SMART W*orks*

Server Manual

Macintosh Version

Programmed and Written by
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Contents

Welcome to SMART

SMART (System for Manuscript Review and Technology) is an integrated set of programs designed to work together to support the submission of peer-reviewed Brain Research manuscripts through the review cycle. SMART uses the Internet as the connecting network among all users. Authors use certified commercial software applications to author their manuscripts. Information concerning the authors, paper format, journals, keywords, and manuscript files are assembled together into a package by SMART and transmitted through the Internet to a server. The review phase is initiated and selected reviewers electronically read and write their reviews. Advantages are greatly reduced time-to-review, time-to-publish, and time-to-read periods.

SMART has four basic software applications.

SMART Submitter - Authors use this to assemble manuscripts and to transmit them to the SMART server over the Internet. SMART Submitter can also be used to check the status of the review cycle.

SMART Reviewer - Reviewers use this to retrieve manuscripts from the SMART server and to enter comments, evaluations, scores, and commentaries which are transmitted back to the SMART server.

SMART Staff - Editors and staff members of Brain Research use this to log into the server and to retrieve new manuscript submissions, assign reviewers, send notifications to reviewers, see reviewers' evaluations, and to take final actions of manuscripts.

SMART Server - this interacts with all other SMART applications to

receive, send, hold, and analyze all information flow.

SMART currently requires a Macintosh computer with at System 7.5.3 installed, a minimum of 8 MB RAM for 68K processors, or 16 MB of RAM for PowerPC processors, and 8 MB of free disk space. An internet connection is required for SMART to operate properly between the author's or reviewer's machine and the SMART server.

SMART will be ported to Windows 95 and Windows NT by the middle of 1997.

Before You Begin

This chapter deals with topics that you should be aware of before using SMART for the first time.

- Package Contents
- Hardware and Software Requirements
- Installing the Software
- About this Manual
- How to use this Manual
- Technical Support

Package Contents

If you received the SMART software package directly, it contains the following:

- This manual
- Installation disks
- One SMART registration card

If you received SMART from the Internet electronically, you have one installation file. Refer to the section on *Installing the Software* to continue.

Hardware and Software Requirements

Macintosh

- A Macintosh Quadra or later, with a hard drive and 10 MB free for complete installation. A 68040 minimum processor is recommended
- System 7.1 or later
- 32 MB minimum available RAM

Power Macintosh

- Hard drive and 15 MBytes free for complete installation
- System 7.1 or later
- 32 MB of available RAM

Installing the Software

Installations disks - if you have installations disks, follow these instructions to install SMART:

1.Turn on your Macintosh if it is not already on
2. Quit any applications that are active
3. Insert Installer Disk 1 into any floppy drive
4. Double-click **Install Me** to begin the installation process
5. Follow the prompts on your screen
6. Eject the Installer Disk 1 and store all disks in a safe place

Network download - If you have an installation file from the Internet, follow these instructions to install SMART:

1. Turn on your Macintosh if it is not already on
2. Quit any applications that are active
3. Double-click **Install Me** to begin the installation process
4. Follow the prompts on your screen

The installation process creates a SMART folder containing all of the folders and files of SMART, including the Reviewer application and creates a Preferences folder in the System Folder: Preferences:SMART folder.

Several files are copied to the Extensions folder

AOS PowerPlug
AOS Runtime
GNU RegEx (fat)

WASTE (fat)

Several files are also copied to the Extensions folder depending on the Macintosh model:

ANSI C CFM68K Lib.....(For 68K machines)
ANSI C PPC Lib..... (For PPC machines)

To Register Your Copy of the Software

Registering your copy of SMART is important. By registering, you get free Technical Support (see the section on Technical Support) and you will be notified of all improvements and upgrades to the software

About this Manual

This manual provides both instructional and reference material to help you get the most from using SMART. The manual consists of:

- QuickStart
- The Basics
- The Database
- The Server
- Appendixes

QuickStart should be read if you installed the software, are familiar with Macintosh applications, and want to begin using the application immediately

The Basics contains information on initial files created, user interface issues, and network communications

The Database introduces you to the database document, what it contains, and how to maintain it

The Server explains how to start and maintain the server

Appendices has all of the appendices mentioned in the other sections, such as certified word processors, optimizing memory, networking issues, commercial and software utilities that make using SMART software perform better, and an expanded list of themes.

Conventions used in this manual

Whenever special attention is required for a topic, the **Alert** graphic is displayed. Pay special attention to this information as it is important.

Whenever there is a good tip useful to remember, the **Tip** graphic is displayed.

Whenever there is emphasis required on a certain point, the **By The Way** graphic is displayed.

How to use this Manual

This manual assumes that you are familiar with basic Macintosh operations, such as pressing and dragging the mouse; selecting, copying, and moving icons of files and folders; choosing commands from pull-down and pop-up menus; pressing on buttons to activate commands, opening and closing documents, launching applications, managing windows and their scrollbars, title bars, close box, and zoom box; and using the Finder. If you are not familiar with these terms and operations, read your *Macintosh User's Guide* to learn more about your Macintosh.

Technical Support

We have worked hard to make sure that the software and the manual are easy to use. Should you have any difficulty, please follow the instructions below.

We support SMART users via EMail. If you are having difficulties and cannot find the answers in these manuals, please EMail us a note.

Before Calling for Help

1. Make sure that your computer is properly set up, and that all cable connections are secure.

2. Make sure that you have properly installed the software according to the installation instructions in these manuals. All software extensions installed have no known conflicts with other extensions.

3. Be sure that you have sufficient memory (RAM), especially if you are running on a PowerMac.

4. Be sure that you are correctly configured to access the Internet via TCP/IP. Contact your Network Administrator if you suspect a problem.

5. If you suspect a hardware problems or a problem with your system software, contact your local Apple deal.

EMailing for Help

SMART support is currently limited to EMail. You will receive a prompt answer via EMail. Please include your Macintosh model name and number, the version of SMART, and a brief description of the problem.

EMail to:

SMART@scripps.edu

Please put the word Tech Support in the subject heading.

Chapter 1
Quickstart

Read this chapter if you are familiar with Macintosh applications and want to use SMART right away. This section assumes that you have already installed SMART.

1. Double-click **Server** to launch the application.

2. Select **Configure...** from the **File menu** to enter in the listening port number, and the SMTP and POP server addresses.

3. Select **New Database...** from the **File menu** to open a new database.

4. Select **Start Server...** from the **File menu** to start the server listening for connections from clients.

5. Select **Server Status...** from the **Admin menu** to open a status window.

Chapter 2
The Basics

This chapter contains information on initial files created, user interface issues, and network communications.

- Launching for the First Time
- User Interface
- Configuration

Launching for the First Time

Double-click on **Server** to launch the application. When Server launches for the first time, a folder named **SMART** is created in your **Preferences** folder (Figure 2.1). In this folder is an additional folder named **Client Patches** and a file named **Client Preferences**. *Client Patche* holds software patches supplied in the future. *Client Preferences* contains the data on user preferences.

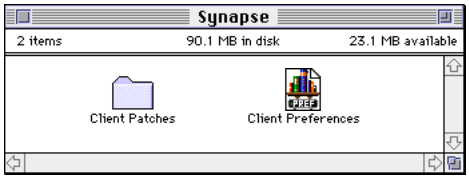


Figure 2.1

User Interface

The user interface experience is similar to other Macintosh programs. Windows are used to convey most of the information to and from Server.

Column Cursor

Some fields in windows may be multi-columned (Figure 2.2). The width of the columns can be adjusted by positioning the cursor on a vertical line of a column. The cursor changes to a **column** cursor. While pressing the mouse button down, drag the mouse from left to right to resize the column. Any columns to the right of the vertical line being adjusted shift left and right by the same amount. To adjust only the immediately adjacent columns of the vertical line, hold down the **Control key** when moving the mouse.

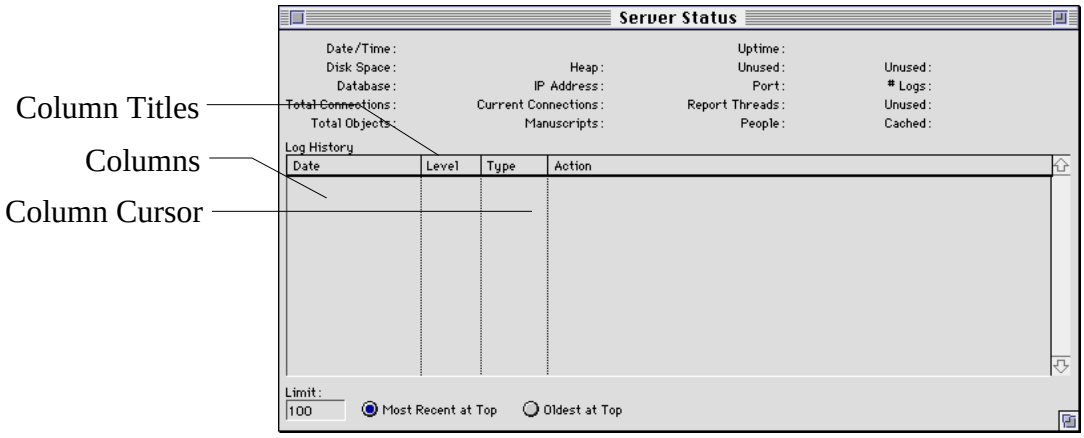


Figure 2.2

Tip: Hold down the **Control key** when adjusting the column to adjust only the current columns touching the vertical line.

Many windows are also sensitive to drag and drop. If you select certain data or lines of text, and then drag this to another window, or to the Macintosh Finder desktop, data are copied, transferred, or exported. Likewise, some windows may have files dragged into them. See later chapters for more specific information on the capabilities of each window.

Alert: Drag and Drop must be supported in those applications.

Figure 2.3 shows the text of the name being dragged from the administrator's window to the desktop, creating a **text clipping** file.

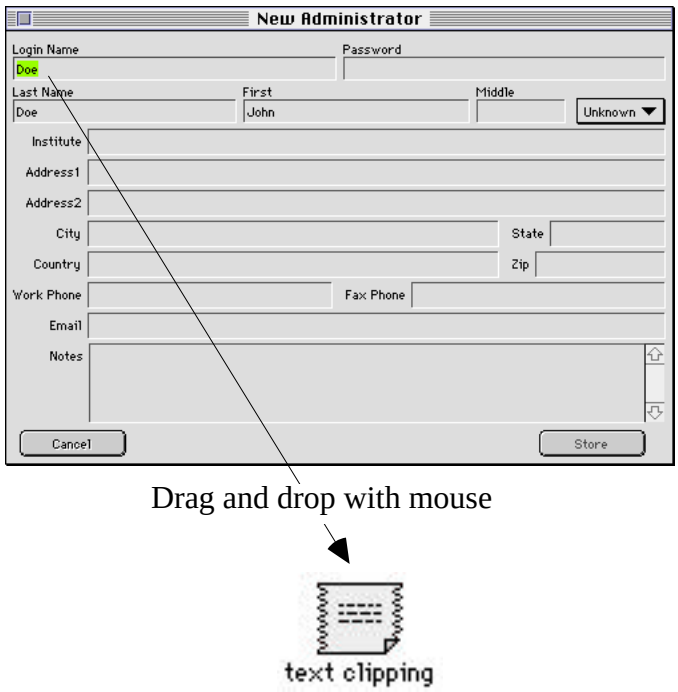


Figure 2.3

Many of the fields of windows also accept fully styled text. To change the text directly in a field, select **Text Tool** from the **Edit Menu** to open the **Text Tool Window** (Figure 2.4)

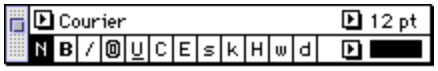


Figure 2.4

To change text:

1. Select the text to be changed using the mouse
2. Press on the various controls in the Text Tool Window to alter the font, the style, the size, or the color

Configuration

SMART must be configured with certain network information. Select **Configure...** in the **File menu** to open a configuration window (Figure 2.5).

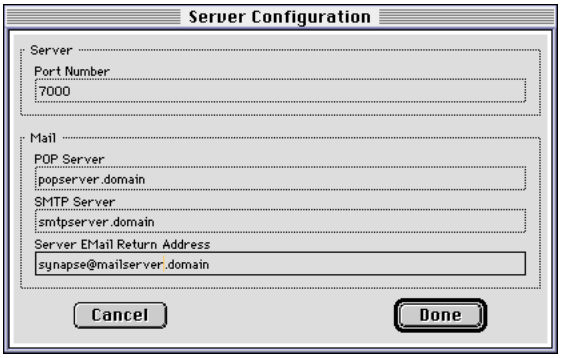


Figure 2.5

- The **Port Number** is the number of the listening TCP/IP port for incoming requests from SMART clients.

- The **POP Server** is the name or the IP address of the server for Post Office Protocol (POP) mail. Check with your Network Administrator for this information.

- The **SMTP Server** is the name or the IP address of the server for Simple Mail Transfer Protocol (SMTP) mail. Check with your Network Administrator for this information.

- The **Server Email Return Address** is the mail address for this SMART server. Check with your Network Administrator for this information .

You only need to configure this information once. Reconfiguration is required if one of the following conditions occur:

- The preference file is deleted or becomes corrupted
- You reinstall a new version of the operating system that may create a new system Preference folder

Chapter 3
The Database

This chapter will show you how to use Server to open and maintain a **database**.

- About Databases
- Creating a New Database
- Opening an Existing Database
- Saving a Database
- Closing a Database
- Rebuilding a Database
- Adding an Administrator
- Importing TAB Delimited Data
- Exporting TAB Delimited Data

About Databases

A database is a collection of files organized into a physical folder residing on the hard disk drive. Only one database may be opened at any one time while the server is running. The server must be started before the database can be accessed from the network.

The folders and files in a database hold information about the objects in the database. The files are also the place where persistent information is stored, while RAM holds a subset of this information.

By The Way: The term OBJECT is used repeatedly throughout this manual and refers primarily to a database record. The database itself consists of two primary tables - manuscripts and people. Therefore, the two primary kinds of objects are **manuscript objects** and **people objects**.

The files must remain synchronized with one another. The server does this automatically when it is running, and when clients connect and access the information. However, if the server experiences some unexpected interruption, such as a crash of the computer or software, some files may not be properly updated. In this case, the database reports as being out of sync, and requires a rebuild of the database to restore referential link integrity.

A database contains unlimited amount of information, limited only by the

size of its mounted disk volume. The database can be created on any volume, including Appleshare servers, optical media, floppies, and even tape drives. However, speed of file access is critical, and the fastest random access device is recommended.

Databases are handled much like Macintosh documents. New documents are created, existing documents are opened or saved.

Creating a New Database

Select **New Database...** in the **File Menu** to create a new database for use by the server. This menu item is enabled only if the server is not running. A database cannot be created until the server is stopped. A file dialog opens to store the database (Figure 3.1).

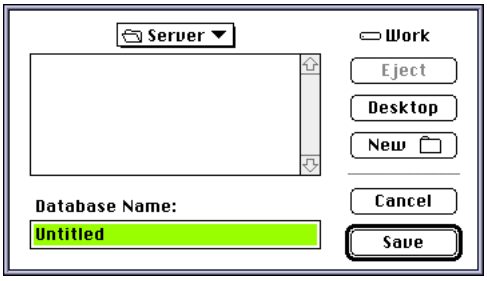


Figure 3.1

The default name supplied by the Server is **Untitled**. Enter any name and the press the **Save button**. A new folder is created. The database opens and is ready to accept data.

Opening an Existing Database

Select **Open Database...** in the **File Menu** to open an existing database on a mounted disk volume. A file dialog opens (Figure 3.2) to select the database folder. This menu item is enabled only if the server is not running. A database cannot be opened until the server is stopped.

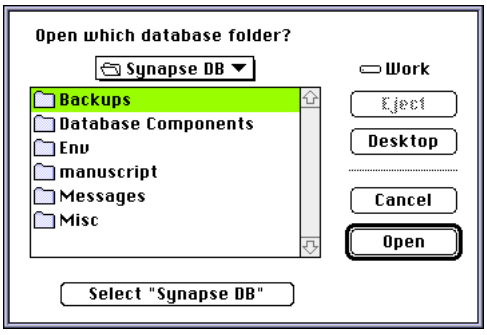


Figure 3.2

Navigate through the mounted disk volumes and locate the database folder. The files as displayed in Figure 3.2 should be located in this database folder. When you are in the correct database folder, press the button labelled **Select "SMART DB"**. Note that the name of your folder replaces *SMART DB.* This database then opens as the current database for this server.

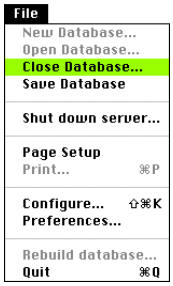
Saving a Database

Select **Save Database** in the **File Menu** to save an opened database to the disk volume. This menu item is enabled only if the server is not running. A database cannot be saved until the server is stopped.

Saving a database writes current information in memory to disk, and synchronizes all data. When a database has been saved, it may be closed properly. If a database is not saved, that database is not be properly synchronized, and requires a **Rebuild**.

By The Way: The database is closed when the database is saved. You must use the **Open Database....** command to open the database again.

Closing a Database



Select **Close Database** in the **File Menu** to close an opened database to the disk volume. This menu item is enabled only if the server is not running. A database cannot be closed until the server is stopped, otherwise an alert is displayed (Figure 3.3).

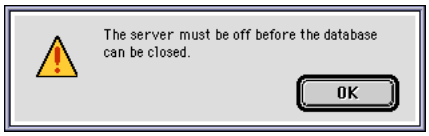


Figure 3.3

If a database has been modified but not yet saved, another alert is displayed to save the database before closing it (Figure 3.4). Closing the database without saving requires a rebuild before that database can be reopened.

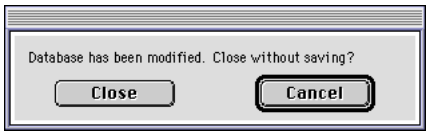


Figure 3.4

Closing a database removes information about itself from the server memory. Another database can then be opened for use by the server.

Rebuilding a Database

Use this function when a database has been interrupted unexpectedly, such as the server crashing before the database has been saved. Rebuilding a database synchronizes certain information in database files with one another, and ensures that the database can be opened properly without any loss of information.

The integrity of the database is checked each time a database opens. If there is a problem, the server requires a rebuild (Figure 3.5).

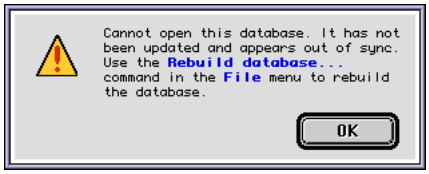


Figure 3.5

The rebuilding process can also be manually started by selecting **Rebuild Database...** in the **File Menu**. This menu item is enabled only if the server is not running. A database cannot be rebuilt until the server is stopped. A file dialog opens to locate the database folder to rebuild (Figure 3.6).

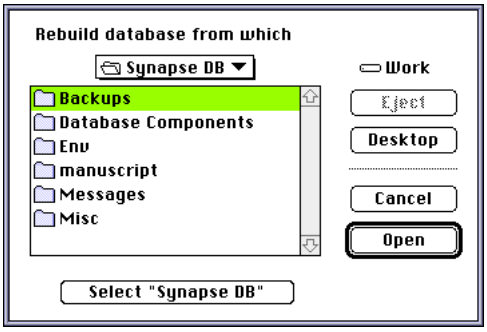


Figure 3.6

Any existing database file is renamed to **DB.bak** before the rebuilding process begins (Figure 3.7).

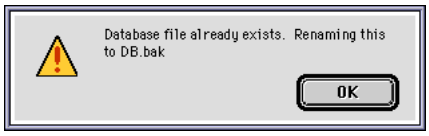


Figure 3.7

During the rebuilding process, a progress window displays information. The rebuilding process cannot be interrupted. When the rebuild concludes, a summary of the database is displayed (Figure 3.8).

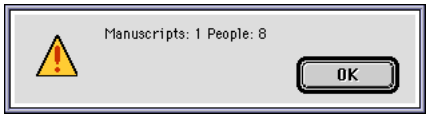
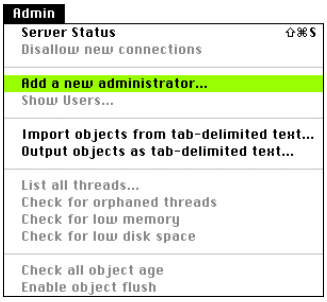


Figure 3.8

By The Way: The rebuild process does not exit with the database opened. You must now use the **Open Database....** command to open the database for use.

Adding an Administrator

A new database cannot be accessed remotely by any client program until new users are added. The server software adds only adminstrators to the database as users. The administrator logs into the database remotely and continues adding new users of other privilege levels.



Select **Add a new administrator...** in the **Admin Menu**. This menu item is enabled only if a database is opened. A window opens to enter in information about this new administrator (Figure 3.9). The **Login Name** and **Password** fields must be completed. This is the login/password that this person uses to log into SMART using client software. The **Last Name** and the **First Name** fields must also be completed. Press on the **Store button** to store this object into the database.

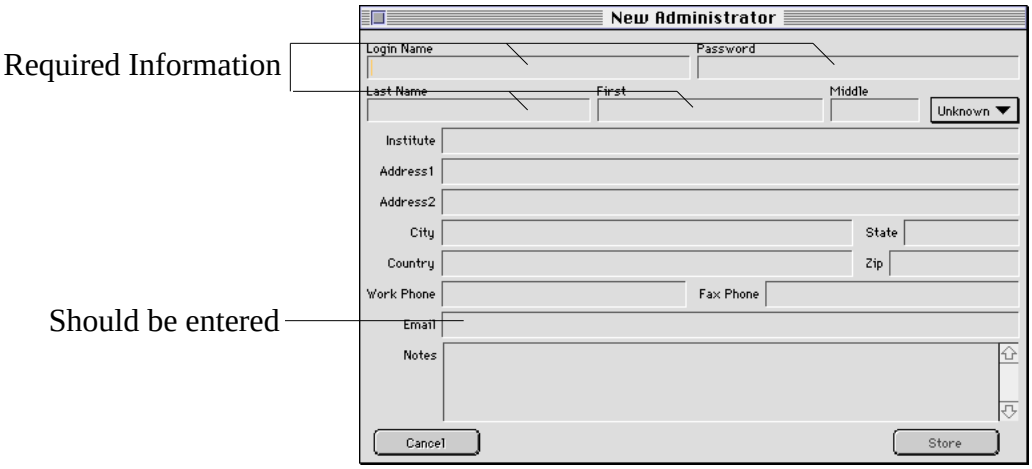


Figure 3.9

The EMail address of the administrator is an important field to enter. The administrator receives automatic notification from the server when the

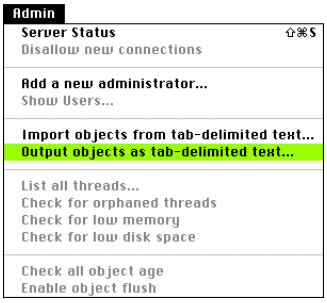
server requires attention, such as low disk space.

Importing TAB Delimited Data

Select **Import objects from tab-delimited text...** in the **Admin Menu.**

This menu item is enabled only if a database is opened.

Exporting TAB Delimited Data



Select **Export objects as tab-delimited text...** in the **Admin Menu.** This menu item is enabled only if a database is opened.

Chapter 4

Chapter 4
The Server

This chapter will show you how to start the server on the network, and maintain it once it is running.

- Starting the Server
- Server Status Window
- Disallowing New Connections
- Showing Users
- Mainitaining the Running Server

Starting the Server

The server may be started only if a database is opened. Starting a server instructs it to listen to the configured TCP/IP port for requests from remote network clients. The database cannot be closed once the server starts. The server continues to run until it is manually stopped. All progress logs and displays in a status window.

Select **Start Server...** in the **File Menu** to instruct the server to listen for connection requests**.** This menu item is enabled only if a database is opened. Certain initial parameters are checked before the server is started.

1. The basic configuration is checked and if any parameters are missing, the server does not start. See **Chapter Basics**, **Section Configuration** for more information.

2. Form letters need to be present in the database folder. These letters are created automatically when a database is created. However, if for some reason, the files are not located, the server does not start.

3. If available RAM is low, the server does not start. You should quit other applications that may be running, or install more RAM in the computer.

4. If available disk space is low, the server does not start. You should choose another mounted disk volume for the database, or free up more disk space.

If the basic requirements are met, the server attempts to start itself over the network. A valid network is first confirmed. This may fail if the Macintosh

computer is not properly configured for a TCP/IP connection to a network (Figure 4.1). If so, check with your Network Administrator to be sure that the Macintosh is properly configured for TCP/IP access.

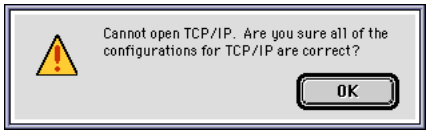


Figure 4.1

The next two conditions that are checked are access to the SMTP and POP servers. If access to these servers is denied, warnings are displayed (Figure 4.2). The server starts, but services to and from these servers are not available.

Figure 4.2

Finally, the server listens to incoming network requests on the port. Any error in initiating this process is displayed (Figure 4.3) and the server does not start.

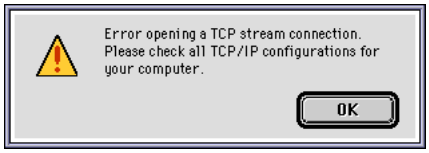


Figure 4.3

If the server successfully starts, the status window (see next section) displays this as a log entry.

First log entry when server starts on a new database

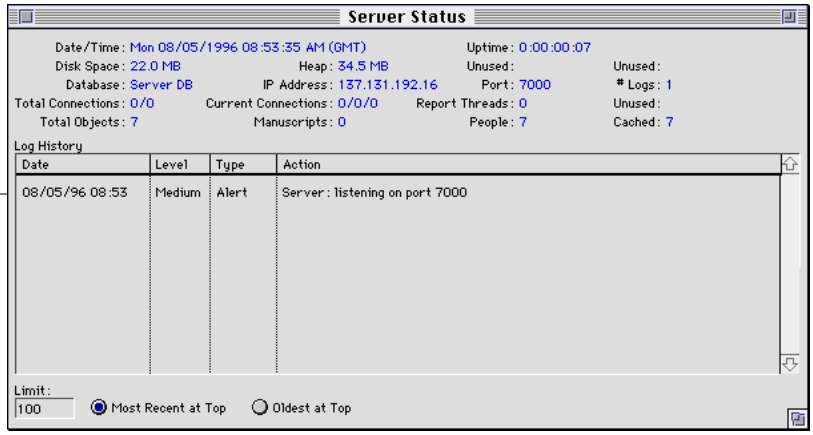
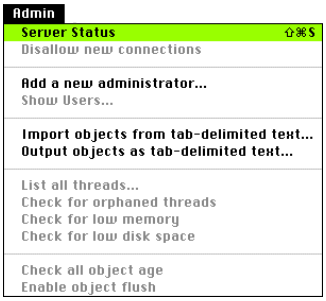


Figure 4.3

Server Status Window



The status of the server is displayed by selecting **Server Status** in the **Admin Menu**. The keyboard equivalent of **Shift-Command-S** can also be selected from the keyboard. This menu item is enabled only if a database is opened. (Figure 4.4).

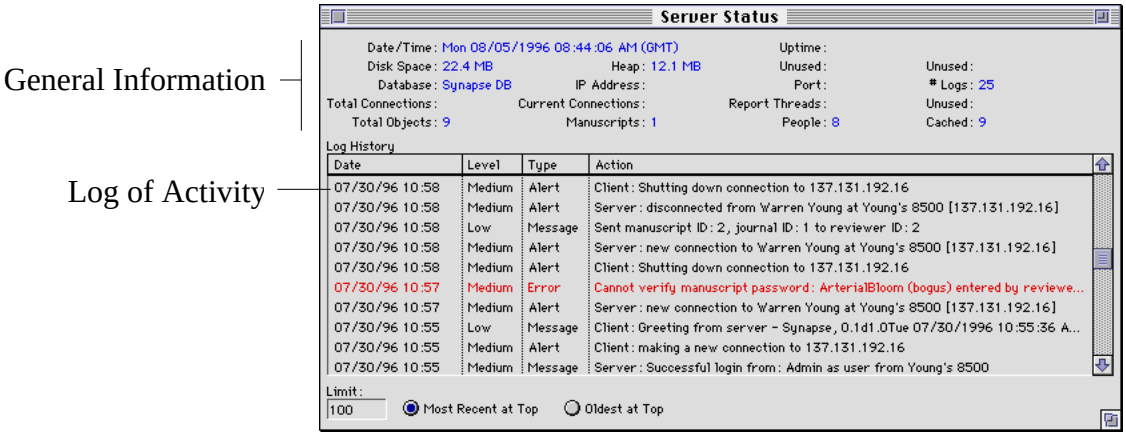


Figure 4.4

Certain information is displayed in this window.

• **Date/Time** - This is the current date and time on the server.

• **Uptime** - This is the total time in days, hours, minutes, and seconds that the server has been on and available from the network.

• **Disk Space** - This is the total available amount of disk space available on the disk volume holding the currently opened database.

• **Heap** - This is the total available free RAM available in the computer. This heap space is used for new objects and for objects recreated from the database files. It is be some amount less than the total heap space alloted to the server application.

• **Database** - This is the current database opened for access.

• **IP Address** - This is the current IP address of the server computer.

• **Port** - This is the current port configured for listening to incoming requests from remote clients.

• **#Logs** - This is the current number of log entries for the currently opened database. All or some of them may be displayed in the scrolling list below.

• **Total Connections** - This displays two numbers representing the *total* and the *perpetual* number of users connected to the server. The total number of users is the number connected to the server from the last start time. The perpetual number of users is the number connected to the server since the server was installed on this computer.

• **Current Connections** - This displays three numbers representing the *current number of users*, the *current number of threads* in service, and the *current number of client-server threads*. The current number of users is the number currently connected to the server. The current number of threads is the number of connections from clients plus any commands from clients that may be currently in the process of being handled. Each thread is a single process that is responsible for a single transaction between the server and client. The current number of client-server threads are the number of special

processes that run as servers on the client side, and clients on the server side. These are used for special background processing of commands.

• **Report Threads** - This displays the number of threads processing report generations. This number always decrement itself down to 0.

• **Total Objects** - This is the total number of all first class objects in the server and is the sum of the people and manuscript objects.

• **Manuscripts** - This is the total number of all manuscripts in the server.

• **People** - This is the total number of all people in the server.

• **Cached** - This is the total number of all objects in the server that have been brought into real memory, as opposed to being stored persistently in the database on the mounted disk volume.

The field at the bottom of the window labelled **Limit** is the amount of logs displayed at any one time. The maximum amount that may be entered is 500. The radio buttons labelled **Most Recent at Top** and **Oldest at Top** affect the order of the display.

The scrolling field in the center of the window displays the actual log entries. These entries display certain information about activity on the server.

• **Date**- This is the current date and time when the log was recorded.

• **Level** - This indicates the level of priority of the log entry, and can be a value of *low*, *medium*, or *high.* A high priority is displayed in MAGENTA color.

• **Type** - The type of the log is displayed here as a *message*, an *alert*, or an *error.* A message is informational, and needs no action from you. An alert is a message with more urgency. You should be aware of the alert, and action may be needed. A error indicates that some condition has occured that probably needs your attention. It may be an error that occured with software, with disk or memory conditions, or it may be one that is introduced by a client, such as an incorrect password. An error is displayed in RED color.

• **Action** - This is a description of the log.

Disallowing New Connections

To prevent new remote clients from logging in over the network to the server, select **Disallow new connections** from the **Admin Menu** (Figure 4.5). The menu item then displays a check mark before it, indicating that new connections are disallowed. This does not disrupt current users or their work.

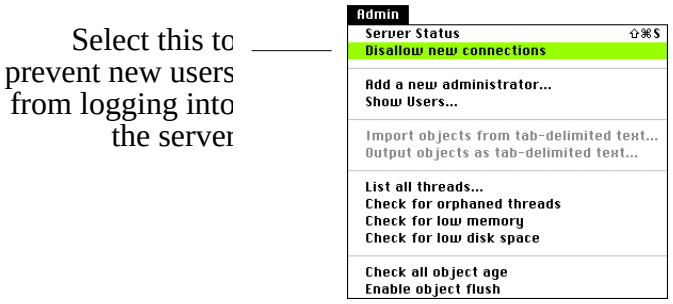


Figure 4.5

Select this feature if the server needs to be stopped. New users cannot log on. When the last user logs off, the server. can be safely stopped

Showing Users

All connected users may be listed in a window (Figure 4.6). Each person has his ID, name and institute listed. Only fully logged in users are shown, not those using *SMART Submitter* or *SMART Reviewer*.

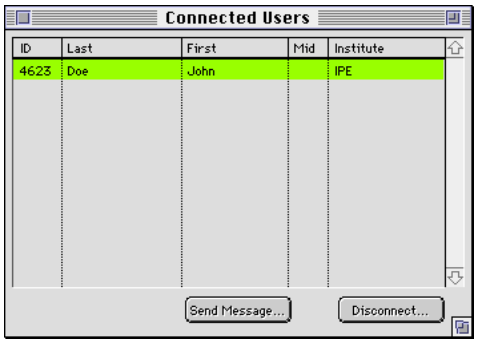


Figure 4.6

Selecting one or more of the users in the list enables the **Send Message...** and the **Disconnect** buttons. If you press the *Disconnect Button*, a confirmation window displays (Figure 4.7).

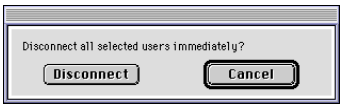


Figure 4.7

If you press the *Disconnect Button* again, all selected users are forced off the server. A message displays on the users's monitor (Figure 4.8).

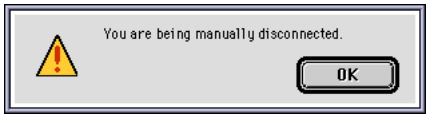


Figure 4.8

Use this when to shut down the server immediately without waiting for current users to log off. This is also useful if a connected client shows no activity, perhaps because of a dead connection.

If you press *Send Message...*, a window appears to enter in a message (Figure 4.9).

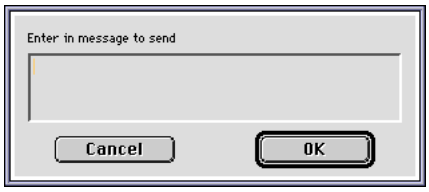


Figure 4.9

If you press *OK*, the message is sent to all selected users immediately and appears in a popup message window on their computer (Figure 4.10). Their work is not interrupted.

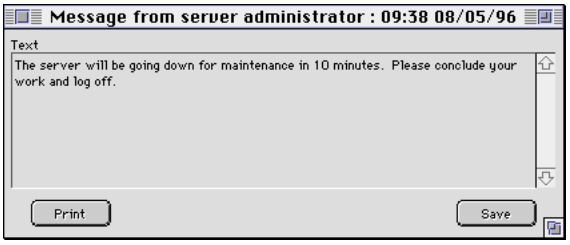


Figure 4.10

Maintaining the Running Server

Once the server is running, there are some administrative options that help maintain the server in a good state. Occasionally, processes, also known as threads, may not terminate properly and enter into an orphaned-like state where they do nothing but take up memory and system resources. A thread may not terminate properly because of a poor network connection that does not initiate a termination sequence properly, and because certain state information in the thread on the server makes it appear to be a good connection. In these infrequent cases, you have to clean up the server manually.

Listing All Threads - To list all threads that are currently running on the server, select **List all threads...** from the **Admin Menu**.

Figure 4.10

An alert indicates if there are no threads (i.e., no connected users and no orphaned threads) (Figure 4.11).

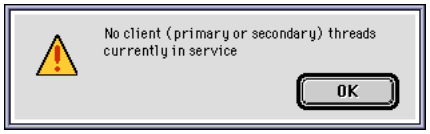


Figure 4.11

Existing threads are listed in another window (Figure 4.12).

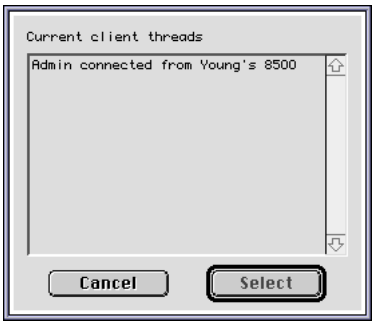


Figure 4.12

Check for Orphaned Threads - Orphaned threads are automatically removed from the server. However, there are rare conditions preventing the server from removing them. If you suspect this to be the case by viewing the list of all threads and knowing what each user is doing, you can initiate a cleanup of the orphaned threads manuallly.

Select **Check for orphaned threads** in the **Admin Menu** (Figure 4.13).

Figure 4.13

This starts the cleanup process. After attempting to remove orphaned threads, a window reports any threads that remain (Figure 4.14). This number should be zero. If it is not, and repeated attempts to remove it fail, the server should be shut down and restarted.

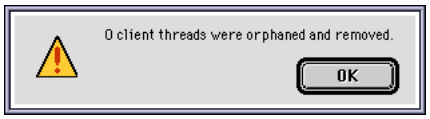


Figure 4.14

Check for Low Memory - Select **Check for low memory** in the **Admin Menu** (Figure 4.15).

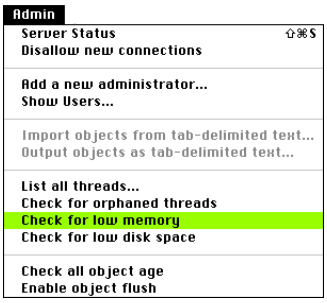


Figure 4.15

This checks for the availability of sufficient RAM to continue server operations. An alert indicates if there is sufficient memory to continue (Figure 4.16).

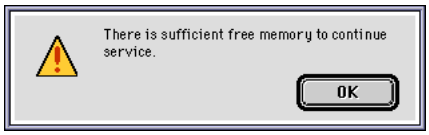


Figure 4.16

If there is insufficient memory (Figure 4.17), service is be turned off. A log entry is made and an EMail note mailed automatically to the administrator of this server. New users cannot log in.

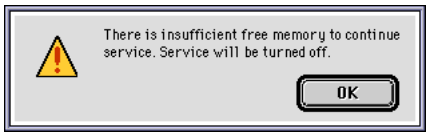


Figure 4.17

Check for Low Disk Space - Select **Check for low disk space** in the **Admin Menu** (Figure 4.18).

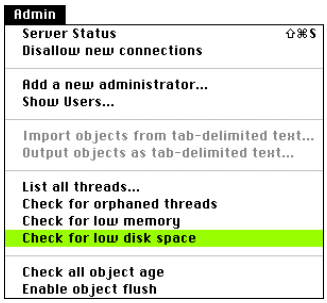


Figure 4.18

This checks for the availability of sufficient disk space to continue server operations. An alert indicates if there is sufficient disk space to continue (Figure 4.19).

Figure 4.19

If there is insufficient disk space (Figure 4.20), service is be turned off. A log entry is made and an EMail note mailed automatically to the administrator of this server. New users cannot log in.

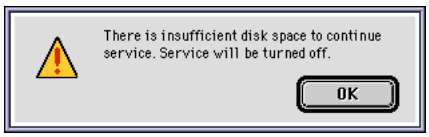


Figure 4.20

Check All Object Age - Select **Check all object age** in the **Admin Menu**

(Figure 4.21).

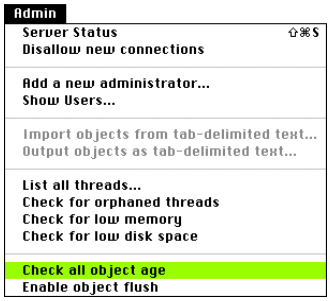


Figure 4.21

(Does nothing right now)

Enabling Object Flush - Select **Enable object flush** in the **Admin Menu** (Figure 4.22). The menu item displays a check mark before it, indicating that objects can be flushed.

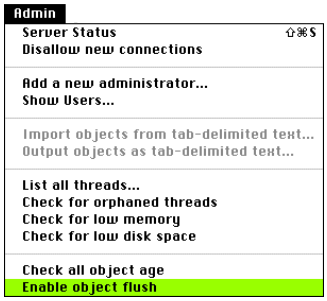


Figure 4.22

(Does nothing right now)

Appendix A - Certified Software Applications

SMART is not an *authoring* program. This means that the Author creates the content of the manuscript with other programs, and use SMART to *bind* them together into a manuscript object that is then transmitted over the Internet to the SMART system. Since the Reviewers and Editors of SMART require that they be able to open and view your files, certified software applications are below. The Author should make every effort to use one of more of these applications when authoring the manuscript. If this is not possible, the Author should comment heavily on the name and version of the program, the computer, and the version of the operating system in the Comments field of each file, or put this information in the Comments section of the manuscript object.

Word Processors: (Macintosh)

- Microsoft Word 3.0, 4.0, 5.0, 6.0
- WordPerfect 3.0
- PageMaker 5.0
- NisusWriter 4.0

Spreadsheets: (Macintosh)

- Excel 5.0
-

Graphics: (Macintosh)

- MacDraw II
- Canvas
- Photoshop

- Illustrator
- Freehand

Appendix B - Optimizing Memory

The documents are RAM based. Virtual memory, either Apple's virtual memory or Connectix's RAM Doubler, can be used with this application. However, neither is recommended. Apple's virtual memory mechanism is very inefficient. RAM Doubler works better but it too can cause noticeable delays when physical free RAM is low. Be sure that 32 bit addressing is on for the older Macintoshes, and that the Modern Memory Manager for PowerPCs is on.

To turn off virtual memory (Figure B1):

1. Choose **Control Panels** from the **Apple** menu, then double-click **Memory**.

2. Press on the **Off** button to turn off virtual memory.

3. Choose **Restart** from the **Special** menu.

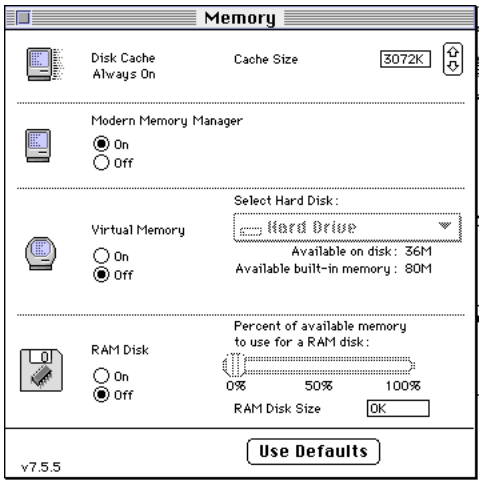


Figure B1

You should read the Appendix on **Optimizing Memory** to set the memory parameters for this application to the proper levels.

Appendix C - Networking Issues

This application uses the Internet and the TCP/IP protocol to communicate with the SMART server. The Macintosh computer must be capable of accessing the Internet, and must be able to run TCP/IP. On the Macintosh, TCP/IP is provided by using either MacTCP or Open Transport.

- The minimum version of MacTCP is 2.0.6
- The minimum version of Open Transport is 1.1

Apple's *AppleTalk Remote Access* (ARA) can also be used with either of the two IP enabling programs above to provide network access, but the transmission speeds are limited to the speed of the phone modem used to make the ARA connection.

IP Address and **Port number** must be configured. See the chapter on *The Basics* to see how to do this. The addresses and port number are:

Current IP Address of SMART Server (as of Jan 1, 1997):

- 192.26.252.151

Current Port Number of SMART Server (as of Jan 1, 1997):

- 7000

Appendix D - Useful Commercial Software

Connectix's **Speed Doubler** should be used on every PowerMacintosh because it replaces Apple's Motorol 680x0 emulator with a much better one. This application was written in QKS SmalltalkAgents, and only portions of it are in native PowerPC code. With **Speed Doubler**, throughput probably increases (as well as in many other commercial software applications) by at least two-fold.

Appendix E - Themes

The abbreviated list of themes is from the Society for NeuroSciences themes.

THEME A: DEVELOPMENT AND REGENERATION
- Developmental genetics
- Genesis of neurons and glia
- Cell lineage and determination
- Cell differentiation and migration
- Pattern formation, compartments, and boundaries
- Process outgrowth, growth cones, and sprouting
- Axon guidance mechanisms and pathways
- Formation and specificity of synapses
- Neurotransmitter systems and channels
- Neurotrophic factors: expression and regulation
- Neurotrophic factors: biological effects
- Neurotrophic factors: receptors and cellular mechanisms
- Hormones and development
- Nutritional and prenatal factors
- Neuronal death
- Glia and other non-neuronal cells
- Motor systems
- Sensory systems
- Cerebral cortex and limbic system
- Visual system
- Regeneration
- Transplantation
- Aging process

THEME B: CELLULAR AND MOLECULAR BIOLOGY
- Staining, tracing, and imaging techniques
- Neuroglia and myelin
- Membrane composition and cell-surface macromolecules
- Cytoskeleton transport and membrane targeting
- Blood-brain barrier
- Gene structure and function: general

THEME C: EXCITABLE MEMBRANES AND SYNAPTIC TRANSMISSION
- Presynaptic mechanisms
- Mechanisms of neurotransmitter release
- Postsynaptic mechanisms
- Long-term potentiation: physiology
- Long-term potentiation: pharmacology
- Ligand-gated ion channels
- Sodium channels
- Calcium channel structure, function, and expression
- Calcium channel physiology, pharmacology, and modulation

Potassium channel structure, function, and expression
Potassium channel physiology, pharmacology, and modulation
Other ion channels

THEME D: NEUROTRANSMITTERS, MODULATORS, TRANSPORTERS, AND RECEPTORS
Acetylcholine
Acetylcholine receptors: muscarinic
Acetylcholine receptors: nicotinic
Excitatory amino acids: excitotoxicity
Excitatory amino acids: anatomy and physiology
Excitatory amino acids: pharmacology
Excitatory amino acid receptors: structure, function and expression
Excitatory amino acid receptors: physiology, pharmacology and modulation
GABA receptors
GABA
Peptide receptor structure and function
Peptides: biosynthesis, metabolism, and biochemical characterization
Peptides: anatomy and physiology
Opioid receptors
Opioids: anatomy, physiology, and behaviour
Catecholamine receptors
Catecholamines
Serotonin receptors
Serotonin
Other neurotransmitters
Transmitters in invertebrates
Interactions between neurotransmitters
Uptake and transporters
Regional localization of receptors and transmitters
Second messengers and phosphorylation
Signal transduction: gene expression
Behavioural pharmacology
Receptor modulation, up- and down-regulation

THEME E: ENDOCRINE AND AUTONOMIC REGULATION
Hypothalamic-pituitary-adrenal regulation
Hypothalamic-pituitary-gonadal regulation
Osmotic and thermal regulation
Neuroendocrine regulation: other
Neural-immune interactions
Cardiovascular regulation
Gastrointestinal and urogenital regulation
Respiratory regulation

THEME F: SENSORY SYSTEMS
Somatic and visceral afferents
Spinal cord
Subcortical somatosensory pathways
Somatosensory cortex and thalamocortical relationships
Pain: pathways
Pain modulation: anatomy and physiology
Pain modulation: pharmacology

- Retina and photoreceptors
- Subcortical visual pathways
- Visual cortex: striate
- Visual cortex: extrastriate
- Visual psychophysics and behaviour
- Auditory, vestibular, and lateral line: periphery
- Auditory systems: central physiology
- Auditory systems: central anatomy
- Olfactory senses
- Gustatory senses
- Invertebrate sensory systems

THEME G: MOTOR SYSTEMS AND SENSORIMOTOR INTEGRATION

- Cortex
- Basal ganglia
- Thalamus
- Cerebellum
- Vestibular system
- Oculomotor systems
- Reflex function
- Spinal cord and brainstem
- Control of posture and movement
- Circuitry and pattern generation
- Invertebrate motor function
- Muscle

THEME H: OTHER SYSTEMS OF THE CNS

- Limbic system and hypothalamus
- Association cortex and thalamocortical relations
- Comparative neuroanatomy
- Brain metabolism and blood flow

THEME I: NEURAL BASIS OF BEHAVIOUR

- Cognition
- Learning and memory;: systems and functions
- Learning and memory: physiology
- Learning and memory: pharmacology
- Neural plasticity
- Motivation and emotion
- Biological rhythms and sleep
- Neuroethology
- Invertebrate learning and behaviour
- Ingestive behaviours
- Stress
- Hormonal control of reproductive behaviour
- Monoamines and behaviour
- Neuropeptides and behaviour
- Drugs of abuse: alcohol, barbiturates, and benzodiazepines
- Drugs of abuse: amphetamine and other stimulants
- Drugs of abuse: cocaine
- Drugs of abuse: opioids and others
- Psychopharmacological agents
- Aging

THEME J: DISORDERS OF THE NERVOUS SYSTEM
- Genetic models
- Developmental disorders
- Epilepsy: human studies and animal models
- Epilepsy: basic mechanisms
- Epilepsy: anti-convulsant drugs
- Degenerative disease: Alzheimer's - beta amyloid
- Degenerative disease: Alzheimer's - cognitive function
- Degenerative disease: Alzheimer's - neuropharmacology and neurotransmitters
- Degenerative disease: Alzheimer's - miscellaneous
- Degenerative disease: Parkinson's
- Degenerative disease: other
- Ischemia
- Trauma
- Infectious diseases
- Neuromuscular diseases
- Neuropsychiatric disorders
- Neurotoxicity
- Neuro-oncology