

Encore 5 Installation Guide

May 23, 2017

UPGRADERS: If you are updating from a prior Build of Encore 5, you should just need to run the E5ServerInstaller.exe on the correct computer and all the workstations will automatically update.

WARNING: The Encore installation is sophisticated, and should only be done by a computer consultant with at least two years of Microsoft Operating System/Networking experience. Your Server(s) may need to be rebooted multiple times during the installation. While we will not walk an end-user through the installation process, we will answer questions about installation from a computer consultant with the appropriate experience.

NOTE: You must fill out, return and have approved “Appendix K: Due Diligence” on page 35 before you are activated for download or contact support.

Please contact the Encore Support Team in advance of any installation or upgrade, or scheduled maintenance to your network systems that support Encore. By alerting us to your maintenance windows (during Cluen's regular support hours, or after-hours using a Preferred Updater incident), Cluen will be able to assure the best responsiveness and minimize the chance of unexpected problems.

Encore is also available running on our CluenCloud infrastructure (SaaS model); if you prefer this model, contact your sales representative.

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Architecture

Development Environment

Encore 5 is written using Microsoft Visual Studio 2008 and requires Microsoft's .NET Framework 3.5 SP1 runtime on all computers running the client layer or application layer to access the .NET Common Language Runtime (CLR) and to use Windows Communication Foundation (WCF).

Servers can be Windows 2016, 2012 (or R2), 2008 (or R2), or 2003 and workstations can be XP/Vista/Windows 7/Windows 8.x/Windows 10.x (with display settings at normal dpi); see "Appendix K: Due Diligence" on page 35 for exact details on product Editions. It will run natively in 32-bit or 64-bit environments and allows for cross-bit communication between clients and servers (i.e., a 32-bit client can communicate with a 64-bit server).

Layout

Encore uses an *n*-tier architecture scheme: (a) database layer, (b) application layer and (c) presentation layer. Encore is available in three flavors: Essentials, Plus and Enterprise (they have increasing feature sets). **NOTE:** If you are using Recruiting Intelligence (RI) Basic, Pro or Enterprise, that is considered the Enterprise flavor of Encore (and you should follow those steps).

The database layer uses a version of Microsoft SQL Server to store data. Cluen supplies a version of Microsoft's SQL Server Express database engine called DBExpress that is preconfigured for Essentials and Plus editions. It is installed as a separate instance (called EncoreExpress) to avoid conflict with existing databases engines and is available in both native 32-bit and 64-bit versions.

The Enterprise edition supports Microsoft SQL Server 2016, 2014, 2012, 2008 (or R2), 2005, or 2000 32/64-bit in Standard, Workgroup, Enterprise, Business Intelligence or Web editions are supported; Developer and Evaluation editions are not supported. **NOTE:** Except for the free DBExpress version, SQL Server is purchased from Microsoft and is not included with the product.

The application layer (sometimes called the business layer) contains the business logic for Encore and acts as a broker between the database layer and presentation layer. Information is transferred via compressed 256-bit Advanced Encryption Standard (AES) memory streams across the LAN/WAN between these two layers.

The presentation layer (or client layer) is the part of Encore that contains the graphical user interface (GUI) for the end-user.

A single-user installation would have all three layers installed on one computer. In a small office (less than 100 users), the presentation layer would be on all the desktops and/or under Terminal Services on 2016, 2012 (or R2), 2008 (or R2), or 2003 Servers and both the database and application layers would be on a single-server. In a large scale implementation, the database layer and business layer would be split on two (or more) servers.

In addition, Cluen offers a hosted (SaaS) version of Encore called the CluenCloud where only the client is installed on the desktop and the application and database layers reside on our servers at a SSAE 16/ISAE 3402 data center.

Topology Considerations

Server

The database layer and application layer need to be “near” each other (i.e., same machine or same data center) because they do heavy communication between each other. For example, the presentation layer may send a single Globally Unique Identifier (GUID) to the application layer requesting a “reports to” hierarchy, the application layer runs a recursive function (multiple times) to the database layer and then just sends back the list of employees. In this example, the presentation layer sent one request and received one request back, but the application layer needed to communicate multiple times with the database layer.

Encore’s default for communication is TCP port 2004; you can change this port during installation and add Quality of Service (QoS) in your network routers (if desired to give priority to these packets). **Make sure to verify that the Encore port is cleared by your firewall and is not in conflict with other communications on your network.**

Server memory and disk space requirements are based on the number of users and the size of the data file. Our average client’s database is only a few hundred megabytes; plus, you need space for documents. Except for very large data files, Cluen recommends enough free memory to load the entire data file in RAM (to maximize performance). Encore will take advantage of multi-core (or multiple CPU) processing. In general, if you are running a 64-bit operating system, you want a minimum of 8GB RAM to take advantage of the memory addressing.

Client

Encore’s presentation layer is designed to work with remote users across the Internet using Encore’s 256-bit AES encryption or a Virtual Private Network (VPN). In general, database applications require low latency connections (i.e., line speed is less relevant) because they send many small packets instead of a large stream (i.e., downloading a file is more about speed than latency).

Most database applications break down above 150ms. Encore uses a proprietary technology called DoubleTime which allows the program to minimize bandwidth and perform under high latency connections; this extends the performance of Encore well above 150ms (around 250ms, allowing a single application server to supply data to a global firm). This technology is also designed so that it will be transparent to hardware WLAN accelerators.

Since communication is encrypted with 256-bit AES, the client can be used without a VPN to communicate with the application layer (i.e., across the Internet through a port hole in the router). But, a VPN may be desired to access other resources (such as network drives) securely (if not using a shared Internet drive).

By default, (like most web-based clients) Encore supports “zero administration desktops”: when an updated Build is installed on the server, each client computer will automatically pull the update during the next login. The latest version has the ability to update from any prior version; if a workstation skips a few Builds (i.e., it is located in a summer home), it will still update successfully.

To run the desktop client under Terminal Services (single/farm) or virtualized environment (from the CluenCloud) on 2016, 2012 (or R2), 2008 (or R2), or 2003 Servers, your Encore platform requires an additional license from Cluen (in addition to Microsoft's licensing and a separate server).

The minimum memory requirements for 32-bit operating systems are 2GB RAM (4GB recommended); Encore will run under 512MB RAM (on 32-bits only), but you may want to limit other applications (for example, Office 2007 requires a minimum of 1GB RAM to enable all features). The client uses less than 75MB of disk space (not including the .NET Framework). Encore does not run under Windows 8 RT.

Keep in mind that 64-bit operating systems generally prefer double the RAM to 32-bit operating systems. An 8GB 64-bit Terminal Services is roughly equivalent to a 4GB 32-bit Terminal Services. For clients upgrading from Encore 4, a 4GB 32-bit Terminal Services would be equivalent to a 16GB 64-bit Terminal Services (4GB should be 8GB, but Encore 5 requires double the RAM, so 8GB RAM becomes 16GB RAM). If going 64-bit on Terminal services, you may want to configure with 4GB RAM plus 1GB RAM per user and a minimum of 8GB RAM (unless you have a large number of users, since the memory pool gets shared).

You may also want to disable power management of the hard drive and network adapter, since Encore checks for reminders in the background (and those two devices do not generally power up in time).

Prerequisites

The Encore installers will request that you download Microsoft's .NET 3.5 SP1 runtime, if it has not been already installed. You can download it from Windows Update Service or from Microsoft at <http://msdn.microsoft.com/en-us/netframework/default.aspx>. Since this Framework can take twenty minutes to install, you may want to have it pre-installed.

Some operating systems like Windows 7 and Server 2008/2008R2 include NET 3.5.1 under "Turn Windows features on or off" within the Control Panel. This is equivalent to .NET 3.5 SP1 and may need to be activated from within the Control Panel.

NOTE: If using Windows 8.x or Server 2016/14/12, the Framework requires a different method and must be done before installing Encore. See "Microsoft .NET Framework 3.5 Deployment Considerations" at <http://msdn.microsoft.com/en-us/library/windows/hardware/hh975396.aspx> for help.

In order for a .NET application to communicate with Microsoft Office 2003 or greater (the versions supported by Encore), you will need to make sure that you have the Primary Interop Assemblies (PIAs) for Office installed or that you download the standalone Microsoft PIA installer for your version of Office. Office 2016/2013/2010/2007 should have them installed by default. If you do not have communication setup correctly, Encore will alert the end-user.

If using Office 2010, since that is available in both 32-bit and 64-bit versions, you need the correct bit level for your operating system.

Installation

The single Encore 5 Server Installer (E5ServerInstaller.exe) contains both 32-bit and 64-bit versions; it will create the Encore 5 Client Installer (E5ClientInstaller.exe) which also supports 32/64-bit operating systems.

NOTE: You must fill out, return and have approved “Appendix K: Due Diligence” on page 35 before you are activated for download or contact support.

Step I: Database Engine Installation

Encore requires a Microsoft-based database engine. Cluen supplies a pre-configured Microsoft SQL database engine called DBExpress for Essentials or Plus editions. Or, you can use a full version of Microsoft SQL Server, if you have purchased the optional Enterprise edition from Cluen.

See “Appendix A: Installing a Database Engine” on page 13 for installation instructions for DBExpress or SQL Server Tips.

Step II: Data File Installation

Skip this section if you are migrating from Encore 4 (or already have the data files attached).

1. Unzip your data file (**from the zip file you received from your Project Lead**) to the x:\Program Files\Microsoft SQL Server\MSSQL\Data directory on your database server.

NOTE: This zip file should contain two files: encore.mdf and encore.ldf.

Step III: Application Server Installation

Optional: temporarily disable any virus scanning/firewall software installed on this server (we have seen installation problems with McAfee firewall components stopping the Encore installation).

Encore requires access to <https://searchlight.cluen.com> to configure/maintain licensing.

1. Run the E5ServerInstaller.exe program (logged in as an Administrator).
2. Confirm that this is the Encore 5 Console Setup program by reading the top line. If correct, press Next.
3. In the Select Installation Folder window, choose the folder where Encore 5 Console will be installed. The default folder is C:\Program Files\Cluen\Encore 5 Console. This can be modified by pressing the Browse... button and choosing the intended installation folder. After verifying the installation folder location, press Next.
4. In the Configure Encore 5 Service dialog, choose the account type that Encore 5 should run under. The default setting is Local System Account (and should be used in most cases). After selecting the desired option, press Next.

NOTE: In the case that the application layer is different from the database layer, you must select the Windows User Account option (so that the application layer has permission to communicate with the database layer). For more information on how to configure such user account, please refer to “Appendix E: Creating a User” on page 22. After selecting the desired option, press Next.

5. In the Ready to Install dialog, press Install to begin the installation process. In order to review or change the installation settings, press Back.
6. In the Completing the Encore 5 Console Setup Wizard window, press Finish.

7. At first launch you should receive the following message: "You do not have any Update Locations set up. Would you like Encore to set one up by default for you? If so, Encore will attempt to make this location a network share." If you press Yes, Encore will create an update location and attempt to share it on the network. **NOTE:** If you upgrading from Encore 4 on the same server, the database settings will automatically be filled in. **If using Cluen's DBExpress, make sure that the "Database Server" is the server name, a backslash and "EncoreExpress".**
8. Make sure the settings look correct (you will configure the backup below). **NOTE: Include the file names in the path for "Datafile File Path (.mdf)" and "Log File Path (.ldf)" and, if you changed from the default location, make sure the database is in a folder called "data" (within your new location);** this is required for the SQL sp_attach_db command and for backup configuration to make proper backup files.
9. Next you should get the following message: "You cannot deploy a config file without any databases set up. Please Enter a database into the Console".
10. Press OK.

Step IV: Client Installation

You need permissions to the folder you are installing (for program files), the individual user's Windows application data folder (for configuration files; needs read-write for user) and, for initial installation, the Windows' All Users application data folder (for machine configuration files; can be read-only for user).

1. On each computer on the network, run E5ClientInstaller.exe from the network share that was created above.
2. Confirm that this is the Encore 5 Setup program by reading the top line. If correct, press Next.
3. In the Select Installation Folder window, choose the folder where Encore 5 will be installed. The default folder is C:\Program Files\Cluen\Encore 5. This can be modified by pressing the Browse... button and choosing the intended installation folder. After verifying the installation folder location, press Next.
4. After completing the selection, press Next.
5. In the Ready to Install window, press Install to begin the installation process. In order to review or change the installation settings, press Back.
6. In the Completing the Encore 5 Setup Wizard window, press Finish.
7. Congratulations. Start Encore by picking the icon on the desktop or from the start menu (unless you chose to launch after the installation).

Database Backups

Microsoft SQL database engines keep data files in use at all times. Therefore, Encore needs to first export your data (to a bak file) so that you can make a successful backup (i.e., using backup software to copy a file that is changing as you are backing it up is unreliable). This process also creates a checkpoint to help ensure data integrity.

NOTE: While Cluen recommends that you store files in the default database locations, if you change your database location, you need to keep the files in a folder called "data" with a folder called "backup" at the same folder level as data (this is the default installation) for proper backups.

For the few minutes (for a typical data file) that Encore is backing up your data, your users might notice a slow down. Also, attachments (such as Microsoft Word documents) are stored under the O/S file system (i.e., external to Encore) and are not included in the bak file.

1. Open the Encore 5 Console to the Database tab.
2. Under Backup, check the selector to Daily at and fill in a time before your tape and/or off-site backup files.
3. Depending on the Encore configuration, you will have the choice of "3-day retention w/Scheduler" (keeps the last three days of backups named by date using Windows' Task Scheduler), "1-day retention w/Scheduler" (keeps one backup named just by filename Windows' Task Scheduler) or "1-day retention w/Agent" (keeps one backup named just by filename SQL Server Agent).

NOTE: Cluen recommends "3-day retention w/Scheduler if using the DBExpress engine. But, if using an off-site backup program that stores 30-days of files and sends only the changes in the files, the "1-day retention w/Scheduler" option may be a better choice (since the name stays the same). The SQL Agent backup is for backwards compatible (with the old MSDE database engine) and for full SQL users with two separate servers running separate application and database layers.

See "Appendix D: Backup Best Practices" on page 20 for details and recommendations about backups, and disaster recovery.

Configuring Password Recovery (optional)

This feature requires that you have an SMTP mail server and are **not** planning on using single sign-on (SSO). **NOTE:** You can configure/change your mail server at a later time.

1. Place a check in the "Enable self-service password reset" on the Server tab in the Encore 5 Console.
2. Press the "configure email" link (if it did not automatically open).
3. Fill in your SMTP server login credentials.
4. Fill in your email under "Email Address (for test)" and press the "Test" button to confirm operation.
5. Close the "Password Recovery" form.

Configuring Plus/Enterprise Editions for Full-Text Indexing

This feature requires the Plus or Enterprise edition of Encore and allows the searching of note fields within the database to be very fast, handling of inflections and searching with Boolean operators. **NOTE:** The Essentials edition can still search the note fields for exact phrases.

1. Open the Encore 5 Console to the Database tab.
2. Select the database you wish to configure, if you have more than one.
3. Under the Full Text section, press Create to generate a new set of catalogs for the database.
4. Press the selection to Auto Populate (older versions of SQL might require you to set a time).

Configuring Enterprise Edition Document Searching

This feature requires the Enterprise edition of Encore and Microsoft Index Server which is included with Microsoft Windows Server up to 2008; you do not need to configure Document Searching (or

can do it at a later time) for Encore to work. If you do not know how to configure Index Server, see "Appendix C: Configuring Microsoft Index Server" on page 18.

1. Open the Encore 5 Console to the Database tab.
2. Select the database you wish to configure, if you have more than one.
3. Under Document Index, for each Catalog you have created, enter the name of the server, the name of the catalog and a display name that the Encore user will see.
4. Test each Catalog you have configured by pressing the Test option.
5. Next to the catalog entry, enter the drive alias that is synonymous with the UNC path configured in the Indexing Server. For example, if "\\servername\users\" is always mapped to the "G:\\" drive across the network, enter "\\servername\users\" under the Replace column and "G:\\" under the With column.

Configuring Slingshot (for web mobile access)

This feature requires the Optional Slingshot License from Cluen and Microsoft Internet Information Services (IIS) included with Microsoft Server 2016, 2012 (or R2), 2008 (or R2), or 2003. Slingshot requires Microsoft's .NET 3.5 SP1 runtime to run ASP.NET, if it has not been already installed on this computer (i.e., your IIS Server is running on a different computer than the Encore application layer, install it first). **In addition, Cluen recommends that you purchase and install an SSL certificate to use for encrypted HTTPS communication from domain registrar.**

While we are attempting to support as many mobile browsers as possible, the minimum requirement is (generally) a mobile browser that supports Asynchronous JavaScript and XML (AJAX) and based on the WebKit layout engine. This includes Apple iPhones, Apple iPads, Google Android devices and Blackberries (running O/S 10.0 or greater). In addition, Slingshot will allow access from desktop browsers meeting these requirements.

NOTE: You should confirm that your IIS Server can be accessed from outside your office (i.e., you have the appropriate pinhole/firewall/DMZ configured) by loading a test page or seeing the built-in construction page for a pre-created web site.

1. Open the Encore 5 Console, select the database (if more than one) and check the box labeled Slingshot to activate Slingshot for that database.
2. Change to the Server tab, and confirm the Slingshot specific settings under Configuration:
 - a. Check the box labeled "HTTPS (SSL) only" if you purchased an SSL certificate (from domain name registrar) and have it installed on the IIS server. **NOTE:** Slingshot will only work with SSL, if this box is checked.
 - b. Check the box labeled "Local (same computer as the application server)" if the server running IIS is also your application server (i.e., the IIS server does not need to communicate with the application server because they are the same).
3. On the IIS Server, run E5SlingshotInstaller.exe from the E5SlingshotInstaller folder located in the Encore 5 Console folder.
4. Confirm that this is the Encore 5 Slingshot Setup program by reading the top line. If correct, press Next.
5. In the Select Installation Folder window, choose the folder where Slingshot will be installed. The default folder is C:\Program Files\Cluen\Encore 5 Slingshot. This can be modified by pressing the Browse... button and choosing the intended installation folder.
NOTE: This should not be in the IIS server folder because Slingshot will install as a virtual

- folder (i.e., IIS has a reference to this location for additional security/organization). Cluen recommends that you install these files under the Cluen folder (keeping all Cluen items together).
6. After verifying the installation folder location, press Next.
 7. Select the installed web site for Encore to add a new virtual folder called SlingshotE5 (your web site must be functional before installing Slingshot) and press Next.
 8. In the Ready to Install dialog, press Install to begin the installation process. In order to review or change the installation settings, press Back.
 9. In the Completing the Encore 5 Slingshot Setup Wizard window, press Finish.
 10. Follow steps for specific IIS versions:
 - a. IIS Version 6
 - i. Under the Web Service Extensions node, confirm that ASP.NET v2.0.50727 is set to Allowed (default is Prohibited).
 - b. IIS Version 7 (**NOTE:** you should test first because default pools usually work, if server is not extremely locked down)
 - i. In the IIS Manager, under the Application Pools node, select Add Application Pool.... Microsoft has changed the default application pool to one that is highly restricted. Cluen recommends that you add a new application pool for Slingshot, so that you can adjust the security settings.
 - ii. For the Name field, type "Cluen Slingshot".
 - iii. For the .NET Framework version drop down, choose ".NET Framework v2.0.50727" (this is the core layer for version 3.51 SP1).
 - iv. Select the newly created "Cluen Slingshot" on the Application Pools list and press Advanced Settings... under Edit Application Pool in the Actions window on the right-side.
 - v. Change Identity (under Process Model) from "ApplicationPoolIdentity" to "LocalSystem" by pressing the ellipsis and using the drop down under "Built-in account". **NOTE:** You may want to examine the security context that Slingshot will run under during production usage (i.e., create a dedicated user with limited permission to run Slingshot); the Local System account is used to confirm successful installation.
 - vi. Bind Slingshot to the new application pool by select the SlingshotE5 virtual folder under the website from the Connections window on the left-side and pressing Basic Settings... from the right-side Actions window.
 - vii. Press Select... next to Application pool and pick "Cluen Slingshot" from the dropdown for Application pool.
 - viii. Press OK and press OK to complete.
 11. Grant at least one user (or group) permission to use Slingshot by logging into Encore as an Encore Administrator and going to the Administrator dialog (File|Administration), Users section, User Security (or Group Security, if configured) page in the Tools category. **NOTE:** Both the database and user needs to be enabled to use Slingshot.
 12. Test the web page by going to http (or https, if you installed a security certificate) and adding a "slash slingshote5" (e.g., <http://www.mypublicnameorip.com/slingshote5> login as one of the users that is granted permission.

URL Redirection (optional)

This feature configures Slingshot to translate drive letters to URLs for viewing attachments; this assumes the mobile device has the appropriate viewer. For example, a file called sample.pdf on the "R" drive could be launched on an iPhone from a "converted" https location. If Slingshot does not process a translation, the user will see the file name, but it will not be clickable (since Slingshot does not know how to reference the file).

Configure URL redirection by opening the Encore 5 Console, switching to the Server tab and clicking "Redirection URL" under the Slingshot section. You can enter multiple drives to be translated. **NOTE:** You should have the file server configured to prompt you for a user/password to protect your documents (e.g., you would login to DropBox to retrieve the file).

Troubleshooting

- If external access fails, create a test HTML page (called test.asp or test.htm or test.aspx) and confirm that you can access the web site using the name of the server or IP address.
- If you receive the generic message that the username or password is incorrect and you know that the username and password are correct, that user (or associated group) does not have permissions to use Slingshot.
- If using IIS6 and you receive a 404 Error, under the Web Service Extensions node, you need to make sure that ASP.NET v2.0 is set to Allowed (default is Prohibited).
- After URL Redirection is configured, if you are logged into Slingshot, exit out and re-login for that change to take effect.

Appendix A: Installing a Database Engine

DBExpress (Pre-configured for Essentials/Plus Editions)

The Cluen supplied DBExpress database engine (based on Microsoft SQL Express R2) is available in both 32-bit and 64-bit editions from Cluen's support and update page located at <http://www.cluen.com/support.aspx>. The installers are each around 370MB and are called DBExpress32.exe and DBExpress64.exe; you only need the one appropriate for the bit-level of your operating system; installation can be around forty-five minutes. You will need about 1.5 GB free disk space.

ENCORE 4 UPGRADERS: If you are an existing Encore 4 client currently using MSDE and upgrading to Encore 5 on an existing server, you may keep the existing MSDE engine. This is required if you want simultaneously to run Encore 4 and 5 during a migration process. But you should plan to upgrade to the newer DBExpress engine for upgraded performance. Database files attached to DBExpress cannot be re-attached to MSDE since Microsoft changed the file structure (i.e., they are not backwards compatible); if migrating engines, you should only attach a copy of the mdf/ldf files (in case you need to roll back).

NOTE: Do not use an existing instance of Microsoft SQL Express 2008 R2 (or install a fresh one), the Cluen supplied DBExpress is pre-configured with the appropriate settings and options to communicate with the Encore application layer. Also, **make sure that Microsoft's .NET Framework 3.5 SP1, Windows Installer 4.5 or greater and Windows PowerShell (part of Windows Updates in optional software) prerequisites are installed before the DBExpress installation.** Server 2003 and Windows XP do not ship with MSI 4.5, you can check msixec.exe in the System32 folder.

If you are an existing client migrating from MSDE, see "Clients Upgrading from MSDE to DBExpress" on page 15.

Engine (Cluen supplied DBExpress)

1. Login as Administrator.
2. Confirm that the partition you are going to install on NTFS (not FAT32). You can look in Disk Administrator. If it is FAT32, use the Microsoft Convert utility to change the partition (it is important that the Database Engine is running on a self-healing file system).
3. Run DBExpressXX.exe (where XX matches the bit-level of your operating system).
4. Confirm that this is the "Encore 5 Database Prerequisite" program by reading the top line. If correct, press Next.
5. On the Choose Destination Location window, select the location of the Data Engine and the location to store your data. If there is a single partition on your Server, both should be drive C (the boot partition). Press Next to continue.
6. Press Install to create the configuration file, start the file extraction and pass control to the Microsoft SQL installer. **NOTE:** After extraction, **you will receive multiple "Please wait while SQL Server 2008 R2 Setup processes the current operation" and "Installation Progress" windows** (from the Microsoft piece of the installation).

7. When installation is complete, press Finish to exit the setup wizard. **NOTE:** If you check Windows' services, there will be a non-running SQL Agent for the EncoreExpress instance; this is correct (Express versions do not have operational SQL Agents).
8. Install Service Pack 3 from Microsoft (for SQL Server 2008 R2 Express) from <http://www.microsoft.com/en-us/download/details.aspx?id=44271>.
9. Confirm language is set to English.
10. Press the "Download" button.
11. Choose the appropriate 32-bit or 64-bit version depending on which DBExpress you installed (the 32-bit version ends in x86-ENU.exe and the 64-bit version ends in x64-ENU.EXE).
12. Follow the instructions to download (depends on browser) and install Service Pack 3.

Server Performance Configuration

NOTE: If this is a single-user/standalone computer installation, adjust for best performance of Programs (i.e., do not do these steps).

Windows 2003

1. Go to Control Panel and select System. In the System Properties window, select the Advanced tab. Under Performance press on Settings. In the Performance Options window, select the Advanced tab. Under Processor scheduling, adjust for best performance of Background services.

Windows 2016, 2012 (or R2), or 2008 (or R2)

1. Go to Control Panel and select System. Press on Change Settings. In the System Properties window, select the Advanced tab. Under Performance press on Settings. In the Performance Options window, select the Advanced tab. Under Processor scheduling, adjust for best performance of Background services.

Microsoft SQL Server Tips

Microsoft SQL 2016, 2014, 2012, 2008, 2008R2, 2005, or 2000 requires that:

- the Full-Text Engine is installed,
- the SQL Server Management Studio is installed (workstation tools),
- the latest SQL Service Pack is installed:
 - SQL 2016 SP1
 - SQL 2014 SP2
 - SQL 2012 SP3
 - SQL 2008R2 SP2
 - SQL 2008 SP 3
 - SQL 2005 SP 4
 - SQL 2000 SP 4
- confirm that you have set the SQL services to auto-start (depending on the version, the SQL Engine, SQL Agent and Search Service),
- if using a custom folder for data location, make sure final folder is named "data" (to match standard convention), and
- you have purchased Enterprise edition from Cluen.

Encore does not use the Microsoft Analysis Services (formerly known as OLAP).

Encore has an option to automatically backup the mdf/ldf to a bak file, you may want to disable Encore's backup warning if you are using your own backup maintenance plan (or backup agent). Optionally, you may want to leave Encore's backup strategy in place (in addition to your own plan) to force the full-backup checkpoint (if using an agent). Unless your database is large (>5GB), you do not need a backup agent. Red-Gate SQL Backup Pro (internally, Cluen uses this product) or Quest's LiteSpeed for SQL Server are solid choices for large database files.

Encore does not support Microsoft SQL Developer or Evaluation editions.

Clients Upgrading from MSDE to DBExpress

- Install the DBExpress Engine (to confirm successful installation before deactivating old database engine installation).
- Make sure you are running the latest Build of Encore 5.
- Detach the mdf/ldf files from the Encore 5 Console.
- Rename the files (this is important because we do not want them to auto-attach and we want to keep a copy of the data in the original SQL 2000 compatibility level used by MSDE, in case of rollback).
- Make a copy of the mdf/ldf files and put it in the DBExpress data fold (remember, since MSDE is only 32-bit, the source data files will be under "Program Files (x86)", but a 64-bit DBExpress folder will in "Program Files").
- In the DBExpress folder, rename the copied files back to the original mdf/ldf (e.g., encore.mdf and encore.ldf).
- Open the Console and change the instance to SERVER\ENCOREEXPRESS where SERVER is the name of the existing server (most likely you will be removing the ENCORE or adding the instance name).
- Change the file paths to point to the new data files.
- Configure the backup (recommended three-day).
- Press the Backup Now and check backup folder to confirm BAK files. Ninth, rebuild Statistics (if it was not done during the attachment).
- If upgrading from MSDE to Encore Plus, create the full-text catalogs.
- Once success has been verified, you may want to uninstall the MSDE Engine to free up RAM (or, disable the service with the MSDE named instance).

Appendix B: Active Directory Integration (LDAP)

Encore can integrate with Active Directory (AD) to allow single sign-on (SSO) and linked group security management.

When adding a new user to Encore, you will be prompted to pick the user from AD and create an Encore login (the short name that they will be known by within Encore). Encore will then bring in and store their first name, middle name, last name, assigned group (if linked to AD) and security identifier (SID).

There is an Active Directory Mapping Tool (available from the Console or Administration: User section) that lets you map existing users (after data conversion or changing to SSO mode) or re-map a user's SID (in case you recreated the user under AD).

When setting up Active Directory, you can optionally specify an LDAP path (which is how Encore maps to Active Directory) to further narrow down the objects to search; this is only recommended if you experience a slowdown due to a large number of users and need to constrain to a single domain on your network). Encore uses the common format of an LDAP path (i.e., "LDAP://cn=yourdomain"). Further options can be specified (see <http://technet.microsoft.com/en-us/library/ee156532.aspx>).

With AD mode activated, when a user starts Encore the client verifies validity of the current Windows login (through .NET AD call) and tells the application layer the user's SID. The application layer verifies that: (a) the SID matches to an Encore login and (b) that the SID is active under AD. In addition, it will update the user's name and address information (if changed in AD). Once validated, the user either gets to choose from available data files or passes directly into their assigned database.

If the user is marked inactive in AD, the application layer will deactivate the user in Encore; an Encore Administrator will need to re-activate the user, if the user is later reactivated in AD.

Encore can be setup to use either (a) individual security or (b) group security. If you activate group security and AD Integration is activated, you will need to map the Encore Security Groups to the AD Groups.

If you are implementing group security, Cluen recommends that you create new AD Groups for your Encore users since each Encore user must be in one mapped AD Group. If the user is not in any mapped AD Group or the user is in multiple mapped AD Groups (Encore does not know which security to grant), they will not be able to login to Encore.

If you do not use Encore group security, you will only get the benefit of SSO and will need to manage the security by individual user.

When opening the Administrator dialog (File/Administration), you can press the "Resolve Enabled/Disabled Users in AD" hyperlink to sync Encore with AD; this will deactivate any Encore users that are inactive in AD, update names and give you a synchronization status.

Getting Started with the AD Mapping Tool

After initializing Active Directory on the Console, or clicking the Active Directory Mapping Tool hyperlink in the Administrator dialog, you will be asked if you would like Encore to link the current Encore Users to Active Directory Users. If you respond yes, Encore will attempt to assign the SID of the AD User to the Encore User based on the Last Name.

A form will open with the current Encore Users and whether or not they've been linked to an Active Directory User. To unlink the user, press the selector next to the user's name. If the User has not been mapped automatically, a smaller popup will open allowing you to search for an Active Directory by the User's last name. If AD returns potential matches, you can select the appropriate User to map, and Encore will update the corresponding Encore User.

On creating new Users in Encore if you're currently using AD, you will first be prompted to find an AD User to link to. If you select an AD User, Encore will fill in the appropriate fields automatically, although you will still be required to assign local Encore variables (e.g., Workgroup, Office, etc.).

Appendix C: Configuring Microsoft Index Server

Microsoft has removed support for "Index Server" from their operating systems starting with Windows 2012. The replacement component called "Windows Search" is not compatible with Encore's interface, but users can access this feature through Windows' Explorer on desktop versions starting with Vista.

1. Login as Administrator to a Domain Controller.
2. Press on Start and then select Run.
3. Type "compmgmt.msc" and click OK.
4. In the Computer Management window, select Services and Applications.
5. Verify that the sub-option Indexing Service is listed. If Indexing Service is not listed, you will not be able to use this feature.
6. Under Indexing Service, right-click and select New and Catalog. Catalog is a collection of directories that will have its documents indexed.
NOTE: Avoid including any files that are private. You may want to create two Catalogs for more targeted searching. For example: A catalog named Resumes could include only the folder(s) containing résumés while a second catalog named All Documents could include the resumes folder(s) and other shared document directories as well.
7. In the Add Catalog window, type a name for the catalog (e.g. Resumes or Encore).
8. Press on Browse... to select a location to store the catalog file. Press OK.
9. The following message should appear: "Catalog will remain off-line until indexing service is restarted". Press OK.
10. Expand the newly created catalog, right-click on Directories, and choose New and Directory.
11. In the Add New Directory window, press Browse... and locate the path of the folder that you're interested in including in the indexing service. This should be a path on the server itself (e.g. D:\Resumes).
12. If you wish to create a Catalog for a different server, you must set it up on that machine. You should also set up an alias (drive letter or UNC) that network users would be able to access; otherwise, the Indexing Service will return a local path (which is not good for network users). Repeat for each top level directory that you'd like to index (subdirectories are automatically included).
NOTE: The System Catalog is automatically setup to include all directories on the server, but does not index these drives automatically. Cluen does not recommend that you use the default catalog since this will include files that are not appropriate for all users.
13. When done press OK.
14. Right-click on Indexing Service and select Stop (if applicable).
15. Right-click on Indexing Service and select Properties.
16. In the Indexing Service Properties window, select the Generation tab. Make sure both "Index files with unknown extensions" and "Generate abstracts" are selected.
17. The Maximum size (in characters): option should be a minimum of 50 characters (default is 320).
18. Select the Tracking tab and check the Add Network Share Alias Automatically option. Press Apply and OK.
19. Right-click on Indexing Service and select Start.

20. Answer Yes to the "Would you like the Indexing Service to start automatically whenever you start the computer?" prompt.
21. You should see a list of Catalogs on the right side of the screen with total documents to index and how many have been indexed. Once the Docs to Index reaches 0, you should be ready to search the entire Catalog.

NOTE: Microsoft has an override feature that tells Indexing Server to ignore directories located in folders that are included in the index. If the Catalog does not fully populate, make sure that "For fast searching, allow Indexing Service to index this folder" is checked under the folder's properties Advanced... button (when changing this property, it will give you the option of applying the change to all subfolders); folders will also be excluded if the System user does not have permission.

Appendix D: Backup Best Practices

Microsoft's SQL database technology stores data in two files with the extensions of "mdf" for data and "ldf" for the transaction log. Since these files are always in use by the SQL Service, **you need to generate a single (slightly compressed) file with a bak extension for a successful backup.**

The bak files do not contain any documents linked to Encore because Encore links to them on your network (or stand-alone computer) through the Windows file system. So, to backup all your Encore data, you will need a copy of the bak file and all the attachments.

The Encore Console lets you either create a single bak file each day (overwritten daily) or keep the last three days of bak files (the oldest file is deleted). In addition, the Encore backup will create a checkpoint to verify the integrity of the database and backup the (optional) full-text catalogs.

Once you have these bak files, it is extremely important you backup them up to another device or location. For example a tape or an offsite backup service. You will probably want to backup the folders with the attached files to the same device/location.

Keep in mind that some clients backup their entire server (this would backup the bak file) and some clients backup only their data files. If you are backing up your entire server each day, you may still want to sign up for an inexpensive off-site backup program for just your critical data files (e.g., encore.bak, résumés and accounting software data file).

Check that your backup software is not skipping critical files (like the Encore bak); you should look at the file list for your backup software and do a test restore of the bak file.

While there is no universal best practice for a backup strategy, here are a few tips:

- Backup critical data every night (including the Encore created bak file)
- RAID arrays are designed to ensure that you have high availability to your data and are not a backup method
- CD/DVD backup generally does not store enough information (and are incredibly slow)
- Rotating backup tapes/drives (i.e., versioning or retaining copies) is important; if the prior backup fails, you can go to the previous version
- Storing all the backups next to the server is not helpful during a fire, flood or burglary
- Off-site, in addition to tape/disk offers redundancy
- Make sure that the backups are stored in a properly-controlled environment (temperature, humidity and security)
- Do a "fire-drill" periodically to make sure you know what to do in case your backups need to be restored, and that the data you expect is actually on the backup

If you have the Enterprise edition of Encore, the Database Administrator (DBA) can schedule their own Maintenance Plan (that can have a large period of rolling backups) based on their firm's best practices. For more advanced backup management for Enterprise edition users, Red-Gate SQL Backup Pro (internally, Cluen uses this product) or Quest's LiteSpeed for SQL Server are solid choices for large database files. They compress the data for faster backups and this allows more

backups to be stored on the server; in addition, they can encrypt and/or FTP the files to another location.

For non-enterprise clients, we have found a good off-site backup program for the bak and other critical files is IDrive (<http://www.idrive.com>); it allows you to store enough data for only a few dollars a month. In addition, while more expensive, Mozy Pro (<http://www.mozy.com>) is a good choice—there are many online backup products with different features, the key is to keep prior versions available for restoration. Another product widely used is called Carbonite (<http://www.carbonite.com>); by default, it skips bak files if you leave the default settings (remove bak from the exception list).

Key features in an off-site backup program are: (a) does a backup on changed data (technically, it sends the “deltas” of each file to save time/bandwidth), (b) emails status report after each backup, (c) can be scheduled to run 30 minutes after the Encore backup (or auto-senses changes), and (d) keeps the last 30 (or so) versions of each file (i.e., if you only go into your accounting software twice a week, you could go back 15 weeks to restore).

Appendix E: Creating a User

The following instructions will create a user that gives the Encore service access to resources on your network that the service may need (e.g., SQL Server and Microsoft Index Server). If you need to lock down security, see "Appendix F: Advanced Security" on page 23.

1. Login as Administrator to a Domain Controller.
2. Go to Active Directory Users and Computers under Administrative Tools.
3. In the Active Directory Users and Computers window, right-click on the organizational unit in which you would like to place the new user and choose New and User.
4. The New Object – User window should appear.
5. In Full name, type Cluen or another user name you prefer to use.
6. In User login name, type Cluen or another user name you prefer to use. Press Next.
7. In the Password field, type a password.
8. Change user settings to:
 - ☐ User must change password at next logon
 - ☒ User cannot change password
 - ☒ Password never expires
 - ☐ Account is disabled
9. Press Next.
10. If presented, uncheck the Create an Exchange mailbox option.
11. Review the user settings and press Finish.
12. Locate the Cluen user (or the user name you picked) and Right-click on it and pick Properties.
13. In the User Properties window, Select the Member Of tab and press on Add....
14. In the Select Groups under the Enter the object names to select, type Domain Admins.
15. Press OK.
16. Verify that the group Domain Admins was added to the list of groups under Member Of.
17. Press on Apply and then OK.
18. Close the Active Directory Users and Computers window.

Appendix F: Advanced Security

If the application layer and database layer (and optional Microsoft Index Server) are all on the same computer, you can use the Local Service account (default). But, if you need to access resources on other computers, the Cluen service account will need the correct network permissions. While granting Domain Administration permissions to the Cluen user is generally the easiest (as you change configurations, you will not need to modify permissions), corporate IT policy does not always allow this.

So, the Active Directory Cluen service account should have local administrative privileges on the application layer computer and, to lock down the SQL Server, you can grant the following database privileges:

Encore database (three permissions to access data):

(a) db_owner, (b) db_datareader, and (c) db_datawriter

MSDB database (two permissions to control scheduling of events):

(a) db_datareader, and (b) db_datawriter

If using Microsoft Index Server on another computer, that computer will need the Cluen service account to have the appropriate permissions to access Index Server.

If you are attempting to not grant a minimum of local administrative privileges, the Encore service must be enabled to login as a service:

1. Log in as an Administrator to the Database Server.
2. Go to Start|Administrative Tools
3. If the server is a domain controller, choose Domain Controller Security Policy otherwise choose Local Security Policy.
4. In the Local / Domain Controller Securities window, go to Local Policies|User Rights Assignment.
5. Double-click on Log On As a Service.
6. In the "Log On As a Service" Properties window click on Add User or Group.
7. Type the account that was created in the previous steps and then click Add.
8. Click OK.

Appendix G: Clean Install/Command-Line Arguments

The server and client installers are designed to upgrade existing installations without the need to first remove the program from the control panel. If the data structure changes, the Encore Console will automatically update the structure without the need to run any scripts. The Cluen nomenclature for Builds is "Version.Data.Build.0" (e.g., "5.66.228.0") where Version is 5 (for Encore 5), Data is data structure revision, Build is the release of Encore 5 and zero is a placeholder. So, if you upgrade from a Build and the Data number stays the same, there was no change to the data structure that the program is using (e.g., "5.66.228.0" to "5.66.230.0").

In general, Encore should be configured so that during an update, the server installer is run on the application layer which automatically updates the database and deploys the updates to the presentation layers (i.e., a few minute installation on the server automatically takes care of everything). Command-line arguments can be used to install the Encore client using scripts.

Server

The E5ServerInstaller.exe contains both 32-bit and 64-bit versions of Encore. Even though it is an executable (exe) file, you can pass most of standard MSI command-line parameters to it because it really is a bootstrapper for the Windows Installer. Typing "msdn msi command line" without the quotes in Google should bring you to the Microsoft page that details the Windows Installer options. For example, you could use the verbose logging parameter ("/L*V "C:\temp\example.log"), if you encounter an issue installing and want to troubleshoot the problem.

If you want to remove all the application layer files: (a) uninstall the application layer and (b) delete the program folder (default is c:\Program Files\Cluen\Encore 5 Console).

Client

While Encore automatically deploys the updates when the application layer is updated, you can include the presentation layer installer within your own scripts. The E5ClientInstall.exe can take most of the standard MSI command-line parameters.

There is one additional parameter that hides the extraction of the files (when creating the appropriate client version) called "/exenoui" (case-sensitive); this will remove the "Encore 5 Setup" dialog that says "Extracting the main application files...".

For example, if you wanted to completely hide the installation from the end user, you would execute "E5ClientInstaller.exe /exenoui /passive" (this will install either a new installation or update an existing installation); you could substitute "/passive" with "/qn". The "/exenoui" suppresses the extracting dialog and the "/passive" is the MSI command to eliminate any dialogs.

If you want to remove all presentation layer files: (a) uninstall the presentation layer, (b) delete the program folder (default is c:\Program Files\Cluen\Encore 5), (c) delete the preferences folder (default is c:\Users\USERNAME\AppData\Roaming\Cluen under Vista/7) and (d) delete the configuration folder (default is c:\Users\All Users\Cluen under Vista/7).

Appendix H: Console In-Depth

The Encore 5 Console sits on the application server and contains the database maintenance utilities.

Database Section

Databases(s)

Drop down that allows the selection of which Encore database you want to configure (with the rest of the screen). Add/Remove controls the list of databases. Detach removes the database from SQL, but leaves it as a database choice (technically, it issues the SQL `sp_detach_db` command).

Display As

Name of the database that you want an end-user to see (i.e., on the Login screen drop-down in a multi-database environment). Default is "Encore".

Actual Name

The name of the database as recognized by the database engine (i.e., `sp_attach_db` command). Default is "Encore".

Broadcast

Checked if you want the database name to appear on the Login screen drop-down in a multi-database configuration. This allows you to hide databases from users (they will need to know the exact Display As name to login). Default is checked.

Encore 4 Imaging Path

Client relative path to locate imaging documents that were stored in Encore 4; this adds a link to launch Encore 4 TIFF files within the Resume and Genies sections. Default is blank.

Last Message/Last Status

Displays database status (e.g., backup successful). Refresh button gets latest message/status.

Database Server

Name of computer running database layer. Default is same server name as application layer (i.e., combined server).

Slingshot

Checked if this database will be used with the optional Slingshot (mobile device) product.

Data Version

Current data structure revision of the selected database.

Database File Path (.mdf)

Full path and file name (e.g., `C:\Program Files\Microsoft SQL Server\MSSQL\Data\encore.mdf`) used to attach the database (i.e., technically, `sp_attach_db` command).

Log File Path (.ldf)

Full path and file name (e.g., C:\Program Files\Microsoft SQL Server\MSSQL\Data\encore.ldf) used to attach the database (i.e., technically, sp_attach_db command).

Backup/Restore

Configures the creation of bak files at a set time. Now hyperlink backs up the database on-the-fly. Dropping down the arrow will change from Backup to Restore mode. Restoring a database will destroy the contents of the existing attached database.

Full Text

If using the optional SQL Server Add-In, configures the rebuilding of SQL's full-text index.

Create hyperlink generates the full-text catalog. Destroy hyperlink drops the full-text catalog. Earlier versions of SQL need an incremental rebuild time; later versions will automatically populate the full-text catalog when a record is saved. Pressing Auto Populate hyperlink will set the database to update the index whenever indexed text has changed.

NOTE: A full-text catalog, on average, takes up about 30% of the disk space that the mdf uses; this ratio varies based on the quantity of notes per record.

Document Index

If using the optional SQL Server Add-In, configures access to Microsoft Index Server catalogs. Off/On enables or disables the feature.

Server Name is the server that is running Index Server. Catalog Name is the name you defined for the catalog (e.g., "Resumes", "All documents", etc.). Display Name is the name the user will choose to search (e.g., "Resumes").

In order to make Index Server easier to manage, Replace and With allow substitutions for the returned file path so that the end-user can click on the link (i.e., if Index Server returns "d:\public\documents\resumes\albert, smith.doc", you can have the user see "\\server\resumes\albert, smith.doc" by setting the Replace to "d:\public\documents\resumes" and the With to "\\server\resumes").

See "Appendix C: Configuring Microsoft Index Server" on page 18 for information on configuring Microsoft Index Server.

Maintenance (performed only on selected database)

"Update Statistics" updates the query optimization statistics for Encore's tables; this might improve execution plans, but will force all existing plans to recompile. "Flush Cache" forces each desktop to re-fetch lingo (and other settings); logins will take longer, but should be used if manual changes were made to system settings or workstations are out-of-sync. "Check Integrity" determines if the database or log file has data corruption; this will not fix the issue (fixing requires manual work by the DBA. "Reset Password" allows the changing of a user's Encore password.

Server Section

Configuration

Business Server is the name of the computer running the application layer. Ref is the channel reference for communication; Encore currently only supports TCP (default is "TCP"). Port is the TCP port used for communication (default is "2004"). If needed, you can add QoS for this port or open on a firewall. Stop/Start button stops or starts the "Encore5" Service (E5Host.exe).

If licensed for optional Slingshot (mobile device access), HTTPS forces SSL and Local is checked if the Slingshot server is the same as the application layer. **NOTE:** If you are not doing a fresh install, the configuration file will need to be copied over to the folder on the IIS server (replacing the existing configuration file). In addition you can configure URL Redirection to allow Slingshot users to view attachments.

If you are not using single sign-on (SSO), Encore can be configured to send a password reset email via an existing SMTP server.

Update Locations

When an updated application layer is installed, the old clients will automatically update themselves based on the Update Location configuration (so you do not need to go to each individual end-user computer).

Name is the display name that user chooses to update from (e.g., "USA", "Europe", etc.); default is "Update Encore". If this is only one update location (which is the case for most clients), the end-user will not need to choose an option. Relative path is the location for the E5ServerInstaller to place the E5ClientInstaller.exe. Published Path (UNC) is the location that the E5ClientInstaller executable will be run (based on the end-user computer); default is "c:\Program Files\Cluen\Encore 5 Console\E5ClientInstaller".

NOTE: You will want this to be a network share (which the E5Console automatically attempts to create). In this location is also a client configuration file, so that after installation, the end-user's computer can locate the application layer.

Active Directory Integration

This feature integrates the Encore security model with Active Directory for single sign-on. See "Appendix B: Active Directory Integration (LDAP)" on page 16 for security details.

Licensing

Displays the options that you are currently licensed by Cluen including the edition: Essentials, Plus or Enterprise. The Refresh hyperlink will contact the Cluen server to update your licensing information.

Output

Recreates the client configuration file (without re-installing the application layer) to the Relative Paths configured under the Update Locations. When a user manually runs the installer, they have the option to update their configuration file.

Appendix I: Client Connection Settings

The presentation layer configuration must match the server configuration (i.e., they both must use the same port). The configuration file should be automatically generated and installed during the running of the E5ClientInstaller.

The Encore login screen allows the client configuration to be changed by pressing the double-arrow button in the lower-right corner.

Stand-Alone or Server

Configures if a single computer (e.g., laptop) with all three layers installed or a server for multiple users to access data simultaneously.

Server

Name of server running the application layer.

Port

Default is "2004". The TCP/IP port used for communication between presentation layer and application layer.

Database selection

"Set your default database" (in a multi-database environment) chooses the named database as the user's default database. "The user should only log into this database" removes the database selector (in a multi-database environment).

Appendix J: Configuration Files

Encore does not use the Windows registry to store configuration, but XML files. Cluen does not support the manual changing of any configuration files. But, customers that want to deploy configurations based on scripts will find these details pertinent.

Server

E5Server.config is located in the folder with the Encore 5 Console (default is c:\Program Files\Cluen\Encore 5 Console); all of the server files are installed in this folder. The settings in the XML file are all controlled by the Encore 5 Console program and should not need to be changed directly.

Since the application layer does not keep state or store any temporary files that contain data, you may want to copy your settings (screen shot) or make a copy of the configuration file, if you have changed from the defaults, in case you need to rebuild your server.

Sample file to use for reference:

```
<?xml version="1.0"?>
<Settings>
  <Remoting Local="False" ChannelRef="TCP" ChannelPort="2004" ActiveDirectory="False" />
  <Databases BusinessServer="BigSrv">
    <Database DisplayName="Encore" TrueDBName="Encore" DatabasePath="c:\Program
Files\Microsoft SQL Server\MSSQL\Data\encore.mdf" LogFilePath="c:\Program Files\Microsoft
SQL Server\MSSQL\Data\encore.ldf" DBServer="BigSrv" Broadcast="True" ImagingPath "
BackupType="3" BackupTime=" " />
    <Database DisplayName="Training" TrueDBName="Training" DatabasePath="c:\Program
Files\Microsoft SQL Server\MSSQL\Data\training.mdf" LogFilePath="c:\Program
Files\Microsoft SQL Server\MSSQL\Data\training.ldf" DBServer="BigSrv" Broadcast="True"
ImagingPath=" " BackupType="3" BackupTime=" " />
  </Databases>
  <UpdateLocations>
    <UpdateLocation Name="Update Encore" InternalPath="C:\Program Files\Cluen\Encore 5
Console\E5ClientInstaller\E5ClientInstaller.exe"
PublishedPath="\\BigSrv\E5ClientInstaller\E5ClientInstaller.exe" />
  </UpdateLocations>
</Settings>
```

Remoting Section

Local="False"

Used by WCF and must be left at False.

ChannelRef="TCP"

Used by WCF and must be left as TCP. Encore does not support HTTP communication (which is a slower method because an additional layer of communication is added).

ChannelPort=port number

Default is "2004". The TCP/IP port used for communication between presentation layer and application layer.

ActiveDirectory="True"|"False"

Determines if application layer is configured to use single sign-on through Active Directory (True) or use passwords within Encore.

ADPath=LDAP path

Optional. Encore uses the common format of an LDAP path (i.e., "LDAP://cn=yourdomain").

SMTPServer=SMTP server name

Server name used for password recovery.

SMTPUser= SMTP user name

User account on email server for password recovery.

SMTPPassword=SMTP password

Password email server user name for password recovery.

SMTPEmailFrom=SMTP display name

The "from" address to display when sending email.

AllowPasswordRecovery="True"|"False"

Default is "False". Activates the ability for users to recovery passwords.

SMTPSSL="True"|"False"

Default is "False". Determines is using SSL when contacting SMTP server.

Databases Section

BusinessServer=name of server

Name of the application layer server.

DisplayName=description

Default is "Encore". Description used on login dropdown to identify database to user. Encore is licensed per database and most clients only have one database.

TrueDBName=SQL attached name

Name used by database layer to access data.

DatabasePath=location of mdf

Default is "x:\Program Files\Microsoft SQL Server\MSSQL\Data\encore.mdf". Path on database engine that contains the mdf file (and file name).

LogFilePath=location of ldf

Default is "x:\Program Files\Microsoft SQL Server\MSSQL\Data\encore.ldf". Path on database engine that contains the ldf file (and file name).

DBServer=database server name\instance

Name of database layer server; if using named instance (other than the default instance), add backslash and instance name (standard Microsoft convention for connection string).

Broadcast="True"|"False"

Default is "True". Determines if database name appears in login screen dropdown (i.e., hide the name so that the client needs to have the database DisplayName typed in).

ImagingPath=file path

Default is "". Used for backward compatibility with Encore 4 to point to the old imaging folder location.

BackupType="1"|"2"|"3"

Default is "3". Type 1 is "1-day retention w/Scheduler". Type 2 is "1-day retention w/Agent". Type 3 is "3-day retention w/Scheduler".

BackupTime=local computer time

Default is "". A blank default indicates no backup is scheduled.

Update Locations

Name=display name for location

Default is "Update Encore". If multiple locations (e.g., USA, Europe and PacRim), user will be given choice to download update. If only single option (default), updater will automatically run after warning user.

InternalPath=file location/name

Default is "x:\Program Files\Cluen\Encore 5 Console\E5ClientInstaller\E5ClientInstaller.exe". Folder location for the E5ServerInstaller to output the client installer. The E5 Console automatically makes a network share to this location.

PublishedPath=unc location

Default is "\\YOURSERVERNAME\E5ClientInstaller\E5ClientInstaller.exe". Network share and file that is run when the presentation layer sees that it is out-of-date.

Client

There are two client configuration files: (a) E5ClientUser.config and (b) E5Preferences.config. The E5ClientUser file contains information for communicating with the application layer and the E5Preferences file contains a few Encore settings that are not stored in the database because they are machine specific.

The locations of these files differ based on client operating system, but follow the Microsoft user profile environment (%APPDATA%). For example, under Vista, the E5Preferences would be located at C:\Users\USERNAME\AppData\Roaming\Cluen\E5Preferences.config and the E5ClientUser would be located at C:\Users\All Users\Cluen\E5ClientUser.config.

All users share the E5ClientUser file (located in the All Users under Vista) since this allows any user logging into the computer to connect with Encore, while preserving their personal preferences. If you make a copy of the E5ClientUser.config file and place it in the same place as the

E5Preferences.config file (i.e., that users AppData\Roaming\Cluen under Vista), the presentation layer will use those settings instead (i.e., override the computers communication settings).

All presentation layer files (except for the configuration files) as stored in the Encore program folder (default is c:\Program Files\Cluen\Encore 5). In addition, caching files are stored in a folder (named with the database Display As name) under AppData\Roaming\Cluen path that contains the following encrypted files:

- SysChoicesXX.cache; where XX is the data structure revision of the database, and
- a folder called "DoubleTime" which contains two files DoubleT.dat and DoubleT.idx); these are used by the DoubleTime technology.

Deleting any of these files/folders will cause them to be re-created by the presentation layer and will result in no data loss (in fact, nothing is stored on presentation layer that contains critical data). Holding down the shift key during login, will clear the cache files.

The SysChoicesXX.cache is updated (or created) during login if the tSystemChoiceMonitor shows that changes were made to the "static" drop-downs (e.g., tCompanyType, tPosition, etc.) within Encore (the login has the ability to only update tables that had changes).

The DoubleTime cache files contain data on the last 100 records (in total) recalled from the People, Company, Search or Business Development Systems; this allows Encore to more rapidly display records (on high latency circuits) and to reduce network bandwidth (to increase performance on slow circuits).

Sample E5ClientUser.config for reference:

```
<?xml version="1.0"?>
<Settings>
  <Remoting Local="False" ChannelRef="TCP" ChannelPort="2004" Server="BigSrv"
  DatabaseName="" />
</Settings>
```

Remoting Section

Local="False"|"True"

Used by WCF to determine if running standalone (True) or connecting with a server in a multi-user environment (False).

ChannelRef="TCP"

Used by WCF and should be left as TCP for normal use. Encore only supports the less efficient HTTP/SOAP communication in conjunction with our CluenCloud (SaaS model).

ChannelPort=port number

Default is "2004". The TCP/IP port used for communication between presentation layer and application layer.

Server=server name

Name of application layer server. While not recommended because of changes in network schema, can also be IP address of server.

DatabaseName

Display name of forced database (i.e., disables selector in a multi-database environment).

ProxyServer=""

Only applies to the CluenCloud (SaaS model) and is used for HTTP/SOAP communication.

ProxyPort=""

Only applies to the CluenCloud (SaaS model) and is used for HTTP/SOAP communication.

Sample E5Preferences.config for reference:

```
<?xml version="1.0"?>
<Settings>
  <Preferences DatabaseName="E5Finance" AlwaysLogInto="" />
  <TAPI TAPILine="" URL="" />
  <Screen AutoHideRibbon="0" LeftToolbar="0" />
</Settings>
```

Preferences Section

DatabaseName=name of last database used

Sets the default on the database dropdown if multiple databases are configured. Automatically set by login screen.

AlwaysLogInto

Default is "". Forces the user to only login to a specific database. Set from configuration button on login screen.

TAPI Section

TAPILine=name of 32-bit TAPI interface

Default is "". Set by querying TAPI devices under File|Preferences, Auto-Fill and Phone on a 32-bit operating system. TAPI32 is not supported on a 64-bit operating system.

URL=command line dialing

Default="". URL or program to dial phone number when not using TAPI32 (i.e., under Terminal Services).

Screen Section

AutoHideRibbon "0"|-1"

Default is 0. Determines if ribbon collapses (-1, which is true) to display less data (i.e., vertical screen resolution is too small).

LeftToolbar "0"|-1"

Default is "0". Moves toolbar from top (0, which is false) to left (-1, which is true).

DisableAcceleration="0"|-1"

Default is "0". Maximizes performance of screen drawing.

NOTE: When the client is first started and the E5Preferences.config is non-existent, Encore will examine the screen resolution and take a guess at optimal settings for that computer. For example, if a wide screen laptop only has 720 lines of vertical resolution, Encore will move the toolbar over to the left so that the user can see enough information. Changing any of these setting from the Preferences screen will store them going forward.

Appendix K: Due Diligence

This two-page Due Diligence sheet, to be filled out by your Network Consultant, is intended to verify that Encore will be compatible with your configuration (this is not for CluenCloud clients). If you are upgrading equipment to run Encore 5, Encore 4 ("E4") may be incompatible to run simultaneously with your new equipment. **Encore requires that the Microsoft .NET Framework 3.5 SP1 (or 3.5.1) be installed (see "Prerequisites" on page 5).**

You will not receive your Serial Number and Password for installing Encore until this sheet is filled out, returned to Cluen and approved. If you have a question about filling out this document, call +1 (212) 255-6659 and press 3 or email the Support Team. **Send this document back by faxing +1 (212) 255-6357 or emailing support@cluen.com.**

Client (subscriber of Encore)

Company		Phone	
Contact		Email	

Network Consultant (installer of Encore)

Company		Phone	
Contact		Email	

☐ Yes or ☐ No Prior experience installing Encore ☐ Yes or ☐ No Prior experience with VPNs

Solo Users (a single-user with one computer on DBExpress)

Architecture (for Solo User only)

For Windows 8.x, see the note in "Prerequisites" on page 5

Backup (for Solo User only)

Describe your backup strategy and/or see "Appendix D: Backup Best Practices" on page 20

Single Computer (no network)

Windows ☐ XP or ☐ Vista or ☐ 7 or ☐ 8 or ☐ 10
☐ 32-bit or ☐ 64-bit
 ____ GB RAM running with ____ x ____ GHz CPU
☐ Yes or ☐ No Notebook (or other portable)

STOP: There is no need to fill out the rest of the Due Diligence if you are a Solo User.

OR

Workstation Quantities (users sharing data)

32-bit	64-bit	Edition
		XP Home*
		XP Professional
		Vista Home Basic*
		Vista Home Premium*
		Vista Business
		Vista Ultimate/Enterprise

32-bit	64-bit	Edition
		Windows 7 Home Premium*
		Windows 7 Pro/Ultimate
		Windows 8.x Home*
		Windows 8.x Pro/Enterprise
		Windows 10.x Home*
		Windows 10.x Pro/Enterprise

*Cannot use integrated Active Directory (LDAP)

____ Total Workstations

File Server(s)

Most clients use one File Server to run Encore (i.e., running both the application and database layers). Only fill out Server B if you plan to store your database on a separate computer (for example, an existing Microsoft SQL Server).

	Server A	Server B
Server Usage	<input type="checkbox"/> Application <input type="checkbox"/> Database	<input type="radio"/> Not used <input type="radio"/> Database
Windows Server Version Pick one Server and list Service Pack revision; for Server 2012 (or R2), see the note in "Prerequisites" on page 5	<input type="radio"/> Server 2016 <input type="radio"/> Server 2012 (or R2) <input type="radio"/> Server 2008 (or R2) <input type="radio"/> Server 2003 (or SBS) with Service Pack ____	<input type="radio"/> Server 2016 <input type="radio"/> Server 2012 (or R2) <input type="radio"/> Server 2008 (or R2) <input type="radio"/> Server 2003 (or SBS) with Service Pack ____
Server Architecture Two 3.1 gigahertz CPUs that are each dual core would be "2 x 3.1 Ghz CPU" and "2 Core(s)"	<input type="radio"/> 32-bit or <input type="radio"/> 64-bit ____ GB RAM ____ x ____ GHz CPU ____ Core(s)	<input type="radio"/> 32-bit or <input type="radio"/> 64-bit ____ GB RAM ____ x ____ GHz CPU ____ Core(s)
Microsoft Data Engine SQL needs to be separately purchased from Microsoft and requires the optional Encore Enterprise edition; Essentials/Plus editions usually use DBExpress	<input type="radio"/> Cluen supplied DBExpress (or MSDE for E4 users) OR SQL <input type="radio"/> 2016 or <input type="radio"/> 2014 or <input type="radio"/> 2012 or <input type="radio"/> 2008 R2 or <input type="radio"/> 2008 or <input type="radio"/> 2005 or <input type="radio"/> 2000 with Service Pack ____ using edition of <input type="radio"/> Workgroup or <input type="radio"/> Standard or <input type="radio"/> Enterprise or <input type="radio"/> Business Intelligence or <input type="radio"/> Web	
Disk Drive Configuration RAID 1 is hardware mirror and RAID 5 is striped	<input type="radio"/> RAID 1/5/1+0 <input type="radio"/> Software Mirror <input type="radio"/> Single Drive	<input type="radio"/> RAID 1/5/1+0 <input type="radio"/> Software Mirror <input type="radio"/> Single Drive
UPS w/automated shutdown cable Choose Data Center for location with continuous battery and failover generator	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Data Center	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Data Center
Bandwidth Downstream is from Internet to Server	Down ____ Mbps Up ____ Mbps	Down ____ Mbps Up ____ Mbps
Backup Software Name/Version		
Backup Drive Type		
Backup Methodology See "Appendix D: Backup Best Practices" on page 20 for more information	<input type="checkbox"/> None <input type="checkbox"/> Daily <input type="checkbox"/> Older versions saved <input type="checkbox"/> Off-site location	<input type="checkbox"/> None <input type="checkbox"/> Daily <input type="checkbox"/> Older versions saved <input type="checkbox"/> Off-site location
Off-site Backup for Critical Files Automatic secondary backup of key files	<input type="radio"/> Yes or <input type="radio"/> No	<input type="radio"/> Yes or <input type="radio"/> No

Optional Terminal Services (or desktop virtualization)

☐ No Terminal Services **OR**

Server ☐ 2016 or ☐ 2012 (or R2) or ☐ 2008 (or R2) or ☐ 2003; If Citrix, version ____

You will need a server separate from the application/database layers configured in "Application Mode". Encore desktop clients will not run under Terminal Services/virtualization without the purchase of this license. See "Client" on page 4 for specifications.

Optional Slingshot (for web mobile access)

☐ No Slingshot **OR**

IIS on ☐ Server A or ☐ Server B or ☐ Separate 2016, 2012 (or R2), 2008 (or R2), or 2003