

**INGENIUX**

[www.ingeniux.com](http://www.ingeniux.com)

**Ingeniux Cartella 4.0  
Installation Guide**

**Copyright © 2013 Ingeniux Corporation**

*This document and the software it describes are protected by international copyrights, trademarks, service marks, patents, or other intellectual property and proprietary rights and laws, and are owned by Ingeniux Corporation or its licensors. No material from this document may be copied, reproduced, republished, uploaded, posted, displayed, transmitted, or distributed in any way without express written permission of Ingeniux Corporation. Any unauthorized use of these materials may result in criminal or civil penalties.*

## Table of Contents

<b>1</b>	<b><i>Introduction</i></b> .....	<b>4</b>
<b>2</b>	<b><i>Installing Cartella</i></b> .....	<b>5</b>
<b>2.1</b>	<b>Before You Begin</b> .....	<b>5</b>
<b>2.2</b>	<b>Installing the Cartella Software</b> .....	<b>7</b>
<b>2.3</b>	<b>Installing a Cartella Site</b> .....	<b>8</b>
<b>2.4</b>	<b>Installing the SQL Database</b> .....	<b>11</b>
<b>2.5</b>	<b>Troubleshooting the Installation</b> .....	<b>15</b>
<b>2.6</b>	<b>Entering the License Key</b> .....	<b>16</b>
<b>3</b>	<b><i>Uninstalling Cartella</i></b> .....	<b>17</b>
<b>3.1</b>	<b>Removing Cartella</b> .....	<b>17</b>
<b>3.2</b>	<b>Removing the Instance</b> .....	<b>17</b>
<b>4</b>	<b><i>Configuring Cartella</i></b> .....	<b>18</b>
<b>4.1</b>	<b>Settings in Web.config</b> .....	<b>18</b>
4.1.1	Configuring Email .....	18
4.1.2	Enabling and Viewing the Error Log .....	20
<b>4.2</b>	<b>Settings in Cartella.config</b> .....	<b>21</b>
4.2.1	Configuring Entities.....	21
4.2.2	Configuring Asset Upload and Storage Settings.....	22
4.2.3	Configuring Login and Security Settings .....	23
4.2.4	Changing License Notification Settings .....	24
4.2.5	Configuring User Group Synchronizers .....	25
4.2.6	Syncing to Salesforce.....	26
4.2.7	Syncing to an LDAP Directory .....	26
4.2.8	Modifying Other Application Settings .....	27
<b>5</b>	<b><i>Changing Cartella's Appearance</i></b> .....	<b>31</b>
5.1.1	Custom Folder .....	31
5.1.2	Changing the Cascading Style Sheets.....	31
5.1.3	Changing Templates in the View Layer .....	31
<b>6</b>	<b><i>Glossary</i></b> .....	<b>32</b>

## 1 Introduction

Cartella is an enterprise social software solution that makes it easy to share information and collaborate online. Cartella is designed to help companies manage web content, social publishing, collaborative communities, and rich media—all on a single platform. Whether you're launching a sales extranet, an employee intranet, or an enterprise-level social network, Cartella provides powerful, innovative solutions.

Built from the ground up with Microsoft .NET's new MVC technology, Cartella empowers developers to create enterprise 2.0 web solutions and mash social content with back-office applications. MVC redefines how .NET software may be developed and extended, making it web-friendly, easy to customize and integrate, and highly secure.

This guide documents the initial setup of the Cartella software, the creation of a local Cartella instance, the configuration of a SQL database to store Cartella data, the removal of the Cartella software, and the configuration and customization of a Cartella instance after it has been installed. The guide is intended for the system administrator or IT professional responsible for the maintenance and configuration of the application. The reader is assumed to have experience navigating Windows and Microsoft SQL Server and to be able to edit XML configuration files.

## 2 Installing Cartella

There are three parts to a Cartella installation: 1) installing the software, 2) creating a site instance, and 3) configuring a Microsoft SQL database. This section of the *Installation Guide* will walk you through the three-part process.

### 2.1 Before You Begin

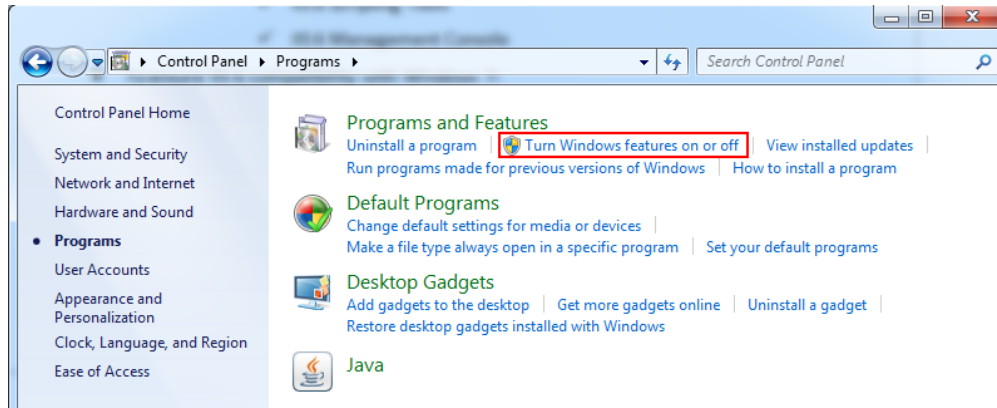
To install and configure Cartella, you need to have administrator permissions to the server that will host the software. Installation also requires the following:

- A notification email account, with a password, to receive notifications regarding changes to the Cartella site. Alternatively, a specified pickup directory can be used. (Emails are then placed in a folder to be picked up by an SMTP server.)
- Microsoft SQL Server, version 2005 or above, with an IP address that is static relative to the Cartella instance.
- Sufficient disk space (a minimum of 400 MB) to install Cartella.
- Microsoft .NET Framework 4.0.
- Microsoft ASP.NET MVC 3.
- Microsoft IIS 6 or above.

When using Microsoft IIS 7.0 or above, you must have the IIS 6 Management Compatibility components fully installed, or the Cartella installation wizard will throw an exception:

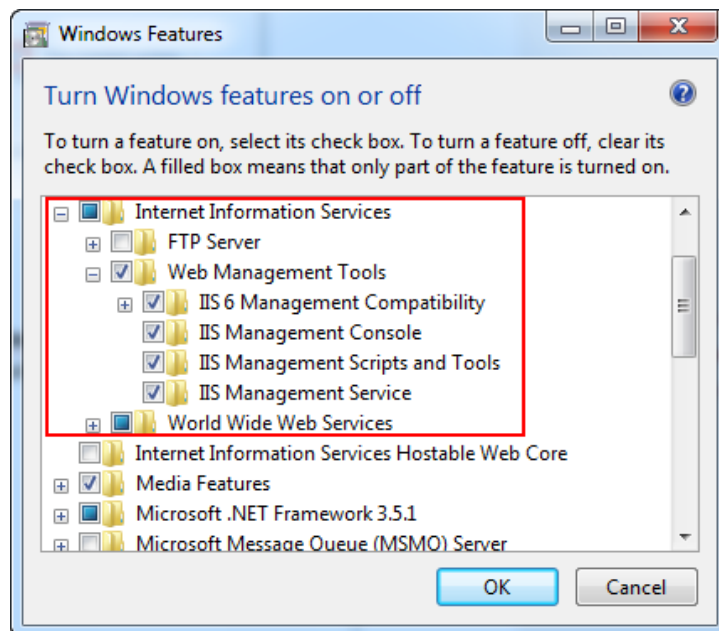
- To ensure IIS 6 compatibility with Windows Server 2008 or 2008 RT:
  1. Go to **Server Manager > Roles > Web Server (IIS)** and scroll down to **Roll Services**.
  2. Add or confirm IIS 6 Management Compatibility roles:
    - ✓ IIS 6 Management Compatibility
      - ✓ IIS 6 Metabase Compatibility
      - ✓ IIS 6 WMI Compatibility
      - ✓ IIS 6 Scripting Tools
      - ✓ IIS 6 Management Console
- To ensure IIS 6 compatibility with Windows 7:
  1. Go to **Control Panel > Programs > Turn Windows features on or off**

## Cartella 4.0 Installation Guide



2. In the **Windows Features** dialog, go to **Internet Information Services > Web Management Tools**, add or confirm all IIS 6 Management Compatibility roles:

- ✓ IIS 6 Management Compatibility
  - ✓ IIS 6 Metabase Compatibility
  - ✓ IIS 6 WMI Compatibility
  - ✓ IIS 6 Scripting Tools
  - ✓ IIS 6 Management Console



The site administrator will need to make the following decisions before installing Cartella:

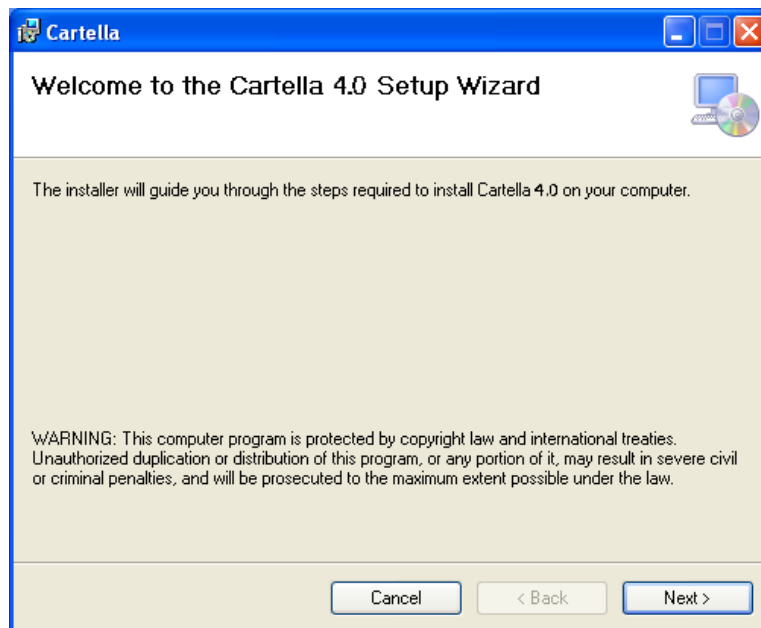
- Will Cartella run as a site or from a local virtual directory? If it will run as a site, note the host name, IP address, and site name that will be used. If it will run from a local directory, ensure that an appropriate directory exists. In either case, ensure that permissions are configured to allow writing.

- Will the lightweight SQL Server Express database be sufficient for managing the Cartella instance? This free package doesn't feature the text search and complex reporting options available in a full SQL implementation, but it is easy to install and tightly integrated with Microsoft Visual Studio. The database can be created after the Cartella installation, but it needs to be implemented before you run Cartella for the first time.

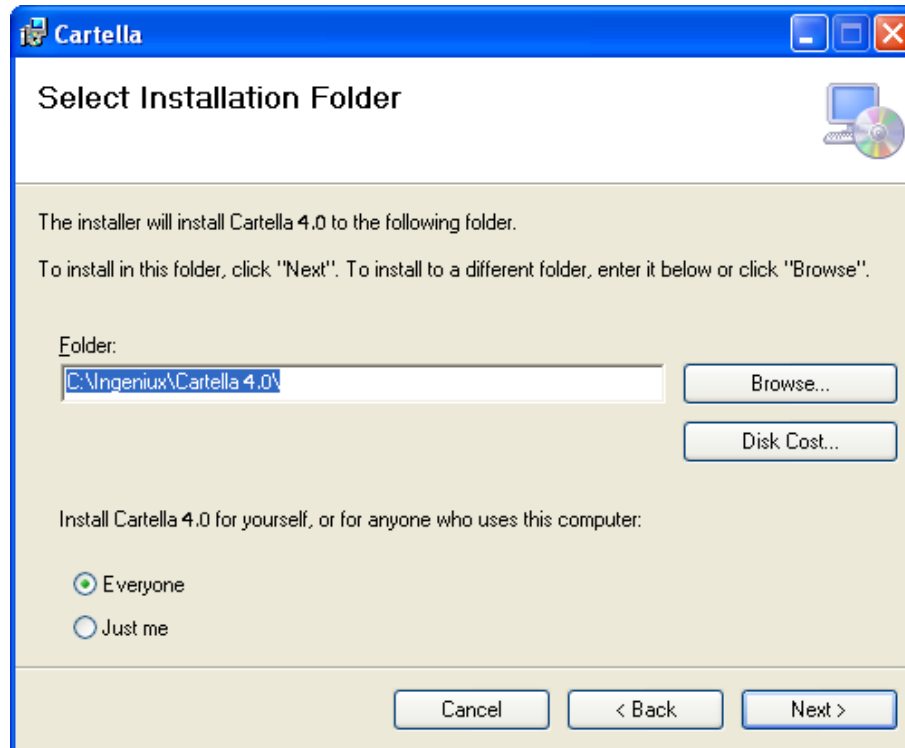
## 2.2 Installing the Cartella Software

To install the Cartella software:

1. Log into the target computer as an administrator.
2. Unzip the compressed folder containing the Cartella installation files (for example, `Cartella-4.0.0.0.zip`) in a location of your choosing. A window appears that lists the newly extracted files. Run the installation file, `Setup.exe`.
3. In Windows Vista and later versions, a screen labeled **User Account Control** may appear. If it does, click **Yes** to indicate that the installation has permission to continue.
4. The Cartella 4.0 Setup Wizard opens. Read the messages displayed, then click **Next**.



5. Select the folder where you want to install the Cartella application. Ingeniux suggests using the default location, but the **Browse** button lets you choose an alternate location. If this installation is for evaluation only, select **Just me**. Otherwise, select **Everyone**. Click **Next** to continue.



6. Click **Next** to confirm your intention to perform the installation. The installer copies the files to the chosen location. This takes a few minutes and a progress bar is displayed.
7. When the installation is finished, a window opens with the message "Installation Complete." Select **Close** to dismiss the installer.

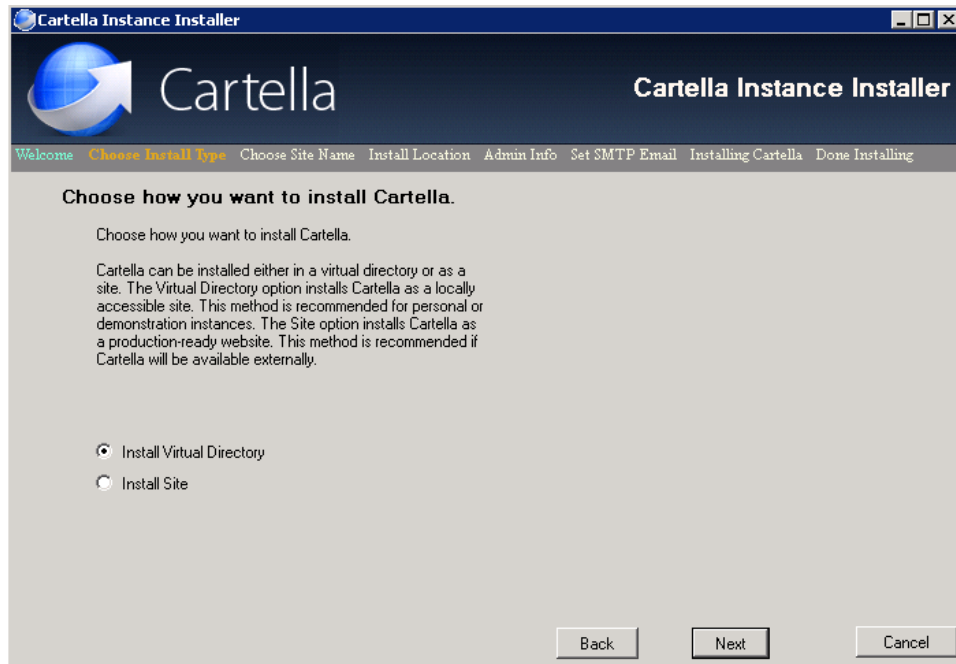
### 2.3 Installing a Cartella Site

There's a difference between the Cartella API and a Cartella site. Following the steps above, you installed the Cartella API. Now you'll install a Cartella site—a single instance of the Cartella product. The Cartella site, which accesses the API, can function as an intranet, as an administrative tool for a run-time site, or in some other capacity.

To install a Cartella site, follow the steps below.

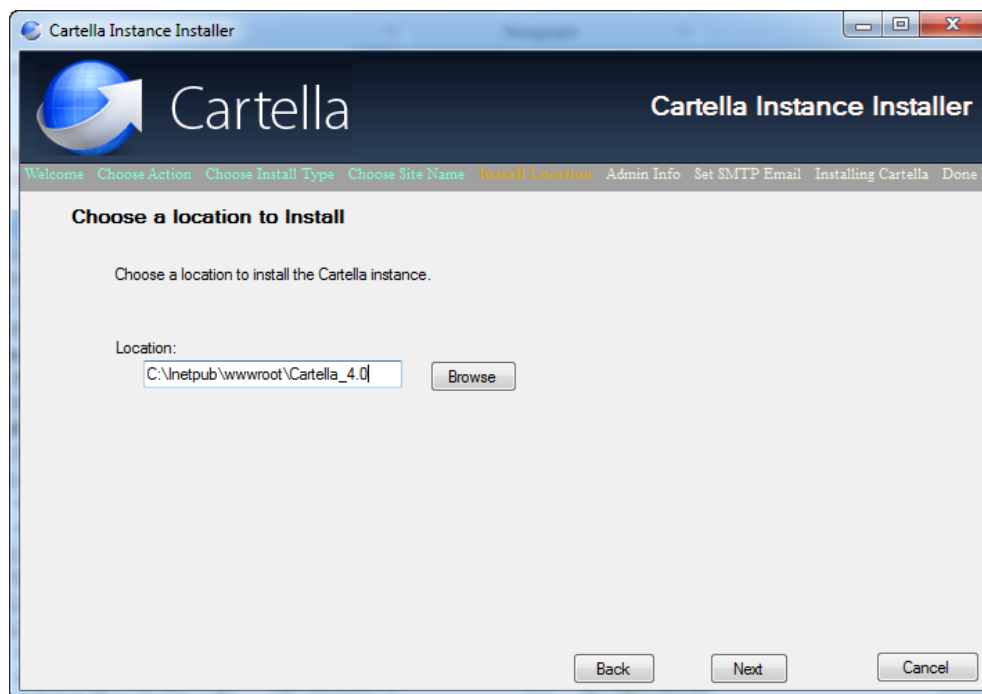
1. Navigate to the Cartella Instance Installer or access it via the start menu. The default location for the instance installer is `C:\Ingeniux\Cartella 4.0`. (You're looking for the installer application, not the XML configuration file.) Run the installer.
2. A window labeled Cartella Instance Installer appears. Select **Next**.
3. Choose how you'd like to install Cartella:
  - **Install Virtual Directory:** Requires a site name. The path to Cartella is a virtual directory under the default website.
  - **Install Site:** Requires a host name, an IP address for the computer that presents the instance to the network, and a name for the Cartella instance.



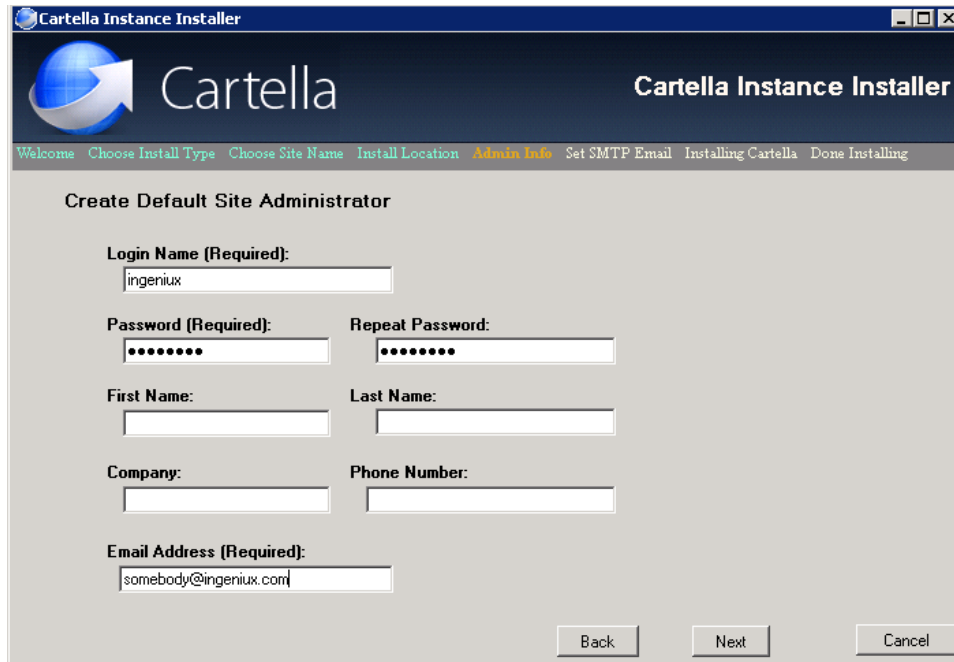


After choosing an installation option and clicking **Next**, enter either the site name for the virtual directory or the information for the site. Then click **Next**.

4. Choose a location to which the Cartella site files will be copied. All the files for your Cartella site will be installed here. Click **Next** to continue.



5. The **Admin Info** window appears.



The screenshot shows the 'Cartella Instance Installer' window. The title bar reads 'Cartella Instance Installer'. The main window has a dark blue header with the Cartella logo and the text 'Cartella Instance Installer'. Below the header is a navigation bar with the following steps: 'Welcome', 'Choose Install Type', 'Choose Site Name', 'Install Location', 'Admin Info' (highlighted in yellow), 'Set SMTP Email', 'Installing Cartella', and 'Done Installing'. The main content area is titled 'Create Default Site Administrator' and contains several form fields: 'Login Name (Required):' with the value 'ingeniux'; 'Password (Required):' and 'Repeat Password:' both with masked characters; 'First Name:' and 'Last Name:' both empty; 'Company:' and 'Phone Number:' both empty; and 'Email Address (Required):' with the value 'somebody@ingeniux.com'. At the bottom right are three buttons: 'Back', 'Next', and 'Cancel'.

The administrator account created here is added to the SQL script. Initially, this administrator account is the only account with access to the Cartella site, so it's important to remember the login and password information. Fill out the fields as appropriate. The **Login Name**, **Password**, and **Email Address** fields are required. When you're finished filling out the administrator info, click **Next** to continue.

6. Configure the Cartella email notification account. This information can be modified later by editing the `Web.config` file. This account is used to send emails. The address includes the domain name (for example, `c-admin@domain.com`). Enter the SMTP host name and the SMTP port number for the system. Add the user and password needed to send email from this account. (These credentials are used for connecting to the SMTP server, so that notification and content-creation emails can be sent.) Click **Next** to continue.



The screenshot shows the 'Cartella Instance Installer' window. The title bar reads 'Cartella Instance Installer'. The main window has a dark blue header with the Cartella logo and the text 'Cartella Instance Installer'. Below the header is a navigation bar with the following steps: 'Welcome', 'Choose Install Type', 'Choose Site Name', 'Install Location', 'Admin Info', 'Set SMTP Email' (highlighted in orange), 'Installing Cartella', and 'Done Installing'. The main content area is titled 'Setup Cartella Email Notification Account'. It contains the following fields and labels:

- Cartella Email Notification Account:**
- SMTP Host:**
- Port Number:**
- User:**
- Password:**

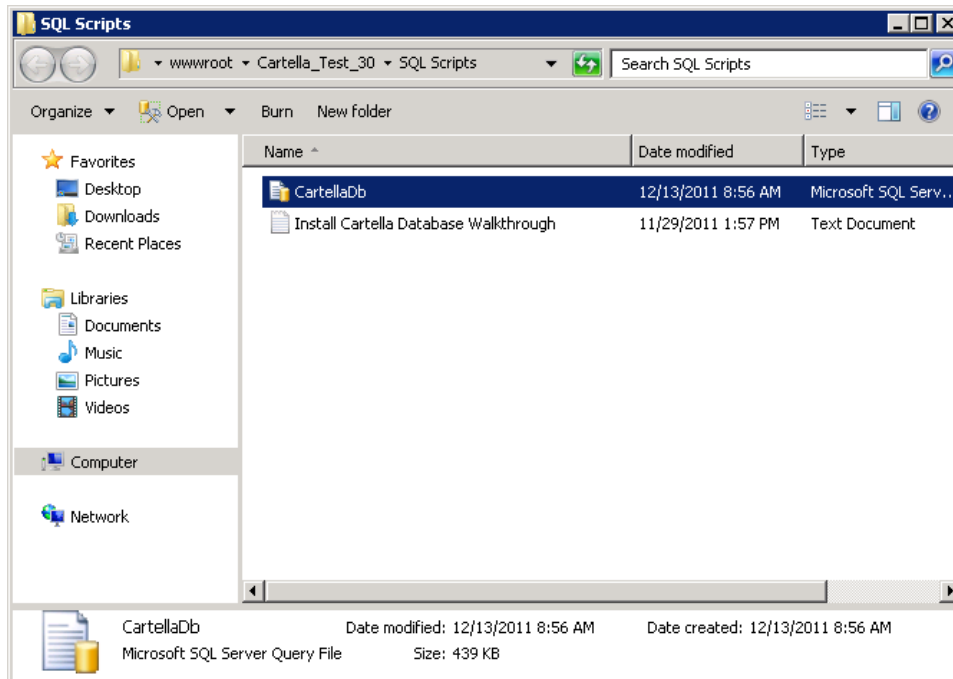
At the bottom right, there are three buttons: 'Back', 'Next', and 'Cancel'.

7. The **Installing Cartella Instance** window appears, listing the site instance name entered above. When the status shows “Done Installing,” click **Next** to continue, then **Finish**. Installation is now complete.

## 2.4 Installing the SQL Database

Cartella uses Microsoft SQL Server to store data. This section details the steps required to create and configure a SQL database for your instance of Cartella. Your organization may have a database administrator who manages the SQL Server. If so, the administrator may need to be involved in the database configuration. The steps below outline how to create and connect to the database.

1. When the installation of the Cartella instance is complete, the `SQL Scripts` directory opens in a new window. If it does not, navigate to the `SQL Scripts` folder of your new site. By default, the directory path should look something like this:  
`C:\inetpub\wwwroot\[INSTANCE_NAME]\SQL Scripts.`
2. Open `CartellaDb.sql` with Microsoft SQL Server Management Studio (SSMS), version 2005 or later.

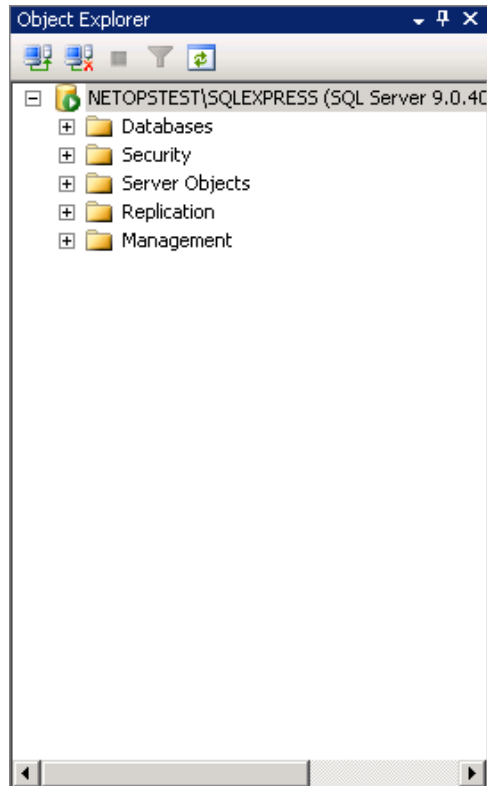


Make sure that SSMS is connected to the SQL Server where you intend to create the Cartella database. If prompted, connect to the database engine.

3. Open the **Object Explorer** window (**View > Object Explorer**) and, if necessary, connect the Object Explorer to the server using the **Connect Object Explorer** button in the upper-left corner of the **Object Explorer** pane.



The SQL Server file structure appears in Object Explorer.



4. Right-click **Databases**. Select **New Database** and, in the window that appears, enter a name for the database that will serve your Cartella instance. Click **OK**. This creates a new empty database.
5. Click the tab containing `CartellaDb.sql` to ensure that it's selected.



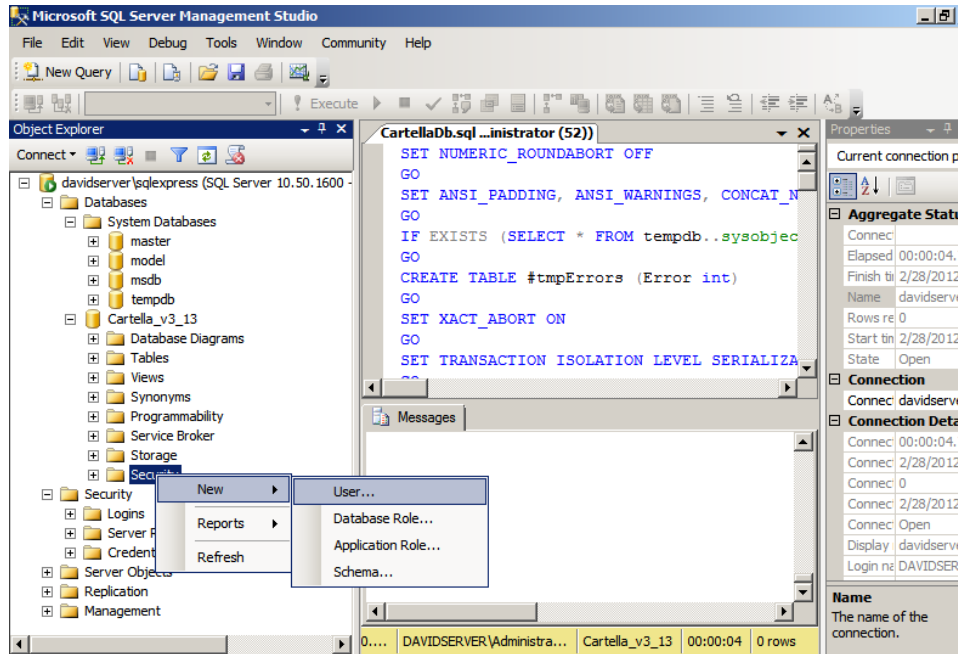
Then, in the menu of available databases, select the database you just created.



6. Click **Execute** to run the `CartellaDb.sql` script against the database. This may take a moment. Verify that the script was executed successfully. The database is now constructed.

There are various ways to configure credentials for the Cartella database. The following steps describe one method. Specifics of database security vary depending on the system, installation requirements, and organizational needs.

1. In the **Object Explorer** window, under **Security**, right-click **Logins** and select **New Login**. In the **Login – New** window, configure a new login using an administrator account and click **OK**. If you use SQL authentication, uncheck the box indicating that the user must update the password at the next login.
2. In the **Object Explorer** window, under the new database, right-click **Security** and select **New > User**.



Add the user you just created (user name and login name). In the **Owned Schemas** and **Role Members** lists, check the boxes for `db_datareader`, `db_datawriter`, and `db_owner`. Click **OK** to add the user.

3. Close Microsoft SQL Server Management Studio.

Having created a new SQL database, you need to modify the `Web.config` file so that the Cartella instance can connect to the database. The following steps explain how to do this.

1. Navigate to the Cartella site directory (for example, `C:\inetpub\wwwroot\[INSTANCE_NAME]`) and open the `Web.config` file with a text editor or IDE.
2. Scroll to the `<connectionStrings>` node. Above `<connectionStrings>`, there is a comment containing examples of the three connection strings that need to be configured.

```
<!--Examples of possible connection strings
<add name="MSSQL2005"           connectionString="Data Source=<Sql Server Location>"
<add name="MSSQL2005_Asset"    connectionString="Data Source=<Sql Server Location>\<Dat
<add name="Elmah.Sql"          connectionString="Data Source=<Sql Server Locati
```

3. Copy those connection strings to just below the `<clear />` node. Complete steps 4–6 (below) for each of the three connection strings.
4. Edit `<Sql Server Location>\<Database instance>` to point to your SQL server location and SQL instance. (The server name must resolve to the IP address that was used to create your license key.) You may also enter an IP address instead of a server name.
5. Enter the new database name as the `Initial Catalog` assignment (in other words, replace `<Catalog Name>` with the name of the new database).

6. Enter the user ID and password for the administrator, replacing `<SQL User>` and `<User Password>`, respectively. (Alternatively, the Windows credentials used by the website's application pool can be added to SQL. In this case, there would be no user name and password. Instead there would be another attribute: `Integrated Security="true"`).
7. When you're finished modifying `Web.config`, save the file and exit the editor.

Here's the `<connectionStrings>` section of `Web.config`, with example values in caps (note that the correct configuration varies):

```
<connectionStrings>
<clear />
<add name="MSSQL2005"
connectionString="Data Source=SERVER/SQL_SERVER_INSTANCE_NAME;
Initial Catalog=NEW_DB_NAME;
User Id=CARTELLA_DB_USER_ACCOUNT;
Password=CARTELLA_DB_USER_PASSWORD;"
providerName="Cartella.Classes.MSSQLObjectProcedureEngine"
/>
<add name="MSSQL2005_Asset"
connectionString="Data Source=SERVER/SQL_SERVER_INSTANCE_NAME;
Initial Catalog=NEW_DB_NAME;
User Id= CARTELLA_DB_USER_ACCOUNT;
Password=CARTELLA_DB_USER_PASSWORD;"
providerName="Cartella.MSSQLProcedures.MSSQLAssetProcedureCollection"
/>
<add name="Elmah.Sql"
connectionString="Data Source=SERVER/SQL_SERVER_INSTANCE_NAME;
Initial Catalog=NEW_DB_NAME;
User Id=CARTELLA_DB_USER_ACCOUNT;
Password=CARTELLA_DB_USER_PASSWORD;"
/>
</connectionStrings>
```

## 2.5 Troubleshooting the Installation

The table below lists configuration problems that can prevent a Cartella instance from functioning properly. If you've followed the steps above and you're receiving error messages or experiencing other problems when you attempt to access Cartella, check for the following issues:

Configuration Problem	Solution
SQL Server Browser Service is not running.	Run the SQL Server Configuration Manager, open SQL Server Services, and start SQL Server Browser.
The SQL Server instance doesn't allow remote connections.	Open SQL Server Management Studio, right-click the SQL Server instance in the <b>Object Explorer</b> window, and select <b>Properties</b> . In the <b>Server Properties</b> window, select <b>Connections</b> . Check the box labeled <b>Allow remote connections to this server</b> .

## Cartella 4.0 Installation Guide

Named pipes and TCP/IP are disabled.	Open SQL Server Configuration Manager and navigate to <b>SQL Server Network Configuration &gt; Protocols for [SQL_INSTANCE]</b> . Enable named pipes and TCP/IP.
Mixed-mode authentication is not enabled.	Open SQL Server Management Studio, right-click the SQL Server instance in the Object Explorer, and select <b>Properties</b> . In the <b>Server Properties</b> window, select <b>Security</b> . In the server authentication options, select <b>SQL Server and Windows Authentication mode</b> .
IUSR and NETWORK SERVICE don't have full permissions.	Right-click the root directory of your Cartella site and go to <b>Properties &gt; Security</b> . Edit IUSR and NETWORK SERVICE so that these users are allowed full permissions.

### 2.6 Entering the License Key

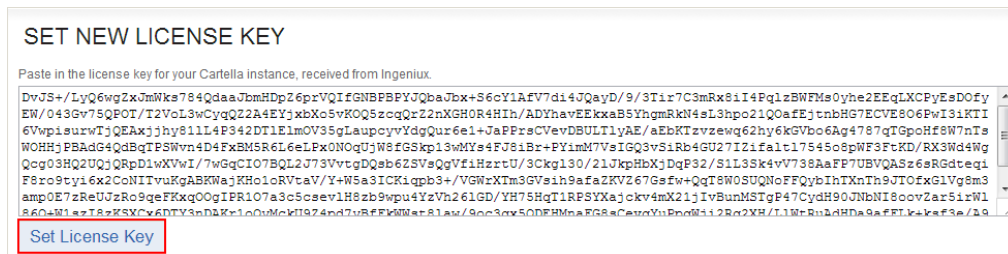
Now that you've created an instance of Cartella and connected it to a database, you'll need to log in as an administrator (using the administrator login you created during the Cartella site installation) and enter the Cartella license key that you received from Ingeniux support.

To license your new instance of Cartella:

1. In a web browser, follow the URL of your Cartella instance.
2. When you arrive at the Cartella home page, enter your administrator login and password at the top of the screen.
3. In the upper-right corner of the home page, click **Settings**. A list of options appears. Select **Licensing**.



4. Paste your Cartella license into the license key field and click **Set License Key**. You should see a dialog letting you know that the license key was set successfully. This completes the Cartella installation.





## 3 Uninstalling Cartella

Removing Cartella requires deleting the Cartella software files. It's also a good idea to remove any Cartella-related email accounts or SQL logins and Cartella site content.

### 3.1 Removing Cartella

Following the steps below, you can use the Cartella Installation package to remove the Cartella software.

1. Locate the Cartella installer, `Setup.exe`. It may be necessary to repeat the file extraction steps at the start of this document. Run the installer.
2. Select **Remove Cartella 3.1** and click **Finish** to continue.
3. When the removal is finished, click **Close** to dismiss the window.

### 3.2 Removing the Instance

To remove an instance of a virtual Cartella installation, navigate to the instance base directory and delete the entire directory. Then remove the site from IIS and contact the database administrator to remove the SQL database.

## 4 Configuring Cartella

The default Cartella configuration is well suited to many use cases, but there are some settings that may need to be changed after installation. In the `Web.config` and `Cartella.config` files of your Cartella instance, you can modify SMTP settings, email templates, the error log, asset behavior, security and login settings, and various other aspects of Cartella functionality.

If you've been working through this guide from the beginning, you've already encountered the `Web.config` file. Now, as we configure Cartella, we'll make additional changes to `Web.config` and also to `Cartella.config`.

Both the `Web.config` and `Cartella.config` files can be found in the root directory of the Cartella site. They are XML files and must remain well-formed. Changing settings in these files can seriously affect the performance and behavior of Cartella. Thus, you shouldn't alter these files if you're not comfortable working in XML and the Microsoft .NET environment.

To modify the `.config` files, you can use any text editor, as long as it doesn't embed special characters in the edited file. Depending on the permissions of the directory where the `.config` files are located, you may need to run your editor as an administrator.

### 4.1 Settings in Web.config

The settings and functionality described in this section are configured in the `Web.config` file. Making changes to the `Web.config` file restarts Cartella and logs out all users.

#### 4.1.1 Configuring Email

Cartella must have access to a network SMTP server when a new user account is created and when a user requests a new password. If the SMTP information is not correct, users won't receive system-generated passwords and won't be able to log in.

You can configure a Cartella site to send emails to a specified pick-up directory. You can also customize Cartella's default email templates, or add new templates.

##### 4.1.1.1 Configuring SMTP Settings

Email credentials are configured in the `Web.config` file at `System.net/mailSettings/smtp/network` by changing the value of the `defaultCredentials` attribute. The value can be set to `"true"` or `"false"`. A value of `"true"` means that Windows credentials are used. A value of `"false"` means that Cartella uses as credentials the `userName` and `password` attributes of the `<network>` node.

```
<smtp deliveryMethod="Network" from="Cartella
Notices<smtpUserName@yourdomain.edu>">
<network defaultCredentials="false"
host="mail.yourdomain.edu"
userName="smtpUserName"
password="smtpUserNamePassword"
port="25"/>
```

To learn more about configuring SMTP network settings, visit <http://msdn.microsoft.com/en-us/library/ms164240.aspx>.

#### 4.1.1.2 Customizing Email Templates

Cartella uses the file `Default.xslt` to create HTML emails. This file is located in the Cartella instance directory:

```
C:\inetpub\wwwroot\[INSTANCE_NAME]\Content\EmailContent\Default.xslt.
```

`Default.xslt` holds the default templates that Cartella uses to generate email notifications. There are default email notifications for many common scenarios, including a password change, a password reset, and a software license expiration.

For example, here's the default template for an email message alerting the user that the Cartella license is expired:

```
<xsl:template match="Content[@EmailType = 'BadLicenseNotice']">
  Cartella <xsl:value-of select="version"/>
  license for <xsl:value-of select="company"/> is expired.
  <br/><br/>
  Cartella will continue to operate with limited functionality.
  Please contact
  <a href="mailto:support@ingeniux.com">support@ingeniux.com</a>
  for a current license key.
</xsl:template>
```

To customize Cartella's default email messages, make changes here in `Default.xslt`.

- ✓ *If you're going to customize the email templates, you should have a working knowledge of HTML and XSLT.*

The `Default.xslt` file also includes another style sheet that can hold email templates:

`CustomTemplates.xslt`. This file extends the Cartella email system by making it possible to create custom emails. `EmailContentController`, a C# class in Cartella, sends custom emails using the following format:

```
<CartellaEmail>
  <URL>http://www.mydomain.com</URL>
  <Content EmailType="emailContentKey">
    <Key1><![CDATA[Value1]]></Key1>
    <Key2><![CDATA[Value2]]></Key2>
  </Content>
</CartellaEmail>
```

When the `SendMail` method on `EmailContentController` is called, three pieces of information are sent from that method to the `CustomTemplates.xslt` style sheet:

1. **Base URL:** This is the URL of the server where your instance of Cartella lives. You need this URL for adding links to, and images from, the Cartella site. For example, you can add an image to your email by using the following code:

```

```

@URL is a variable that has been populated for your convenience.

2. **Type of email:** This is the value of the `EmailType` attribute in the `<Content>` element. It will be populated with the value of `emailContentKey` that is passed to the `SendMail` method.
3. **Content:** The inner value of the `<Content>` node is populated from the `variableToValue` dictionary that is passed to the `SendMail` method. Each key in that dictionary becomes an element, with each value populated with the value from the dictionary. If you would like to add your own dictionary inside the `<Content>` tag, make sure to use the `XmlSerializableDictionary` class. Remember that `ToString` will be called to get the keys and values. Make sure that the key will become a valid XML element name.

### 4.1.2 Enabling and Viewing the Error Log

In the unlikely event that a serious ASP.NET error occurs, it will be logged by the open source Error Logging Modules and Handlers (ELMAH) package. ELMAH generates a stack trace and maps the error to the class that caused it.

ELMAH maintains an internal log. At `http://[SITE]/elmah.axd`, you can view a graphical representation of the error log.

#### Error Log for Cartella\_v30 on DOCSEVER

Host	Code	Type	Error	User	Date	Time
DOCSEVER	500	HttpCompile	c:\inetpub\wwwroot\Cartella_v30\Views\DojoTemplated\AdvancedSearchDialog.cshtml(57): error CS0234: The type or namespace name 'GlobalConstants' does not exist in the namespace 'Cartella' (are you missing an assembly reference?) <a href="#">Details...</a>	admin1	9/21/2012	10:28 AM
DOCSEVER	500	HttpCompile	c:\inetpub\wwwroot\Cartella_v30\Views\DojoTemplated\AdvancedSearchDialog.cshtml(57): error CS0234: The type or namespace name 'GlobalConstants' does not exist in the namespace 'Cartella' (are you missing an assembly reference?) <a href="#">Details...</a>	admin1	9/21/2012	10:28 AM
DOCSEVER	500	HttpCompile	c:\inetpub\wwwroot\Cartella_v30\Views\DojoTemplated\AdvancedSearchDialog.cshtml(57): error CS0234: The type or namespace name 'GlobalConstants' does not exist in the namespace 'Cartella' (are you missing an assembly reference?) <a href="#">Details...</a>	admin1	9/21/2012	10:28 AM
DOCSEVER	500	HttpCompile	c:\inetpub\wwwroot\Cartella_v30\Views\DojoTemplated\AdvancedSearchDialog.cshtml(57): error CS0234: The type or namespace name 'GlobalConstants' does not exist in the namespace 'Cartella' (are you missing an assembly reference?) <a href="#">Details...</a>	admin1	9/21/2012	10:22 AM
DOCSEVER	500	HttpCompile	c:\inetpub\wwwroot\Cartella_v30\Views\DojoTemplated\AdvancedSearchDialog.cshtml(57): error CS0234: The type or namespace name 'GlobalConstants' does not exist in the namespace 'Cartella' (are you missing an assembly reference?) <a href="#">Details...</a>	admin1	9/21/2012	10:22 AM
DOCSEVER	500	HttpCompile	c:\inetpub\wwwroot\Cartella_v30\Views\DojoTemplated\AdvancedSearchDialog.cshtml(57): error CS0234: The type or namespace name 'GlobalConstants' does not exist in the namespace 'Cartella' (are you missing an assembly reference?) <a href="#">Details...</a>	admin1	9/21/2012	10:21 AM

The ELMAH code is named in the `<handlers>` area of `Web.config` and should not be altered:

```
<handlers>
<add name="Elmah" path="elmah.axd" verb="POST,GET,HEAD"
type="Elmah.ErrorLogPageFactory, Elmah" preCondition="integratedMode"
/>
</handlers>
```

In the `<elmah>` element, you can set the security level of the log page using the value of the `allowRemoteAccess` attribute.

```
<elmah>
```

```
<security allowRemoteAccess="yes" />
<errorLog type="Elmah.XmlFileErrorLog, Elmah" logPath="~/App_Data" />
</elmah>
```

Normally, `allowRemoteAccess` should be set to "no", so that the log is only accessible from the server on which the site is located.

More information on ELMAH settings can be found in Microsoft's online ASP.NET documentation: <http://www.asp.net/web-forms/tutorials/deployment/logging-error-details-with-elmah-cs>.

## 4.2 Settings in Cartella.config

The settings and functionality described in this section are configured in the `Cartella.config` file.

### 4.2.1 Configuring Entities

In Cartella, content objects are called "entities." There are various kinds of entities, including folios, modules, galleries, images, documents, forum topics, and blog posts.

In the `<EntityTypeSettings>` section of `Cartella.config`, you can modify the default settings for Cartella entities. These settings affect basic behaviors in a Cartella instance. For example, you can configure a folio so that entities created under it will automatically be approved.

Entity settings are contained in a series of attributes within a given entity element. These attributes take true/false values. The following attributes can be configured:

- `permissionable`
- `canOwnCategories`
- `canOwnGroups`
- `categorizable`
- `customShareLevel`
- `readOnlyByDefault`
- `isLockedByDefault`
- `autoApproveByDefault`
- `useHtmlComments`

For example, here's a folio entity from the `<EntityTypeSettings>` section of `Cartella.config`:

```
<add name="Folio" permissionable="true" canOwnCategories="true"
canOwnGroups="true" categorizable="true" customShareLevel="true"
readOnlyByDefault="false" isLockedByDefault="false"
autoApproveByDefault="false" useHtmlComments="false" />
```

To change the default settings, switch "true" and "false" values as needed.

### 4.2.2 Configuring Asset Upload and Storage Settings

In addition to page content, Cartella can deliver images, documents, audio files, and other assets. This section explains how to configure upload and storage options for assets.

#### 4.2.2.1 Specifying Image Conversions

You can set Cartella to automatically perform size conversions on uploaded images. The dimensions of the resulting image(s) are set in pixels at the `<ImageAutoConversions>` node.

```
<ImageAutoConversions>
  <clear />
  <add targetMemberName="Thumbnail" width="75" height="75"
    allowCropping="true" />
  <add targetMemberName="MainImage" width="640" />
</ImageAutoConversions>
```

The "Thumbnail" and "MainImage" values, which are populated by default, are used in the display of gallery contents. You can add additional conversions following the syntax above (`<add targetMemberName="" width="" />`). Each additional image target causes the creation of a cropped version of the uploaded image. Each version is stored in the host file system.

If only one dimension is specified, the aspect ratio of the original image is used to determine the missing dimension, and the image is cropped accordingly. If both width and height are used, the image is cropped to the given dimensions, which are centered in the original image. For instance, uploading an image of 640 x 480 pixels and only specifying a width of 80 results in the entire image being reduced to an 80 x 60 thumbnail. Declaring a thumbnail of 100 x 100 pixels would result in the image being cropped to a 100 x 100 square measured from the center of the image.

#### 4.2.2.2 Specifying Allowed File Extensions

You can restrict the types of files that can be uploaded to Cartella through the gallery, document, and media modules. The `Cartella.config` file has within `<SiteSettings>` a block of variables specifying the file formats that can be uploaded. To add or subtract file formats, modify the appropriate `<add>` element(s). File types are broken down into four categories: images, documents, audio media, and video media.

```
<add name="AllowedImageFormats" value="*.jpg;*.png;*.gif" />
<add name="AllowedDocumentFormats" value="*.*" />
<add name="AllowedAudioMediaFormats" value="*.mp3;*.aac;*.wma;*.mp4" />
<add name="AllowedVideoMediaFormats"
  value="*.m4v;*.mp4;*.wmv;*.avi;*.mov" />
```

For example, the following line of code indicates that JPG, PNG, and GIF image files can be uploaded to Cartella: `<add name="AllowedImageFormats" value="*.jpg;*.png;*.gif" />`.

### 4.2.2.3 Changing Asset Storage Settings

The value of `DefaultAssetStorageLocation` determines where assets are stored in the file system.

```
<add key="DefaultAssetStorageLocation"
value="C:\Inetpub\wwwroot\[SITE]\app_data\" />
```

Asset storage settings can slow Cartella's performance. Because each asset is assigned a unique identifier as it is created, having fewer items in a folder means that new identifiers can be created faster.

A Cartella variable, `FolderSwitchingLimit`, determines how many files are written to a single folder before a new folder is created. This value can affect performance. Lower numbers speed enumeration, while larger numbers reduce the folder count. The default value is shown here:

```
<add key="FolderSwitchingLimit" value="100" />
```

### 4.2.2.4 Changing Asset Retention Settings

Assets take up space in the Cartella environment, so it's a good idea to be mindful of the settings that govern asset retention. Cartella uses two variables to control system behavior as new versions of an asset are created: `MaxNumberOfAssetVersions` and `AutoDiscardPreviousVersions`.

```
<add name="MaxNumberOfAssetVersions" value="5"/>
<add name="AutoDiscardPreviousVersions" value="true"/>
```

You can choose to keep all earlier versions by setting `MaxNumberOfAssetVersions` to a null value. Doing so means that the system never deletes a version of an asset, and the `AutoDiscardPreviousVersions` flag is ignored.

Assigning a value to `MaxNumberOfAssetVersions` allows versions of an asset to be retained until the max number is reached. At that time, if `AutoDiscardPreviousVersions` is set to "true", new versions cause the automatic deletion of older assets. Setting `AutoDiscardPreviousVersions` to "false" blocks the creation of new assets until an administrator removes the older ones.

There are several factors to keep in mind as you configure asset retention: the frequency with which assets are modified, the amount of time the administrator has available to remove older versions, and the desirability of retaining an asset history.

### 4.2.3 Configuring Login and Security Settings

In addition to applying normal network security, you can tailor Cartella login and security settings by modifying values contained in the `<SiteSettings>` section of `Cartella.config`.

Note: Cartella session state settings, including the timeout value, are configured in the .NET Framework under which the application runs. To learn more about configuring the ASP.NET session state, see [http://msdn.microsoft.com/en-us/library/h6bb9cz9\(v=vs.100\).aspx](http://msdn.microsoft.com/en-us/library/h6bb9cz9(v=vs.100).aspx).

#### 4.2.3.1 Setting Login Parameters

One of the primary security decisions to be made for a Cartella instance is whether to require login. The `RequireLogin` variable determines whether public pages are visible to users who are not logged in with a Cartella account. If you want the site to be visible without a login, set the variable to "false". If you want the site to be visible only to logged-in users, set it to "true".

```
<add name="RequireLogin" value="false"/>
```

The `RememberMePeriod` parameter, if set to a non-null value, declares the number of days a login will be remembered by a cookie. A remembered login makes it easier for a user to log back in, but it also means that a public computer (in a library, for instance) retains the session associated with the user. This, in turn, heightens the risk of an unauthorized user gaining access.

To disable login cookies, set `RememberMePeriod` to a null value. Otherwise, enter the number of days the password should be retained.

```
<add name="RememberMePeriod": value="13" />
```

#### 4.2.3.2 Configuring Secure Login

With the `UseSecureLogin` attribute, you can configure the Cartella login to use an HTTPS connection. To implement an HTTPS login, set the `UseSecureLogin` value to "true".

```
<add name="UseSecureLogin" value="true" />
```

In order for the HTTPS login to function, an SSL certificate must be properly installed on the server. Installing this certificate is beyond the scope of this guide.

#### 4.2.4 Changing License Notification Settings

In `Cartella.config`, you can modify the way that a Cartella site behaves in response to a pending license expiration.

The variable `NoticeDaysBeforeLicenseExpires` determines how much notice is given to the site administrator when the license is about to expire. This variable is set to some number of days:

```
<add name="NoticeDaysBeforeLicenseExpires" value="60"/>
```

On the specified day, Cartella sends an email notification of the pending expiration. For example, in the code sample above, Cartella will send a notification 60 days before the license expires. To change the notification period, assign a new number of days to `value`.



Once the notification period has been reached, two other variables determine whether notice is also sent to Ingeniux and, if so, what address is used:

```
<add name="IngeniuxLicenseNotificationReceiver"
value="Cartella Licensing&lt;Cartella.Licensing@ingeniux.com&gt;"/>
<add name="AllowLicenseExpirationNoticeSentToIngeniux" value="true"/>
```

Ingeniux recommends leaving these settings at the default values created during installation.

#### 4.2.5 Configuring User Group Synchronizers

User Group Synchronizers provide a way to integrate existing user stores with Cartella. To enable user group syncing, go to the `<UserGroupSynchronizers>` node in `Cartella.config` and configure values for your Cartella instance.

```
<UserGroupSynchronizers adminLoginName="testAdmin" adminPassword="test"
enabled="false" delay="60">
```

To enable the User Group Synchronizers feature, set values for the following attributes:

- **adminLoginName:** The login name of the Cartella administrator account. This account is recorded as the creator of all groups and users.
- **adminPassword:** The password for the Cartella administrator account.
- **enabled:** Turns user group synchronization on or off. A value of "true" turns the feature on, and a value of "false" turns it off.
- **delay:** Specifies the length of time to wait before running another synchronization. After a synchronization is complete, Cartella delays for a specified time period before performing another synchronization. The delay period is not usually an issue for LDAP synchronization. However, a Salesforce API may only allow a limited number of connections per day. If this is the case, you may need to adjust the delay accordingly.

By default, a new Cartella instance contains User Group Synchronizers for Salesforce (a customer-relations management platform) and for an LDAP directory. A developer can create additional synchronizers for connecting to any kind of user store. To synchronize additional groups, create and populate extra `<add>` nodes under `<UserGroupSynchronizers>`.

```
<add name="[some_name]" authenticator="[authenticator]">
```

Each `<add>` node represents an instance of a synchronizer, and the `authenticator` value points to the class that does the authenticating.

Inside each `<add>` node are the `<QueryInfo>`, `<GroupMappings>`, and `<UserMappings>` nodes. The `<QueryInfo>` node contains data used by the synchronizer to connect to the user store and collect information. The `<GroupMappings>` and `<UserMappings>` nodes contain data needed to transform info from the user store into Cartella groups and users.

The `<UserMappings>` attributes store values for imported users. Mappings for `loginNameKey` and `EmailKey` are required. Since Cartella supports custom user fields, the `<UserMappings>` node allows additional fields to be mapped.

The following sections describe settings for the built in Salesforce and LDAP synchronizers.

#### 4.2.6 Syncing to Salesforce

In the `<UserGroupSynchronizers>` section of `Cartella.config`, you can sync a Cartella instance to a Salesforce account. Syncing to Salesforce imports customer data that is then used to populate groups in Cartella. All of the contacts for a given company are converted to Cartella users and associated with the appropriate customer group.

In a standard Cartella instance, the Salesforce node looks something like this:

```
<add name="SalesForce"
  authenticator="Cartella.Authenticators.SalesForceUserSyncer">
  <QueryInfo addSeat="true">
    <add name="sf_username" value="sfLogin" />
    <add name="sf_password" value="sfPassword" />
    <add name="sf_token" value="sfToken" />
  </QueryInfo>
  <GroupMappings groupFormatString="SalesForce-{0}" />
  <UserMappings loginNameKey="Email" FirstNameKey="FirstName"
  LastNameKey="LastName" EmailKey="Email" externalIdKey="Id"
  loginNameFormatString="{0}" PhoneKey="Phone" CompanyKey="Company">
    <!--<add storeKey="salesForceFieldKey"
  cartellaKey="customFieldKey"/>-->
  </UserMappings>
</add>
```

The values needed to query Salesforce are contained in the `<add>` nodes under `<QueryInfo>`. Syncing a Salesforce account with Cartella requires a Salesforce login, password, and token. These values have to be obtained from Salesforce.

In the example above, the `storeKey` node is commented out. You can use the `storeKey` node to create custom fields to complement the `<UserMappings>` values.

#### 4.2.7 Syncing to an LDAP Directory

In the `<UserGroupSynchronizers>` section of `Cartella.config`, you can sync a Cartella instance to an LDAP directory. The query info for LDAP synchronization is contained in `<add>` nodes under the `<QueryInfo>` node. To connect to an LDAP directory, you'll need to set appropriate values for `domain`, `server`, `userName`, `password`, `distinguishedName`, and other relevant settings.

```
<add name="LDAP" authenticator="Cartella.Authenticators.LdapAuthenticator">
  <QueryInfo addSeat="true">
    <add name="domain" value="domain" />
    <add name="server" value="server.domain.com" />
    <add name="userName" value="userName" />
    <add name="password" value="password" />
```

```

<add name="distinguishedName" value="OU=Groups,DC=domain,DC=com" />
<!--starting point in LDAP tree to begin searching for groups-->
<add name="query" value="(&!(objectClass=group))" />
<add name="authenticationType" value="Secure" />
<!--Should be a valid value for
System.DirectoryServices.AuthenticationTypes-->
<add name="groupUserKey" value="member" />
</QueryInfo>
<GroupMappings nameKey="sAMAccountName" groupFormatString="ingeniux-
{0}" />
<UserMappings loginNameKey="sAMAccountName" FirstNameKey="givenName"
LastNameKey="sn" EmailKey="mail" externalIdKey="sAMAccountName"
loginNameFormatString="domain\{0}">
<!-- <add storeKey="homeDirectory" cartellaKey="share" /> -->
<!--example-->
</UserMappings>
</add>

```

If you use the LDAP synchronizer to connect to an LDAP directory, the group objects returned by LDAP must have a property containing all the users. This property is typically called “member.”

#### 4.2.8 Modifying Other Application Settings

In addition to the previously described settings, there are various other application settings that can be configured in the <SiteSettings> section of the `Cartella.config` file.

##### 4.2.8.1 Folios on the Home Page

The `PagingSize` attribute determines how many folios appear on the home page. It takes a numerical value.

```
<add name="PagingSize" value="10"/>
```

##### 4.2.8.2 Multithread Email Processing

Depending on the number of cores available to the CPU, multiple threads can be employed to process Cartella email. The value of the attribute `TaskQueueWorkersCount` determines how many background threads are spun. You can increase this number to accommodate additional threads.

```
<add name="TaskQueueWorkersCount" value="5" />
```

##### 4.2.8.3 Cartella Connection Strings

The values of the `DefaultConnection` and `DefaultAssetConnection` attributes map to the connection strings configured during the installation of the Cartella instance. These connection strings connect Cartella and its assets to the database.

```
<add name="DefaultConnection" value="MSSQL2005" />
```

```
<add name="DefaultAssetConnection" value="MSSQL2005_Asset" />
```

There's usually no need to change these values after installation.

#### 4.2.8.4 Temporary Files

When an asset is uploaded via the edit form, it's saved to a location indicated by the value of `FileUploadTemporaryLocation`.

```
<add name="FileUploadTemporaryLocation"
value="C:\Inetpub\wwwroot\[SITE]\app_data\" />
```

After a user saves the asset, it's moved to its permanent location. For example, if you're creating a new gallery and you upload an image and edit it in the edit form, the modified image is automatically saved to the temporary asset directory. When you save the file, it is stored in its permanent location.

To change the temporary asset storage location, enter a new directory path as a value of `FileUploadTemporaryLocation`.

The value of `FileUploadTemporaryFileExpirationDelay` determines how long, in seconds, temporary files are allowed to remain in the temporary file.

```
<add name="FileUploadTemporaryFileExpirationDelay" value="6000000"/>
```

The default value is the equivalent of nearly 10 weeks, a week being 604,800 seconds. A day is 86,400 seconds. This value should be at least as long as the time period allowed for a session, so that temporary assets don't expire before a user has logged off.

#### 4.2.8.5 Forum Rating System

If a Cartella instance features a forum, you can use the `ForumRatingType` value to determine the rating system for forum items.

```
<add name="ForumRatingType" value="average" />
```

A value of "average" specifies a one-to-five star rating system. A value of "cumulative" specifies thumbs-up-thumbs-down voting. This setting is applied to all forums in the instance.

#### 4.2.8.6 Sharing Levels

Logged-in users can set the sharing level of items that they create. For example, a logged-in user can choose to make a blog post public, or to share it only with a certain group. By changing the value of `DefaultEntityShareLevelID`, you can change the default sharing setting.

```
<add name="DefaultEntityShareLevelID" value="1" />
```

The numerical value corresponds to the ID of the sharing level in the database. In order to determine the value for a given group, you need to run a SQL script. The default sharing value is public, and Ingeniux recommends leaving it at this setting.

If a Cartella license key allows nonseated or logged-out users to create content, an anonymous user can create an item. In this scenario, the anonymous user is by default not allowed to set the item's sharing level to private or to specific users, because the anonymous user would not be able to see the item. This sharing level is determined by the numeric value of `AnonymousEntityShareLevelID`.

```
<add name="AnonymousEntityShareLevelID" value="2" />
```

Once again, the numerical value corresponds to the ID of the sharing level in the database. You can set the sharing value here, and anonymous users will not be able to change it.

In certain scenarios, such as large sites where most content is public, it may be desirable to hide sharing levels completely for certain entities. You can turn off sharing levels for individual Cartella entities in the `<EntityTypeSettings>` section of `Cartella.config`.

```
<EntityTypeSettings>
  <clear />
  <add name="BlogPost" permissionable="true"
    canOwnCategories="true" canOwnGroups="true" categorizable="true"
    customShareLevel="false" readOnlyByDefault="false"
    isLockedByDefault="false" autoApproveByDefault="false"
    useHtmlComments="false" commentingAvailable="true" />
```

For each type of entity (defined in the `name` attribute) you can disable the sharing-level user interface by setting the `customShareLevel` attribute to `false`. In the example above, the interface has been disabled for blog posts. Users can't change the sharing level of blog posts, and it remains set to the value of `DefaultEntityShareLevelID`.

#### 4.2.8.7 Command Timeout

In certain situations, an unusually high volume of database queries could cause the Cartella database to exhibit slowed response times. In such situations, the Cartella API can throw an exception that tells the website to alert the user that there's a problem. The `CommandTimeOut` value determines how long the API will wait for a database call to return.

```
<add name="CommandTimeOut" value="90" />
```

The numerical value specifies the number of seconds the API will wait before throwing an exception.

#### 4.2.8.8 Scripts to Compress

The Cartella instance directory contains a folder called `ScriptsToCompress`, typically in a directory path like this: `C:\inetpub\wwwroot\[SITE]\ScriptsToCompress`. The `MinifyScripts` setting determines whether the scripts in this folder are compressed.

```
<add name="MinifyScripts" value="true" />
```

The value should be set to "true" for production sites. When it's set to "true", everything in the `ScriptsToCompress` directory is compressed to help pages load faster. If the value is set to "false", uncompressed scripts are sent to the client. This can be useful for debugging. You can add your own scripts to the `ScriptsToCompress` folder.

#### 4.2.8.9 Search

Cartella uses the Apache Lucene library to support search and indexing functionality. Configuration values for search are stored in `Cartella.config` in the `<Search>` node.

```
<Search adminUserName="ingeniux">
  <IndexLocation value="App_Data\LuceneIndex" />
  <IndexingOptions EnabledIndexing="true" />
  <Sources>
    <add name="CartellaSearch"
type="Cartella.Search.CartellaSearchSource" delay="20">
      <Settings>
        <add name="continuous" value="false" />
      </Settings>
    </add>
```

You can set values for the following attributes:

`<Search>`

- **adminUserName:** User name of the Cartella administrator account.

`<IndexLocation>`

- **value:** Relative or absolute path to the Lucene index database.

`<IndexingOptions>`

- **EnabledIndexing:** A true/false value. A value of `true` turns indexing on.
- **Delay:** Number of minutes to wait before running a new index. The default value is 5. Note that the delay value is not the interval between the start of one index update and the start of the next update. The delay value is the interval between the *end* of one index update and the start of the next index update.

## 5 Changing Cartella's Appearance

Cartella is built on the Microsoft ASP.NET MVC web development framework and uses the Razor view engine to generate views. By customizing the view layer, you can change the look and feel of individual Cartella modules without affecting the integrity of the product.

Cartella pages are assembled using a master page and a collection of partial-view pages, allowing customization at several levels. Some simple changes can be made via cascading style sheets (CSS), but more elaborate customization usually entails changes to the views.

### 5.1.1 Custom Folder

The `Custom` folder, located in `[siteroot]\Views\Custom`, contains instance-specific master and layout files. Because this folder is not modified during upgrades, it provides continuity between versions of Cartella. Custom changes stored here do not need to be re-implemented after software updates.

If you modify or replace image files, it's a good idea to put the modified files in the `Custom` directory (e.g., `Custom\Images`). When you do so, you'll need to ensure that all image references in the site's CSS files point to the correct folder.

### 5.1.2 Changing the Cascading Style Sheets

By default, the primary Cartella style sheet, `style.css`, can be found in `[siteroot]\Content`. This file references the graphics to be loaded in delivered pages. Remember that if you want to load custom image files from a subfolder of `Custom`, you'll need to ensure that `style.css` points to these files.

All email styling is handled in the XSLT files.

### 5.1.3 Changing Templates in the View Layer

The term "view layer" describes pages delivered to a user's browser. A view layer consists of a master template (`MainLayout.cshtml`) and other templates merged with data retrieved from the SQL database. To customize Cartella beyond the changes that are possible in the CSS, you'll need to edit the various view templates that compose the view layer.

## 6 Glossary

<b>ASP.NET</b>	A Microsoft web platform that provides all the services required to build enterprise-class, server-based web applications. ASP.NET is built on the .NET Framework, so all .NET Framework features are available to ASP.NET applications.
<b>Attribute</b>	In XML, a piece of metadata contained within an element. An attribute describes the element with which it is associated.
<b>Cartella</b>	Ingeniux enterprise collaboration software.
<b>CSS</b>	Cascading style sheets. A style sheet language used to describe the presentation semantics (that is, the look and formatting) of a document written in a markup language.
<b>ELMAH</b>	Error Logging Modules and Handlers. An application-wide error logging technology.
<b>Folio</b>	A container, typically organized by theme or subject, for a collection of folio items beneath it.
<b>Folio Item</b>	A page, post, document, image, or other content item held in a folio.
<b>Has Seat</b>	A permission flag that allows the user to create pages, upload files, etc. A user with this permission counts against the licensed limit to seated users.
<b>IIS</b>	Internet Information Services. A set of Internet-based services for servers created by Microsoft for use with Microsoft Windows. Handles user authentication.
<b>Is Admin</b>	A permission level that allows a user to add, remove, and edit all content items and user files.
<b>Is Folio Admin</b>	Users with this permission can add, delete, or alter any content item on the site.
<b>Logged In</b>	A sharing level that displays an item only to logged-in users. This level excludes users who have not logged in.
<b>Master Page</b>	An ASP.NET file with the extension <code>.master</code> (for example, <code>MySite.master</code> ) with a predefined layout that can include static text, HTML elements, and server controls.
<b>Module</b>	A container for a certain type of content (blog, document, image gallery, etc.). Modules live under folios.
<b>MVC</b>	Model-View-Controller. a method of web design that separates the user's view of a data set from the actual form of the data.
<b>POP3</b>	Post Office Protocol. an application-layer Internet standard protocol used by local email clients to retrieve email from a remote server over a TCP/IP connection.
<b>Server</b>	A networked computer that provides shared storage of computer files.



<b>SMTP</b>	Simple Mail Transfer Protocol. An Internet standard for electronic mail (email) transmission across networks.
<b>SQL</b>	Structured Query Language. A database computer language designed for managing data in relational database management systems (RDBMS).
<b>Virtual</b>	A simulation or temporary instance of an object.
<b>XML</b>	Extensible Markup Language. A language for creating documents that use tags to give logical structure to content. XML documents do not contain any formatting information.
<b>XML Processor</b>	Code used to transform XML and XSLT style sheets into complete documents that are usually consumed by an Internet browser.
<b>XSLT</b>	Extensible Stylesheet Language Transformations. An XML-based language used for the transformation of XML documents into HTML or another consumable format.