# Kinnexus 2.0 MLS System
# Technical Description

Kinnexus 2.0 is a client/server software package that was written for Windows 95/98 32-bit operating systems using Visual C++. It is a general-purpose database system with unique application to real estate multiple listing services. It is designed to provide flexibility and customizability to administrators, offices and users such that each MLS database is unique, but the Kinnexus 2.0 software is the same for all customers.

## Kinnexus 2.0 Server

The heart of the system is the database where the data is stored. Kinnexus 2.0 uses Microsoft SQL Server 7.0. The SQL structure provides the desired open architecture that makes the data readily accessible through Kinnexus or any 3rd party software that utilizes SQL query tools. It also facilitates changes to the data structure and data records using integrated Kinnexus tools. For example, administrators can add new fields, reports and property types with tools that are built into Kinnexus. This kind of customizability is also extended to offices and individual users through a method of granting rights from the system administrator. Individual brokers and agents can have their own unique forms, reports and flyers.

All Kinnexus transactions with the SQL database are handled and managed by a gateway called Kx Server. Transactions include adding, editing and retrieving data. Any number of users may be connected to the server at one time, and Kx Server manages the user's connection to SQL. This optimizes the connections to SQL Server and minimizes the number of Microsoft SQL Server licenses required for the use of Kinnexus. Other SQL query software programs have direct access to the database using their own query tools.

The operating system for the server is Windows NT 4.0. Windows NT and Microsoft SQL Server are provided as part of the Microsoft Backoffice software package that includes 25 SQL licenses. It is projected that 25 licenses would serve up to 250 simultaneously connected users without a noticeable degradation in system performance.

## Data Communications

Since its inception, Kinnexus has used the TCP/IP protocol with a multiple communications interface for data communications. However, Kinnexus 2.0 goes one step further to increase the reliability of TCP/IP. The enhancement is the addition of the UDP (Universal Datagram Protocol) part of the TCP/IP protocol. While TCP/IP insures that the correct data is sent to the correct address, the UDP layer insures that the correct data is received. It does this by monitoring all communications and automatically correcting any data errors, no matter what the source of the error may be. In the extreme, if a connection is lost (the user inadvertently disconnects for example) the UDP layer will automatically reconnect and resume the transfer from where it was interrupted. This is extremely important when transferring large files, like an MLS database.

The other key element in Kinnexus data communications is the support of multiple communication options that include ISDN, Frame Relay, T1, T3, ATM, VPN, POTS, cable modems and DSL. In all cases, the protocol is TCP/IP with UDP and compatibility with Microsoft Remote Access Services (RAS). With Kinnexus, each MLS can customize the communications suite that meets their unique requirements the best. In our experience, our

Kinnexus customer base utilize just about every option in various combinations, but Internet connectivity seems to be emerging as the preferred, primary method. Where direct dial-up lines are used we recommend using digital modems for increased speed and reliability and with ISDN service an MLS can have twice the number of digital lines using the existing lines.

Two other aspects to data communications, networking within an office and dynamically linked websites, will be discussed below.

## Kinnexus 2.0 Client

The real power of the Kinnexus 2.0 MLS system resides in the client software running within the Windows 95/98 operating system. Kinnexus 2.0 Client is designed to maximize the use of the SQL database in providing unparalleled functionality and flexibility. It looks, acts and feels exactly the same whether the user is operating online with the complete database or offline on a personal, replicated database. In other words, Kinnexus is both an online system and a distributive system, in a single software program. Kinnexus 2.0 is designed to be simple and easy to use for the novice, yet it's capability should satisfy the expert power user.

Kinnexus 2.0 Client uses the Microsoft Data Engine (MSDE) for the database when users distribute all or part of the MLS database to their personal computers. MSDE is also a SQL database and it greatly simplifies the replication process from the SQL server when compared to previous Kinnexus versions that use the Access component Jet Engine.

The most used function in any MLS system is SEARCHING. The user has several options in defining the kind of search that is done. Wizards are used to select search criteria and after search results are obtained, the user can easily return to the wizard to modify the criteria for a revised search. All wizards are customizable. A quick search takes very little time and just a few clicks of the mouse to obtain results. Searches can be as simple or as complex as the user desires. All fields on the listing record can be searched. Searches that are saved are not only available for future use, but are also searched automatically by the server (Auto-prospecting) during off-peak hours. When new search results are found, they are automatically sent to the user during the next connection and the user is notified on the "To Do" list. Kinnexus also provides relevancy searches where each field is weighted according to its importance. The closest matches are denoted with the highest percent of relevancy. A CMA search is a complex search that uses relevancy factors across different statuses.

Search results are displayed in a LIST VIEW format that is customizable by the user. Using a drag-and-drop process, any field is easily added to the list of columns that are displayed, and in any desired order. List views provide a number of tools to assist in organizing the displayed results. These include four levels of sorting the results, three levels of grouping, basic statistical functions, highlighter marker pens and customizable fonts, colors and print formats. Kinnexus 2.0 also provides an expression function that creates additional columns by mathematically combining specific data fields. For example, the "list price" field divided by the "square footage" field displays the cost per square foot in a new column.

Kinnexus 2.0 includes MAPPING. Each listed property is geo-coded and placed on a street map overlay. The maps use the TIGER data obtained from the Census Bureau of the U.S. Government and have several display options. Maps are displayed by clicking on an icon at the bottom of the display. An individual listing or the entire list of search results may be displayed on maps. Maps can also be added to forms, such as flyers or attached to email. Mapping is

also used to define geographic areas as search criteria. Any number of geographic areas can be selected, limiting all search results within the areas selected on the map

Kinnexus 2.0 allows MULTIPLE PHOTOS to be attached to each listing record. In fact, there is no limit to the number. Kinnexus accepts photos in any scanner format, from digital cameras, and Kodak photo CDs. Each agent can load photos for their own listings. In the database, photos are stored in the Lead Technologies .cmp format with compression that is comparable to JPEG. When needed, photos can be exported in any of the common formats. A typical stored photo file is about 20KB in size. Multiple photos can also be added to forms and flyers.

All Kinnexus users have their own INTERNET EMAIL account within the system. The Kinnexus email system is fully MAPI compliant. With a single click, a listing or a complete result list is automatically formatted in HTML and attached to an email message. The user simply addresses the email, adds a short note if desired and sends it with one more click. Email is transferred from the server to the client and vice versa whenever an online connection is made. The arrival of new email is also displayed on the “To Do” list.

The TO DO LIST is a handy management tool that is displayed on the home page. It is there to alert the user to key information such as the arrival of email, new saved search results, a new hot sheet, listings that are about to expire, and reminders that are scheduled by the user. Clicking on any line of the list opens up that item for immediate review or processes a desired action. For example, clicking the displayed reminder on the list activates hot links to favorite websites.

Kinnexus 2.0 contains an embedded WEB BROWSER, Internet Explorer, that provides a means of searching the web while working in Kinnexus.

Individual users, brokers or the system administrator can load LISTINGS, including photos. The data entry process is simplified by customizing the entry form to suit the user or by entering data in a series of wizards. Required fields are color-coded and will not allow activation without an entry. Kinnexus also surveys data entries for reasonableness to insure that correct data is entered. It alerts the user to an entry that is not within a reasonable range by changing the color of the field. Since this function is advisory only, Kinnexus will not override the entry.

Kinnexus uses the Windows print engine for all PRINTING, however, all formatting is done by the Kinnexus forms generator. Printing is not limited to a set of canned or pre-defined forms. Each user has the tools to create their own unique forms that include reports, information sheets, flyers, ads and even books. Because all forms are WYSIWYG (what you see is what you get), the user can preview the printing on the screen. Then, one click of the print icon produces full color, high quality, custom designed output in any size. The only limitations to what is produced depend on the capability of your printer.

Regarding BOOK PRINTING, Kinnexus pulls the data and formats the books as defined by the MLS, or by offices or by individual users. Kinnexus will print camera ready copy on a laser or inkjet office printer to be delivered to a printer of choice for book reproduction. Books can also be saved as a postscript file (formatted) or an ASCII file (unformatted) and transmitted electronically to a capable printing house for reproduction.

The Kinnexus EXPORT STUDIO enables the export of data in a variety of standard and non-standard formats. These include a TAG format (a unique TAG format for Top Producer/Top Connector), ASCII format, direct exports to Microsoft Office programs, and HTML. Kinnexus 2.0

complies with the NAR sponsored RETS standard for data exchange. Any two programs that are compliant with this standard will be able to exchange data, whether they are servers, clients or 3rd party management programs.

The system administrator (SA) owns the SYSTEM MESSAGE area on the home page that is used to get general messages out to the MLS membership. The SA also controls up to 365 BANNER ADS that may be sold to local area businesses to generate non-dues revenue for the MLS.

Kinnexus provides a complete BULLETIN BOARD SYSTEM that allows the SA to create public folders with limitations on who can make entries to the folders. An example of how public folders can be used is for mortgage rates. The SA can set up a mortgage rate public folder and allow the mortgage companies to enter their loan descriptions and rates. The SA can grant access to the mortgage folder for all users of the MLS. Using the public folder, Mortgage companies can update their rates instantly, while agents can quickly review all the rates available. Another example of using the public folders would be for the SA to maintain support issues for the agents. The SA can also grant rights to selected users to create their own public folders.

SYSTEM SECURITY is administered by the SA. Each member is identified by a unique user name and password that are required to use the system. Screen displays and other customizations are recorded and identified by the "user name" so that the user's personal preferences are called up from any computer the user might be using. All the functions are controlled by a system of granting rights starting with the SA to brokers, and subsequently, from brokers to agents.

The SA also has import tools found in the IMPORT STUDIO. It includes the unique scripts that convert the old database data for import into the new Kinnexus database. These are primarily used prior to cutover when the old and the new systems are running in parallel. But it can also be used to import and keep current data from other sources, such as regional data or data from neighboring MLS's. Batch loading of photos is also included in the import studio.

It also contains scripts that convert PUBLIC RECORD data for import into the Kinnexus database. Public record data, when imported into the Kinnexus database, is available for review just like any other record type. Kinnexus auto-fills certain listing fields with data found in the public records.

The data in the Kinnexus database is arranged with a relationship between buildings and apartments. If a person locates a building from a search, there is an automatic link showing all apartments available in the building. Conversely, if an apartment is found as a search result, there is a link to the associated building (which has a link back to all the apartments in the building).

## Dynamically Linked Websites

The SQL database lends itself to dynamic linking of web sites to the Kinnexus database so that all changes are posted on a web site in real time. Therefore, a new listing is immediately searchable on the web site the instant it is activated. Two types of web sites are available. A private web site for the MLS is included in the Kinnexus 2.0 system. This makes it possible for users to perform basic functions from their standard web browser without Kinnexus Client software. The interface for the private site is the same as Kinnexus Client with the exception

that it is not as customizable and it does not provide all the functions provided by the client software. Therefore, not only is Kinnexus 2.0 an online system and a distributive system, it is also a browser-based system --- all in the same package, all with the same interface.

Dynamically linked public web sites are also provided as an option to the MLS, to brokers and to individual agents. In this case, the web pages are uniquely designed and do not resemble the Kinnexus Client interface.

## Office Networks

Since Kinnexus 2.0 uses MSDE for the distributed database, office networks will be able to stay linked with the MLS server so that all changes are immediately updated on the network server. Users in that office do not have to do their own replications nor do they have to go online with the Kinnexus server to have access to current MLS data and email. Office networks can replicate the data on the Kinnexus Server to an office master database. Client computers connected to the office server via a LAN can have instant access to Kinnexus without connecting directly to the Kinnexus Server. This reduces the time and effort to connect to the Kinnexus Server by each individual, and can provide instant data downloads over a LAN instead of over the Internet or via dial up connections. The database in computers used at home or on the road will still have to be updated by going online periodically.

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