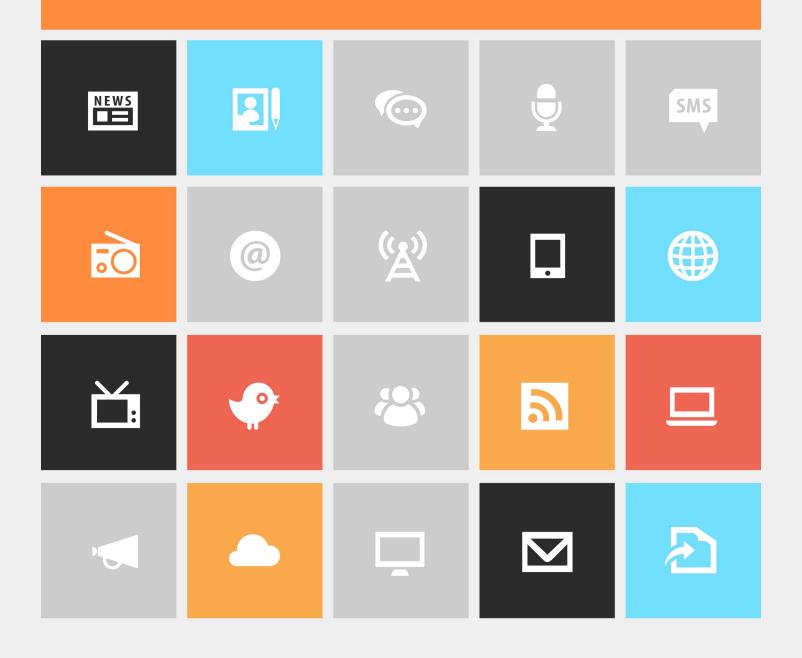
ROCK SOLID INTERNAL HOSTING





Introduction

Looking for information on how to host Rock internally? Well look no further. In this step-by-step guide we'll walk through the process of getting Rock up and running. Before we jump in, let's cover a few things to make sure we get started off on the right foot.

Preparing for Rock

In this chapter we will cover what you need for Rock to perform at its best.

System Requirements

Rock was developed on Microsoft's ASP.Net platform so it requires a Windows Server environment to run. Below are specific requirements of the hosting platform:

Small Installs

1,000-5,000 records

One server with the following specs:

Server requirements for Small Installs

Server

- CPU: 2Ghz dual core or higher
- Memory: 2GB or higher
- Storage: 1TB
- Operating System: Windows Server 2016 or newer
- Software: SQL Server Express 2014 (free) or SQL Server 2014 Standard or higher
- Note that the server versions above are the minimum. We would of course recommend using the latest versions if you can. Starting with Rock v15, SQL Server 2016 will be required at a minimum.

Keep in Mind PCI Compliance

While a single server configuration will do a lot quite well for small churches, you should be aware that it does not meet PCI requirements (which state you need to have your database and your web host in separate environments). So if you plan to take payments through your Rock site, or store financial information in Rock, you'll probably need to use the Medium Installs configuration instead (or use an external host).

Medium Installs

5,000-15,000 records

Two servers with the following specs:

Server requirements for Medium Installs

Web Server	Database Server
 CPU: 2Ghz quad core Memory: 8GB or higher Storage: 1TB Operating System: Windows Server 2016 or newer 	 CPU: 2Ghz quad core Memory: 8GB or higher Storage: 1TB Operating System: Windows Server 2016 or newer Software: SQL Server 2014 Standard (Starting with Rock v15, SQL Server 2016 will be required at a minimum)

Large Installs

15,000+ records

Two servers with the following specs:

Server requirements for Large Installs

26.76.764	
Web Server	Database Server
 CPU: 2.5Ghz quad core Memory: 16GB or higher Storage: 1TB Operating System: Windows Server 2016 or newer 	 CPU: 2.5Ghz quad core Memory: 16GB or higher Storage: 1TB Operating System: Windows Server 2016 or newer Software: SQL Server 2014 Standard (Starting with Rock v15, SQL Server 2016 will be required at a minimum)

SQL Server 2014

Note that we are ending support for SQL Server 2014 as of Rock version 15.0. We generally recommend using the latest versions if you can.

Note:

The storage estimates above do not include room for backups. If you are considering local backups, please adjust the volumes appropriately.

More Info:

If you plan to install Rock on a two server configuration, be sure to check out the *Two-Server Configuration* chapter for some helpful tips.

Things You'll Need During Installation

Here is a short list of settings that you'll need to complete the Rock installation.

- Internal and external web addresses for your organization
- An email address to send exception messages to

Other Considerations

Windows Updates

Rock's foundation is built upon Microsoft's .NET technology. Since .NET is an everevolving technology, we recommend that you install all the latest updates for your Windows Server.

Server Version

The instructions and pictures in this guide are written for Windows Server 2012. If you plan to install Rock on a newer version, there are a few differences in the installation you will need to watch out for.

Certificates

As you configure Rock, make sure you purchase and configure an SSL certificate before making it available at a publicly accessible domain. Prices range from \$9–\$100+ per year, and while the setup may seem daunting, there are plenty of helpful tutorials that walk you through the setup process. Also, you can check with your current domain registrar to see if they offer SSL Certificates. If you're new to SSL, Google provides a detailed list of best practices. Check out the Configuring IIS chapter below for additional details.

Free SSL Plugin Available

Thanks to the Rock Community, there is an easier option available for configuring SSL. Check out the Acme Certificate plugin in the Rock Shop. This will walk you through getting and installing a free Lets Encrypt certificate - a much easier route for anyone who has never set up website encryption before.

Encryption Best Practice

You might be wondering where and when you should add your encryption for your website. Every secure website will have an HTTPS address on every page. The simplest way of doing this for each site within Rock is by encrypting at the Site Level. This is done by checking the box for every site at: Admin Tools > CMS

Configuration > Sites > Edit Site > Require Encryption

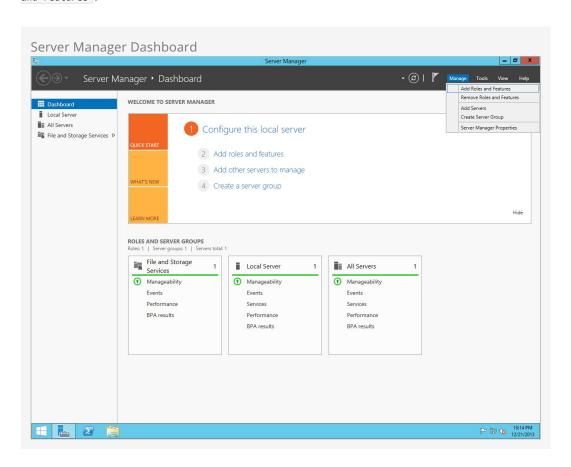
The two Rock sites for which you should enable SSL are the internal RockRMS Site, and the external facing website. Even if you don't plan to use Rock for your main website, it's important to protect the information flowing between your server and those who are giving you their information. Users typing http:// addresses in their browsers to visit your pages will be redirected automatically to the secure https:// site when "Require Encryption" is checked.

Now that we have these things covered, let's begin!

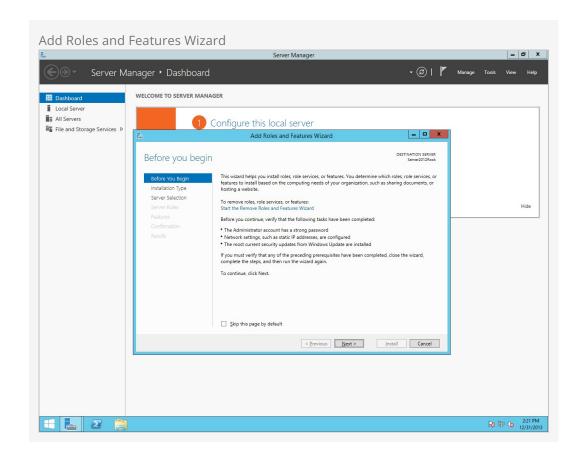
Installing Server Roles & Features

In this chapter, we'll install the required server roles and features needed for Rock.

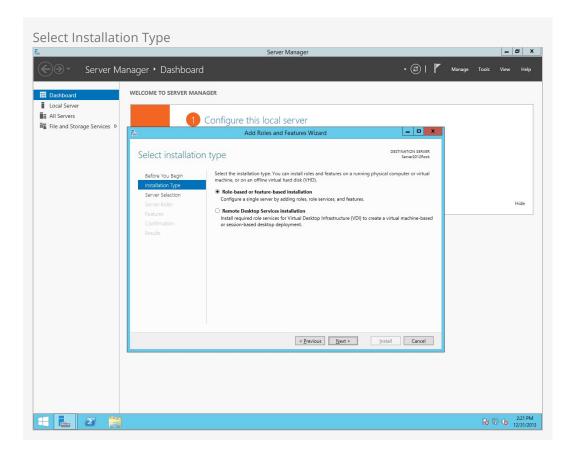
Let's open up Start > Server Manager. Once opened, the first thing we need to do is to install the Web Server role. That can be done by clicking on Manage and then Add Roles and Features.



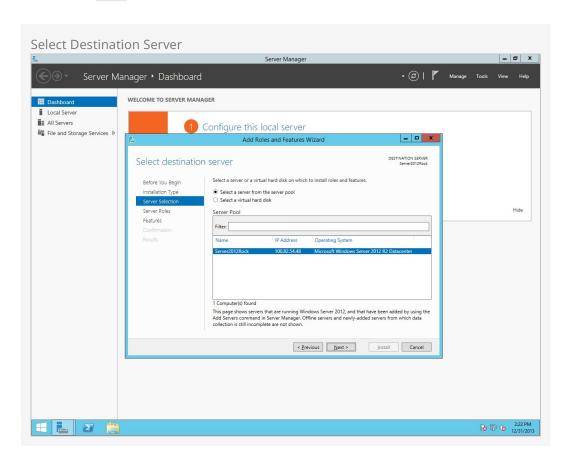
Click Next.



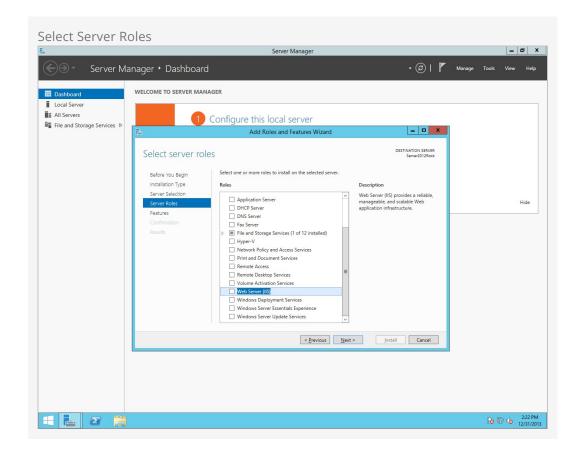
On the next screen, select Role-based or feature-based installation.



Choose Select a server from the server pool and then highlight your server from the list below. Click Next.



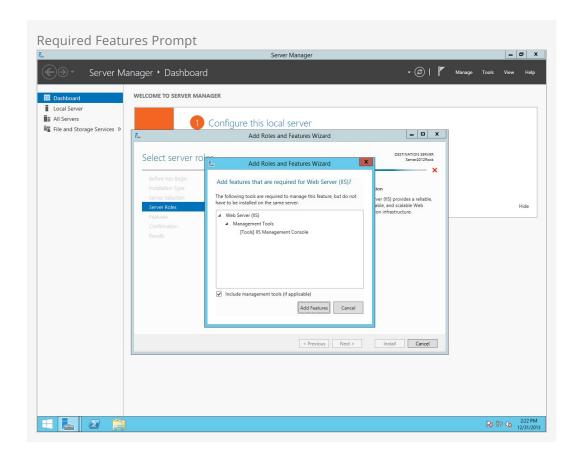
On the next screen, check the box for Web Server (IIS).



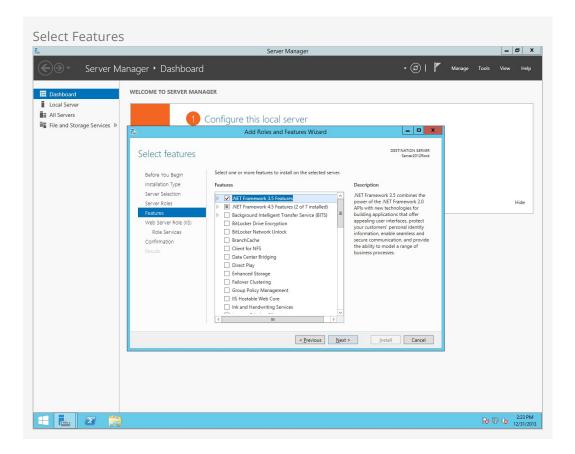
HTTP Redirection

By default HTTP Redirection is not installed/activated. If it is installed, you'll typically want to redirect to nothing (*Redirect requests to this destination* will not be checked).

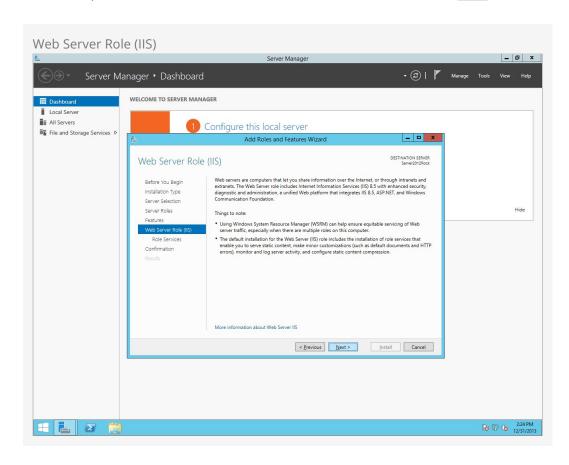
You will be prompted to add some required features for IIS. Click on Add Features. Then click Next.



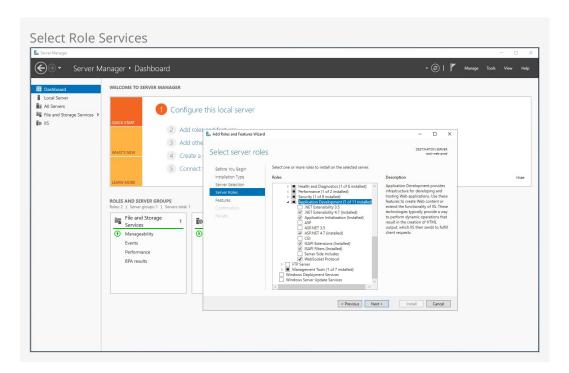
On the Select Features screen, add .NET Framework 3.5 Features and click Next.



You will be presented with some information about the IIS feature. Click Next.



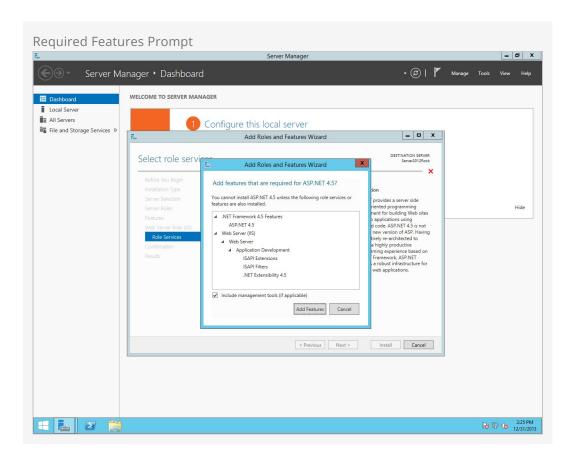
On the *Select Role Services* screen, scroll down to *Application Development* and check the boxes for *ASP.NET 4.7* and *Websocket Protocol*.



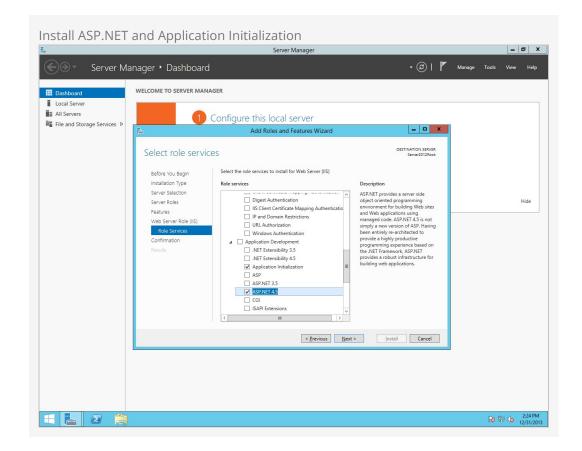
Version information

Server 2012 has ASP.NET 4.5, and Server 2016 has ASP.NET 4.6, instead of ASP.NET 4.7. Don't worry about that difference; just check the box next to the correct version and it'll work the same.

You will be prompted to add some required features for ASP.NET. Click on Add Features.



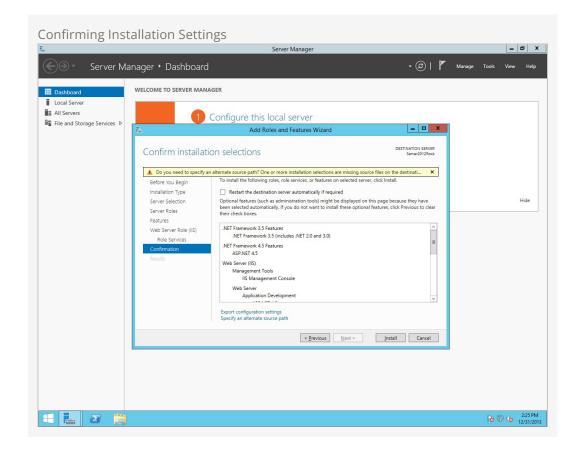
Next, check the box labeled *Application Initialization*. Then click Next.



On the final screen, select Restart the destination server automatically if required and click Install.

Warning:

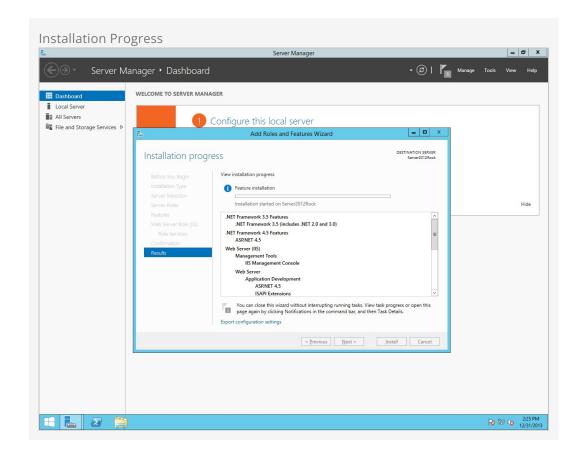
If this is a production server, you might not want to have the server automatically reboot.



Alternate Sources

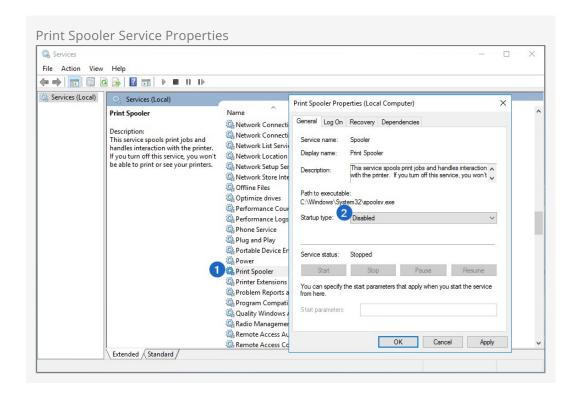
If the installation gives you an error about sources not being available (as in the screenshot above), you can click <code>Specify an alternate source path</code> before beginning installation. Make sure that your installation disc (or image) is available, then type in the path to it's the "sources\sxs" directory. For instance, if the Windows Server installation DVD is inserted in your D:\ drive on the server, type <code>d:\sources\sxs</code> in the alternate source path dialogue and click OK.

Installation will begin.



Performance: Disable Unnecessary Windows OS Services

Built-in Windows services, such as the *Print Spooler* can consume CPU resources and increase exposure to future security vulnerabilities. To optimize performance, stop these unnecessary services and set their startup type to *Disabled*.



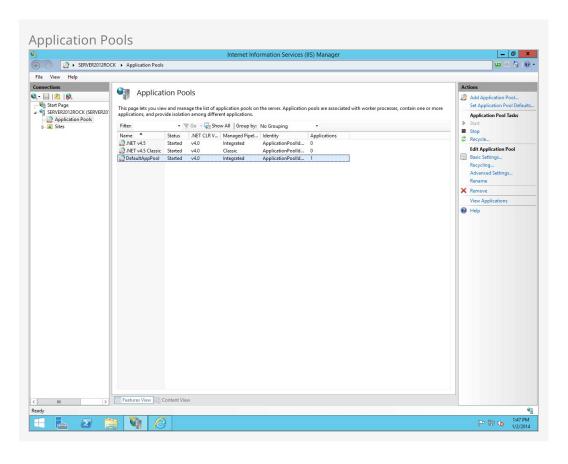
Congratulations! The web server is now installed. Let's move on to configuring Internet Information Services.

Configuring Internet Information Services (IIS)

Now we will configure Internet Information Services for Rock.

Configuring IIS

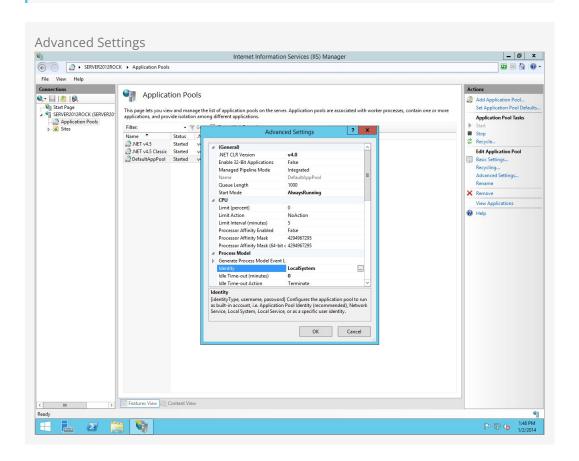
Open up the Internet Information Services Manager by clicking Start > Administrative Tools > Internet Information Services (IIS) Manager. Expand your server's node in the treeview on the left side, then click on Application Pools. Right click on DefaultAppPool and click on Advanced Settings.



Change the *Application Pools*.NET Framework Version to v4.0 (if it's not already) and change the Start Mode to *Always Running*. Then change *Identity* setting to LocalSystem and change *Idle Time-out (minutes)* to 0. Then click OK.

Keep Alive

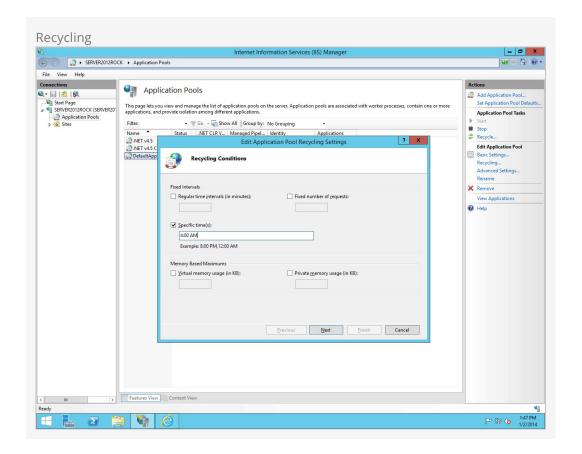
You must enable Rock's "Keep Alive" process, this is disabled by default. This setting is not needed if your AppPool's Idle Time-out is set to 0 - which is highly recommended.



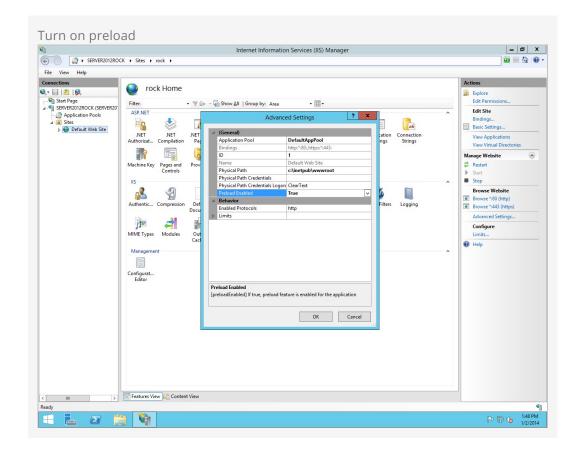
Now right-click on *DefaultAppPool* and click on *Recycling*. Un-check Regular Time Intervals and instead provide a convenient time for Rock to restart each day (such as 4:00am or 2:00am) in the *Specific Time(s)* option. Click Rest and then click Finish.

Daylight Savings Time

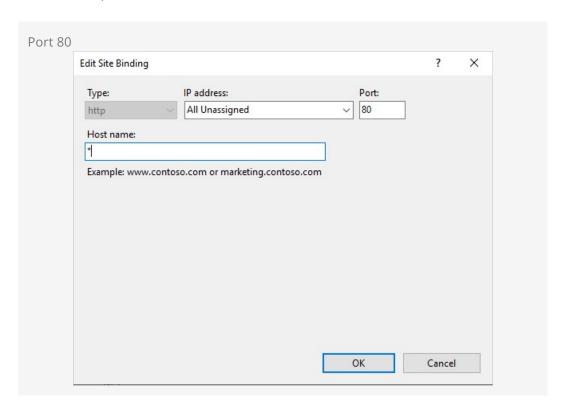
If your Windows server is in a time zone that observes Daylight Saving Time (DST), it's especially important to set a fixed daily restart time. This helps avoid unexpected job behaviors during the DST changeover, which occurs at 2:00 AM local time. Without this, jobs might run twice when the server time shifts.

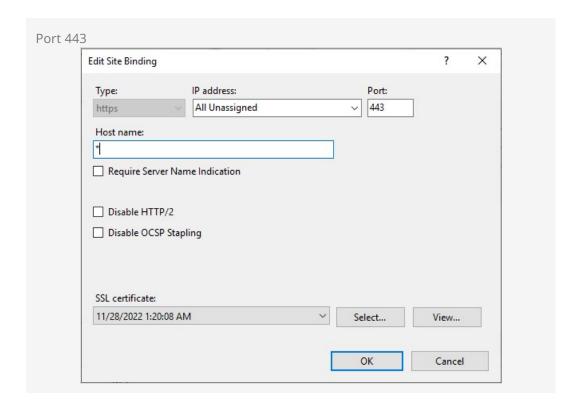


Finally, expand *Sites* (below Application Pools on the left side) and right-click *Default Web Site*. Choose *Manage Website -> Advanced Settings*. Change *Preload Enabled* to True and click ok.

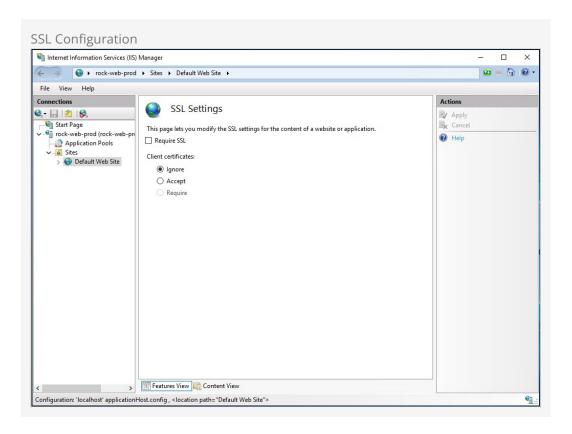


Generally the bindings will be configured for you automatically. However, if they're changed and you need to reset them, in most cases you'll use the configuration pictured below. Note that in some cases you must provide a Host Name; You can use an asterisk (*) in place of a host name.





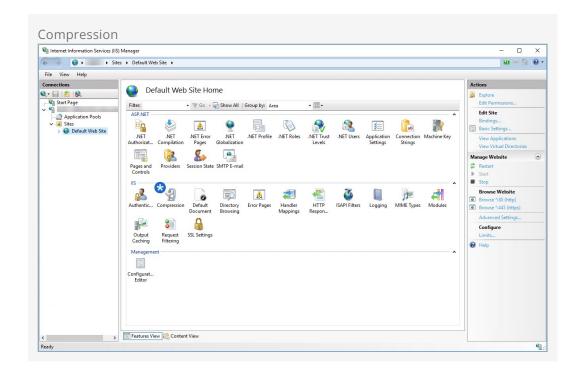
Click on the SSL Settings padlock icon to view your SSL settings.



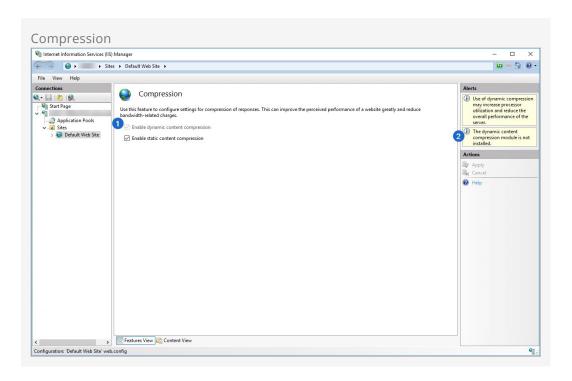
Performance Setting: Response Compression Settings

Now let's check that IIS compression is enabled for dynamic content.

To do this, open the *Compression* feature:



If the option *Enable dynamic content compression* is available, select it and click Apply. If the option is grayed out, the dynamic content compression module may not be installed, and you can skip this step.



That was easy! Now let's move on and set up our database.

Installing & Configuring SQL Server

In this chapter we will walk through installing SQL Server. If your organization doesn't have a SQL Server license, no worries. Rock works great with Microsoft's free version of SQL, SQL Server Express. Please note that SQL Server Express will work best with fewer than 20,000 records. If you are working with more than 20,000 records, your best option would be SQL Server Web or Standard edition.

Installing SQL Server 2016

The installation steps for SQL Server 2016 are an almost exact match to those pictured below for 2012. Note that we are ending support for SQL Server 2012 in Rock version 11.0.

Getting SQL Server Express

To download SQL Server Express, Click Here.

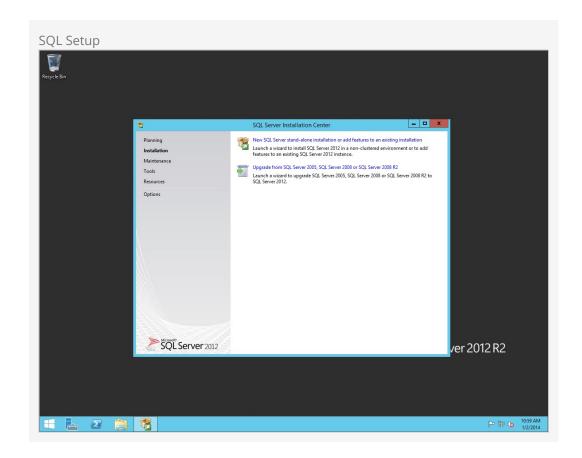
Some versions of SQL Server Express come in different editions. The version we recommend is the 64-bit version of SQL Server Express. Once you have SQL Server downloaded, let's move on to the next section.

If you're prompted to choose an installation type at the start of the process, select either *Custom* or *Download Media*.

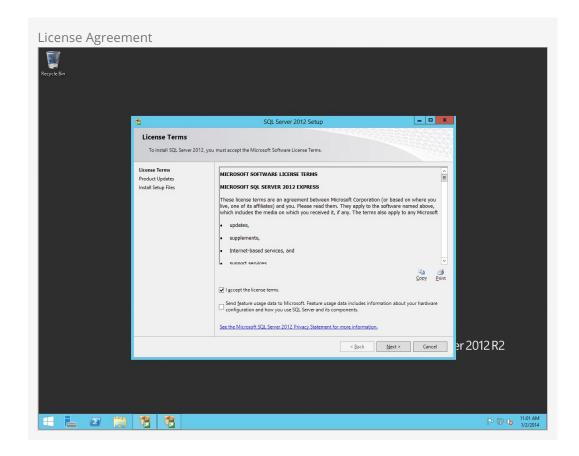
Installing SQL Server

In this section, we will be installing SQL Server onto our Rock server. Let's begin.

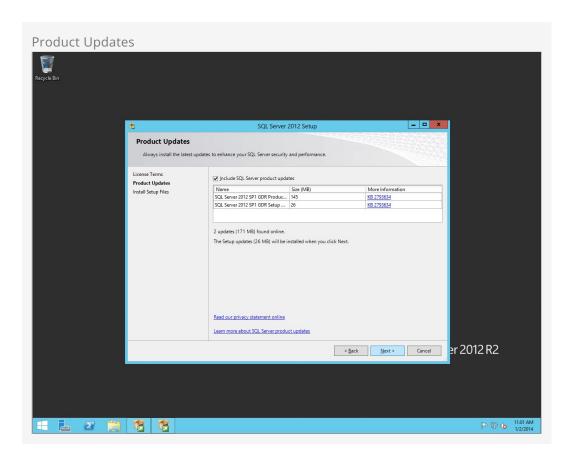
Start the SQL Server installer and on the first screen click on New SQL Server stand-alone installation or add features to an existing installation.



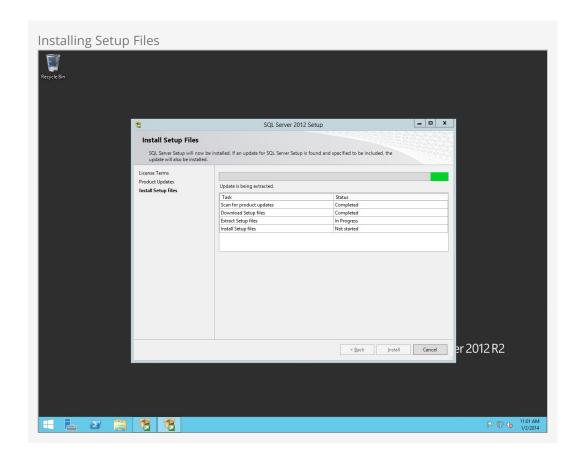
On the next screen, agree to the license agreement and then click Next.



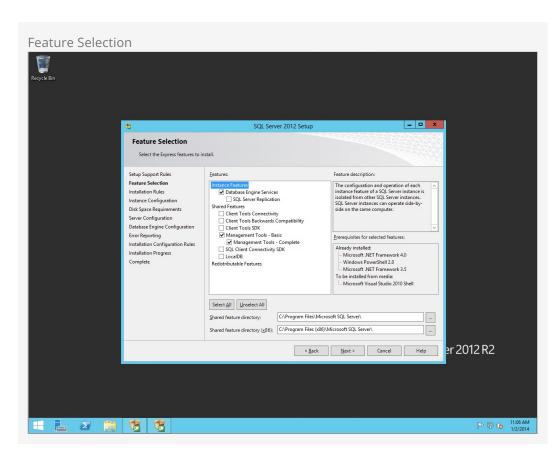
Keep the Include SQL Server Product Updates checkbox checked and click Next.



Next, the SQL installer will prepare to set up.



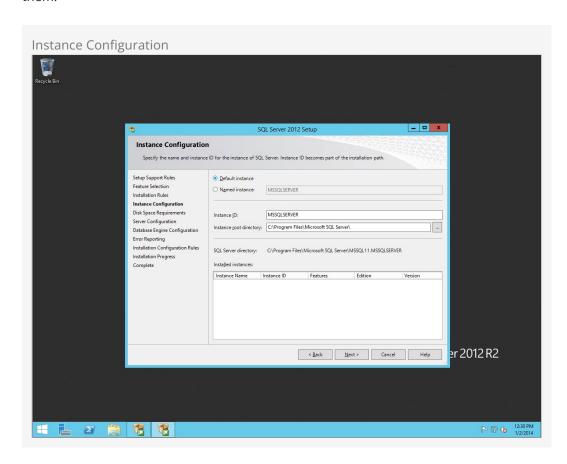
On the *Feature Selection* screen, we recommend using the settings shown in Figure 4.8. These are the minimum required settings needed for Rock. Click Next to continue.



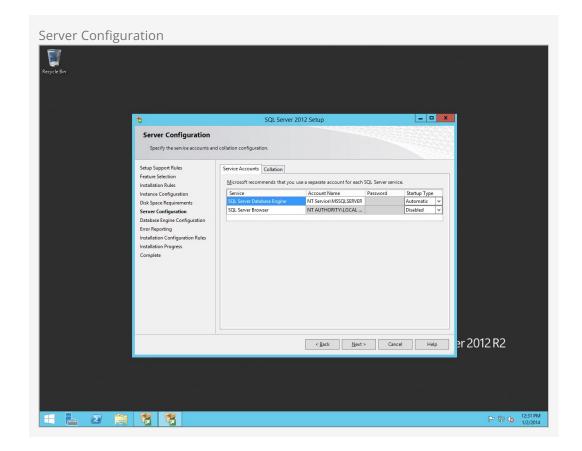
On the Instance Configuration screen, click on the Default Instance button. Click Next.

Warning

Be sure to use *Default Instance* if you are unfamiliar with SQL Server. This will simplify our Rock setup. We only recommend using *Named Instances* if you are familiar with them.



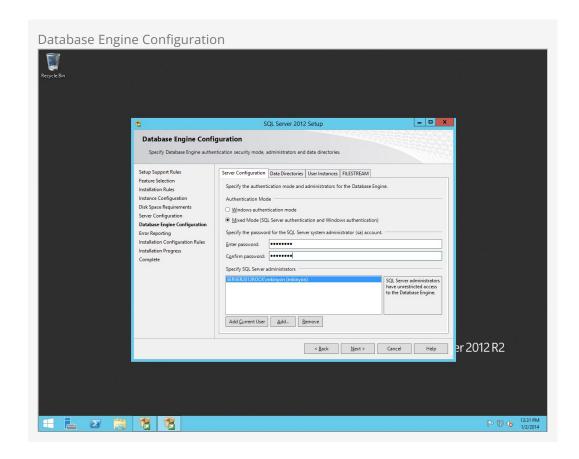
Leave the default settings on the Server Configuration screen and click Next.



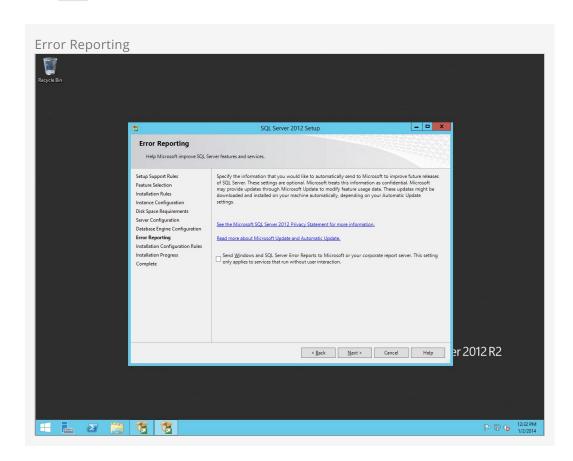
On the *Database Engine Configuration* screen, set the *Authentication Mode* to Mixed mode and set a password for SQL Server. Click Next.

Note:

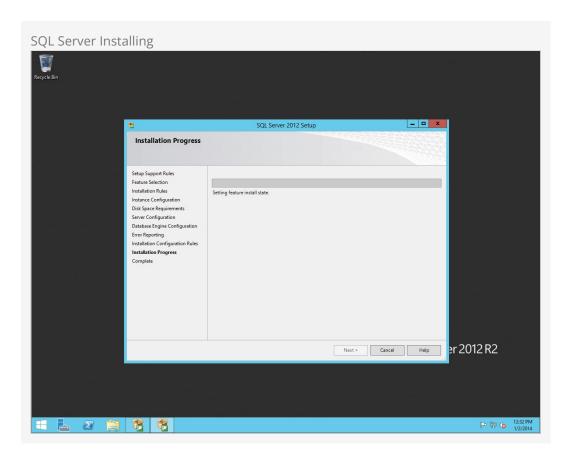
Keep this password handy since it will be needed later to set up the Rock RMS database. But remember to keep this password secure, and only share it with those who truly need it.



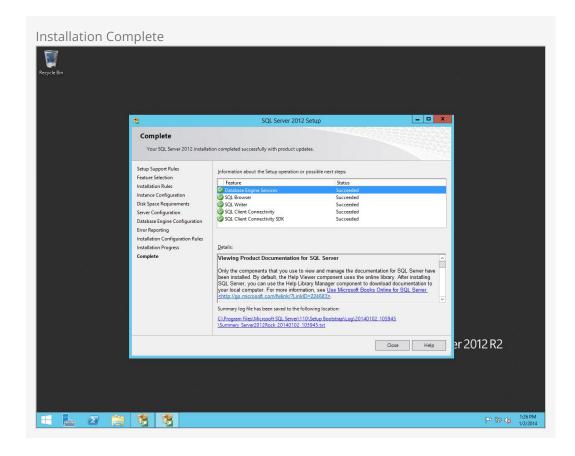
Skip past the *Error Reporting* unless you would like to send Microsoft error reports. Click Next.



Installation will begin, so hold tight.



Once it's complete with the installation, you can close the installer.



Now, the *SQL Server Installation Center* (the first screen of the installer) should still be open on your desktop. Whereas you clicked the first option last time, now we need to click *Install SQL Server Management Tools*. This will launch the web browser, pointed to the SSMS Download page. You need to download *SQL Server Management Studio*, not just the upgrade package. Download and then run this package. (You can close the Installation Center window now). There aren't many options in the installation of this package- just accept the license and let the installer run.

Configuring SQL Server

In this section, we'll start by setting up a user account for Rock to use to access the SQL Server. But before you begin creating users, it's important to understand the type of SQL Server environment you're working with:

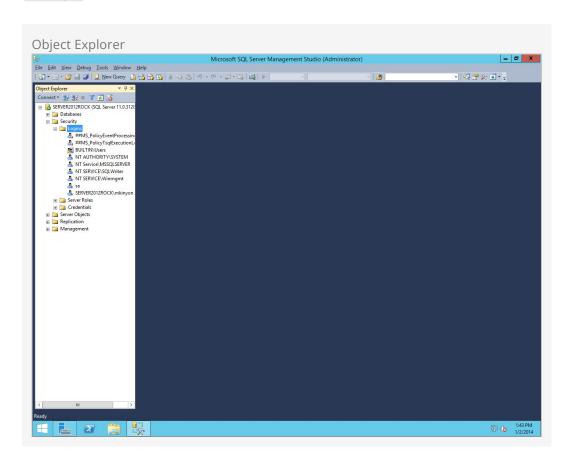
- Azure SQL Database: A fully managed database service where you interact with
 the database directly. To create users in Azure SQL Database, you'll need to use
 actual SQL commands in SSMS. We provide you with those SQL commands after
 the series of screenshots below.
- SQL Server on Azure VMs: A traditional SQL Server instance running on an Azure Virtual Machine. In the context of creating new users, this is the same as hosting locally. Instead of running SQL commands, you can use the windows and screens pictured below.

Creating a New User Account (Azure VM or Local)

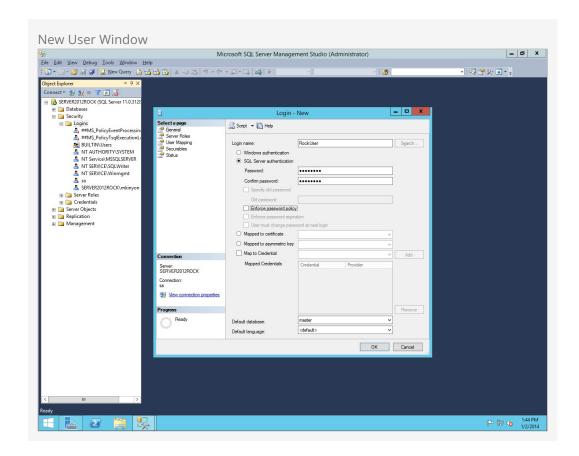
To begin, let's open SQL Server Management Studio. Change the Windows Authentication option to SQL Server Authentication and log in using the password we created during

the SQL Server installation. By default, the admin username is sa. Use that username when logging in for the first time.

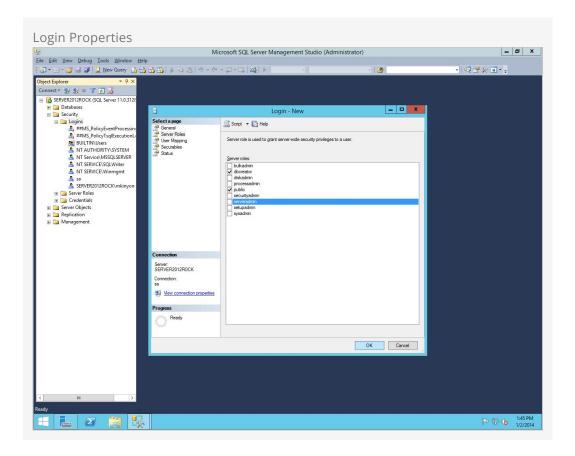
On the Object Explorer, expand the *Security* folder and right click on Logins and click on New Login.



Create a login called RockUser (or another username if you prefer), set the Authentication Type to SQL Server authentication, and create a password. Be sure to keep this password secured and only share it with those who truly need it. Also, uncheck the Enforce password policy setting for this account.



Next, click on Server Roles. Check the dbcreator role. Then click OK.

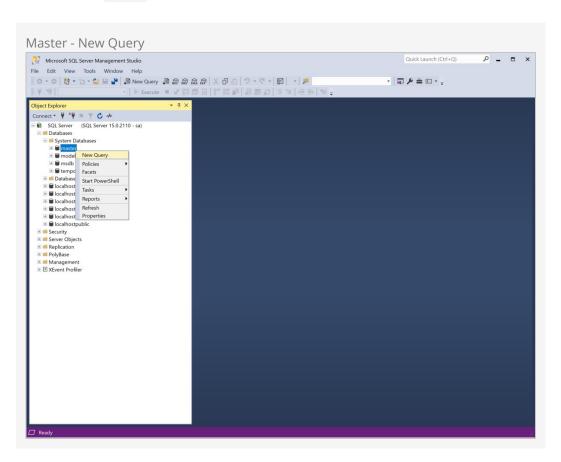


Creating a New User Account (Azure SQL)

Open SQL Server Management Studio and change the Windows Authentication option to SQL Server Authentication. Then, log in with a username of sa and the password we created during the SQL Server installation.

We're going to be running some SQL commands. Don't worry if you're not familiar with SQL, we'll walk you through each step.

To start, expand the *Databases* folder and then expand the *System Databases* folder. Right-click the master database and select *New Query*.



Paste the SQL below into the *New Query* window. Be sure to update the password, keeping it in single quotes. Do not use special characters for this password.

```
CREATE LOGIN [RockUser]

WITH PASSWORD = 'xxxxxxx';

CREATE USER [RockUser]

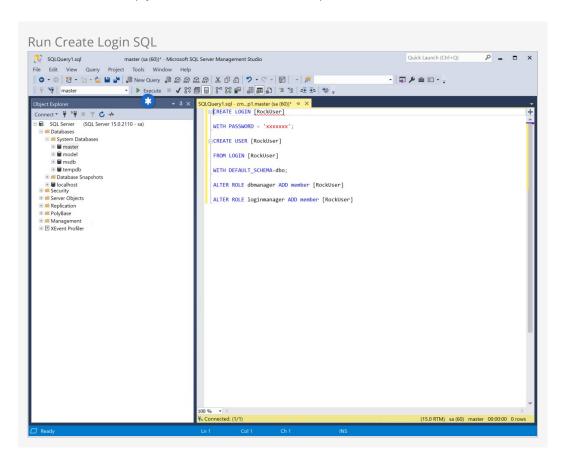
FROM LOGIN [RockUser]

WITH DEFAULT_SCHEMA = dbo;

ALTER ROLE dbmanager ADD member [RockUser]

ALTER ROLE loginmanager ADD member [RockUser]
```

To run the SQL, simply click the *Execute* button as pictured below.



At this point you would proceed with the *SQL Server Configuration Manager* setup described in the next section below, followed by the firewall configuration. Then proceed to the Installing Rock chapter, where your database will be built.

After your database is built, come back to SSMS. To access your new database, expand the *Databases* folder. The new database should be listed below the *System Databases* and *Database Snapshots* folders. Just like we did above, right-click the database name and select *New Query*. Paste the below SQL into the query window and execute it.

```
CREATE USER [RockUser]

FOR LOGIN [RockUser]

WITH DEFAULT_SCHEMA = dbo;

ALTER ROLE db_owner ADD member [RockUser]
```

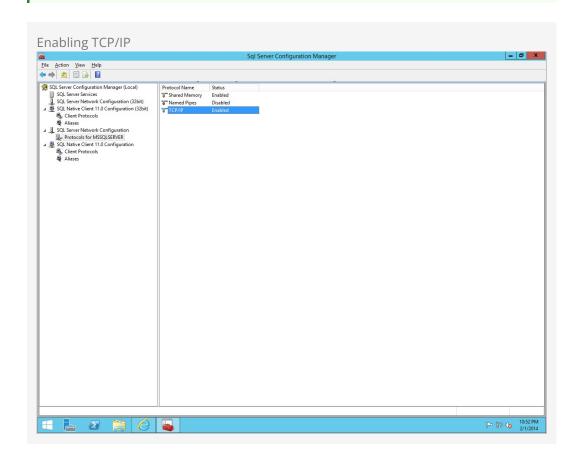
You can test the newly-created RockUser login by quitting and restarting SSMS, then entering the new user and password to log back in.

SQL Server Configuration Manager

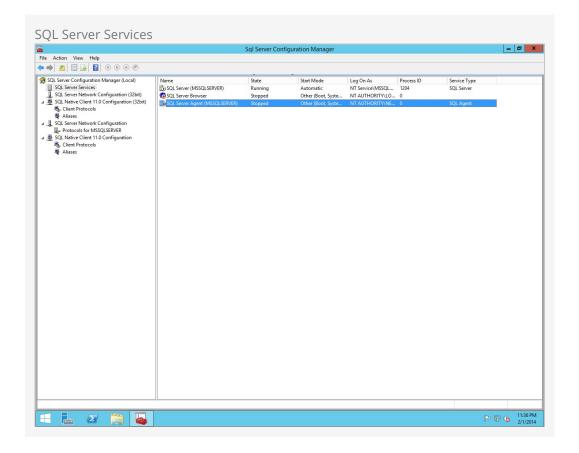
Now let's open up *SQL Server Configuration Manager*. Expand the *SQL Server Network Configuration* item and click on *Protocols for MSSQLSERVER*. Right click on *TCP/IP* and click on <code>Enable</code>.

Opening the SQL Manager

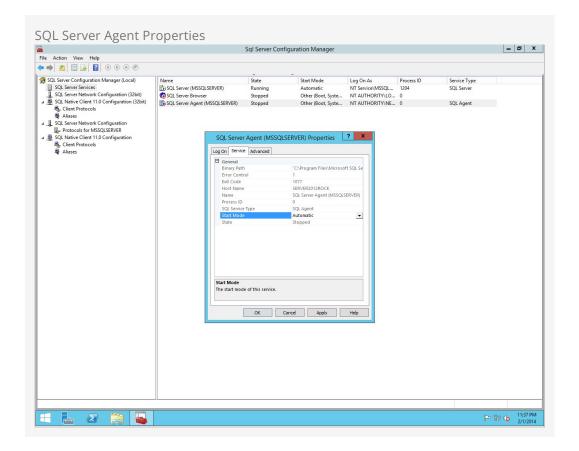
You can run the *SQL Server Configuration Manager* by navigating to Start > Microsoft SQL Server yyyy > SQL Server yyyy Configuration Manager, or by navigating to Start > Run. Refer to the SQL Server Configuration for instructions for your file name depending on your version of SQL Server.



Next, click on *SQL Server Services* and then right click on *SQL Server Agent* (MSSQLSERVER) and click on *Properties*.

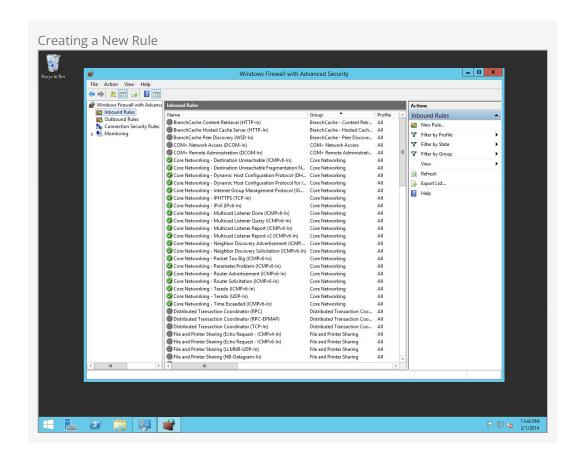


Set the start mode to *Automatic* and click on Apply. Now, since our earlier changes warned us that we'd need to restart the service to take effect, you should right-click the SQL Server service and choose "Restart".

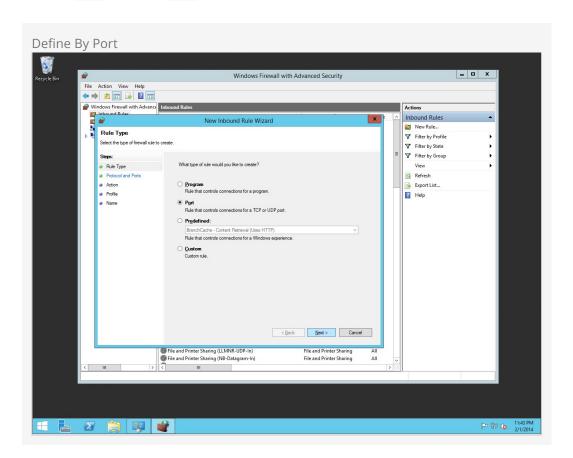


Firewall with Advanced Security

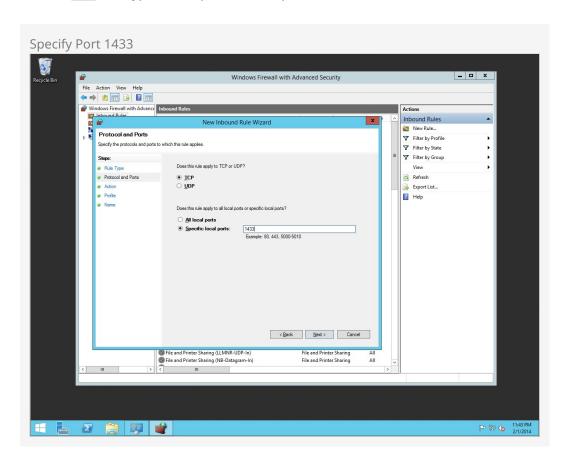
Next, let's open up *Firewall with Advanced Security*. Right click on Inbound Rules and click New Rule.



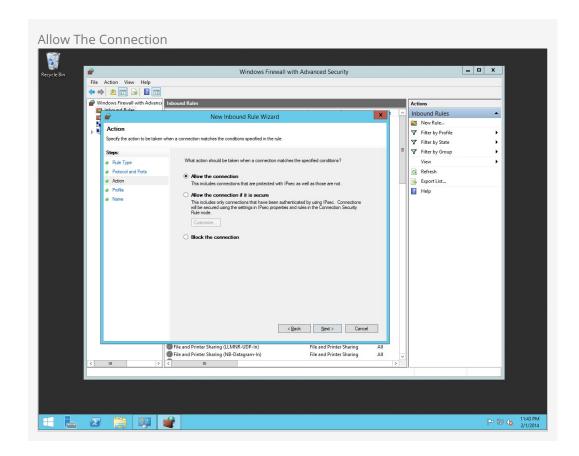
Click on Port and click Next.



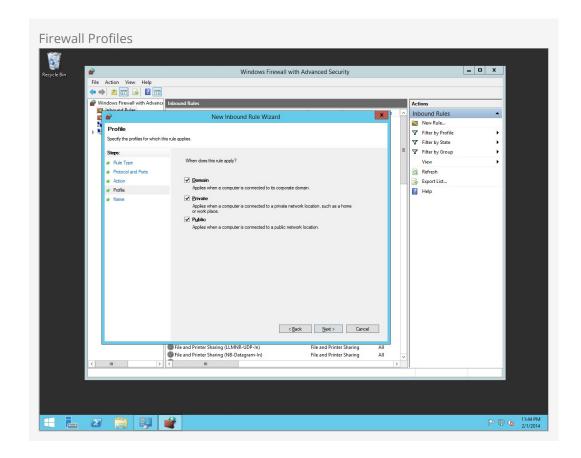
Choose TCP and type in the specified local port, "1433."



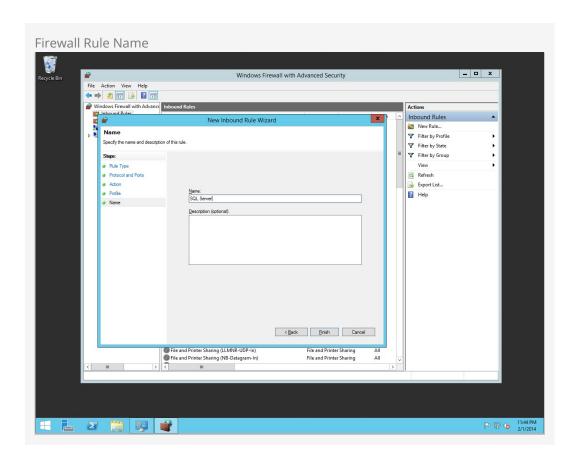
Click on Allow the connection and click Next.



Choose which profiles this rule is applied to and click Next.



Give the rule a name and click Finish.



If you're installing Rock and SQL Server on the same server (see warning below) then you'll probably want to lock down port 1433 so that your database is not exposed to the internet. In that case, open the firewall rule you created above. Under the *Scope* tab add 127.0.0.1 to both the Local IP address and to the Remote IP address sections.

127.0.0.1 is the local host where SQL Server is installed. This prevents anyone from outside that server from accessing your database. This does not apply to an Azure setup.

PCI Compliance

If you're planning on processing credit cards within Rock, it's not PCI compliant to have the web server and database on the same server. Regardless of the size of your organization, it's not allowed.

That's it! Let's move on to the next chapter.

Installing Rock

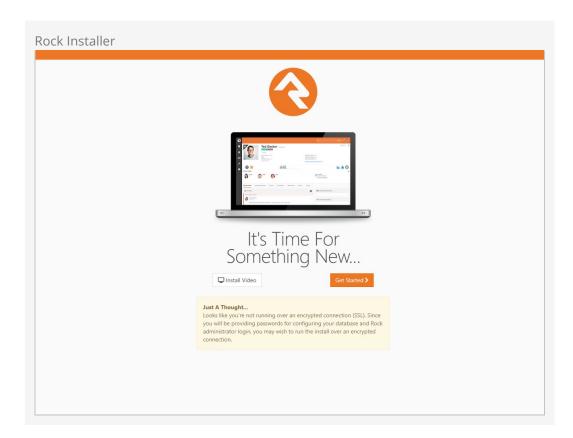
Now that our foundation is set, we can begin the best part - installing Rock!

The first thing we need to do is to download the Rock installer, which you can find at rockrms.com/Rock/GetStarted. Place the *Start.aspx* and *web.config* files from the installer package in the root of the web folder. By default, the web root folder will be located here: C:\inetpub\wwwroot.

Tip: make a fresh start!

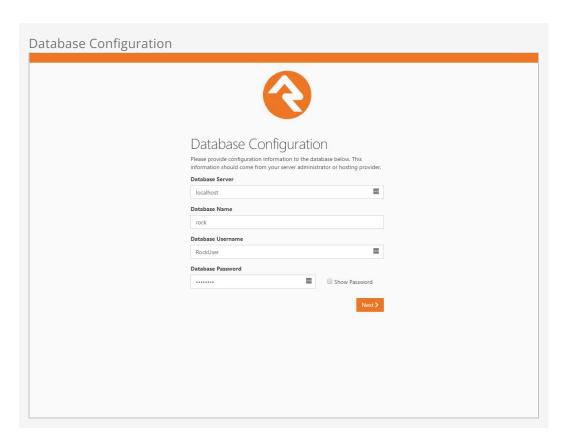
If you're installing in the default wwwroot folder, you'll see that Windows has already placed some content here. Be sure to delete that before starting your installation; only Start.aspx and web.config should be in that directory.

Open up a web browser and go to http://localhost/Start.aspx to begin the installation process.

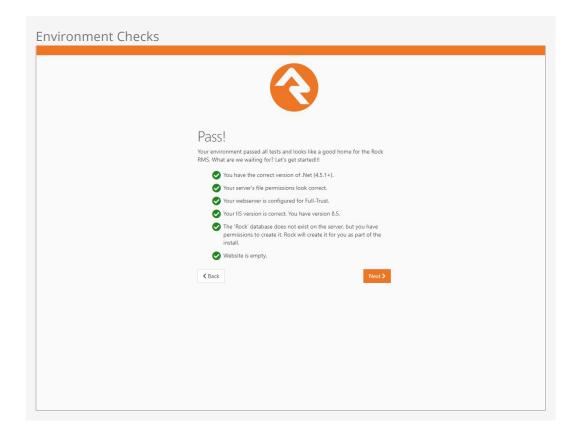


Now we will enter in the SQL server information. If the SQL server is installed on this server, you can type in "localhost" in the *Database Server* box. If you are using another server for SQL, you can enter the server name instead.

Next, enter in a name for the Rock Database (e.g. "Rock") and enter in the username and password we created earlier in the SQL Chapter. Click Next.



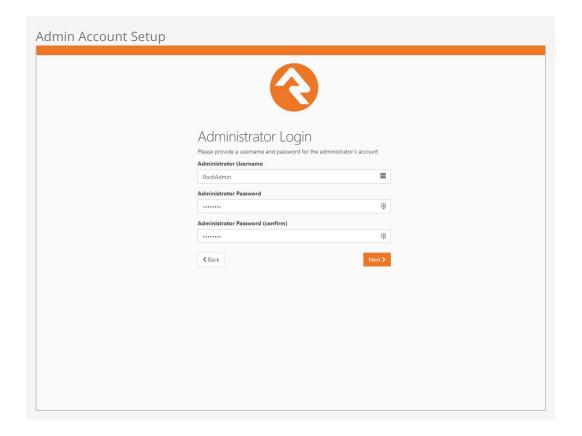
Now the Rock installer will run some checks to make sure the environment is ready for use. If everything checks out, you will see the *Pass!* screen. Click Next.



The next screen will allow us to create an admin username and password for Rock. This will be the default admin account for Rock. Be sure to use a good password, and limit who has access to it. Click Next.

Note:

We recommend using a general or organization account, not a personal one. You can create your own login after the install.

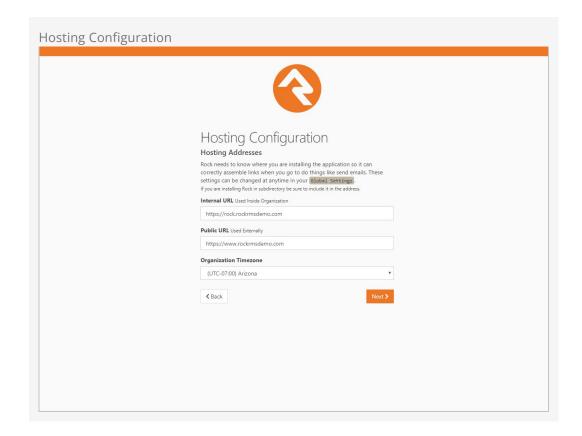


Now you'll need to enter in your organization URLs.

- **Internal URL:** The web address you'll use to connect to Rock internally. (Example: http://admin.rocksolidchurchdemo.com)
- **Public URL:** The public facing website for your organization. (Example: http://www.rocksolidchurchdemo.com)

Note:

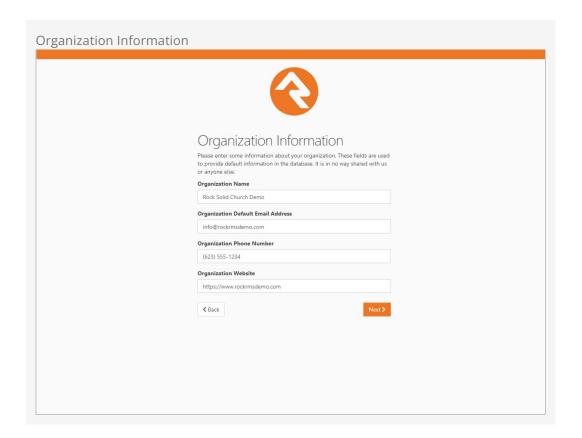
Don't worry if these addresses aren't configured to point to your new server yet. These addresses are intended to be the ones you'll use once you're ready to go live.



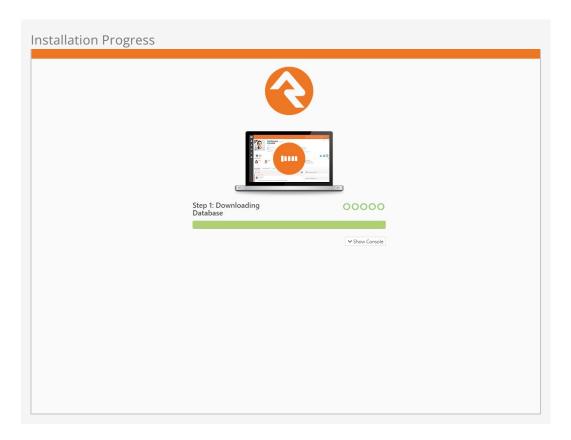
Now let's enter in your Organization Information.

- **Organization Name:** The name of your organization
- Organization Default Email Address: The default email sending address for Rock
- Organization Phone Number: The main phone number of your organization
- Organization Website: The website of your organization

Note: Don't worry, these settings can be changed later under Admin Tools > General Settings > Global Attributes

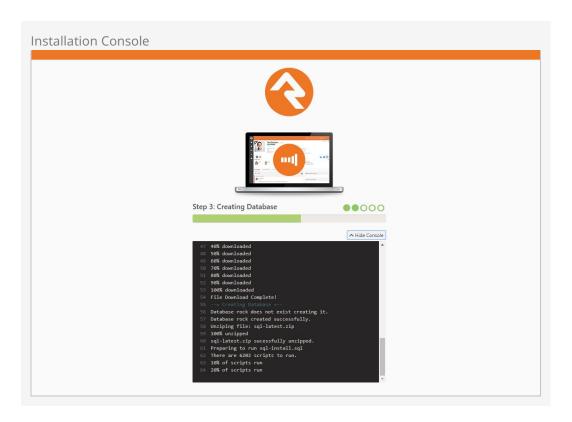


Now that you have all of your organization's information entered into Rock, click Next to begin the Rock installation.

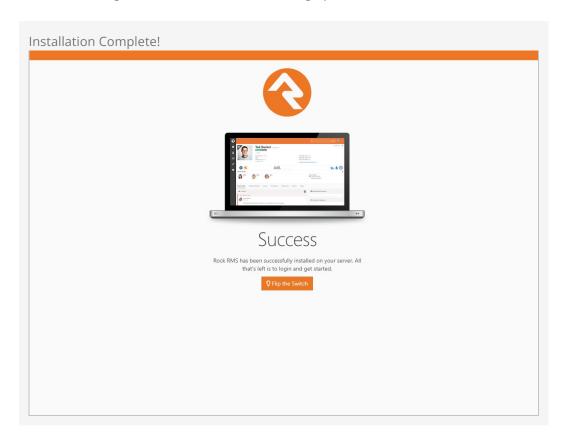


Rock will begin downloading the needed files onto the webserver and configuring the

database. You can observe this process by clicking on the Show Console button.



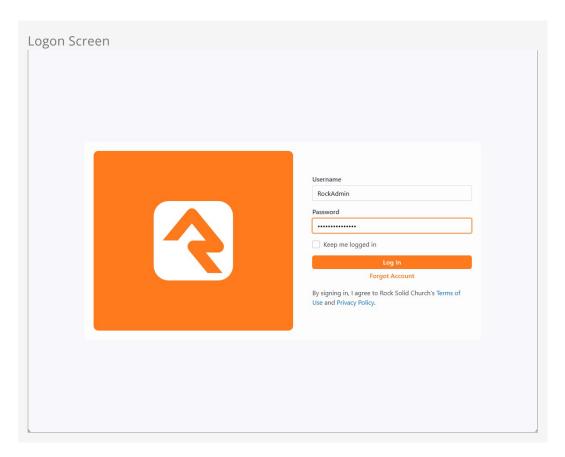
When complete, click on the Flip the Switch button. Keep in mind, this loading screen will take the longest to load since Rock is starting up for the first time.



Note

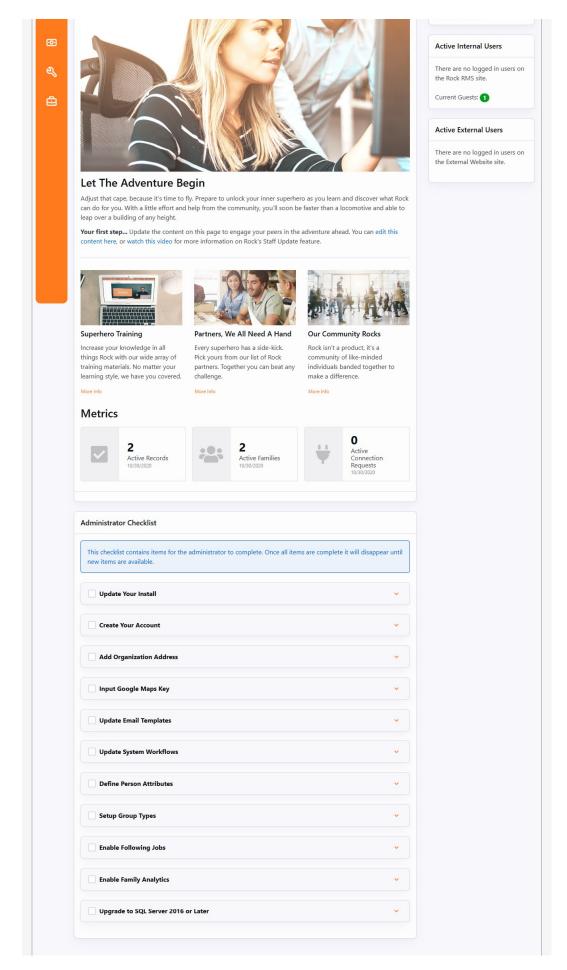
If you arrive at the external site instead of the internal login page it could be that the domain name is set to be used as the external site. When Rock isn't provided with a specific page to load in the URL it looks at the domain and finds a site in the database that matches. If this happens to you, you can get to the internal site by this URL: http://{yourserver}/page/12

Now that Rock is installed, you can begin by logging in. Log in with the Rock admin account you created during the installation.



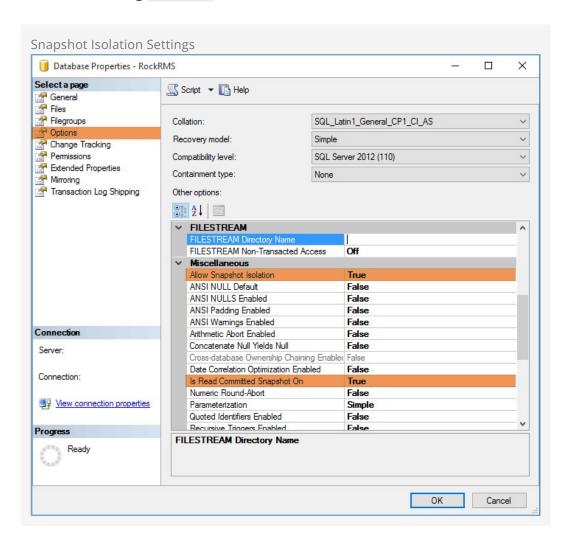
Once logged in, you'll be taken to the Rock homepage. You will see the *Administrator Checklist*, which is a list of the recommended first steps to maximize the potential of Rock at your organization. Don't worry about completing the list today. You can get to it as you become more familiar with Rock. The list will disappear once you mark off all the items. It may reappear after updates, if special configurations are needed. Think of it as a friend that only shows up in your time of need.





Snapshot Isolation Settings

We recommend enabling snapshot isolation for your Rock database. This keeps database reads from being locked by database writes. Below are the settings we recommend (found by right-clicking on the database name in SQL Server Management Studio and selecting Properties).)



Default Settings May Vary

Depending on your SQL Server edition and version this may already be the default.

Two-Server Configuration

If you were looking at the system requirements in this guide's introduction, you might have noticed that there is a two-server configuration for larger installations. Even for smaller installations, we recommend two servers for the following reasons:

- Performance: Having your Rock Database and Web Environment on separate servers means they won't be sharing resources and will be able to perform at a higher capacity.
- **Security:** If you plan to use a public website with Rock, you can put the web server in a DMZ for added network security. Setting up a DMZ is outside the scope of this guide, but if this is something you plan on pursuing, reach out to the Rock community.
- PCI Compliance: PCI Requirements in the U.S. require that if you are taking or storing financial information through your website, your database must be separate from your web host.

It's All in the Details

The process for setting up a two-server environment is not that much different from the single-server setup described in this guide. Here is a high-level task list for each server:

Database Server

• Install & Configure SQL Server

Web Server

- Install the required Server Roles and Features
- Configure Internet Information Services (IIS)
- Point Rock at the database server during installation

Be sure to check out the rest of the Rock guides and manuals to help you get started.

Self-Installing Rock

If you're installing Rock and SQL Server on separate VMs or servers yourself, in your own network (not in Azure), then port 1433 should only be open to the Rock server. This is so Rock itself can talk to the SQL db. In this setup your self-hosted SQL server should

not be NATed (exposed via a public IP) to the Internet at all. It should be internal to your network with only Rock (and perhaps a dev machine) allowed to talk to it.

To do this, open the firewall rule you created in the Installing & Configuring SQL Server chapter above. Under the *Scope* tab, add the IP address of your Rock web server to the Local IP address if it's on your internal network, or to the Remote IP address section if it is external to your network. No other ports need to be open if the database is external to the network (i.e., on another external server).