Acumatica ERP website and a file or folder on your local network, share the folder (which includes the file to be synchronized or which will itself be synchronized with the file on the Acumatica ERP website) through your operating system. Make sure the folder is shared with proper rights for writing.



Synchronization (of the *export* type) with a folder means that each time synchronization is performed, a new file with the appropriate date and time stamp is created in the specified folder.

In this step, you will configure file synchronization.

Do the following:

1. Sign in to your Acumatica ERP instance.
2. Navigate to the Search in Files (SM202520; Configuration > Document Management > Explore > Search in Files).
3. To find the file, on the form, do one of the following:
  - In the Selection area, specify criteria to help you find the file. This criteria can include the file name (or part of the file name), the time interval of the import, and the name of the user who imported the file or checked it out. The table in the right pane lists the files that match the criteria you specified.
  - In the left pane, navigate to and select the form to which the file is attached. The table in the right pane lists the files attached to the entities created by using the form you selected in the left pane.
4. In the right pane, click the file to open the File Maintenance form for this file and view file properties.
5. On the **Synchronization** tab, select the **Synchronize** check box.
6. In the **Synchronization Type** box, select **Shared Folder**.
7. In the **Path** box, enter the path to the shared folder on a local network computer.
8. In the **Login** and **Password** boxes, type the login and password of an account with sufficient rights to allow system access to the shared folder (see the following screenshot).



If you synchronize files with an FTP server, you should use a login without the @, /, or \ characters in synchronization settings. Otherwise, Acumatica ERP will not be able to connect to the server.

The screenshot shows the 'File Maintenance' screen for the 'StudioDeveloperGuide' file. The 'SYNCHRONIZATION' tab is selected. A red box highlights the 'Synchronization Type' dropdown set to 'Shared Folder'. Other visible fields include 'Path' (empty), 'Login' (mylogin), 'Password' (redacted), and 'Import File Validation Mask' (empty). The 'SYNCHRONIZATION' tab has a blue underline.

**Figure: Setting up synchronization settings**

9. To configure synchronization with the folder, do the following:
  - Select the **Synchronize Folder Content** check box.
  - In the **Import File Validation Mask** box, enter a validation mask for the files in the folder that are involved in synchronization.
10. On the form toolbar, click **Save**.

After you have configured the file synchronization, you can perform synchronization manually by using the File Synchronization form. Alternatively, you can assign it to a schedule to be performed automatically by using the Automation Schedules (SM205020) form.

## Additional Information

The following concept is outside of the scope of this course but may be useful to some readers. You can use the link below to get additional information.

### Scheduled Processing

In any ERP system, such tasks as the processing of documents or the validation of accounts require significant time and system resources. As such, they should be processed at times when there are no employees at work, such as weekends or nights. Other processing, such as releasing or posting documents, takes less time but also should be performed regularly, with a frequency determined by your business needs.

In Acumatica ERP, if the *Scheduled Processing* feature is enabled on the Enable/Disable Features (CS100000) form, you can set up automated processing for most processing forms instead of initiating the processing manually.

For more information about the scheduling, see [\*Scheduled Processing\*](#) in the Acumatica ERP User Guide.

## Lesson Summary

In this lesson, you learned how to manage file attachments in Acumatica ERP and how to configure external file storages.

### Review Questions:

- How would you set up storing attached files by using the Azure Blob Service?
- How would you set up storing attached files by using the Amazon S3 Service?
- How would you set up storing attached files in a local folder on the server running the Acumatica ERP web site?
- How would you set up automatic file synchronization?

## Part 5: Performance Monitoring and Troubleshooting

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This part of the course explains how you can use various tools and methods to troubleshoot Acumatica ERP, both during installation and later, during production use. In particular, you will learn about the following tasks:

- Viewing and aborting a running process
- Using the request profiler

## Lesson 13: Performance Monitoring

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Performance issues fall into two broad categories:

- Overall performance is slow
  - The whole site is slow, and you cannot identify a particular process for which the slowdown occurs.
- Some process works slowly
  - The site works slowly when a user is working with particular forms or executing specific actions.

Please find here [Troubleshooting Performance](#) a detailed description of the steps to resolve performance issues on the client side and, if necessary, to gather information to provide it to the Acumatica support team.

To monitor the state of your Acumatica ERP server at any given moment, you can use the following profilers and related tools, each of which is described in the corresponding topic:

- [\*Acumatica ERP request profiler\*](#): A tool for monitoring the performance of requests in Acumatica ERP
- [\*Acumatica ERP SQL profiler\*](#): A tool for monitoring the performance of SQL queries
- [\*Acumatica ERP running processes\*](#): A form for monitoring batch processing operations
- [\*SQL Server profiler\*](#): A tool for tracing SQL queries
- [\*Browser profilers\*](#): Tools for monitoring requests, catching JavaScript errors, and obtaining network timing data
- [\*Stack trace snapshot\*](#): A method for investigating website-related issues

## Step 13.1: Viewing and Aborting a Running Process

Acumatica ERP provides the system administrators with the way of finding out who is running which processes and for how long.

The Running Processes form (SM201530), shown in the screenshot below, allows you to monitor any long running processes in the system.

User	Screen	Title	Processed	Total	Errors	Time
admin@Company	SM.20.35.10	Apply Updates				00:00:16

**Figure: Running Processes**

Whenever any time consuming process is started in Acumatica ERP, for example the process of creating a company snapshot, updates installation process, or customization publication process, you can see it in the Running Processes form. On the Running Processes form, you can also monitor all batch processing operations that are currently being performed in the system, such as the release of multiple transactions at once, preparation of dunning letters, generation of a report, creation of a company snapshot, or use of an import or export scenario. Your server may be slow because of a large number of such operations running simultaneously.

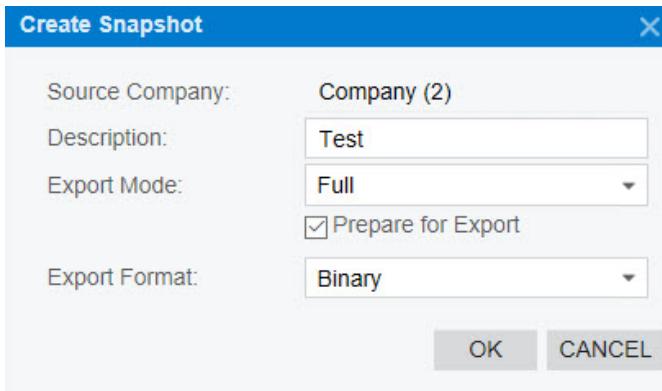
By default, you are displayed the processes started by you. Selecting the **Show All Users** check box will result in displaying all processes started by all system users.

As an administrator, you (and other users with sufficient privileges) can abort it. You can also drill into the specific process by selecting it in the grid and clicking **View Screen** on the form toolbar.

In this step, you will create a snapshot—that is start a process that usually takes a few minutes, and then abort it.

Perform the following instructions:

1. Launch the *AcumaticaERP* application instance by clicking **Start > Acumatica > AcumaticaS100**.
2. On the site welcome page, login with the *admin* username and the *123* password to *Company*.
3. Navigate to the Companies form (SM203520; System > Management > Manage).
4. In the **Company ID** box, leave the default value.
5. On the form toolbar, click **Create Snapshot** and in the warning dialog, click **OK**.  
This opens the **Create Snapshot** dialog box, that also displays the currently selected source company.
6. In the **Description** box of the dialog, type *Test*.
7. In the **Export Mode**, leave *Full*.
8. Select the **Prepare for Export** check box.
9. In the **Export Format**, leave *Binary*, as shown in the following screenshot.



**Figure: Specifying snapshot parameters**

**10.** Click **OK**.

This starts the process of creating a snapshot. Depending on the volume of data entered for the company, the process may take a significant amount of time.

**11.** Navigate to the Running Processes form (SM201530; System > Automation > Explore).

If you are quick, you can see the snapshot creation process displayed in the list of currently running processes, as shown in the following screenshot. For each running process, you can see the user who has started the process, and the screen from where this process has been started. The **Time** column shows for how long this process has been running so far.

User	Screen	Title	Processed	Total	Errors	Time
admin@Company	SM.20.35.20	Companies				00:00:05

**Figure: Running Processes**

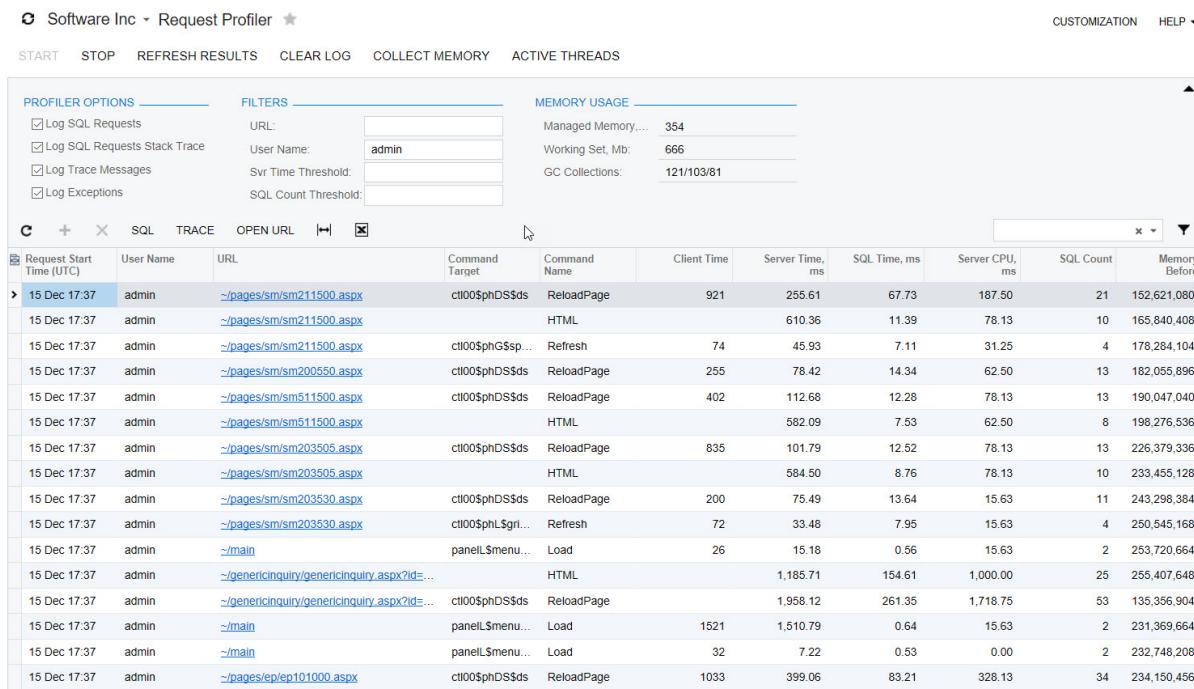
**12.** On the form toolbar, click **Abort**.

This stops the selected (and the only) running process.

## Step 13.2: Using the Request Profiler

Acumatica ERP provides the system administrators with an embedded tool you can use to troubleshoot performance-related issues in the system.

The Request Profiler form (SM205070), shown in the screenshot below, allows you to monitor the performance of Acumatica ERP and find out which requests are taking too much time. By using the filters on the form, you can identify the periods of slow performance and isolate its root cause.



**Figure: Request Profiler**

For a simple operation (such as opening a screen, adding a new record, or deleting a record), the standard duration of the execution of the request on the server (server time) is about 500 milliseconds.

You can use the Request Profiler:

- To monitor the time and memory needed for any URL request performed in Acumatica ERP.
- To analyze the time needed for any SQL request of selected URL request.
- To manage running threads of Acumatica ERP.
- To manage the memory used by Acumatica ERP.

The Request Profiler form allows you to select the records that the profiler will include in the log:

- URL: any substring that must be present in the URL for the profiler to record requests.
- user name: a substring that must be present in the user name for the profiler to record requests.
- server time threshold.
- the SQL count threshold above which the profiler starts recording the requests.

The table below lists the information included to the log.

### Request Profiler Log

Column	Description
<b>Request Start Time</b>	Date and time of the URL request start.

Column	Description
<b>User Name</b>	The name of the user who performed the URL request.
<b>URL</b>	The URL of the request. Click this URL to open the Acumatica ERP form specified in the URL.
<b>Command Target</b>	The identifier of the control that created the URL request.
<b>Command Name</b>	The type of command that created the URL request.
<b>Client Time</b>	The duration of the request execution in a browser on the client side (in milliseconds), if displayed.
<b>Server Time, ms</b>	The aggregate duration of the URL request execution on the server (in milliseconds).
<b>SQL Time, ms</b>	The aggregate duration of execution of all the SQL requests in the URL request (in milliseconds).
<b>Server CPU, ms</b>	The aggregate duration of CPU usage during the URL request (in milliseconds).
<b>SQL Count</b>	The count of the SQL requests to the database in the URL request. This count is the difference between the total number of the SQL requests in the URL request and the number of requests to the cache.
<b>Memory Before</b>	The memory volume used by Acumatica ERP at the start time of the URL request.
<b>Headers</b>	The GUID (or the identifier) of the server (or cluster node in the cluster mode) that executed the URL request.
<b>Peak Memory</b>	<p>The maximum excess of the memory volume used by Acumatica ERP during the execution of the URL request above the memory volume at the start time of the URL request (see the <b>Memory Before</b> column).</p> <p> The peak memory value depends on other processes performed on the machine in the same period of time.</p>
<b>Select Count</b>	The count of Select requests in the URL request.
<b>Select Time, ms</b>	The aggregate duration of Select requests in the URL request.
<b>Session Load Time, ms</b>	The aggregate duration of session server usage for data loading while the URL request (in milliseconds).
<b>Session Save Time, ms</b>	The aggregate duration of session server usage for data saving while the URL request (in milliseconds).

 You can also monitor exceptions by using the Request Profiler form. To activate this functionality, select the **Log Trace Messages** check box (for documented exceptions) and the **Log Exceptions** check box (for undocumented exceptions). To view exceptions that occurred during the execution of a request, select the request in the table and click **Trace** on the table toolbar.

In this step, you will start and stop the Request Profiler.

Perform the following instructions:

1. Launch the *AcumaticaERP* application instance by clicking **Start > Acumatica > AcumaticaS100**.
2. On the site welcome page, login with the *admin* username and the *123* password to *Company*.
3. Navigate to the Request Profiler form (SM205070; System > Management > Process), as shown in the screenshot below.

The screenshot shows the Request Profiler form in Acumatica. At the top, there are buttons for START, STOP, REFRESH RESULTS, CLEAR LOG, COLLECT MEMORY, and ACTIVE THREADS. Below these are sections for PROFILER OPTIONS (checkboxes for Log SQL Requests, Log SQL Requests Stack Trace, Log Trace Messages, Log Exceptions) and FILTERS (text fields for URL, User Name, Svr Time Threshold, and SQL Count Threshold). To the right, there's a section for MEMORY USAGE showing Managed Memory (138), Working Set, Mb (509), and GC Collections (120/102/81). The main area contains a table with columns: Request Start Time (UTC), User Name, URL, Command Target, Command Name, Client Time, Server Time, ms, SQL Time, ms, Server CPU, ms, SQL Count, and Memory Before. A message box in the center of the table area says "No records found. Try to modify parameters above to see records here."

**Figure: Request Profiler**

4. Select the **Log SQL Requests** check box.
5. On the form toolbar, click **Start** to monitor all URL requests.
6. Navigate to any other system forms. Just open any forms of the Organization, Finance, Distribution suites.
7. Return back to the Request Profiler form (SM205070).
8. Verify that the system displays all the form command requests and the amount of time each request took to complete. The example is shown in the screenshot below.

The screenshot shows the Software Inc Request Profiler interface. At the top, there are tabs for 'START', 'STOP', 'REFRESH RESULTS', 'CLEAR LOG', 'COLLECT MEMORY', and 'ACTIVE THREADS'. Below the toolbar are sections for 'PROFILER OPTIONS' (with checkboxes for 'Log SQL Requests', 'Log SQL Requests Stack Trace', 'Log Trace Messages', and 'Log Exceptions'), 'FILTERS' (with fields for 'URL', 'User Name', 'Svr Time Threshold', and 'SQL Count Threshold'), and 'MEMORY USAGE' (showing Managed Memory at 289, Working Set, Mb at 758, and GC Collections at 119/101/80). The main area displays a table of recorded requests:

Request Start Time (UTC)	User Name	URL	Command Target	Command Name	Client Time	Server Time, ms	SQL Time, ms	Server CPU, ms	SQL Count	Memory Before
15 Dec 17:13	admin	~/wiki/show.aspx?pageid=05380697-51...		HTML	297.54	162.03	109.38	56	120,371,480	
15 Dec 17:13		~/app_themes/getcss.aspx?wiki=help...			21.18	12.95	0.00	3	00	
15 Dec 17:13	admin	~/main	panel1.\$men...	PopulateNode	28	17.59	6.07	15.63	4	158,685,000
15 Dec 17:13	admin	~/wiki/show.aspx?pageid=e43bf0ca-544...		HTML	174.09	42.98	125.00	45	161,908,360	
15 Dec 17:13		~/app_themes/getcss.aspx?wiki=help...			7.20	1.16	0.00	3	00	
15 Dec 17:13	admin	~/wiki/show.aspx?pageid=e7612f3f-fc6f...		HTML	192.53	30.50	156.25	42	194,409,096	
15 Dec 17:13		~/app_themes/getcss.aspx?wiki=help...			7.97	1.16	0.00	3	00	
15 Dec 17:16	admin	~/pages/sm/sm203510.aspx	ctl00\$phDS\$ds	ReloadPage	715	616.30	49.46	140.63	19	233,364,312
15 Dec 17:16	admin	~/pages/sm/sm203510.aspx	ctl00\$phG\$ta...	Refresh	418	375.93	8.90	78.13	5	261,477,000
15 Dec 17:16	admin	~/pages/sm/sm200550.aspx	ctl00\$phDS\$ds	ReloadPage	847	147.96	16.33	125.00	13	89,118,352
15 Dec 17:16	admin	~/pages/sm/sm200550.aspx		HTML		583.41	8.97	78.13	8	97,672,672
15 Dec 17:16	admin	~/pages/sm/sm203520.aspx	ctl00\$phDS\$ds	ReloadPage	441	114.11	16.75	62.50	14	107,968,672
15 Dec 17:16	admin	~/pages/sm/sm203520.aspx	ctl00\$phG\$ta...	Refresh	174	53.76	13.68	31.25	10	122,270,328
15 Dec 17:16	admin	~/pages/sm/sm203530.aspx	ctl00\$phDS\$ds	ReloadPage	202	52.60	9.31	46.88	11	128,866,480
15 Dec 17:16	admin	~/pages/sm/sm203530.aspx	ctl00\$phI\$gri...	Refresh	62	25.90	1.62	15.63	4	136,094,656
15 Dec 17:16	admin	~/pages/sm/sm200540.aspx	ctl00\$phDS\$ds	ReloadPage		5,947.81	11.51	343.75	14	139,287,040

**Figure: Request Profiler displaying records**

**9. Clear the Log SQL Requests check box.**



We recommend that you activate the *Log SQL Requests* mode for only a limited period because it can degrade system performance.

**10. On the form toolbar, click Stop.**

**11. On the form toolbar, click Clear Log to erase the statistics.**

#### Related Links

[Request Profiler](#)

## Additional Information

The following concepts are outside of the scope of this course but may be useful to some readers. You can use the links below to get additional information.

### Performance Troubleshooting

Performance issues fall into two broad categories:

- Overall performance is slow: the whole site is slow, and you cannot identify a particular process for which the slowdown occurs.
- Some process works slowly: the site works slowly when a user is working with particular forms or executing specific action.

To find a detailed description of the steps you need to perform to resolve performance issues on the client side and, if necessary, to gather information to provide it to the Acumatica support team, see [Performance Troubleshooting](#) in the Acumatica ERP Installation Guide.

### Using Logs

Acumatica ERP stores logs in a number of files and database tables. The following logs are stored:

- [\*Trace\*](#): You can use this standard Acumatica ERP log for browsing issues that occur in the application.
- [\*First-chance exception log\*](#): This mechanism for catching and logging exceptions can be very helpful when you are facing a problem of an unknown origin.
- [\*Configuration Wizard logs\*](#): These logs provide information related to issues occurring in the Acumatica ERP Configuration Wizard or Acumatica Framework Configuration Wizard.
- [\*Maintenance logs\*](#): In these logs, you can find details about issues that occur when you perform an upgrade in the Acumatica ERP application.
- [\*Acumatica ERP logs\*](#): These logs, which are stored in database tables, provide historical data for various operations.
- [\*Windows logs\*](#): These logs provide details for issues related to ASP.NET (for example, frequent application restarts or unhandled exceptions).
- [\*IIS logs\*](#): In these logs, IIS keeps records of all requests.
- [\*SQL Server logs\*](#): These logs, kept by SQL Server, contain details for issues related to database accessibility and server maintenance operations.

For more information, see [Using Logs](#) in the Acumatica ERP Installation Guide.

### Using Profilers

In addition to Request Profiler form (SM205070) and Running Processes form (SM201530), you can use the following profilers and related tools:

- Microsoft SQL Server profiler: A tool for tracing SQL queries
- Browser profilers: Tools for monitoring requests, catching JavaScript errors, and obtaining network timing data
- Stack trace snapshot: A method for investigating website-related issues

### Using Built-In Debugging Tools

The following built-in debugging tools, described in the sections of this topic, may help you get more information from Acumatica ERP:

- Automation debugging: A mechanism for debugging automation steps and definitions
- ShowError URL parameter: A parameter for viewing the details of errors in Acumatica ERP without direct access to the file system of the server

For more information, see [\*Using Built-In Debugging Tools\*](#) in the Acumatica ERP Installation Guide.

## Lesson Summary

In this lesson, you have been introduced to tools available in Acumatica ERP to gauge and troubleshoot system performance issues.

### Review Questions:

- In brief, what are the Acumatica ERP Request Profiler capabilities?
- How can you analyze SQL queries in Acumatica ERP?
- If your server is slow, where do you check the number simultaneously running processes?