SERENA SOFTWARE

Serena Agile Planner for the Enterprise

Installing Serena Agile Planner

January 30, 2007

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Overview

is a powerful management solution from that helps people in your organization–, , , stakeholder, and more–make better decisions and produce better software. All of the roles, artifacts, meetings, and rhythms that are needed to support processes found in classic Scrum and enterprise Scrum can be found within , a software application that helps teams be more .

 image

is the ideal tool for multi-team and multi-project environments.

- **All Your Projects In One Place**–Does your team have more than one project? How about more than 50? With , you can keep all of your projects in one place. Portfolio views and reports can be accessed in real time. Your portfolio can include multiple products, projects and teams. handles complex enterprise portfolios and gives you a dashboard view of the health status of all your releases.

- **Team Backlogs**–Use team backlogs to assign work from multiple projects to a single team. Product owners can assign work from the product and release backlogs into the team backlog. Then the team can break the work down into sprints according to priority and rank. Team backlogs can help you unlock the benefits of that single team experience for your entire organization. Just because your situation is complex doesn't mean that you cannot be in your enterprise.

- **Innovation, Creativity, Visibility**–Are all your teams doing in their own way, with their own flavor? Now you can encourage innovation and creativity without sacrificing visibility. allows each team to maintain their own configurations but still roll up all the data the business needs in reports and dashboards. The teams will be happy doing the way they want. You'll still get visibility and insight across the portfolio of backlogs within your organization.

- **Super Scrum And Scrum Of Scrums**–Do you have a complex product and team structure with many teams working on dependant projects? Coordinating releases in that environment can be challenging to say the least. We've built flexible backlog views that will help you easily coordinate work between teams and projects. Super scrum is a strategic meeting that is held across projects to coordinate goals. Scrum of scrums is a tactical meeting that is held across teams to tackle impediments and coordinate sprints.

There are two ways to use and deploy in your organization:

- **On Demand**–The on demand version of shares the same set of management, configuration, and collaboration features as the enterprise version of , including custom configuration options. Some of the advantages of using the on demand version of include using the same features as the enterprise version, never having to deploy hardware and software, and not needing to apply a patch or an update, or perform a migration. For many organizations, this can be an advantage. To learn more about , see http://www.serena.com/products/agile/.

- **For the Enterprise**–Larger organizations, or those who want to keep their deployment in-house, use technologies like fail-over, clustering, or load balancing as you deploy the enterprise version of . To learn more about how to deploy and configure an enterprise version of , continue reading this guide.

Planning Your Configuration

The goal of configuration planning is to help the IT group, executives, and process owners to select a configuration that meets the needs of the organization. Ultimately, the goal is to provide users with agreed-upon levels of service as they perform their work, while consuming predictable and maintainable levels of system resources as service is delivered.
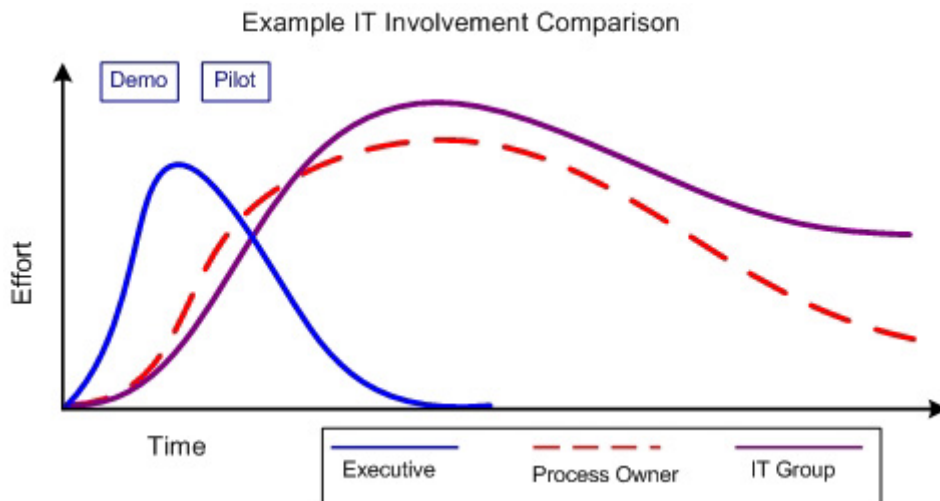
An important part of this process is for your organization to identify common usage patterns (including number of users, user roles, and security requirements), estimated data loads and network usage, and average/peak system usage. Use these measurements to help identify the configuration that will work best for your organization.

After you have a high-level understanding of what your deployment will look like (who will be using , how often, and when), the next step is to deploy . Once deployed, you can use the starting configuration as a baseline from which you will then continue to configure so that it accurately reflects your organization's workflows, resource structures, and project management style.

Involving the IT Group

For many enterprise software deployment processes, such as installing , configuration drivers often come to the information technology (IT) group from outside of IT. Executives and process owners often play a large role in the decision making process around how should be deployed, including helping to define how will be used to help address specific business needs and how it should be configured so that can be used to help achieve specific business goals.

This kind of top-down decision making process typically arrives at the IT group in the form of business and technical requirements. The following diagram compares executive, process owner, and IT involvement:

Example IT Involvement Comparison

Executives help initiate the process of deploying by driving the vision for what will become an IT implementation project. At this level, IT group representatives work with the executives to define the requirements and scope of the deployment and to allocate the budget and with process owners to help define requirements, analyze usage patterns, and to identify business process changes and improvements.

Additionally, the IT group works to define architectural requirements as determined by the performance, capacity, and service level needs of your organization. During this part of the deployment process, Professional Services can arrange a product demonstration that can help show how can most effectively be used to address your organization's planned requirements and goals.

As the deployment path gets closer to a pilot, a test environment, or a small-scale deployment, the IT group will be working closely with process owners to help ensure that is configured to your organization's specific needs. These needs include adding the right items, creating needed custom attributes, defining work and resource breakdown structures, and so on. Professional Services can work closely with your organization to help ensure that all of your organization's configuration requirements are met.

Business and Technical Considerations

As your organization is working towards a baseline configuration for , there are several factors that play a part in helping determine what your deployment environment will look like. These factors are not equal (or necessarily standalone); their importance can vary widely and there may be factors unique to your organization that are not noted here:

▪ **Network configuration and topology**– processing is distributed across the Web client, application server, and database server. Consequently, network hardware and software configurations and capabilities can have a significant impact on the performance characteristics of your deployment.

▪ **server processor capabilities**– server transactions can be processor intensive. Faster processor speeds will translate directly into improved performance.

▪ **Distributed applications**–If your organization has a large number of users, in both the number of individual items and in the number of concurrent users, the best approach is to distribute the dedicated components of (such as the application server and the database server) on to dedicated server hardware.

can be scaled-up and it can be scaled-out. The decision to do either is dependent on several factors, including maintenance costs, hardware budget, and more, such as:

1. **WAN capabilities**–When is accessed by users over a WAN, consider the geographic location and number of users, as well as the bandwidth, latency, and throughput of the connections these users will be relying on.

   The latency from the client machine to the server has a big impact on view load times. As a general rule-of-thumb, an average round trip ping time of below 100ms is considered to be "good". Between 100ms and 300ms is considered to be "usable". Over 300ms will be very slow, and most users would probably not consider it to be usable. The longer the ping times, the longer it will take for the data to download to the client and the longer the views will take to load. It is also important to remember that "good" and "usable" are subjective. If a user always has latency issues on the network, they may feel that 8 seconds to load a page is fine and "usable". But, someone who normally has faster response time, may say that 8 seconds is totally un-usable.

2. **Existing network infrastructure**–Deploying may require upgrades or modifications to existing infrastructure to support the additional bandwidth requirements.

3. **Security requirements**–Security policies are one of the most important elements of any deployment plan; however, security policies and security-related configurations can effect performance. For example, using SSL can reduce response times from the server and it can limit the total number of available connections. Using internal firewalls can also affect performance.

4. **Availability**–This can be as much a business requirement as a performance requirement. supports load balancing in a Web farm configuration, which will provide performance benefits and can increase availability in terms of overall concurrency. Depending on the availability requirements, additional hardware may be needed.

5. **Maintenance**–Maintenance costs are important when considering not only the initial configuration of , but also possible scale-up or scale-out strategies. For example, maintenance costs weigh heavily when considering the use of better hardware, such as a quad processor server instead of a pair of two single processor servers. Hardware decisions need to be balanced against the other capabilities of your organization's network and against the overall performance requirements your organization needs.

6. **Cost constraints**–Hardware budgets are one of the biggest factors in deployment tradeoffs. If a budget does not support the planned configuration, you must modify the plan to fit within the budget. Depending on the hardware purchasing process, you may be able to deploy iteratively to account for purchasing cycles.

Sizing Your Configuration

There are a number of factors that should play a role in how your organization determines the type of hardware you will need to support the size of your deployment, including:

- **Number of users**–A user is any person who is licensed to log on to . Knowing how many users in your organization will need to access might be the most important aspect when it comes to sizing your deployment. Larger numbers of users will translate to greater potential demand from the system.

- **Number of items**–Items are the work items–stories, tasks, defects, and so on– and the artifacts–backlogs, projects, teams, sprints, and so on–that your organization will need. Larger organizations with more work items and artifacts will put a greater demand on .

- **Usage types**–Use case scenarios help dictate the type of hardware needed. A deployment that manages thousands of work items in several portfolios will differ greatly in terms of configuration choices from a deployment that is designed to support a single product with fewer than three teams. Another factor is concurrent usage. The larger number of concurrent users on the system, the greater need for better hardware will be.
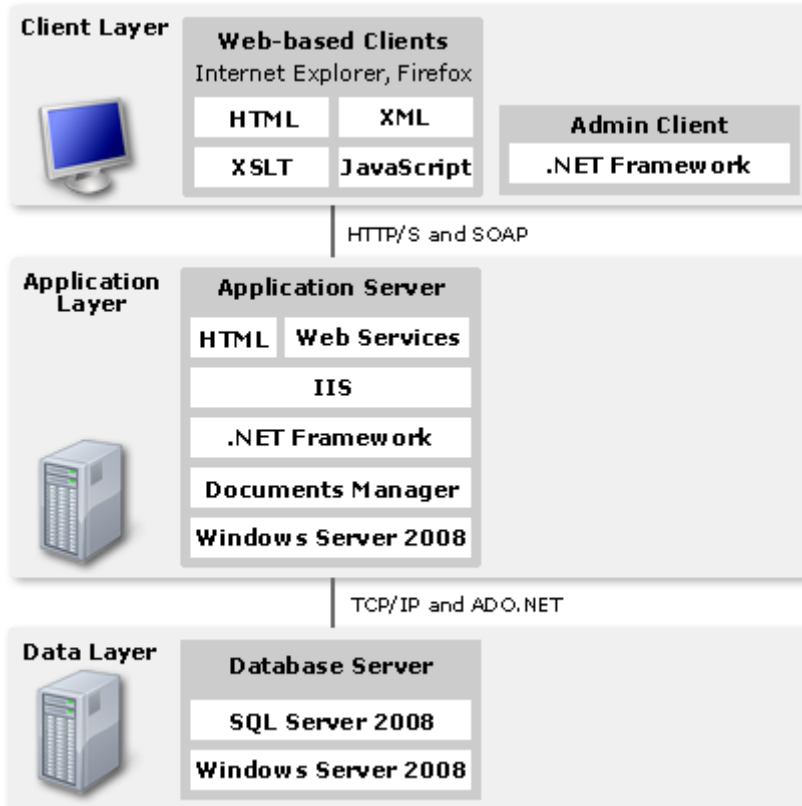
Besides the number of users, work items, and usage patterns, other factors can play a role in how your organization chooses to , including incorporating any of your organization's IT policies for databases and application servers. For example, do you need to cluster the database or provide fail-over capabilities? Does the application server need to be installed in a load balanced configuration?

- **Scaling up**–Scaling up includes exceeding the requirements mentioned in this guide by using hardware that contains faster CPUs, multiple CPUs, more memory, faster network cards, or some combination of all of these. This approach will improve the overall capabilities of your deployment and will improve the overall user experience.

- **Scaling out (load balancing)**–Scaling out your deployment will help your organization achieve the highest levels of concurrency and performance. Scaling out using hardware often requires specialized hardware and it can be more expensive. Scaling out using software can be done using the load balancing capabilities of , which can be configured to automatically distribute the load across all of the servers in the load balanced configuration. When is scaled out, clients will continue to access the system via a single URL and will be unaware of the load balanced configuration. As your organization's requirements increase, additional servers can be added to the load balanced configuration.

- **Clustering and fail-over**–Similar to load balancing for the application server, clustering and fail-over are ways to provide redundancy to one of the most important elements of your deployment: your database. A clustering or fail-over strategy helps ensure that when users access , they can access the data that is stored in the database. A clustering or fail-over configuration will require careful planning and should be undertaken only by organizations with the appropriate levels of commitment to their IT infrastructure and hardware resources.

Overview of Server Components

From a hardware and software perspective, has a relatively simple deployment story in terms of planning for its configuration. Before deploying , you should understand the components of , how they interact with each other, and what they are used for. As part of this analysis, you should understand the hardware and software requirements for each of the components, and the different configuration options that are available. Before installing any component of , you should acquire hardware with the appropriate specifications, and then you should install and configure the appropriate version of the operating system, , and other software prerequisites (such as IIS) on to the computers that will be running the various components of .

has three layers (client, application, and data) and three components (client, application, and database).

From a configuration perspective, another important part of your deployment strategy includes thorough configuration planning and rigorous testing of that configuration in a non-production setting. Part of your configuration planning should include understanding your organization's business requirements and processes needed to manage your portfolio. This helps ensure will be configured to address your needs.

Application Server

The application server is the core component in a deployment. uses Microsoft .NET Framework, version 3.5 and leverages many of its enterprise application capabilities, including memory management, database access, and Web services. Services that are used by the application server are hosted in Microsoft Internet Information Services (IIS).

The application server includes a core set of services that determine how users can to interact with , including:

- **UI Content and Framework Services**–These services receive, process, and respond to HTTP requests handled by IIS. This is the primary entry point to from any of the supported client browsers.

- **Object Services**–These services provide ways to create, retrieve, and modify item objects that are contained in portfolios. Supported actions include performing calculations, allowing users to interact with datasheets, and identifying which item objects are available to a user in .

- **Security Services**–This service determines which areas of a user may access based on their permissions, roles, and license.

- **Notification services**– Notification services are responsible for processing notification requests, which are sent to users of through email. Notification services require Microsoft Message Queuing (MSMQ), which can run as a local system account at a normal thread priority or as a remote system account. Email notifications are only sent to users who have been configured to receive email notifications.

- **Scheduling services**–Scheduling services are responsible for starting scheduled jobs in . The service itself runs as a local system account and at a normal thread priority.

- **Documents manager**–The documents manager provides document storage and management functionality in . For organizations that anticipate a need for a large documents repository, the functionality can be offloaded to a separate server.

Prerequisites: Web Server

In addition to the hardware and software requirements listed in this section, you should review the software configuration prerequisites necessary for a successful deployment.

Category	Minimum Requirement
CPU and **Memory (RAM)**	The speed of the CPU and the amount of RAM will depend on several factors, including the version of that is used (or ; 32-bit or 64-bit). In general, you should ensure that the CPU and RAM on the application server exceeds the minimum requirements for the operating system and . Also, the number of users that your organization will have should be factored in, especially with regards to the application server and the amount of available RAM.
	The minimum amount of RAM for a small configuration is 2 GB, but 4 GB is suggested. The minimum CPU for a small configuration is a single core Intel 2.5 GHz with hyperthreading, but an Intel Core2 Dual CPU is suggested.
Hard Disk Space	30 GB hard disk space; requires a minimum of 1.0 GB hard disk space for installation
Operating System	or . All critical updates. 64-bit or 32-bit versions as appropriate. (is the recommended operating system.)
Internet	Microsoft Internet Information Services (IIS) 6.0 (for) or Microsoft Internet Information Services (IIS) 7.0 (for); ASP.NET
Framework	Microsoft .NET Framework 3.5

Database

uses a database server to store and protect portfolio data. Access to the repository is accomplished exclusively through an API defined for and used by the application; direct access to the database is not recommended.

Prerequisites: Database

This section provides you with the deployment prerequisites for the database server used by . The database is a data intensive application. To help ensure that the database has adequate resources available to it, the average CPU utilization on the server running (and the database) should be less than 25% of total CPU capacity (before the database is added).

Category	Minimum Requirement
CPU and **Memory (RAM)**	The speed of the CPU and the amount of RAM will depend on several factors, including the version of that is used (or ; 32-bit or 64-bit). In general, you should ensure that the CPU and RAM on the database server exceeds the minimum requirements for the operating system and . Also, the number of users that your organization will have should be factored in, especially with regards to the amount of data that your organization will be adding to the database (work items from the application and documents in the documents store). For a small configuration, the minimum amound RAM is 2 GB, but the suggested amount is 4 GB. The minimum CPU for a small configuration is a single core Intel 2.5 GHz with hyperthreading, but the suggested CPU is an Intel Core2 Dual. For a large configuration, the 64-bit version of is suggested, with a minumum of 3 GB RAM and a suggested amount of 8 GB. The minimum processor for a large configuration is an Intel Core2 Dual CPU.
Hard Disk Space	requires a minimum of 1.0 GB hard disk space for installation; the amount of space needed by your organization will depend on several factors, including the number of users, the number of documents added to the document store, the number of work items, and so on. Typically, a small organization (around 30 total users) will need a database size between 30-40 GB.
Operating System	or . All critical updates. 64-bit or 32-bit versions as appropriate. (is the recommended operating system.)
Database	. (and are not supported.)

Clients

has a zero footprint client. That is, the user interface is implemented using HTML, JavaScript, and AJAX (Asynchronous JavaScript and XML) and requires no client installation. This means that any user will be able to access , as long as they are using a computer that is running one of the following browsers:

- Microsoft Internet Explorer 8.0
- Microsoft Internet Explorer 7.0
- Microsoft Internet Explorer 6.0
- Firefox 3.5.7 or higher

AJAX is a collection of programming technologies that efficiently deliver additional information to a browser when a user performs an action, without requiring a refresh of the entire page. JavaScript is the programming language that provides the interactive elements, such as pop-up menus, while AJAX uses XML to retrieve additional page data as needed, instead of all at once. When compared to traditional Web pages, this provides a much faster, and more seamless user experience.

Users access from a client workstation or laptop computer using any of the supported browsers over HTTP (or HTTPS if SSL has been configured). This enables deployment across a wide variety of network topologies.

Prerequisites: Clients

This section provides you with the deployment prerequisites for the clients. The performance of clients can depend on the hardware capabilities of the client itself (older computers with less powerful processors and less RAM will not run as quickly as newer computers with more powerful processors and more RAM) and on the network environment in which the client is running (for example, if your environment has high levels of latency).

Category	Minimum Requirement
CPU	1 x 2.5 GHz Intel with hyperthreading minimum; 3.0 GHz (recommended)
Memory (RAM)	2.0 GB; 4.0 GB (recommended)
Resolution	1024 x 768; 1280 x 1024 (recommended)
Operating System	Any operating system that will run one of the supported browsers.
Browsers	Microsoft Internet Explorer 8.0, 7.0 (both recommended), 6.0 (with MSXML 4.0 SP2); Firefox 3.5.x. (Administrative functionality requires Microsoft Internet Explorer.)

Deployment Scenarios

has two deployment scenarios:

- **On Demand / Trial version**–The on demand version of shares the same set of management, configuration, and collaboration features as the enterprise version of , including custom configuration options. For many organizations, especially those with fewer than 100 total users, the on demand version of may be a practical alternative to an enterprise deployment. If your organization wants to test the new features available in , you should use the trial, on demand version of . If your organization wants to test as it would be running within your own environment, you should use the standard two server deployment on basic hardware.

- **For the Enterprise**–The standard deployment is built around a database server running and an application server running the front-end. There are many possible variations to the standard deployment, some of which can be driven by the size of your organization (such as the number of users, number of resources, number of items, and so on) and some of which can be driven by the requirements of your organization's IT department (such as load balancing servers running IIS or providing clustering or fail-over capabilities for a database). When doing an enterprise deployment, your organization should use this guide (including the hardware and software requirements) as a baseline for determining the actual requirements of the configuration needed for your deployment.

Trial Version

The on demand version of shares the same set of features, configuration options, and management options as the enterprise version of with one exception: the on demand version of does not support the demand management functionaility that is available when is integrated with . There are some advantages to using the on demand version of , including not needing to deploy hardware and software, not needing to apply a patch or an update, or not needing to perform a migration. To learn more about the on demand version of , see http://www.serena.com/products/agile/.

Standard On Premise Deployment

The standard deployment for relies on dedicated hardware for the two primary components of : the application server and the database server. All other components, such as notification service and the documents manager, are run as part of the application server.

Web Server   Database

Installing the Database Server

The database is installed on a server that is running . Unless noted, all items in the checklist are required.

image	Checklist items
	Review hardware and software prerequisites, and configuration guidelines.
	Acquire all necessary hardware and software.

image	Checklist items
	Install the appropriate operating system, service packs, and updates. is the recommended operating system.
	Install .
	Create a account that will be used for .
	Create the database and then restore to that database the accelerator database for . The accelerator database can be found on the DVD or downloaded from the Serena website.

Installing the Web Server

This should be done for all web servers on which the application server component will be installed, whether a single server or a distributed, multiple server deployment. Unless noted, all items in the checklist are required.

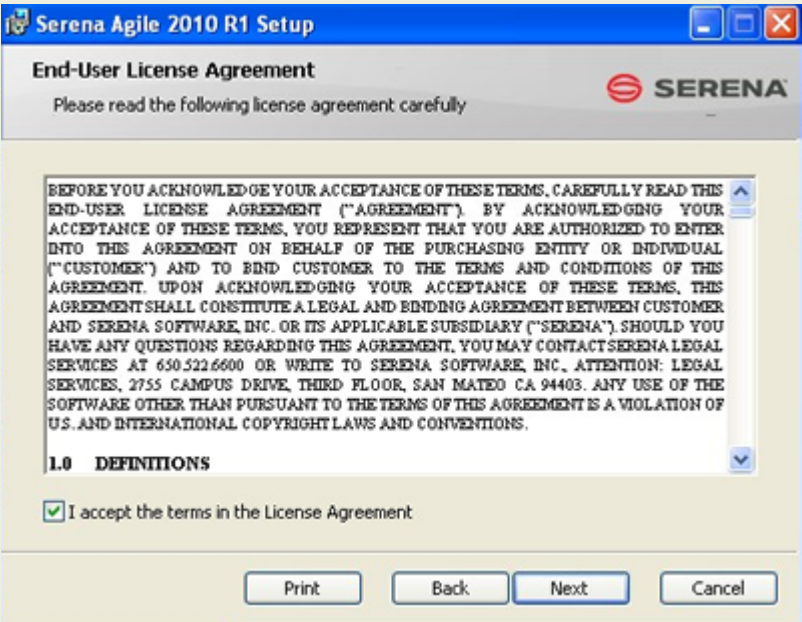| image	Checklist items
	Review hardware and software prerequisites, and configuration guidelines.
	Acquire all necessary hardware and software.
	Install the appropriate operating system, service packs, and updates. is the recommended operating system.
	Enable Internet Information Server (IIS). Ensure that ASP.NET is enabled. The name of the virtual directory will be created during the installation of .
	Install the Microsoft .NET Framework 3.5.
	Install Microsoft Message Queuing (MSMQ) (optional). This is required to use notifications. Remote private queues are not supported.
	Ensure that a user account is created for and that it is added to the IIS_IUSR group. Proper permissions are Share (Change) and NTFS (Modify).
	Install the application server (including the Documents Manager) from the DVD or downloaded installer. In the installer, follow the steps as prompted by the installer. Example screen shots are shown below.

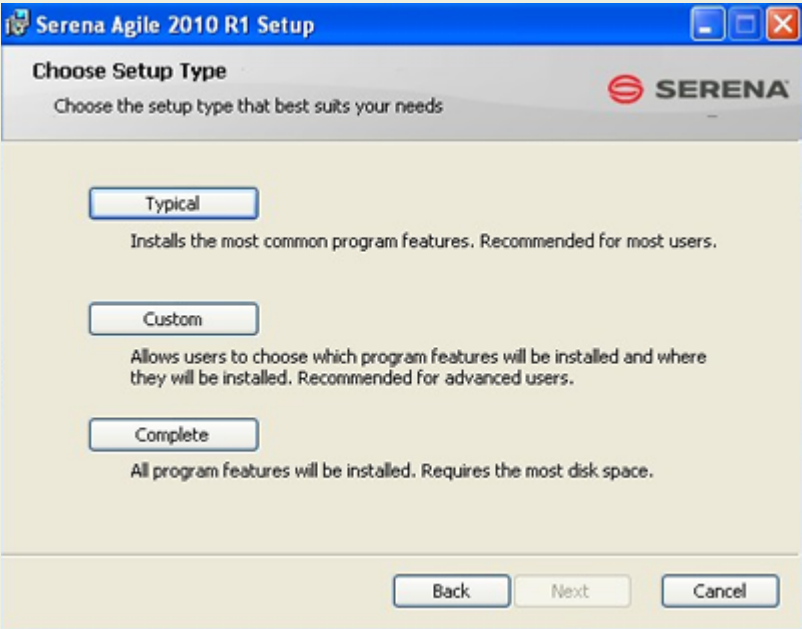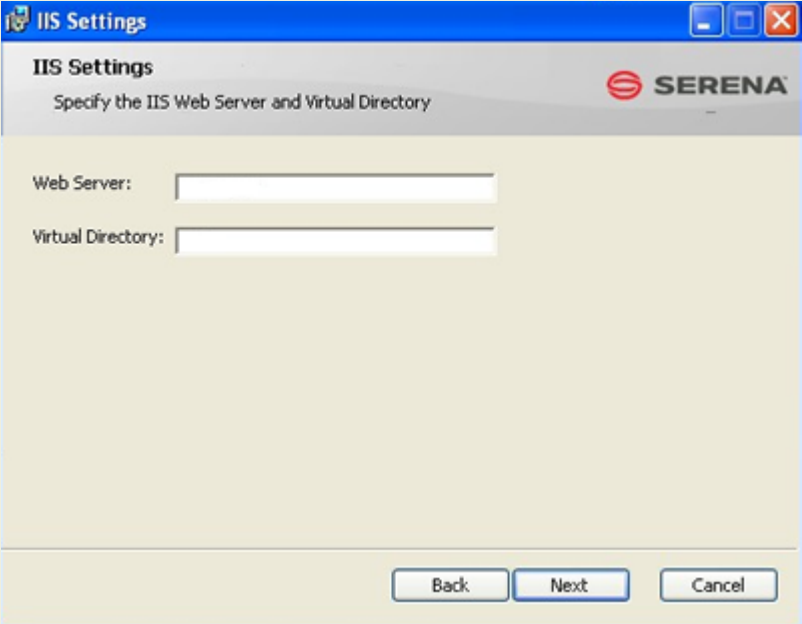| image	Checklist items
	Click **Next** to start the process of installing . Select the license agreement and click **Next**.

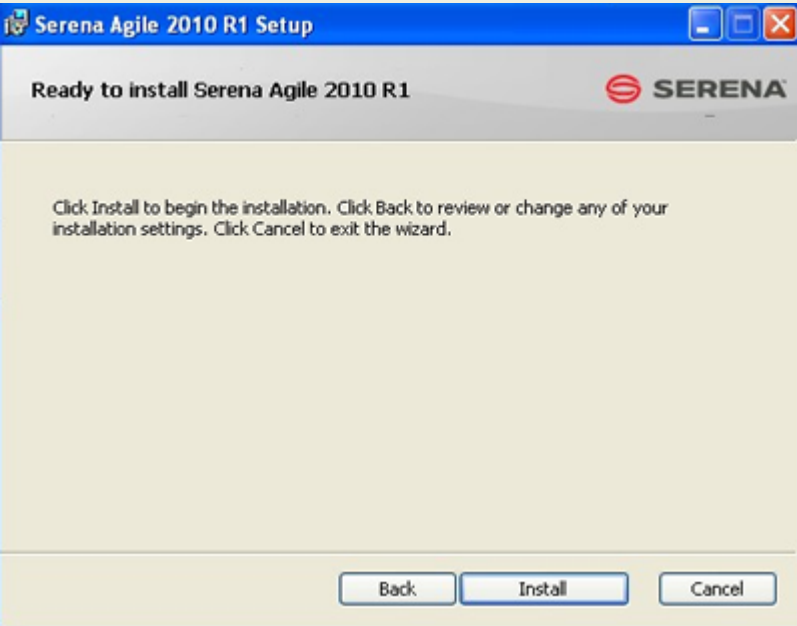| image	Checklist items
	Choose the **Typical** setup option. Note: there are three options, but the **Typical** and **Complete** options are identical. A **Custom** install allows you to choose which components to install. All components are selected by default.
	Enter the name of the application server and the name of the virtual directory. The installer will create the virtual directory during installation. The name of the application server and virtual directory entered here will be part of the URL that users in your organization will use when they are accessing .

image	Checklist items
	Serena Agile 2010 R1 Setup **Ready to install Serena Agile 2010 R1** ⊖ SERENA Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard. [Back] [Install] [Cancel] Click **Install**.
	Establish a connection to the database from the Agile Administration application. uses a account to instantiate and use this database connection. It is recommended that you create a -specific account in to facilitate communication between and the database. 1. Open the Agile Administrator application and click **New**. 2. The **Connection Name** field is a friendly name for the accelerator database that users will see when logging in. 3. In the Database section, enter the database information for your configuration. 4. In the Creation section, choose **Only connection**. 5. Leave the **Create the database SQL/DDL script file** option unchecked. 6. Click **Create**. Create the connection between Serena Agile Planner and the database.
	Install the license file 1. Open the Agile Administration application 2. Select **Connection Name** 3. Enter the default username (aodadmin) and password (keystone) 4. Click **OK** 5. Click **Licenses View** 6. Click **Add Licenses** 7. Browse and select the license file you received from Serena 8. Click **Open**

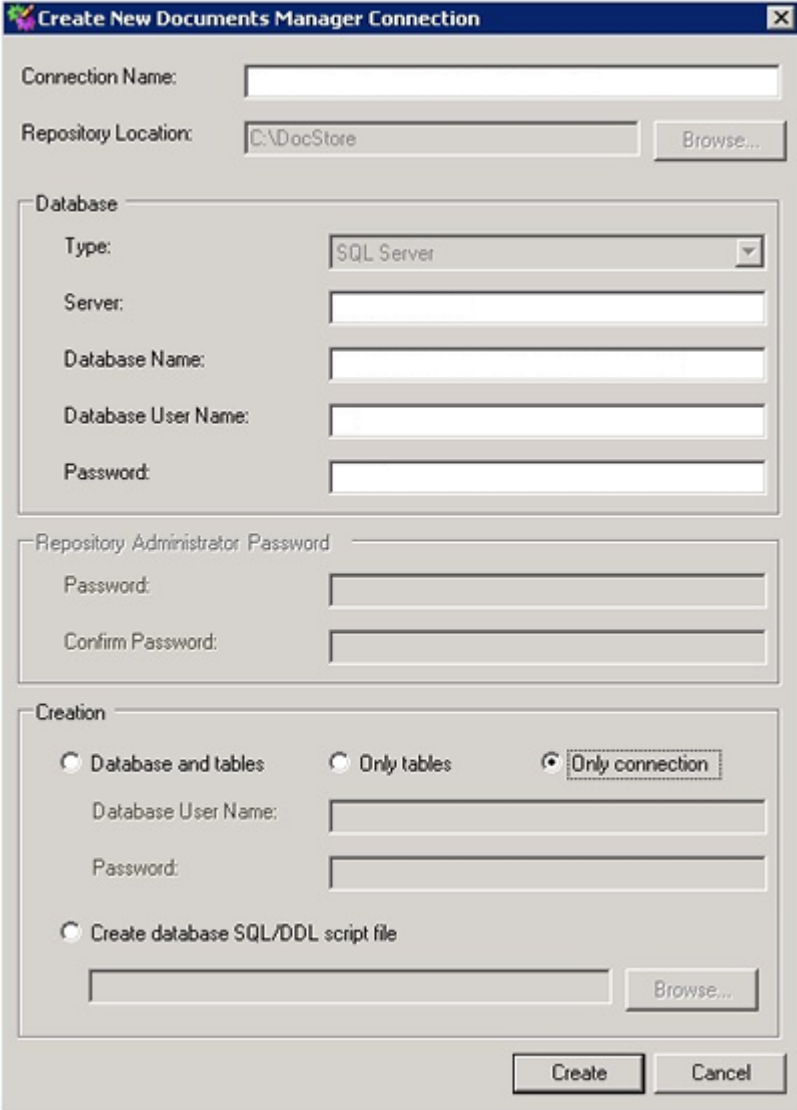| image	Checklist items
	9. Click **Save license** 10. Click **Close**
	Create a folder in the file system of the documents server to store the documents, such as C:\DocStore. Configure permissions for the IIS_IUSRS group for the documents repository. Proper permissions are Share (Change) and NTFS (Modify).
	Create a Documents Store In this step, you create the database for the documents store. This database stores metadata and associated information about documents that are uploaded to . The actual files are stored in this repository. 1. Start the Agile Administration application and click **New**. 2. The **Connection** Name field is a friendly name for the documents store. 3. The **Repository Location** field will be the documents repository you created in the previous step. 4. In the **Creation** section, choose **Database and tables**. 5. In the **Database** section, enter the server name and database name for the Agile database, and the credentials to access the database. 6. The **Repository Administrator Password** field is the password required to make changes to the documents store configuration. 7. Leave the **Create database SQL/DDL script file** option unchecked. 8. Click **Create**. You will be prompted for the database username and password.

image	Checklist items
	Create New Documents Manager Connection Connection Name: [_____] Repository Location: [C:\DocStore] [Browse...] **Database** Type: [SQL Server ▼] Server: [_____] Database Name: [_____] Database User Name: [_____] Password: [_____] **Repository Administrator Password** Password: [_____] Confirm Password: [_____] **Creation** ○ Database and tables ○ Only tables ⦿ Only connection Database User Name: [_____] Password: [_____] ○ Create database SQL/DDL script file [_____] [Browse...] [Create] [Cancel]
	Log on to and verify your configuration. The default username is aodadmin and the password is keystone. Select the database connection from the Database dropdown menu.

image	Checklist items
	Verify that can connect to the documents store and that documents can be added, edited, and viewed from .
	The following procedure must be completed using Internet Explorer.
	1. In the **Setup** menu, choose **Configuration**.
	2. From the **Environment Settings** tab, choose the **System Settings** tab.
	3. Set the **Document Manager** field to be the URL of the documents server.
	4. Set the **Document Manager Connection** field to be the friendly connection name that you specified when creating the document store.
	5. Click **Save**.
	Reset IIS.
	Restart the notification and scheduler services.

Configuring Clients

The URL that clients will use is based on the names you gave to your web server and the virtual directory of the application, such as http://AgileServer/Agile.

Unless noted, all items in the checklist are required.

image	Checklist items
	Install Microsoft Internet Explorer 7.0 or Microsoft Internet Explorer 8.0 (recommended) or Firefox 3.5.x. Internet Explorer 6.0 (with MSXML 4.0 SP2) is also supported. (Administrative functionality requires Microsoft Internet Explorer.)
	If you need to access from a server that has installed, then uninstall Internet Explorer Enhanced Security Configuration.

image	Checklist items
	Add to the list of local sites, unless Microsoft Internet Explorer Enhanced Security is disabled.
	Log on to and verify that you can access . The default username is **aodadmin** and the default password is **keystone**.
	If the Agile Administrator application is required on a client machine, install the .NET Framework version 3.5, then run the Agile installer, choosing a Custom installation. Install only the Administration component.

Uninstall

You can use the Add or Remove Programs setup wizard to uninstall the server components of .

Configuration Options

When optimizing the performance of your deployment, it is best to focus on providing the servers with the fastest possible CPUs, ample memory, hard disk space, and so on. Second, look closely at memory utilization and ensure that usage is not excessive. Then, consider multiple processor configurations and other advanced deployment options that are available with the operating system. (is the recommended operating system.) In the end, any single operation happens fastest when CPU speed, network bandwidth, and available memory are high. Using the fastest possible CPU at the client, server, and repository tiers results in the best user experience.

Other ways to optimize the performance of your deployment include:

- **Enabling SSL**–Encrypted communication is used to protect user passwords from being sent over the network in plain text; user interactions with their data may not require that level of security, especially considering the potential performance implications. should be enabled to use SSL for user authentication only.

- **Load balancing** – can be deployed in a load balanced configuration using the network load balancing (NLB) features of (optional) or by using hardware-based load balancing (recommended).

- **Modifying web.config file settings**–In addition to all of the standard functions that a web.config file provides, uses it to manage options such as requiring SSL for user authentication and disabling cookies.

- **Offloading the –Documents Manager from the application server** This is most easily done during your initial deployment, but it can be done at any time. The documents manager is a respository for documents associated with items that have been uploaded to by users in your organization. This server can be deployed as a stand alone server or as part of any load balanced configuration.

Enabling SSL

Some organizations may require users to connect to and interact with over an encrypted channel. Enabling Secure Sockets Layer (SSL) encryption for all Web traffic, does provide additional data security, however the impacts to performance can be significant.

In most cases, encrypted communication is used to protect user passwords from being sent over the network in plain text; user interactions with their data may not require that level of security, especially considering the potential performance implications. One trade-off between security and performance involves enabling SSL encryption exclusively for user authentication. After a user logs on to using SSL (https://), the rest of a user's session in carries forward without SSL encryption (http://). This can provide optimal balance for many organizations.

Configuring SSL for IIS is beyond the scope of this section; organizations wishing to use SSL for all communications can visit Microsoft.com for instructions.

Load-balancing

For increased scalability and performance, can be deployed in a load balanced configuration. This can be configured using the network load balancing (NLB) features of or by using hardware-based load balancing.

This section focuses on using hardware to load balance the application server. After the installation process for the application server is complete, there are additional steps that must be completed in order for to function properly in a load balanced environment.

image	Checklist items
	For each server that will be part of the load balanced environment, follow the steps for installing the application server that are provided in the standard deployment.
	Create a network user account called AgileAppAdmin that will be used as a -specific account. This account will be used to create the shared directories for charts and print jobs. It does not

image	Checklist items
	require administrative or elevated rights on the network, but will require full permissions to the directories needed for charts and print jobs.
	For each server that will be part of the load balanced environment, modify the machine.config file. By default, each server has a unique machine key value; when deploying in a load balanced configuration, each server in the farm must have the identical machine key.
	For each server that will be part of the load balanced environment, add the -specific user account to the IIS_IUSR.
	For each server that will be part of the load balanced environment, configure it to allow remote connections. Using in a load balanced environment will require that one of these servers be responsible for maintaining session state. When is deployed in a load balanced environment, a single server is designated as the state server and all other servers in the load balanced environment will be pointed to it.
	For each server that will be part of the load balanced environment, install the application server component on all server hardware that will be used in the load balanced environment. Use the same steps outlined in the standard deployment for the application server.
	For each server that will be part of the load balanced environment, create a database connection.
	For each server that will be part of the load balanced environment, edit the web.config file. Designate one of the servers as the state server and record that server's static IP address. For each of the servers in the load balanced environment that will be pointed at the state server, modify the web.config file and point it to the static IP address that belongs to the state server.
	Copy the contents if the default charts preview folder and add them to the charts preview folder that is located on the state server.
	Copy the web.config file located in the default PrintJobs folder and add them to the PrintJobs folder that is located on the state server.
	For each server that will be part of the load balanced environment, remove the default chart preview, temporary charts, and print jobs directories (leaving just the three shared folders on the state server). By default, these directories are located at: ▪ c:\Program Files\Serena\Agile\Agile\PrintJobs ▪ c:\Program Files\Serena\Agile\Agile\Charts\Previews ▪ c:\Program Files\Serena\Agile\Agile\Charts\Temp
	On the state server, create virtual directories for the charts (previews and temporary) and print jobs shared folders in IIS. These will replace the default directories in the folder heirarchy in IIS and will enable all servers in the load balanced environment to be able to access the contents of the shared folders. Since the new shared folders reside on the State Server, you can reference them with a local path.
	For each server that will be part of the load balanced environment, except for the state server, edit the local security policy. This is to ensure that the AgileAppAdmin domain account has the necessary rights on the other servers in the farm.

image	Checklist items
	For each server that will be part of the load balanced environment, except for the state server, create a new application pool. This is to ensure that the shared folders for charts and print jobs can be accessed by all servers that are part of the load balanced environment.
	For each server that will be part of the load balanced environment, except for the state server, add a virtual directory for each of the shared folders used by charts (previews and temporary) and print jobs. These virtual directories will replace the default directories in the folder hierarchy in IIS and will enable all of the servers in the load balanced environment to be able to access common content stored in the charts and print jobs shared folders. These directories must be referenced using the UNC path, for example, \\stateservername\PrintJobs.
	For each server that will be part of the load balanced environment, reset IIS.

Modifying Web.Config File Settings

In addition to containing database connection information and other data that is standard for a web.config file, there are some custom parameters that are important for :

▪ **Help**–By default, the help system is pointed at a virtual directory on the Internet and hosted by . By default, updates made to the help system will be made to the default help system as updates are needed. If your organization does not want the help system to be pointed there or would prefer users to access the help from within your organization's intranet, you can create a virtual directory, move the help into that virtual directory, and then configure the web.config file to point the Help setting to that virtual directory. If your organization wants to install the help system to a local directory, contact Support or Professional Services for assistance.

▪ **SSLOnlyForLogon**–Requires logon to to be done using SSL, but allows users (after they have logged on successfully) to navigate through without using SSL.

▪ **SessionState**–Allows cookies to be disabled.

Offloading the Documents Manager

The documents manager is typically installed on the same server that is running the application server. However, some configurations may use the documents manager on dedicated hardware, such as when the application server is load balanced in a deployment with a large number of users, resources, and items, or if your organization requires a lot of space for documents storage.

Unless noted, all items in the checklist are required.

image	Checklist items
	Review hardware and software prerequisites, and configuration guidelines.
	Acquire all necessary hardware and software.
	Install the appropriate operating system, service packs, and updates. is the recommended operating system.
	Enable Internet Information Server (IIS). Ensure that ASP.NET is enabled.
	Ensure that the Classic .NET AppPool is enabled. This is required by a third-party component that runs within the PESDocumentServices virtual directory.
	Create and configure permissions for the IIS_IUSR user account to the documents repository. The documents repository is a shared folder installed by default as part of the application

image	Checklist items
	server. It should be called servername\IIS_IUSR (where servername is the name of the server on which the documents manager is located).
	Create and configure permissions for the documents repository. Proper permissions are Share (Change) and NTFS (Modify).
	Create the database for the documents store. This database stores metadata and associated information about documents that are uploaded to . The actual files are stored in the repository.
	Install the Documents Manager.
	Verify that you can upload documents to .