BusinessLink Software Support

Strategi
Administrator's Guide

Version v1r8

This manual applies to Strategi version v1r8 and later and was last revised in June 2004.

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A Note to Readers of this Manual

Built on the premise that technological solutions are useless unless they provide real-world business benefits, Strategi has been architected to provide your organization a foundation to enable creative breakthrough e-business solutions. This manual has been designed to enhance your usability experience with Strategi as well.

The latest versions of this document and other Technical Support Bulletins can be downloaded from ADVANCED BusinessLink Corp.'s Support Website, http://support.businesslink.com.

You may print this in duplex format using Adobe's Acrobat Reader, which is available for download from http://www.adobe.com/products/acrobat/readstep.html. The latest version as of this writing is v4.05; earlier versions of Acrobat Reader may not support duplex printing.

With some installs of Adobe Acrobat, your printer may not resolve the characters correctly, and once printed, all characters will appear as rectangles or as symbols. If this happens, you will need to select "Print as image" from the Acrobat print dialogue. This will cause the print to occur correctly.

If you have any questions, comments or suggestions, please feel free to contact either myself at the email address below, or the various local branches of the BusinessLink Technical Support Division at the phone numbers and email addresses in Appendix 1.

Sincerely,

BusinessLink Software Support

Table of Contents

Documentation Conventions

This manual utilizes the following typographic conventions:

Example of convention	Description
Section Headings	Section Headings are printed in bold type.
Prerequisites	When needed, prerequisites will identify concepts and/or procedures the administrator needs to be familiar with in order to understand and implement the following information, and will be printed in italics.
Text	Section Text is printed in regular type.
`Command Lines`	Command Line examples are indented, bold, and printed in a larger font.
Code Examples	Code examples are indented, italicized and bold.
Alt + Shift + G	Keystrokes entered by the user.
http://www.businesslink.com	Hyperlinks will be underlined. If you have downloaded this manual from the BusinessLink website, you may click on any hyperlink to be taken directly to the related website.

Microsoft and Netscape Web Browsers

For sake of brevity, this manual will use the "common" abbreviations and refer to Microsoft's Internet Explorer as "MSIE", and Netscape's Navigator and Communicator products communally as "Netscape".

Chapter 1 – Introduction to Strategi

With "Strategi by BusinessLink", the third generation of our JAVA™ powered client technology, ADVANCED BusinessLink Corp. is the first in the world to bring Digital Certificate authentication, 128-bit SSL, applet-provider authentication and built-in Push technology to an AS/400 client.

Strategi is the first and only JAVA-based Browser/Server solution with the cryptographic support needed for e-Business/e-Commerce applications.

Strategi provides full AS/400 client functionality, including 5250 emulation with on-the-fly GUI, printing and file transfer using a built-in Push Technology engine, API's for client/server application development, industrial strength cryptography and comprehensive, AS/400-centric user and security management, all in a tiny applet (typically under 100k depending on browser).

Other emerging Java emulators and GUI conversion applets can run up to 1Mb in size, making them impractical for deployment to browser users over the Internet. Strategi, on the other hand, enables fast, simple deployment to a large, remote user community without the struggles associated with installing, configuring, and managing dedicated client software.

Host-based clients traditionally rely on user and password entry to determine client identity. BusinessLink brings Digital Certificate-based client authentication to the AS/400. Host administrators can require that users obtain client certificates signed by certificate issuing authorities such as Verisign, Inc. No sign on screen will be offered to users unless they match the required certificate level and identification details. Even then, users can be required to sign on with profiles that specifically match their certificate details.

To ensure privacy of data sent and received, the Strategi can be configured to use 128-bit SSL key exchange with a licensed RSA/RC4-128 cryptography engine. (Non-US versions may be limited to RC4-40 or RC4-56 to comply with US Department of Commerce restrictions on cryptography).

Reports and files transferred can also be SSL secured. Given that the AS/400 has no support for secure FTP, Strategi provides the only way to securely transfer AS/400 files and reports across the Internet.

Finally, the applet is digitally signed, authenticating it as the trusted, original copy supplied by ADVANCED BusinessLink Corp. Signing guarantees against a counterfeit applet being substituted in its place by a hacker, etc. This commonly overlooked risk is important, since a false applet could be introduced to capture passwords and other critical data before it was discovered.

No TELNET or FTP Needed

You need only read the volumes of industry press relating to the lack of security inherent in Telnet and FTP servers on the AS/400 to appreciate that it is considered a

serious risk for AS/400's on the Internet. Telnet passes all 5250 data in the clear across the Internet and gives a sign on screen to almost every generic client. FTP has serious exposure to brute force attack, and can create sizeable security holes.

Strategi does not require the use of either Telnet or FTP. Although it runs native on the AS/400, Strategi obtains and manages its sessions directly with OS/400, and adds a sophisticated management infrastructure to deal with the delivery of AS/400 sessions.

Built-In Webserver, HSM, Growth Strategy

The Strategi system contains a native AS/400 version of ADVANCED BusinessLink Corp.'s high performance web server, "BusinessLink/WEB". As well as serving the applet, Strategi provides an extremely fast HTTP-server, including SSL 3.0 and client digital certificate authentication.

Strategi also includes BusinessLink's High Speed Messaging (HSM) technology. HSM is used to create web applications, allowing an HTML frontend web interface to communicate with backend AS/400 programs written in RPG, CL, or any other AS/400 language.   HSM uses a template-based architecture to populate HTML template pages, rather than the traditional overheads associated with generating HTML from scratch, as with CGI-BIN. The result is much faster performance and greater scalability than existing AS/400 webserving alternatives, particularly for interactive applications.

Prerequisites

The Strategi applet is certified 100% Java by Sun Microsystems. In short, this qualification means that the applet should function properly on any platform that is 100% Java compliant and has a properly configured TCP/IP connection. Although most recent versions of both Netscape Communicator/Navigator and Microsoft Internet Explorer are compliant, some versions are not. This section outlines exactly what the Strategi applet requires for successful operation.

How the Strategi Java Applet Works

When a browser client enters the URL of the page containing the HTML statements that load the applet, the sequence of events is as follows:

1. The applet is transferred to the local PC on the same TCP/IP port that loaded the page.

2. The applet initializes, starts, and attempts to make a connection back to the same URL specified on the request using TCP/IP port 43856 (or port 80 for Strategi systems with HTTP Tunneling configured).

3. The user is prompted for a user name and passphrase. If a valid user name and password is specified, the applet obtains a 5250 session and presents the user with an AS/400 sign on screen (note: as a system administrator, you can configure Strategi to bypass an AS/400 sign on screen and take the user directly to their AS/400 application; this is discussed later in this manual).

The Strategi 5250 Java applet needs to have a certain environment to function properly:

- The client browser must have a 100% compliant JVM (Java Virtual Machine). This is currently true with Netscape 3.01+ and MSIE 3.02+.

- The connection that the applet establishes is used for stream communications. In other words, the established connection must not be interrupted or terminated by firewalls, proxies or timeouts/disconnects on Internet connections. Doing so will terminate the TCP/IP connection.

- For Strategi systems, if the AS/400 is behind a firewall, port 43856 must be open for inbound and outbound TCP traffic or the applet must be configured to use HTTP Tunneling. Adding the applet parameter statement "**`<param name=http_tunnel value="fallback">`**" will allow the applet to first try port 43856 and revert to port 80 if the initial connection attempt on port 43856 fails.

Strategi runs on OS/400 V4M2M0 or above, with TCP/IP. No prerequisite software is required; system administrators need only load the Strategi software onto your AS/400 and configure it; users connect via a Java-compliant browser on an Internet- or intranet-connected PC.

Applet Operational Requirements

Strategi needs the following environment in order to operate properly:
- Workstation platform is Windows 95/98/NT.
- Browser version is NS 3.01+ or IE 3.02+.
- Workstation TCP/IP is configured properly.
- Workstation TCP/IP connection is stable.
- Workstation has Winsock client installed if using a proxy server.
- Firewall (if present) has port 43856 open for TCP traffic.
- Firewall (if present) supports stream I/O.
- Firewall (if present) does not terminate connections after a specified period of time.

AS/400 Operating System

Strategi requires AS/400 operating system version V4R2M0 or higher. This can be determined by displaying data area QGPL/QSS1MRI.

AS/400 Command Line Example:
> **_DSPDTAARA QGPL/QSS1MRI_**

AS/400 Basic TCP/IP Services

Strategi will require the use of one TCP/IP interface on the AS/400. It does not require any support from common TCP/IP applications such as FTP, Telnet, etc.

AS/400 Tape Device or CD Device

Strategi requires a 8mm DAT tape device capable of supporting 2.0 GB format, or a standard AS/400 CD-ROM for the Strategi software installation. The installation software is currently under 20MB in size. Other software installation options are available if 8MM DAT or CD-ROM support cannot be obtained; contact BusinessLink Technical Support for details.

Troubleshooting

There are a few basic messages that your users may receive when attempting to connect to your AS/400 through Strategi.

For your convenience, these are listed in Appendix # 5, "Troubleshooting Strategi Connections", below.

Note to Current BusinessLink Customers

Strategi is fully capable of co-existing with your current CoProcessor-based BusinessLink/WEB (with BusinessLink for JAVA) and BusinessLink/REMOTE products. Please contact your sales representative for more information.

Chapter 2 – Installing Strategi

Verify Installation Requirements

Before beginning the installation, please ensure the following requirements are met:

1. The AS/400 operator responsible for the installation must have an AS/400 user profile with *SECOFR class authority, and must have physical access to the AS/400 device into which the Strategi installation media will be placed.

2. The AS/400 onto which Strategi is to be installed must have a base OS of at least V4M2M0. The OS version should be confirmed by displaying AS/400 data area 'QSS1MRI' in library 'QGPL', rather than relying on written records.

3. The AS/400 library 'QSYS2' must be on the system portion of the library list.

4. The AS/400 must have at least 25MB of free space for the Strategi software. Working with System Status will display the total and percentage ASP available.

5. Basic TCP/IP services must be installed and active on the AS/400. Subsystem 'QSYSWRK' must be running with job name 'QTCPIP' active.

Note: Strategi will require the use of one TCP/IP interface on the AS/400. If other HTTP servers are currently running on the AS/400 there are several options available:

1. For IBM supplied HTTP servers, end the HTTP server and reconfigure the autostart parameter to ***NO**. This will prevent the HTTP server from starting every time TCP/IP is started on the AS/400.

Alternately, you may do the following:

2. Add another TCP/IP interface to the AS/400 for use by Strategi. If this step is taken, please note the TCP/IP address added as it will be required for the Strategi installation program.

The reason for this configuration is due to the fact that applications cannot share the same listen socket of a single TCP/IP address. An important point to note is that with some webserver AS/400 applications, simply adding another TCP/IP interface will not completely solve the problem. The order in which HTTP servers are started must be modified. For example, adding a TCP/IP interface, starting the IBM HTTP server, and then starting Strategi will not be successful since the IBM HTTP server will see another available TCP/IP interface and acquire it by default. The end result is that Strategi will not be able to start. The solution is to start Strategi before starting other HTTP servers. This will allow Strategi to acquire its dedicated TCP/IP interface and the other HTTP server(s) will use any remaining TCP/IP interfaces available.

Starting the Installation

To load Strategi on your AS/400, the system administrator needs to sign on as QSECOFR.

1. Insert the Strategi tape or CD in the appropriate drive, and execute a **LODRUN** command (if you have multiple tape devices, you must also specify the tape device).

   Syntax for command is "LODRUN <device name>". This will load all Strategi objects from the media to QTEMP, then prompt you for the installation command. (If electronic transfer was used, prompt the command QTEMP/INSTALL after you have completed the restore.)

2. In a few minutes, the Install command will prompt the following information. Specify the appropriate parameters and execute the installation program. Ensure the following settings are configured:

   QTEMP/INSTALL   ACTION(*INSTALL or *UPGRADE)
                                       LIB(STRATEGI)
                                       SBS(STRATEGI)
                                       DIR(/STRATEGI)
                                       IPADD(*ALL)

ACTION
This will be either ***INSTALL** or ***UPGRADE**.

*INSTALL should be used if Strategi is not currently installed on the AS/400. If you are unsure, an easy way to verify is to see if the user profiles SGIOBJOWN or SGIJOBCTL exist on the AS/400. If they do, Strategi has been previously installed.

For ***UPGRADE**, it is important that the library that Strategi was originally installed to (i.e. "Strategi" by default, or whatever library you specified on the original installation) _**not**_ be on either the system or user library lists.

LIB
Destination library of Strategi software. Default: "STRATEGI".

SBS
Subsystem that Strategi will run under. Default: "STRATEGI".

DIR
IFS folder where documents will be stored. Default: "/STRATEGI".

IPADD
The TCP/IP addresses that Strategi will listen on for incoming HTTP requests. The default value for this is ***ALL**.

It is suggested you leave the Library/Subsystem/Directory names set to the system default of STRATEGI. If you leave IP Address set to ***ALL**, the system will search for the correct Internet or intranet IP address. The web server will "listen" on all IP addresses on port 80 (and/or 443, as appropriate) for incoming connections.

If other HTTP servers are running on the AS/400, Strategi may not start properly as the other HTTP application will bind port 80/443, so Strategi will fail in the attempt to bind that IP address itself.

Your options are to either shutdown the existing HTTP server, or create a new TCP/IP interface on the AS/400 and specify its address in this parameter.

If you have multiple Internet/intranet connections, you can enter the correct IP address you want Strategi to serve. Specifying an IP address will force Strategi to service requests on that IP address only, instead of all TCP requests made to an AS/400 interface.

3. Licensing keys must be added for each installation. BusinessLink's Technical Support Division will provide these to you; please call and request them when you are ready to perform the installation.

4. After Strategi completes the installation, you will be presented with a normal AS/400 screen. Type in **GO STRATEGI/SGI**, and you will be presented with the Strategi Main Menu, as displayed below:

```
SGI                    Strategi by ADVANCED BusinessLink

Select one of the following:

     1.  Work with Users
     2.  Work with Groups
     3.  Send a File

     4.  Work with Connections
     5.  Work with FileCabinet
     6.  Work with Web Sites
     7.  Work with HSM servers
     8.  Work with Strategi Values

    11.  Startup
    12.  Shutdown


Selection or command
===> █

F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel
F13=Information Assistant  F16=AS/400 main menu
```

Figure 1, Strategi Main Menu

5. Use the "Start Strategi" menu option, or Strategi command STRSGI, to start Strategi.

6. Once complete, do WRKACTJOB and verify that the Strategi subsystem is active with the following jobs:

      STRATEGI
      COMMSSERVER

```
HOSTSERVER
HTTPSERVER
HTTPTHREAD
HTTPTHREAD
...
PUSHWRITER
```

7. From the AS/400 command line, work with the HTTPSERVER job.

    Display the joblog and verify that listen sockets were successfully opened. If not, some other HTTP application has bound the socket. Determine the cause and remedy as appropriate. HTTPSERVER job *must* be listening correctly for Strategi to operate properly.

8. Create your first Strategi User. Please refer to Chapter 4, "Creating Strategi Users" for complete instructions.

9. Test Strategi by signing in as the Strategi user and working on your AS/400.

From start to finish, the Strategi installation will normally only take about 15 – 30 minutes. Once the installation is complete, the goal should be to start Strategi, create a Strategi user registration and sign on to the AS/400 for verification.

Chapter 3 – Configuring Strategi

Using Strategi command WRKSGIVAL or selecting the "Work with Strategi Values" option from the Strategi Main Menu will allow you to work with the various configurable aspects of Strategi, which are controlled through Strategi Values.

Keywords:

MENUDETECT

Sets the limits on a DDS screen wherein Strategi looks for a certain identifier to determine if a screen is a menu screen (can be used in conjunction with NoDotMenuItems and UseHidden). This is how Strategi identifies whether to display clickable menu buttons for menu items on a screen.

Entering "2" to change and pressing **Enter** presents several parameters, Top Rows, Bottom Rows and Text. If the phrasing in "Text" is found within the xxx top rows of the screen or the bottom xxx rows, then Strategi will consider the DDS to be a menu screen and will display the clickable mouse buttons in front of numbers which have a dot (".") following them. Note: the actual image displayed here is identified in the HTML that loads the Strategi Java applet, and can be turned off within that HTML's parameters if you do _not_ want the button to display at all.

NODOTMENUITEMS

Determines if menu items will be given without the trailing period ("."), and is discussed in more detail in "Java Applet Conventions", below.

USEHIDDEN

If the DDS screen has hidden text, setting this keyword to YES will cause clickable "buttons" to be assigned to the hidden text, presuming it meets the Java Applet Conventions as described in "Java Applet Conventions", below.

CONNECT#

This represents the total number of connections through Strategi since installation. (This is provided for information purposes only).

DELETEDSITE#

Assigns a unique reference number to a deleted website, for purposes of saving the file(s).

HANDLENBR

Displays the last File Handle number used by the Strategi system. (For information only.)

HSMREFERENCE

Displays the last HSM Internal Reference number used by the Strategi system. (For information only.)

REF#

The Transmission Reference number for the last Strategi connection. (For information only.)

USER#

The Strategi registration # of the last user to connect to Strategi. (For information only.)

JAVADIRDFT

The default directory for the Java HSM server. (For information only.)

IFSROOT

The root folder for all Strategi IFS objects, set at the time of installation. (For information only.)

PRODUCTCODE

The product designation as assigned by ADVANCED BusinessLink Corp.

PRODUCTNAME

The product name as assigned by ADVANCED BusinessLink Corp.

RELEASE

In the example provided, 0101005, this refers to the version # (01), modification # (01), and build # (005).

SBSNAME

The Strategi subsystem name as assigned by ADVANCED BusinessLink Corp. This is set at the time of installation. (For information only.)

ALERTMSGQ

Sets the Queue Name and Library for the Alert Message Queue.

LOGDIAGNOSTICS

Turns the Strategi subsystem's logging

LOGLEVEL

Sets the level of logging activity. Options are 0 (None), 1 (Normal), 2 (Extended) and 7 (Diagnostic).

LOGMSGQ

Identifies the queue name and library where log messages are recorded.

RUNHSMONLY

Enables Strategi to run as a DHSM system only.

HTMLFIXEDFONTSIZE

Sets a fixed font size to display reports sent to the user in a .htm format. You can change this as desired, but leaving this parameter set to the default "00" means the font size will determined automatically depending on the "printed page" size of the outputted report. For example, reports with 160 columns would display at a smaller font size than reports that are only 80 columns wide; they would need to be at the smaller font size in order to print out properly and be easier to read on screen with a minimum of side-to-side scrolling.

HTMLPAGETABLEHEIGHT

Sets the HTML table height command at which to display reports sent to the user in a .htm format. You can change this as desired, but leaving this parameter set to the default "0000" means the browser will break up the table in the outputted HTML automatically so that it prints to paper at a suitable size so as to fit onto a normal sheet of paper.

However, if you find that, due to your printer's margins or using an odd-sized paper, that the last few lines of print are dropped off the page, you can set this number manually to a figure which will cause your reports to output to paper properly.

PRINTFORMAT

Determines the format style of the outputted file. There are three possible special values available. Additional information is available in the Printing and File Transfer section.

*HPT, where the file is converted from AS/400 prints to binary prints
*HTML, where the file is outputted site name (described above) is used for the description
*RTF, where the description is not changed

PRINTWIDTHDETECTION

This parameter is used to control the way in which Strategi calculates print width (which in turn controls the way fonts are sized, and whether pages are aligned portrait or landscape). The special values are: ***NONE** uses the actual spool file width as defined by the print file; ***OPTIMIZED** searches the first 200 lines for rightmost character; ***FULL** searches entire spool file for rightmost character.

RTFFONTNAME

Identifies which font, resident on the end-user's PC, used when displaying an .RTF file received from the AS/400 through Strategi. The default used is Courier New as that is a standard Windows font, and is a fixed width, non-proportional font. The system administrator should be aware that setting this to a proportional font (such as Arial) vs. a fixed width font (such as Courier New) will mean that vertical columns on the page will fail to align properly, resulting in the output having a jumbled appearance.

RTFFONTSIZE

Identifies the base font size to use for RTF prints with a portrait layout (whether the print is portrait or landscape is controlled by RTFGOLANDSCAPE). The font size specified here is a "base" size: it will be used for 80 column prints. Wider prints will use a fraction of this value rounded down to a whole number. For example, if RTFFONTSIZE was 12, and a 105 column print was generated, its font size would be 12 * 80/105, or 9 once it is rounded down. This is because a smaller font size is needed to fit more columns in the same space. The system administrator should be aware that setting this to a larger or smaller number will affect the look of the output; if a smaller number is used, the text may appear "bunched up" on the page; if a larger font is used, it may result in the test wrapping around to the following line, resulting in the output having a jumbled appearance.

RTFGOLANDSCAPE

This value has two segments, a width and a font size. If a print's width (as detected according to the Strategi value PRINTWIDTHDETECTION) exceeds the width segment of RTFGOLANDSCAPE, then the print is landscape rather than portrait. The font size segment dictates the base font size for landscape prints similar to how RTFFONTSIZE controls font size for portrait prints. As with RTFFONTSIZE, the font size here is a base that gets scaled according to the ratio between actual width and the base width (the width segment of RTFGOLANDSCAPE). For example, if the RTFGOLANDSCAPE width was 132, and the font size was 8, and a 150 column print was printed, actual font size would be 8 * 132/150, or 7 once rounded down.

RTFMARGINS

Determines the margins to use when creating (and, thus, subsequently printing) the .RTF file. It is recommended these settings be left at a minimum of ½ inch, as that is the minimum margin required by most laser printers. Setting the margin to less than ½ inch may result in a slightly larger display area within the .RTF file, but may result in part of the .RTF page being "chopped off" when output to the end-user's printer.

RTFPAPERSIZE

Determines what size of paper the end user has in their printer. The only possible special values available are **1**, where the printer is stocked with A4-sized paper, and **2**, where the printer is stocked with 8 ½" x 11" paper.

TOPMARGINLINENUMBER

Specifies the number of blank lines at the top of a print to trim before generating the print. This is necessary because AS/400 prints do not have a standard concept of "margin", but rather contain a few blank lines at the top of the page to simulate a margin. If these blank lines PLUS the RTFMARGINS where included together, more blank space at the top of the page than is generally desired would result. So up to TOPMARGINLINENUMBER blank lines will be stripped from the print before conversion. If a non-blank line is encountered before TOPMARGINLINENUMBER, stripping stops.

DHSMADDRESS

Specifies the address or addresses that DHSM is to listen to for incoming DHSM connections. It can be set to an IP address or to *WEBSITES, in which case the addresses of all configured websites will be used. DHSM is a licensed feature.

DHSMCERTIFICATE

Specifies which website's SSL certificate to use for DHSM with SSL. Only relevant/available if SSL is on your system.

DHSMTHREADS

Controls how many DHSM threads are running on a Strategi system. The first segment dictates how many DHSM Threads will start by default when Strategi starts. The third segment states how many new threads to start if no threads are available for a new connection. The second segment states the maximum number of threads that may run at any time. The number of DHSM Threads that can run on your system total is restricted by license.

FORCELOGIN

This setting will controls whether Strategi will accept a browser-saved password with website authentication. If set to 0, Strategi will allow a user to log in if the browser has saved their password and submitted it. If set to 1, the user will be forced to log in even if the browser has been set to remember it.

FORCELOGINSSL

Determines whether logging in through HTTP will always be SSL enabled. This prevents your Strategi user name and password from being transferred in the clear over the internet. Note: in order for this to work, your organization must have purchased the Strategi SSL add-in module; if the module has not been purchased, this setting is ignored.

IDLEUSERTIMEOUT

Determines how many minutes of inactivity must lapse before a website user is logged out.

COMSSERVERADDRESS

Controls the TCP/IP address and port to use for Strategi's emulation applet. If the default port value is changed, the applet parameter "connection_port" must be added to the applet loading html page so the emulation applet knows which port to attempt communication to.

DEVICENAMEPOSITION

Row and Column where the first character of the Sign On Screen Device Name will be found.

HTTPKEEPALIVE

This parameter controls behavior of the HTTP server in relation to how many requests a specific connection can handle at one time.

PASSWORD

Row and Column on the AS/400 sign on screen where the first character of the AS/400 Password will be found.

SESSIONS

This indicates the maximum number of Strategi sessions that may be hosted concurrently; users attempting to connect after the maximum concurrencies are reached will receive a "no more connections available" message. As current connections are freed (as users exit from their Strategi session), new users will be able to connect, up to the licensed number of concurrent Strategi users.

This number cannot be increased beyond the number of concurrent licenses your organization has purchased from ADVANCED BusinessLink Corp. If you need additional concurrent Strategi connections, please contact your ADVANCED BusinessLink Corp. sales representative for more information.

SIGNONSCREEN1, 2, 3, 4, 5

These settings select the Row and Column where the first character of the indicated text will be found. They are used by Strategi to determine if the screen being presented to the user is an AS/400 sign on screen; all criteria for all 5 entries must be met for the screen to be considered a sign on screen, and a username and password to be accepted.

For example, in the default setup, SignonScreen1 is "01036Sign On", SignonScreen2 is "06017User . . ." and SignonScreen3 is "Password . . .".

This means that, to be considered as an AS/400 sign on screen, the characters "Sign On" must begin in row 1, column 36, "User . . ." must begin in row 6, column 17, and "Password . . ." must begin in row 7, column 17.

Note: Capitalization, spacing and punctuation are important here, and must match your AS/400 sign on screen *exactly*. If you modify the sign on screen and do not change these settings to match, users will receive an AS/400 sign on screen and can input their user name and password, but Strategi will not see this as a valid sign on screen and will refuse them access to the AS/400.

STRATEGIUSER

The row and column location of the Sign On Screen User Info Field on the Sign On Screen.

TERMINALNAME

Identifies the Virtual Terminal Name Prefix. Please do not change this setting, except at the request of BusinessLink Technical Support.

TERMINALTYPE

Identifies the Virtual Terminal type. Please do not change this setting, except at the request of BusinessLink Technical Support.

TERMINALVARY

Controls varying on of user devices. Please do not change this setting, except at the request of BusinessLink Technical Support.

USRPRF

The row and column location of the Sign On Screen User Profile Field on the Sign On Screen.

DEFAULTURL

Identifies the webpage name to use as the default URL. For example, if someone typed in www.businesslink.com to get to our website, and we had the DefaultURL set to /homepage.htm, they would be taken to www.businesslink.com/homepage.htm. Alternately, if we had the DefaultURL set to /main.htm, they would have been taken to www.businesslink.com/main.htm instead.

DYNAMICTHREADS

The maximum number of additional HTTPTHREAD jobs to start as needed. Each HTTP Thread can serve one HTTP request at a time. The total number of threads running will be limited by your Strategi license.

HTTPMESSAGEPATH

The subdirectory where Strategi's error message HTML pages are located. These pages have been designed to keep a consistent look-and-feel to your Strategi website.

HTTPTRANSMISSIONMAX

Specifies the maximum packet size that the Strategi webserver will deliver. All zero's means that no maximum is specified.

LOGINURL

Specifies the name of the file to use for login when using *CUSTOM authentication. This file will always be delivered *without* authentication, no matter what the authentication setting of the zone. If the file name is specified without an extension, then the file can have any extension.

SERVERID

The ID assigned to the Strategi server. Please do not change this setting except at the request of BusinessLink Technical Support.

SSLSESSIONTIMEOUT

Used to control how long SSL session data is retained so that SSL connections can be quickly resumed if the user reconnects to the same server, providing the same session key. It is an internal setting for SSL, which if shortened will increase the load on the server to negotiate SSL connections, and if lengthened, increases the time frame for an unauthorized user to assume the identity of a previous user. The recommended balance between security and performance is 3600 seconds, or 1 hour.

THREADS

The number of HTTPTHREAD jobs to start when Strategi initially starts. Each HTTP Thread can serve one HTTP request at a time. Additional threads will be started as needed, as many additional threads as specified by the DYNAMICTHREADS Strategi value. The total number of threads running will be limited by your Strategi license.

WEBMASTERADDRESS

Identifies the TCP/IP address and/or port from/through which Strategi's Webmaster program (used for "checking in" and "checking out" the Strategi website) can connect. The default TCP/IP address is *ALL, which means Webmaster may connect back to the Strategi webserver from any TCP/IP address, and the default port is 43808. These may be set by the System Administrator as desired.

XAADISPLAYMODE

Determines whether the Strategi 5250 emulation window displays initially in GUI mode or Green Screen ("Text") mode. This can be overridden by applet parameters within the HTML that loads the applet.

XAADISPLAYWINDOW

Retains information as to the user's Strategi 5250 emulation window's dimensions and position on the screen from the last time the user viewed it. This can be overridden by applet parameters within the HTML that loads the applet.

XAAENTERKEYACTION

Determines whether the keyboard **Enter** key will behave as an AS/400 **Enter** key or as a **FieldExit** key. This can be overridden by applet parameters within the HTML that loads the applet.

XAARETRIEVE

Specifies behavior concerning whether file retrieval when in the Java emulation applet. The first value, "Auto Retrieve", specifies whether files will be automatically downloaded by the applet when they become available. The second, "Delete Without Retrieve", specifies whether a user can delete a file if they have not retrieved it. The third, "Autodelete keeping", specifies the maximum number of available files a user can have, which, if exceeded, will cause the older files to be deleted until this number is satisfied. This can be overridden by applet parameters within the HTML that loads the applet.

CLIENTCCSID

CCSID's are the standard OS/400 Coded Character Set Identifiers, which for most single-byte character sets are the same as the related Code Page.

ClientCCSID defaults to 819 (standard ISO 8859-1 as used in US and Western European versions of Microsoft Windows). This can be changed to support other codepages.

HOSTCCSID

HostCCSID defaults to 37 (standard US EBCDIC), and can be changed to support other codepages, e.g., HostCCSID = 280 (for Italy).

Chapter 4 – Creating Strategi Users

From the Strategi Main Menu, selecting the "Work with Strategi Users" option, or using the Strategi command WRKSGIUSR, presents the following screen:

```
                     Work with STRATEGI Users

Position to . . .      _____     Starting character(s) of Access Name
Subset by Class .     *ALL             *ALL, INT, EXT, ADM
Subset by Status.     *ALL_____        *ALL, *ENABLED, *DISABLED,
                                         *PENDING, *CERTWAIT
Type options, press Enter.
 2=Change   4=Delete    5=Display    8=User Attributes   9=Available Files
10=Connections         11=Enable   12=Disable          13=Certificate Wait

   Access Name                        Number Class Status
█  ALEX PURINS                           32  EXT  *ENABLED
__ AMY KORNIAK                           27  EXT  *ENABLED
__ BRETT TIMMINS                         15  EXT  *ENABLED
__ CHRIS LATEGAN                         19  EXT  *ENABLED
__ CHRISTINA DUGDALE                     30  EXT  *ENABLED
__ COLIN MOORE                           11  EXT  *ENABLED
__ GREG HOWARD                           14  EXT  *ENABLED
__ HARALD HUGUS                          29  EXT  *ENABLED
__ HARRY MORITZ                          10  EXT  *ENABLED
__ JOHN NOBLE                            21  EXT  *ENABLED
                                                         More...
F3=Exit  F5=Refresh  F6=Create  F11=Alternate View  F12=Cancel
```

Figure 2, Work with Strategi Users

Creating Your First Strategi User

A Strategi user needs to be defined on the AS/400, being allocated a user registration number and granted access, before they can connect through Strategi. No additional software is loaded into the user's computer, as the Java applet is downloaded to their computer and run directly from it whenever they access your Strategi website.

To establish a Strategi user registration, follow the steps outlined below:

1. Sign on to the AS/400, with QSECOFR or equivalent authority.

2. Access the Strategi system menu, using the command **GO STRATEGI/SGI**.

3. Select menu item # 1, "Work with Strategi Users".

4. Press **F6** to create a Strategi user, which displays the screen below:

```
                    Create Strategi User (CRTSGIUSR)

Type choices, press Enter.

Access Name  . . . . . . . . . .   ▮_____

Passphrase . . . . . . . . . . .   *NAME_____

Passphrase Expiry  . . . . . . .   *NO___        *YES, *NO, *NEVER
Email Address . . . . . . . . .    _____

First Name . . . . . . . . . .     _____
Last Name  . . . . . . . . . .     _____
Title  . . . . . . . . . . . .     _____

Organization . . . . . . . . .     _____

Class  . . . . . . . . . . . .     *EXTERNAL     *EXTERNAL, *INTERNAL, *ADMIN
Status . . . . . . . . . . . .     *ENABLED_     *PENDING, *ENABLED...

                                                                   Bottom
F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
F13=How to use this display        F24=More keys
```

Figure 3, Create Strategi User

Pressing **F10** for additional parameters then **Page Down** displays the next screen:

```
                    Change Strategi User (CHGSGIUSR)

Type choices, press Enter.


                        Additional Parameters

Allow 5250 Emulation . . . . . . ALWEMU        ▮SAME
Emulation:                       EMU
  Host User Name . . . . . . . .                *SAME_____
  Host Password  . . . . . . . .                *SAME_____
  Required Device Name . . . . .                *SAME_____
  Idle Timeout . . . . . . . . .                *SAME
Allow Spool File Transfer  . . . ALWSPOOL       *SAME
Allow File Cabinet Access  . . . ALWFILE        *SAME
Allow High Speed Messaging . . . ALWHSM         *SAME
SSL Minimum Key Length . . . . . SSLRQD         *SAME_____
Client Certificate Required  . . CTFRQD         *SAME
```

Figure 4, Create Strategi User, Continued

Pressing **Page Down** displays the next screen:

```
                    Change Strategi User (CHGSGIUSR)

Type choices, press Enter.

TCP/IP Address Filtering:        IPADD
  Address  . . . . . . . . . .                  ▮SAME_____
  Subnet . . . . . . . . . . .                  *SAME_____
Account Expiration:              EXPIRY
  Expiry Rule  . . . . . . . .                  *SAME___
  Expiry Day Count . . . . . .                  *SAME
```

Figure 5, Create Strategi User, Continued

5. Enter the Access Name, up to a maximum of 40 characters. This is the name the
    user types in to login to Strategi via authenticated HTTP, or with the Strategi
    applet, if an unauthenticated site is used for access. The name may be changed
    any time after creation, but must remain unique; two users cannot have the same
    Access Name. This field is forced, and must be filled in. Note: The access

name is forced to uppercase for storage and comparison, and may contain spaces and other punctuation.

6. Enter the Passphrase. The "Passphrase" is much more secure than a "password"; whereas a pass "word" is only one word, the pass "phrase" can be much longer (30 to 40 characters is recommended, up to 40), and can include both spaces and punctuation. In other words, the passphrase can be a complete sentence such as "I try to think of things in a positive light." The Passphrase is not case-sensitive.

7. Set the user's Passphrase Expiry. This determines whether the user is required to change their passphrase immediately upon their first sign on, and subsequently according to the passphrase expiry rules defined in the Strategi System Values. Possible values are:

Value	Description
*YES	The passphrase is set to "expired". The user is required to change the passphrase after the next login, and subsequently according to the Strategi System Values.
*NO	The passphrase is not set to "expired". The user is required to change their passphrase according to the Strategi System Values.
*NEVER	The passphrase is set not to expired. The user is not required to periodically change their passphrase; Strategi System Values regarding passphrase expiry are ignored.

Table 1, Passphrase Expiry

8. Fill in the user's email address, if desired. (For information only).

9. Fill in the first name, properly formatted (including case). (Information only).

10. Fill in the last name, properly formatted (including case). (For information only).

11. Fill in the user's title. (For information only).

12. Fill in the user's organization. (For information only).

13. Select the user's "class". This allows Strategi to display and work with users based on their function within the context of Strategi. Possible values are:

Value	Description
*ADMIN	The user is a Strategi administrator.
*INTERNAL	The user is an internal (intranet) Strategi user.
*EXTERNAL	The user is an external (Internet) Strategi user.

Table 2, Strategi User Classes

14. Select the status of the user's account. The system may disable a user according to the rules defined in the Strategi System Values, and additionally according to the individual account rules as set by the EXPIRY parameter. An account

disabled by the system will show the status ***AUTODISABLED** in the "Work with" and the "User account" display screens. Possible values are:

Value	Description
*PENDING	The account is pending approval. A suitably qualified administrator needs to inspect the account and enable it. This status is generally set by automated user registration tools (such as could be done via a webpage). This status is also automatically set after a user has had their digital certificate data stored. The user is not permitted to login.
*ENABLED	The account is enabled. The user is permitted to login.
*DISABLED	The account is disabled. The user is not permitted to login.
*CERTWAIT	The account is waiting to capture the user's digital certificate. The user must connect to a digitally authenticated site and Strategi will capture and store the user's personal certificate identification fields. The account ID is then automatically set to *PENDING.

Table 3, Strategi User Account Status

15. Select whether the user is allowed access to 5250 terminal emulation.

16. The next four items determine the user's emulation requirements:

    a. Host User Name: This is an optional AS/400 user profile. If set, the user is forced to sign on using that profile and cannot use any other. A setting of ***MUSTKEY** means the user must key in any valid profile; no specific profile is forced.

    b. Host Password: This is an optional AS/400 password. If a password is specified with a user profile, then the user is automatically signed on to the AS/400 without ever seeing a sign on screen. When they signoff, the emulation is automatically ended. This field has no effect if the Host User Name parameter is left at ***MUSTKEY**. A setting of ***MUSTKEY** means the user must key in the password corresponding to the Host User Name selected above.

    c. Required Device Name: Allows the device name, under which the emulation is to be run, to be specified. This feature is only available on AS/400 systems running V4R2M0 or better (although IBM may be able to supply PTF's for earlier OS versions, please contact IBM for availability). Specifying a device name on a system earlier than V4R2M0 will cause the user's emulation to fail initialization. The device is auto-created if it does not already exist.   A setting of ***ANY** means the device is selected automatically.

d. Idle Timeout: The length of time a user can be idle while using emulation before the emulation session is automatically ended. This is generally used to prevent users from tying up emulation sessions for prolonged periods of time when they are not really using them. The timeout is specified as HHMM, where HH=Hours and MM=Minutes.

17. Select whether the user is allowed to transfer spool files using the **SNDSGIF** command.

18. Select whether the user is allowed to transfer data files using the **SNDSGIF** command.

19. Select whether the user is allowed to run HSM applications.

20. SSL Minimum Key Length: This indicates the minimum key length a user must have in order to connect to an authenticated website, and therefore, to use any resource available on the site.

    NOTE: International customers are required to have explicit exemption in writing from the US Department of Commerce, in order to receive software written in the US that enables cryptography of greater strength than RSA RC4-40 for communications. Therefore, international users of Strategi will not be able to utilize user settings requiring greater than 40-bit encryption without this special written permission. Possible values are:

Value	Description
40	Minimum encryption key length of 40-bits required (US Export Allowed)
56	Minimum encryption key length of 56-bits required (US Export Restricted)
128	Minimum encryption key length of 128-bits required (US Export Restricted)
*NONE	SSL is not required for this user.

Table 4, SSL Key Lengths

21. Client Certificate Required: Indicates whether the user must connect to a digitally authenticated website and present a valid personal certificate in order to log in.

22. TCP/IP Address Filtering: This allows you to select if certain criteria must be met concerning the TCP/IP address from which the user connects. The address and subnet work together, with the subnet indicating how much of the address is to be checked. If present, this indicates the IP address the user is required to connect from to be permitted to connect, (listed in the standard Internet format, xxx.xxx.xxx.xxx).

    For example, if you want the user to connect from work but not from home, you can insert their work IP address here. Note: for this to function, the work IP address must be "static". Certain Internet Service Providers assign IP addresses "on the fly" from an open pool; for this restriction to work, the user's work computer must have a specific, dedicated IP address that does not change.

If you select ***ANY**, the user can connect from any TCP/IP address. If the user's work IP address is assigned on the fly (as described above), then you would use this setting.

23. Subnet: The subnet indicates how much of the IP address is to be checked when validating the origin address for the user. This is in standard xxx.xxx.xxx.xxx format. If set to ***NONE**, then no subnet is considered, and the user can only connect from the exact IP address specified. Examples:

Address	Subnet	Description
10.0.0.0	255.0.0.0	User can connect only from an internal LAN (all "10.xxx.xxx.xxx" IP addresses are always on internal LANs).
123.456.789.0	255.255.255.0	User can connect only from the network 123.456.789.xxx. Because the first three positions in the subnet mask are selected ("255.255.255"), the user can connect from any computer at an IP address beginning with "123.456.789".
1.2.3.4	*NONE	User can connect only from the specific TCP/IP address 1.2.3.4

Table 5, Subnet Mask Examples

24. Account Expiration: The criteria for expiring a user account. When the criteria are met, the user account will be set to ***AUTODISABLED** (though the change user command will convert this to ***DISABLED** when prompted).

   a. Expiry Rule: Determines if and when the account is to be expired. Possible values are:

Value	Description
*NEVER	The account will not be automatically expired.
*ELAPSED	The expiration date is calculated as days since creation.
*UNUSED	The expiration date is calculated as days since last login.

Table 6, Account Expiry Rules

   b. Expiry Day Count: Select the number of days to elapse when applying the expiry rule. You may select between 001 – 365 days.

25. Press **Enter** to generate a new record, which will now be visible when working with Strategi users.

26. Make a note of the registration number for the new Strategi user. You will note an *OUTQ called Snnnnnnn has been generated in the Strategi library, where "nnnnnnn" refers to the user registration number (left-padded with zeroes). For

example, if the new registration number is 5, the *OUTQ will be named S0000005.

27. Change the *OUTQ of the AS/400 profile associated with this Strategi registration to this new *OUTQ (i.e. SGI/S0000005). A good way to test this would be through a subsystem routing entry, using the system sign on job as the profile sign on job.

The AS/400 administrative process is now complete.

Identification of Strategi Users on the AS/400

In many cases, such as the assignment of print outqueues, it will be necessary for the AS/400 to know what Strategi user someone is signed in as. The user identification information can be passed to the AS/400 startup job whenever a Strategi user signs on to the AS/400. This is done using a specifically modified sign on screen, which includes fields to accept Strategi-related input, and few Strategi configuration entries. The process is:

1. When the user logs in through Strategi, Strategi will place the user type, number, and Strategi library (which, in this document, we will assume to be STRATEGI) name in these sign on screen fields.

2. The AS/400 sign on CL (set for the AS/400 user profile) or job initiation program (set in the subsystem description for the subsystem supplying the sign on screens) calls a BusinessLink command to retrieve the user information.

3. The **RTVSGISSNI** command creates a data area in QTEMP containing the information, which is then available for the rest of the job.

Setup Details

1. Modify the sign on screen to add the user information field. The information field may be placed anywhere on the screen, and must be 28 bytes long, hidden, protected and flagged as MDT-set. This field must be hidden, so the users never see it. The field must be flagged with a MDT (modified data tag), so the field is treated as "changed", and the data found therein always returned to the AS/400. Refer to **STRATEGI/SGIEXAMPLE(QDSIGNON)** for a standard sign on screen modified example.

2. Assign the modified sign on screen to the subsystem which supplies the virtual devices used for Strategi sign on, using the command "**CHGSBSD**", keyword "**SGNDSPF**". This subsystem will need to be restarted to make the new sign on screen active. Note: If you use this opportunity to redesign the sign on screen, the new sign on screen will be unrecognizable to Strategi until the configuration is updated.

3. Configure the user information field location in the Strategi configuration, at Keyword "STRATEGIUSER", in group "VRT", then restart Strategi. Reconnect with Strategi after restarting, ensuring the sign on screen definition is functioning correctly.

4. Optionally, you may create a new user profile, SGIDFTOWN, with password ***NONE** and status ***DISABLED**. This user profile's sole purpose is to protect the data area created in QTEMP in step # 5 below, so later programs or users cannot modify it, thus impersonating another registered user. It is not used for any jobs, interactive or batch. This protection is achieved by changing the owner of the *DTAARA to SGIDFTOWN, and revoking the user's authority to the object to prevent the contents of the DTAARA being modified or the DTAARA being removed after the user has signed on. This means, then, that the DTAARA area can be continually accessed to identify the user by applications throughout the job and the information it contains trusted, from a security point of view. If used in the sign on program, this command may fail if certain messages, such as "User *OUTQ is invalid," are sent by the system.

5. Modify either the user(s) sign on program or the subsystem job initiation program to call **RTVSGISSNI**.

    If security is required, the sign on job must be placed at the top of the library list, and the **RTVSGISSNI** command called specifically from the STRATEGI library and not from the library list.   Refer to STRATEGI/SGIEXAMPLE(SYSSGNON) and (SYSSGNON2) for a working example of this, using the user's sign on program.

    If a sign on program is used, it is preferable to assign all users the same sign on program, and have this branch to a separate user specific job, if such a job has been set up.

Strategi Groups

Strategi allows you to create collections of users called Strategi Groups. Most Strategi commands that require that a Strategi User be specified can instead have a Strategi Group specified. This makes tasks like sending the same file to many users, or securing websites in relation to many users, much simpler.

Strategi Groups can contain users, and they can also contain other Groups. However, recursion (e.g., Strategi Group A contains Group B which contains A) is inherently prevented by the Group creation (CRTSGIGRP) and change (CHGSGIGRP) commands.

Chapter 5 – Using Strategi's Features on the AS/400

In this chapter we will discuss the most commonly used Strategi functions:

- Sending files
- Working with user connection information
- Working with your Strategi website

Send Strategi File

Selecting "Send Strategi File" from the Strategi Main Menu, or using the SNDSGIF Strategi command, displays the screen below:

```
                     Send Strategi File (SNDSGIF)

Type choices, press Enter.

User number  . . . . . . . . . .              Number
From format  . . . . . . . . . .   *DB2400___   *SPOOL, *IFS, *DB2400...
```

Figure 6, Send Strategi File

Enables AS/400 files to be sent directly to an individual user.

Keywords

User Number

Selects the Strategi user number, assigned by the Strategi system when you created the user, that you wish to send the file to.

From Format

This selects the type of file being sent. Possible values are:

Value	Description
*DB2400	An AS/400 DB2 database file member with field processing (dependent on the TOFMT).
*DB2400BIN	An AS/400 DB2 database file member treated as a continuous stream of binary data.
*IFS	A file in the AS/400 Integrated File System treated as a continuous stream of binary data.
*SPOOL	An AS/400 spoolfile. Spool files will be converted from EBCDIC to ASCII before sending.

Work With Connections

Selecting "Work With Connections" from the Strategi Menu, or using the Strategi command WRKSGICNN, displays the screen displayed below:

```
                      Work With Connections

Date. . . . . . . . *ALL__      MMDDYY  *ALL, *TODAY
User. . . . . . . . *ALL_____   *ALL, F4=List
Last/Current State. *ONLINE__   *ALL, *ONLINE, *OFFLINE, *ERROR, *TIMEOUT

Type options, press Enter.
5=Display


   User                          Date/Time In  Date/Time Out  State
█  SCOTT MCBURNEY                09Jul99 15:49                 *ONLINE
```

Figure 7, Work With Connections

Pressing **F11** displays an alternate view:

```
                      Work With Connections

Date. . . . . . . . *ALL__      MMDDYY  *ALL, *TODAY
User. . . . . . . . *ALL_____   *ALL, F4=List
Last/Current State. *ONLINE__   *ALL, *ONLINE, *OFFLINE, *ERROR, *TIMEOUT

Type options, press Enter.
5=Display


   Date/Time In    User # Device    Host User
█  09Jul99 15:49     743            WEBSGI                    *ONLINE
```

Figure 8, Work With Connections, Alternate View

"Work With Connections" is a tool to monitor Strategi system use. It lets you see not only who is currently connected, but also examine the history of those who have previously connected.

"Date" allows you to filter by the date the user made the current (or last) connection, and allows you to filter by all dates, today's date or by a different specific date.

"User" allows you to filter by a particular username.

"Last/Current State" allows you to filter by the following criteria:

Value	Description
*ALL	All the states listed below.
*ONLINE	Users currently online (default view).
*OFFLINE	Users currently offline who exited the Strategi

	system normally.
*ERROR	Users currently offline who were exited due to an error.
*TIMEOUT	Users currently offline who were timed out due to inactivity.

Table 8, Work With Connections

While the previous Figure illustrated ***ONLINE**, the following figure is an example of viewing connections with a Last/Current State of ***ALL**:

```
                     Work With Connections

Date. . . . . . . . *ALL__      MMDDYY  *ALL, *TODAY
User. . . . . . . . *ALL_____   *ALL, F4=List
Last/Current State. *ALL_____   *ALL, *ONLINE, *OFFLINE, *ERROR, *TIMEOUT

Type options, press Enter.
5=Display

     User                            Date/Time In   Date/Time Out  State
  ▌  SCOTT MCBURNEY                   09Jul199 15:49                *ONLINE
  _  JOHN                            09Jul199 12:39  09Jul199 13:13 *ERROR
  _  JOSEPH                          09Jul199 12:02  09Jul199 12:07 *OFFLINE
  _  BARRY                           09Jul199 11:47  09Jul199 12:54 *OFFLINE
  _  CHRIS                           09Jul199 11:39  09Jul199 11:46 *OFFLINE
  _  BARRY                           09Jul199 11:20  09Jul199 11:33 *OFFLINE
  _  VMC10HISDE                      09Jul199 11:14  09Jul199 11:14 *OFFLINE
  _  JOSEPH                          09Jul199 11:13  09Jul199 11:28 *OFFLINE
  _  VMC10HISDE                      09Jul199 11:06  09Jul199 11:10 *OFFLINE
  _  BARRY                           09Jul199 10:27  09Jul199 10:54 *OFFLINE
  _  JOHN                            09Jul199 10:20  09Jul199 10:22 *OFFLINE
                                                                    More...
```

Figure 9, Work With Connections, *ALL

Typing in a "5" next to any entry displays the history of that contact, as in the following example:

```
              Display Strategi Connection Details

Connection Reference . : 0000003642

User Number  . . . . . : 000000002
User Name  . . . . . . : CHRIS
Login Result . . . . . : *ACCEPTED
Current Status . . . . : *OFFLINE
Date/Time In . . . . . : 09 JUL 1999 11:39:58
Date/Time Out  . . . . : 09 JUL 1999 11:46:20
Host User Name . . . . : WEBSGI
Host Device Name . . . :
Client Type  . . . . . : *JAVA
Client Version . . . . : 405
Client IP Address  . . : 206.19.206.206
Security . . . . . . . : *NONSSL
SSL Info . . . . . . . : RSA RC4-40
Certificate Info . . . : No client certificate
```

Figure 10, Work With Connections, Details

Strategi License Use

Strategi systems are licensed by either the number of concurrent users on the system, or the number of registered users. It is important therefore to understand what constitutes a license use in either sense.

License by Concurrent Users

For systems that are licensed by concurrent users, a Strategi user accessing Strategi from a single computer constitutes the use of a license. This user can be logged into any number of services (for instance, several sessions of the Strategi emulation applet, Strategi Webmaster, and/or website zones), but if they are logged in as the same Strategi user, the will only count for one concurrent license use.

In the case where the number of licensed uses are exceeded, a fourteen day grace period will begin which will allow for fifty percent more concurrent license usage. Once the fourteen days is over, the system will return to its original license size.

License by Registered Users

For systems that are licensed by registered users, each Strategi user created counts for one license use.

In the case where the number of users created exceeds the licensed amount, a fourteen day grace period begins which allows for up to fifty percent more users to be created. Once the fourteen days is over, the license size returns to the original amount. If the licensed number of users are signed into the system and another user attempts to log in, that user will be disabled. Any users that are disabled cannot be enabled again until enough users are deleted that the total number registered is below the licensed amount again.

Work With Websites

Selecting "Work With Websites" from the Strategi Main Menu, or using the WRKSGIWEB Strategi command, brings up a screen similar to the one displayed below (please note that "Flintstones" is a demo site only, and is not included with your Strategi webserver):

```
                         Work with Web Sites

                                    Position to . . .  _____
Type options, press Enter.
2=Change  4=Delete  5=Display  12=Work With Zones

      Site Code     HTTP Address   Secure Address  Cert Address   Status
  █   DEFAULT       *NONE          *NONE           *NONE          *ACTIVE
  _   FLINTSTONES   *ALL           *ALL            *NONE          *ACTIVE
  _   RESOURCES     *NONE          *NONE           *NONE          *SUSPENDED
```

Figure 11, Work with Websites

Pressing **F11** displays an alternate view:

```
                        Work with Web Sites

                                   Position to . . .  _____
Type options, press Enter.
2=Change  4=Delete  5=Display  12=Work With Zones

     Site Code      HTTP  Sec   Cert  Description
▌    DEFAULT        80    443   444   Default Install Website
__   FLINTSTONES    80    443   443   Flintstones Website
__   RESOURCES      80    443   443   Strategi Resources
```

Figure 12, Work with Websites, Alternate View

Entering "2" by a website and pressing **Enter** displays the screen below:

```
                     Change Web Site (CHGSGIWEB)

Type choices, press Enter.

Site Name  . . . . . . . . . . . > DEFAULT      Name
Text Description . . . . . . . .   ▌Default_Install_Website'_____

Status . . . . . . . . . . . .    *ACTIVE___    *SAME, *SUSPENDED, *ACTIVE
TCP/IP Address:
  HTTP . . . . . . . . . . . .    *NONE_____
  Secure HTTP  . . . . . . . .    *NONE_____
  Certificate HTTP . . . . . . .  *NONE_____

                     Additional Parameters

TCP/IP Port:
  HTTP . . . . . . . . . . . .    80___          nnnnn, *SAME
  Secure HTTP  . . . . . . . .    443__          nnnnn, *SAME
  Certificate HTTP . . . . . . .  444__          nnnnn, *SAME
```

Figure 13, Work with Websites, Details

The Strategi system will normally come with only one website (DEFAULT) in place, with the status set to ***ACTIVE**. If you plan to have any security in place for your website(s), you may want to change DEFAULT's status from ***ACTIVE** to ***SUSPENDED** and create additional websites, so that accesses to your website are forced to comply with the access requirements you implement.

With the Strategi system, you may have multiple websites, each with their own level of security, but can only have one level of security access (and one IP address) for each website. Each website must have its own individual IP address (and, if desired, an associated domain name) on the AS/400.

Sites may specify individual security requirements, including minimum SSL key length.

SSL-secured sites allow industry strength RC4 encryption to be used in Strategi, at whatever key strength the browser is connected through to the web server.

The additional ***ACTIVE** sites displayed in the screen displays above have been created to demonstrate how to implement different levels of security. Please note that site names are arbitrary, and may be named whatever you wish. A description of each parameter follows, and their use in the individual website examples will be described in the paragraphs below.

Keywords

Site

The name of the website. This name corresponds to the directory tree in the AS/400's IFS containing the website documents, SSL certificate information, etc.

Description

The description of the website. Websites may be set to require HTTP 1.0 Basic login (use of the basic login is acceptable, because site must be SSL-secured). This is used for authenticated sites when prompting for the username and password; it is displayed by the browser in the authentication dialog and should accurately describe the website to the Internet user. The only possible special values available are ***SITENAME**, where the site name (described above) is used for the description, and ***SAME**, where the description is not changed.

For websites requiring the use of the HTTP 1.0 Basic login, Strategi provides a highly efficient session caching, resulting in a dramatic improvement in HTTPS performance over the capabilities of other webserving products.

IP Addressing

The TCP/IP addresses of the network interface to be used by this website. A separate address may be specified for each of the 3 different HTTP services. If the same address is used for 2 or more HTTP services, then you must specify a unique port for those services (see "HTTP", "Sec" and "Cert", below). This address is in standard Internet format (xxx.xxx.xxx.xxx).

Note: Using ***ALL** will cause a conflict if any other software is attempting to listen for connections on the standard HTTP ports (80 and 443) or on the Strategi Java applet port (43856). Also, if ***ALL** is used then only 1 website should be configured; any other websites would, by definition, be in conflict with the site configured for ***ALL**. The possible special values are:

Value	Description
*ALL	All addresses defined on the AS/400 are used.
*HTTP	The address specified for HTTP is used.
*NONE	The service is not to be provided for this website.
*SAME	The current value is not changed.

Table 9, IP Addressing

HTTP Address

The IP address assigned to the website. Note: settings for the website "RESOURCES" must *not* be modified.

Secure HTTP

The IP address to be used when connecting to the website via SSL-secured encryption. Note: settings for the website "RESOURCES" must *not* be modified.

Certificate HTTP

The IP address to be used when connecting to the website via SSL-secured encryption with a digital certificate. Specifying an IP address here requires a digital certificate (from a provider such as Verisign, Inc.) be installed in the user's web browser. If this is set, the webserver will capture the digital certificate information upon the user's first login. Note: settings for the website "RESOURCES" must *not* be modified.

Status

The status of the website. This allows you to temporarily suspend a website without having to remove its definitions or IFS file structure. The possible special values are:

Value	Description
*ACTIVE	The website is active and will be served.
*SUSPENDED	The website is temporarily suspended.
*SAME	The current value is not changed.

Table 10, Work With Website Status

TCP/IP Port

Determines the TCP/IP ports that are to be used for the 3 types of HTTP services. The industry standard for normal HTTP is 80, for Secure and Certificate HTTP is it 443. The possible values are the actual TCP/IP port number and ***SAME**, where the current value is not changed.

HTTP

The IP address assigned to the website.

Secure HTTP

The IP address to be used when connecting to the website via SSL-secured encryption.

Certificate HTTP

The port number to be used in connecting to the website via SSL-secured encryption with a digital certificate.

Website Settings Examples

Please note the websites discussed below (DEMO, DEMOAUTH, etc.) were created by ADVANCED BusinessLink Corp. solely as examples of the different types of websites, settings and security levels you can implement, and are not meant to limit you in naming or configuring your own websites:

DEMO

This is an example of a basic website:

Setting	Value
Site	DEMO
Status	*ACTIVE
Group Site	*NONE
Description	BusinessLink Demo
TCP/IP Address	xxx.xxx.xxx.xxx
Security Requirement	*NONE
SSL Minimum Key	N/A

Accessing this website, doe not require any security login, nor does it require any level of SSL security in the web browser.

DEMOAUTH

This is an example of a website requiring authentication to access the webpages and a browser capable of at least 40-bit security.

Setting	Value
Site	DEMOAUTH
Status	*ACTIVE
Group Site	DEMO
Description	BusinessLink Demo (Authenticated)
TCP/IP Address	xxx.xxx.xxx.xxx
Security Requirement	*LOGIN
SSL Minimum Key	40 bit

Authentication is provided by means of a password that must be supplied upon logging in to the site. The web browser must be capable of at least 40-bit security, which will usually include both domestic and international versions of most web browsers currently available. As a reminder, ADVANCED BusinessLink Corp. only supports the major web browsers: Microsoft's Internet Explorer and Netscape's Navigator/Communicator products.

DEMOAUTHCERT

Setting	Value
Site	DEMOAUTHCERT
Status	*ACTIVE
Group Site	DEMO
Description	BusinessLink Demo (Digital Certificate)
TCP/IP Address	xxx.xxx.xxx.xxx
Security Requirement	*CERTLOGIN
SSL Minimum Key	40 bit

Authentication is provided by means of a Digital Certificate and the web browser must be capable of at least 40-bit security. The website must have a Digital Certificate, issued by a granting authority such as Verisign, Inc.

DEMOSECURE

Setting	Value
Site	DEMOSECURE
Status	*ACTIVE
Group Site	DEMO
Description	BusinessLink Demo (Secure)
TCP/IP Address	xxx.xxx.xxx.xxx
Security Requirement	*ENCRYPT
SSL Minimum Key	40 bit

Authentication is provided by means of Digital Certificate and the web browser must be capable of at least 40-bit security. The website must have a Digital Certificate, issued by a granting authority such as Verisign, Inc.

DEMOSECURE128

Setting	Value
Site	DEMOSECURE128
Status	*ACTIVE
Group Site	DEMO
Description	BusinessLink Demo (Secure 128 bit)
TCP/IP Address	xxx.xxx.xxx.xxx
Security Requirement	*ENCRYPT
SSL Minimum Key	128 bit

Authentication is provided by means of Digital Certificate and the web browser must be capable of at least 128-bit security, which limits access to domestic-only, high-security versions of the web browser. The website must have a Digital Certificate, issued by a granting authority such as Verisign, Inc.

Chapter 6 – Command Line Functions

Following is a complete list of command-line commands available in Strategi, along with a brief description of their function. Following this list is an explanation of Strategi Attributes and Web Site Zones.

AS/400 online help (using the F1 key) is available for each of these commands, so they will not be detailed within the contents of this manual. Release history information for Strategi versions and releases is available at the Strategi Release Media web site [http://releasemedia.businesslink.com/]. If you have any questions about these commands, please contact ADVANCED BusinessLink Corp.'s Technical Support Dept. at the locations as listed in Appendix 1:

Command	Description
ACNSGIUSRL	Action User List
ADDHSMAUT	Add HSM Authority
ADDSGICLSP	Add Strategi Class Path to CLASSPATH environment variable
ADDSGIGRPM	Add Group Member
ADDSGIPEER	Add Peer System Definition
ADDSGIUSRA	Add User Attribute
ADDSGIZNA	Add Zone Authority
CHGHSMAUT	Change HSM Authority
CHGHSMINS	Change HSM Server Instances
CHGHSMSVR	Change HSM Server
CHGSGIALS	Change Website Alias
CHGSGIEVT	Change Event Description
CHGSGIFD	Change File Description
CHGSGIGRP	Change Group
CHGSGIPEER	Change Peer System Definition
CHGSGIPWD	Change Password
CHGSGIUSR	Change User
CHGSGIUSRA	Change User Attribute
CHGSGIVAL	Change Strategi Value
CHGSGIWEB	Change Website
CHGSGIZNA	Change Zone Authority
CHGSGIZON	Change Zone
CHKHSMSVR	Check HSM Server Response
CHKSGIGRPM	Check Group Member
CHKSGIUSR	Check User Access
CLRHSMPFR	Clear HSM Performance Data
CPYIFSTREE	Copy IFS Directory Tree
CPYSGIEVT	Copy Event Description
CPYSGIGRP	Copy Group
CPYSVFSGI	Copy Save-File Utility For Strategi

CRTHDSDFN	Create HSM Data Server Definition File
CRTHSMCLS	Create HSM Server Class from Source Member
CRTHSMSVR	Create HSM Server
CRTIFSTREE	Create IFS Directory Tree
CRTSGIA	Create Attribute Definition
CRTSGIALS	Create Website Alias
CRTSGIEVT	Create Event Description
CRTSGIGRP	Create Group
CRTSGIUSR	Create User
CRTSGIWEB	Create Website
CRTSGIZON	Create Zone
CVTABLSGI	Convert BusinessLink users to Strategi
CVTDBFSGI	Convert Database File to PC Format
DLTHSMSVR	Delete HSM Server
DLTSGIA	Delete Attribute Definition
DLTSGIALS	Delete Website Alias
DLTSGIEVT	Delete Event Description
DLTSGIF	Delete Sent File
DLTSGIGRP	Delete Group
DLTSGIUSR	Delete User
DLTSGIWEB	Delete Website
DLTSGIZON	Delete Zone
DSPHSMAUT	Display HSM Authority
DSPHSMPFR	Display HSM Performance Data
DSPHSMSVR	Display HSM Server
DSPSGIALS	Display Website Alias
DSPSGICNN	Display Connection
DSPSGIEVT	Display Event Description
DSPSGIFD	Display File Description
DSPSGIGRP	Display Group
DSPSGIGRPM	Display Group Member
DSPSGIPEER	Display Peer System Definition
DSPSGIUSR	Display User
DSPSGIUSRA	Display User Attribute
DSPSGIVAL	Display Strategi Value
DSPSGIWEB	Display Website
DSPSGIZNA	Display Zone Authority
DSPSGIZON	Display Zone
ENDHSMSVR	End HSM Server
ENDSGI	End Strategi Subsystem
ENDSGIVTS	End VT Server
EXPSGIGRP	Explode Group
GENSGISSL	Generate SSL Data

INSHSMSVR	Install Packaged HSM Server
INSSGIPTF	Install Patch To System
PKGHSMSVR	Package HSM Server for Distribution
RMVHSMAUT	Remove HSM Authority
RMVHSMPFR	Remove HSM Performance Data
RMVIFSTREE	Remove IFS Tree
RMVSGICNN	Remove Connection
RMVSGIFD	Remove File Description
RMVSGIGRPM	Remove Group Member
RMVSGIPEER	Remove Peer System Definition
RMVSGIUSRA	Remove User Attribute
RMVSGIZNA	Remove Zone Authority
RNMSGIEVT	Rename Event Description
RNMSGIGRP	Rename Group
RQSHTPSGI	HTTP Request Utility For Strategi
RTVHSMAUT	Retrieve HSM Authority
RTVHSMPFR	Retrieve HSM Performance Data
RTVHSMSVR	Retrieve HSM Server
RTVPRDSGI	Retrieve Product For Strategi
RTVPTFSGI	Retrieve Program Temporary Fix
RTVSGIA	Retrieve Attribute Definition
RTVSGIALS	Retrieve Website Alias
RTVSGICNN	Retrieve Connection Information
RTVSGIEVT	Retrieve Event Description
RTVSGIFD	Retrieve File Description
RTVSGIGRP	Retrieve Group
RTVSGIINF	Retrieve Information
RTVSGIPEER	Retrieve Peer System Definition Values
RTVSGISSNI	Retrieve Session Information
RTVSGIUSR	Retrieve User
RTVSGIUSRA	Retrieve User Attribute
RTVSGIUSRN	Retrieve User Number
RTVSGIVAL	Retrieve Strategi Value
RTVSGIWEB	Retrieve Website
RTVSGIZNA	Retrieve Zone Authority
RTVSGIZON	Retrieve Zone
SETHSMLIC	Set HSM License Information
SETSGILIC	Set Strategi License
SETSGIUSRA	Set User Attribute
SLTSGIGRP	Select Group
SLTSGIPEER	Select Peer System
SLTSGIUSR	Select Strategi User
SNDRCVHSM	Request HSM Service
SNDSGIF	Send File

SNDSGISMTP	Send Internet Email
STRHSMSVR	Start HSM Server
STRSGI	Start Strategi Subsystem
STRSGIVTS	Start VT Server
WRKHSMAUT	Work with HSM Authorities
WRKHSMPFR	Work with HSM Performance Data
WRKHSMSVR	Work with HSM Servers
WRKSGIA	Work with Attribute Definitions
WRKSGIALS	Work with Alias Definitions
WRKSGICNN	Work with Connections
WRKSGIEVT	Work With Event Descriptions
WRKSGIF	Work With Files
WRKSGIGRP	Work with User Groups
WRKSGIGRPM	Work with Group Members
WRKSGIPEER	Work With Peer System Definitions
WRKSGIUSR	Work with Users
WRKSGIUSRA	Work with User Attributes
WRKSGIVAL	Work with Strategi Values
WRKSGIWEB	Work with Websites
WRKSGIZNA	Work With Zone Authorities
WRKSGIZON	Work With Zones

Table 11, Command Line Functions

Strategi Attributes

A number of Strategi's command line functions deal with Strategi's user and system attributes.

Commands for working with Strategi attributes are designed to retrieve one or more of the values that are stored and associated with that Strategi attribute. The values are returned in the specific variables supplied in each parameter. The CL prompt for this command lists the minimum length for the variables next to the appropriate parameters you want to retrieve. For character variables, a single number is shown. For decimal variables, two numbers are shown. The first number indicates the minimum variable length and the second number indicates the minimum number of decimal positions.

Attributes

Attributes are used in various places within Strategi. An attribute "belongs" to an entity, such as a user, and may be added to that entity as required. If the attribute is not added, no storage for the attribute is used within the entity.

The attribute *value* is stored each for each entity when the attribute is added, but the attribute *definition* is stored separately, once for the entire system.

This separation of value and definition allows the creation of attribute definitions to specifically tailor the implementation of the Strategi database. Each site where Strategi is installed can have their own unique information recorded against each user or website, without all sites having to carry many empty fields they will never use.

Segmented Values

Strategi attributes and system values can be segmented to provide a convenient method of storing up to 3 strongly related values (such as outqueue and library, or first name, initials, and last name). The Strategi commands for accessing attributes and system values do so by using its defined segments.

Each segment is defined with a Prompt (used by work-with programs and displays), a Length (which defines how long the value is) and a Value. Retrieve commands for attributes allow you to get the current value of each segment; retrieve commands for attribute definitions allow you to get the prompt and length of each segment.

The Strategi System Values are a special type of attribute, which combine the attribute definitions and values into one command set. It is not possible to retrieve the attribute definitions for Strategi System Values.

Strategi Zones

Zones

A "zone" is a logical labeling of an area of the AS/400 file system. Zones are used in Strategi to control access requirements to various services Strategi provides (such as authenticated websites), and to allow areas of disk to be accessed via labels, rather than specific path names. A zone is merely a label on a potential file system path. The actual path itself need not exist.

The zone may also define an aliased path, which will define access to the resolved alias when it is accessed via the specified zone. The same alias could have different security requirements depending on the domain through which it is accessed.

For example, an internal website may require no encryption, whereas access to the same data via the Internet could require 128-bit SSL.

Zone Authorities

The Zone Authority list defines what users have access to which resources within the zone itself. Perhaps the easiest way to describe zones and zone authorities is that zones are "branches" of the IFS directory "tree", and zone authorities say who can do

what within the zone. Zone authorities can be set at a sub-site level, so you can restrict which users have access to certain parts of the Strategi website.

For example, you would want all users to have access to your complete website at www.yourcompany.com, but you would probably want to restrict access to www.yourcompany.com/sales to just your sales staff.

When you have access to a particular zone restricted to certain users, then anyone accessing that portion of the website receives a Windows Dialog Box like the one displayed below:
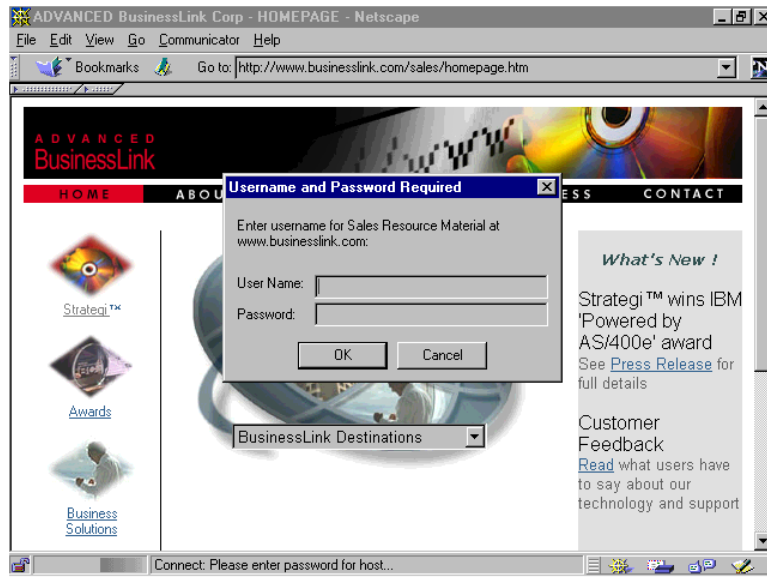
Figure 13, Restricting Access through Zone Authorities

When users enter their name and passphrase, Strategi checks them against the Zone Authorities list. If the user is on the Zone Authorities list, they are permitted entrance to this portion of the website; if not, they receive a screen like the one displayed below:

Figure 13, Access Refused by Zone Authorities

When the applet is delivered from an authenticated zone, the host server transparently authenticates the user so that a double logon (once to the site, and once to the applet) is not necessary.

In the example above, when your sales staff go to www.yourcompany.com/sales, they are presented with a Strategi Username/Passphrase dialog box. The salesperson enters their Strategi Username/Passphrase, and are then granted access to your Sales zone as an "authenticated" zone.

Thus, if from within that authenticated zone (your /sales webpages), you have set up a webpage which delivers the Strategi 5250 emulation to your salesperson's browser (the same as if a user went normally to www.yourcompany.com/strategi), then the Strategi user will *not* be presented with the Strategi Identification window. The user will *not* need to re-enter their Username/Passphrase a second time; the original Strategi Username/Passphrase Identification will serve as the authentication for that user.

Website Aliasing

"Aliases" are a way to redirect an Internet user's search for a website (zone) to another website (zone), without the need for website maintenance. An alias allows the AS/400 administrator to make any part of the IFS or website to dynamically appear as if it is a part of another website. Aliases can be set up specifically for a single site, or globally to apply to all websites.

For example, let's say you discovered a problem in your online product-ordering webpage (i.e., www.yourcompany.com/products/domestic.htm). Because of this, you want to take this website directory offline to fix it, and have all of your Internet

visitors sent to a different page instead, where they can order from your Customer Service dept. (i.e., www.yourcompany.com/products/customerservice.htm).

Normally, you would have to do some maintenance to change the page users are sent to from your homepage. Instead, with website aliasing, you can change the website path, so even when Internet users go to /domestic.htm, they are automatically redirected to /customerservice.htm.

NOTE: Creating, deleting or changing a website alias requires the Strategi subsystem be stopped and restarted for the addition, deletion or change to become effective.

Chapter 7 - Strategi's Java Applet

Java Applet Conventions

Menu Option Buttons

Menu Option Buttons are only available on screens that meet the following requirements:

- The word "Select" (in any typecase) must be in the first six lines of the screen.
- The screen must contain only one input field.

Menu items can have up to 4 digits:

- They must have only spaces or attributes ahead of the number.
- They must have a period (".") at the end of the number.

However, a trailing period (".") is not required if the following entry is put in the configuration file:

```
ATFMCG mbr <CPCcode> entry Remote5250Emulation
NodotMenuItems Y
```

If you want to include a second column of menu items, that column will be looked for beginning at column 39; text from the first column must have finished by that column.

Experience will tell you how many "false hits" there are, where numbers on the screen are mistaken for menu item numbers. This may be more likely to occur if you do not use the trailing period (".") after your menu item numbers.

F-key Buttons

Generated for "F" followed by one or two digits, with a space or attribute or punctuation (not a letter or digit) before and after.

Field Types

No buttons are generated for text in input-capable fields. The current version generates them for hidden output-only fields; the next release will not do so unless explicitly configured to.

HTML F-key Buttons

Position-sensitive help and prompting is not possible in HTML, but F4 prompting has been implemented by only generating normal F-key buttons in the last three rows of the screen. Above that, generating only F4 buttons, linked to the preceding field.

Button Configuration and Screen Colors

The graphic image used for the Java menu option button is named in the option_button_image parameter to the applet (in the HTML document that launches the applet). The colors used for input fields, and for the body and text of the screen, are also parameters to the applet, and can be changed.

HTML Configuration

The image used for the HTML menu option button ("OPTBTN.GIF") is currently named in the MenuOptionImage entry ***ALL** of the WEB525 configuration member on the AS/400. A same-sized transparent image ("OPTBTNSP.GIF") is used to make second-column buttons line up, using MenuOptionPadImage.

HTML F-key buttons are currently only generated if the ***ALL** FxxButtons (for the foot) and F4Buttons (for F4's in the body) entries of the WEB525 configuration member are both set to "Yes".

Printing and File Transfer

Strategi Printing

Printing in Strategi is the process of transferring spool files from the AS/400 to your end-user's PC. Changing the Strategi Special Value keyword PRINTFORMAT can alter the format of the files. The keyword requires three values that correspond to the parameters on the SNDSGIF Strategi command:

PRINTFORMAT Parameter	SNDSGIF Parameter	Description
VAL1	TOFMT	Print Format
VAL2	MFRTYPMDL	Printer Name
VAL3	WSCST	Workstation Customization Object Name

The expected parameter values for the PRINTFORMAT keyword are:

VAL1:	*HPT		*HTML	*RTF (default)
VAL2:	*HP4 (some printer)	*WSCST	*NONE	*NONE
VAL3:	*NONE	somelib/somevalue	*NONE	*NONE

For normal predefined printers, MFRTYPMDL is the printer (e.g., *HP4) and WSCST is *NONE. Using the CHGSGIVAL command,

CHGSGIVAL   KWD(PRINTFORMAT)   VAL1('*HPT')   VAL2('*HP4')
VAL3('*NONE')

For tailored printers, the MFRTYPMDL is *WSCST, and WSCST is the name of the workstation customization object to use. The WSCST object name is in the usual <library>/<file> format (if the library is omitted, the library list will be used). Using the CHGSGIVAL command,

CHGSGIVAL KWD(PRINTFORMAT) VAL1('*HPT') VAL2('*WSCST') VAL3('somelib/somevalue')

The output can be sent to the user in several formats:

HTML Format

In HTML format, the output is sent to the PC in a .htm format, causing the default web browser to be launched and the output displayed in the browser window. All the user needs to do to print is press the browser's "Print" button.

The HTML format causes the data to be "tabled", meaning it is put into table format to, as much as possible, preserve the page break arrangements. If a particular table is too "short", however, the browser may attempt to fit more than one table onto a printed page, ignoring the forced "page breaks" the tables are attempting to enforce.

There is a known problem with printing through MSIE 3.02. MSIE doesn't correctly identify table tags in HTML, therefore, any page breaks in your HTML code will not function properly. However, in Netscape 3.02+, and MSIE 4.0 and above, HTML page breaks do work properly.

The font size of "2", in the Java-applet-loading HTML, controls only the display of text in the HTML screens. It has no effect on the display of reports Java-printed as HTML, because those settings are hard-coded into the Strategi software.

The default parameter for printed reports is font size "3" for anything up to 80 characters. For outputted reports longer than 80 characters, the font size changes to "2".

As these parameters are hard-coded, reducing the font size to "1" would necessitate changing your programs which generate the printed reports.

HTML formatted according to the following rules:

1. Leading blank lines are dropped from each page.

2. From the first non-blank line until the next blank line, the lines are "bolded" by inserting HTML controls.

3. The rest of the page is printed according to the actual spacing of the report.

4. If the report is 80 columns or less (per the spool file record length), the standard browser font is used.

5. If the report is greater than 80 columns, the reduced browser font is used.

6. As mentioned, each page is encapsulated by a frame, the treatment of which is somewhat browser-dependent; Netscape will print as many entire frames as it can on one page and will print continuously if a frame exceeds the page size.

.RTF Format

Selecting ***RTF** as the output format causes the output to be sent to the user's PC in a .RTF format. This in turn launches Word, which can properly display .RTF documents.

Using the .RTF format ensures that page formatting, line breaks, font sizes, etc. are properly displayed in Word, ensuring the report will display (and print to hardcopy) in the format you intended.

Opening RTF Prints in Word Instead of Browser

When MSIE version 5 installs, it automatically changes the default viewer for .RTF files away from MS Word (or Windows WordPad) over to itself. In order for .RTF files to change back over so they open in MS Word instead of a browser window, your users must change certain settings on their PC:

1. In Windows, open "My Computer" or Windows Explorer.

2. On the menu bar, click "View" and select "Options".

3. Click the tab labeled "File Types".

4. There will be a list of document types for the user's PC. Have the user scroll down the list until they find the entry "Microsoft Word Document".

5. Click "Microsoft Word Document" and then click the Edit button.

6. A screen opens that specifies different settings for this file type. In the lower right hand corner of this window is a setting that says, "Browse in same window". In order for .RTF and Word documents to open in Word, the user must uncheck this setting.

Binary Printing

By definition, a "binary" print is one where the AS/400 has generated the final data to be sent to the client printer, e.g., HP PCL5 data in ASCII. The data must be taken from the AS/400 without converting it from EBCDIC to ASCII, and cannot be loaded into an application on the client PC.

To be treated correctly by Strategi, the file extension must be ".prtbin".

Creating Binary Prints

If created as a spoolfile, the Create Printer File command (run before the spoolfile is actually created) must contain the parameter **DEVTYPE(*USERASCII)**, causing Strategi to automatically treat it as a binary print file.

If created as a database file after the spoolfile has been created, the **SNDSGIF** command must have the parameter **FROMFMT(*DB2400BIN)**.

Setting File Extension

For spoolfiles sent automatically by Strategi's PUSHWRITER (viewable through **WRKACTJOB**), or by **SNDSGIF** with no TOFILE specified, Strategi will automatically set the ".prtbin" extension. Otherwise, the TOFILE value will be used.

For database files, a TOFILE with extension ".prtbin" must always be specified on **SNDSGIF**.

Client Action

In Strategi, if the end-user's web browser is MSIE 4.x or greater, and the Authenticode signed Strategi applet (abljem.caa) is used, Strategi will:

- Prompt for the printer path on the first binary print.
- Store that path on the local hard disk.
- Send the print directly to the printer.
- Refrain from prompting for the printer path (on subsequent automatic prints).

If the end-user is using a different browser, such as MSIE 3.x or any Netscape browser (where the Authenticode-signed Strategi applet is not being used), a Windows dialog box will pop up and offer the user the choice of "Save The File To Disk" or "Run An Application".

Binary prints can still be made to automatically print within Windows by creating a batch file containing the command **COMMAND /C COPY %1 LPT1**, then using Windows Explorer to "associate" files with the ".prtbin" extension and the "application/x-prtbin" MIME Type to that batch file.

Local Hard Disk

Retaining the print path for binary prints requires storing some information on the end-user's PC. The first time a binary printfile is sent to the end-user, certain files and directories are set up automatically (the default setup can be modified, if needed, once it has been created).

In the Java home directory, typically "C:\WINDOWS\Java", a file named "Strategi.pth" contains the path to the Strategi directory, typically "C:\WINDOWS\Java\Strategi". Note: Both directory names are logged to the Java Console (as "Java home directory" and "Application root directory" respectively) to assist troubleshooting.

In the "C:\WINDOWS\Java\Strategi" directory may be a file called "prtbin.pth" which contains the path to the printer.

These two .pth files (Strategi.pth and Prtbin.pth) can be edited with any text editor if needed, and the temporary directory (usually "tpm1") can also be cleared if needed (manual clearing will not normally be needed, as Strategi automatically clears the directory each time it is loaded to the end-user's PC).

In the unlikely event that the Java home directory cannot be written to by Strategi (e.g., because of network file access restrictions), the system administrator must manually create the Strategi.pth file there, pointing to a usable part of the file system.

*HPT (Host Print Transform) Format

Strategi Host Print Transform allows one to convert AS/400 prints to binary prints automatically, bypassing the need to use another program for the conversion. *HPT can be specified as a print format for the entire Strategi system (through the PRINTFORMAT Strategi value), for a specific Strategi user (through the PRINTFORMAT user attribute), or when sending one print file through SNDSGIF (through the TOFORMAT parameter).

When specifying to use *HPT as a print format, a printer type must be either implied or specified. This is because Strategi will be responsible for converting the document into a viable binary stream to be sent to your printer. Since printer languages differ so greatly, Strategi must know the type of the destination printer if it is to create a valid print file. The AS/400 already has a way of denominating printer types, which you can get by listing the options for the MFRTYPMDL parameter of the LPR command. By default, Strategi will use *HP4, which generates HP LaserJet compatible prints. This can be overridden with the MFRTYPMDL parameter in the SNDSGIF command. If the Strategi value PRINTFORMAT is set to *HPT, the printer type can be set by through the second segment of the user attribute. From the CHGSGIUSRA command you can use F9 to access the second segment.

Strategi File Transfer

Strategi allows users to receive various kinds of AS/400 files through the Java applet. When files are sent to a user, what happens at the PC end will depend on what the user's browser and operating system are configured to do with that sort of file. They could be sent a Microsoft Word document, for example, which most PCs would open in Microsoft Word.

To send files to Strategi users, you can use the SNDSGIF command. This command allows you to send various kinds of files to a user in various resulting formats. The command has complete help text, which you can view to find out more about each from- and to- format.

One file format which may present difficulty for the user to retrieve is .DBF format. Below is some more information on how the user can open such a file.

.dbf Format

When an AS/400 database file is sent to a user in a .dbf file format, it is expected to load and display under Microsoft Excel (as Excel can properly display the data in columnar format). If your end-user is having difficulty in getting the reports to display properly in Excel, please ensure their computer is properly set up to receive the data per the following instructions:

Start up Windows Explorer (not Internet Explorer), then select "View", "Options", "File Types"; then set the following:

Description	Setting
Description of Type	dBase file (this is not critical; you may name it as desired)
Content Type	application/other-x-dbf
Default Extension	.dbf

Action Open	Application used: "C:\MSOffice\Office\Excel.exe". Note: Set your own Excel's path to EXCEL.EXE; be sure it is not set to Excel.lnk; also quotes are needed.
Use DDE	Must not be checked
Quick View	Check if desired

Table 12, Strategi Printing settings

As a system administrator, you would use the **SNDSGIF** command to send the output to the user's Strategi outqueue (using device "S").

Taking Advantage of Java Applet Capabilities

Strategi's Java applet has many features and capabilities to enable your remote customers to work with your AS/400 data.

Complete Parameter Listing

A complete list of available Strategi applet tags, and examples of their use in HTML, can be found in Appendix # 5, "Default BusinessLink Website".

Chapter 8 - Using the Strategi Applet

The Strategi applet is the interface between your customers and employees and your AS/400. A complete copy of the Strategi User's Guide can be retrieved from http://support.businesslink.com/download/download.htm

We will not reproduce the User's Guide here but, as the system administrator, you should be familiar with the Strategi applet's features:

Display Features

GUI and Text Modes

After entering their username and passphrase in the Strategi Identification window, your customers and employees will see the AS/400 emulation window in either GUI or Text mode (depending on their selection), as displayed below:
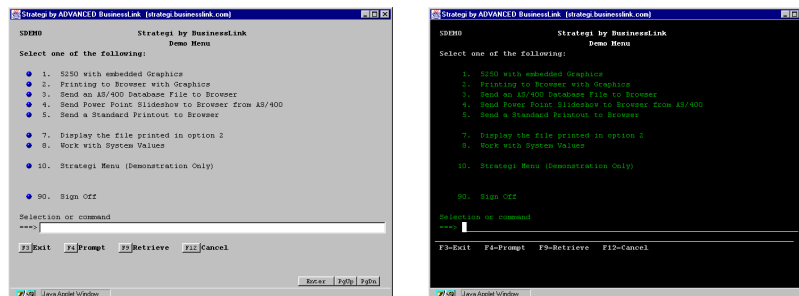
Figure 14, Strategi Emulation Window, GUI and "Text" modes

Alt + Shift + G toggles between the two modes on the user's next input (pressing **Enter** also counts as input, so will toggle modes while remaining on the same screen.

132-Column Mode

Strategi is also capable of 132-column mode, but only displays it when working in a "Display Objects" screen; otherwise, emulation screens appear in regular 80-column GUI or Text mode. 132-column mode can also be displayed in both GUI and Text mode by using the **Alt + Shift + G** toggle. A 17" or larger monitor is recommended if using 132-column mode.
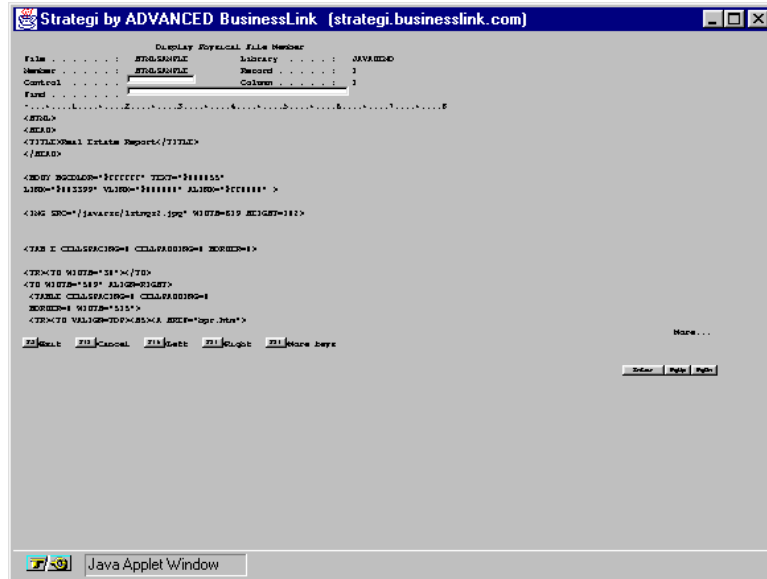
Figure 15, Strategi Emulation Window, 132-column mode

The print in this example appears small because, in order to keep the columns aligned, we chose to use a fixed-width font, and using a larger font size would have made the Strategi 5250 emulation window too wide to fit onto a computer screen. A fixed-width font is needed here, rather than a proportional font like Arial Narrow (which would have allowed us to display a larger font size); as Arial Narrow is a proportional font instead of a fixed-width one, it would have destroyed any sense of column alignment.

132-column mode can be disabled. If you "check-out" the HTML Strategi-applet-loading pages using Webmaster, please look for the following line:

```
<!PARAM NAME=allow_132_column VALUE=no>
```

Remove the Exclamation Point from in front of PARAM NAME and use Webmaster to "check-in" the modified webpage, and Strategi will then be forced to always display the screen in 80-column mode. (To be consistent, you would want to do this for both the GUI-mode and Green-Screen-mode HTML loading pages).

Please note, though, that the 80-column mode rule will then be enforced for all screens viewed through Strategi. In other words, you cannot turn off 132-column mode for SEU and, for example, have it turned back on for PDM; it's an "all or nothing" proposition.

Dynamic Window Resizing

As with any Windows application, you may resize the emulation window by using the mouse to drag a corner or side of the window in any direction. Strategi will resize the window text as well, dynamically selecting the "best-fit" font:
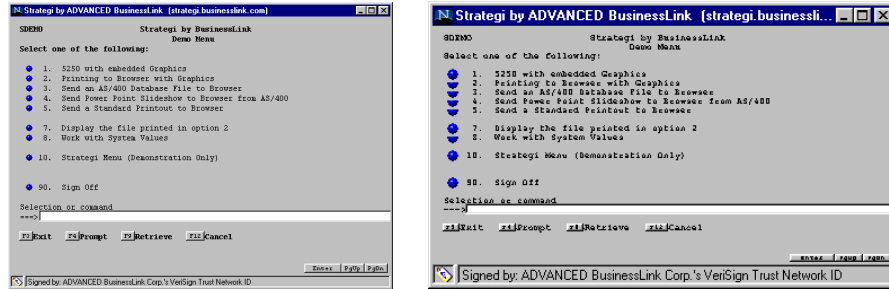
Figure 16, Dynamic Window Resizing, GUI mode

This functions in Text mode as well:
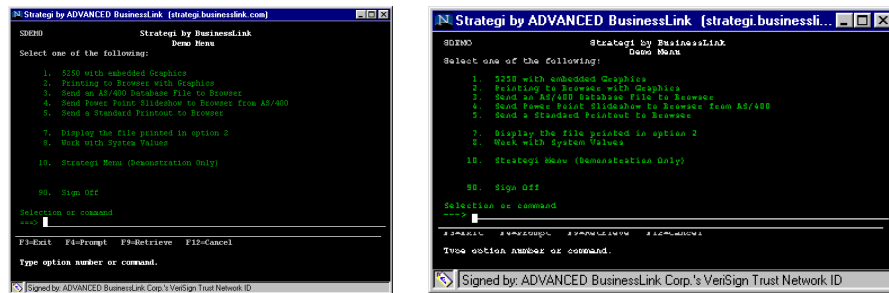
Figure 17, Dynamic Window Resizing, Text mode

Macros

Loading the signed version of the Strategi applet will allow you to use Macros. The Macros button appears in the lower right corner of the applet window. Macros enable you to enter an entire sequence of keystrokes with the press of a button, to avoid typing it over and over again.

To record a sequence of keystrokes, press the "Macros" button and then choose "Record". Type your sequence of keystrokes, and when complete, press the "Stop Recording" button. The dialog box "Macros" will pop up prompting you to save the key sequence you just entered. Type a name in the "Macro Name" box and then press the "Save" button.

To use the macro, simply press the "Macros" button again and choose the name of the macro you need. This macro will be available whenever you sign in as the same Strategi user with the signed Java applet.

Copy and Paste Capabilities

Strategi allows you to copy and paste from the signed version of the Java emulation applet, in GUI and TEXT mode. To copy text, click and hold the right mouse, then drag your pointer over the text you want to copy from the emulation screen.

Once you've selected what you want to copy, release the right mouse button, and you'll receive pop up menu to either copy or cancel. Once text is copied, you can paste into another emulation field using 'Ctrl-V'. You can also paste into other Windows applications.

Strategi Functions

Clicking the right mouse button brings up the Strategi Function Window, as displayed below:
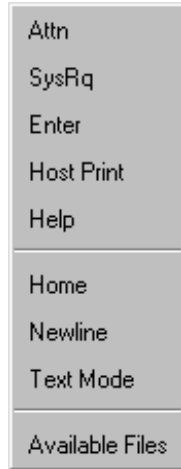
Figure 18, Strategi Functions Window

This window remains on the screen until the user ends it by clicking on the "Exit" button, and can be minimized and maximized. An explanation of the buttons follows:

Name	Description
Attn	Attention
SysRq	System Request
Enter	The same as pressing the keyboard "Enter" key. For instance, this can be helpful in toggling between GUI and Text modes, which requires input to activate the change; pressing the "Enter" button is considered "input", so effects the change while remaining on the current screen.
Host Print	Takes a text-only "snapshot" of the screen, opens a new instance of the browser and display the "snapshot". User's can print the screen by pressing the browser's "Print" button.
Available Files	Displays the Available Files window
Help	Displays the help file for that screen
Home	The Home key moves the cursor to its initial position on the screen, or if already there submits a Record Backspace request to the

	AS/400.
Newline	The keyboard "End" key is mapped to the AS/400 Newline key, which moves the cursor to the first input field on the following line, (and wrapping to the first field on the screen if no input fields follow).
GUI/Text mode	Toggles between GUI and Text modes (same as **Alt + Shift + G**)

Figure 19, Strategi Button Functions

Strategi Keyboard Mapping

The following keystroke combinations work, while the Java applet is running, to produce specific results for your AS/400 customers:

Keystroke	Action
Alt + A	Attention.
Alt + I	Insert (this is needed in "Text Mode" in Netscape, as it does not support the real "Insert" key).
Alt + S	System Request.
Alt + P	Host Print key.
Alt + F	Refresh and display Available Files List.
Alt + H	Swaps Enter and Ctrl + Enter functions.
Alt + T	Test Request.
Alt + Shift + G	Swaps the GUI/Text input modes, starting with the next screen displayed; pressing **Enter** will effect the change and keep the user on the same screen..
Alt + Shift + Enter	Swaps Enter and Ctrl + Enter functions.
Alt + Ctrl + Enter	The old version of Alt + Shift + Enter.
Tab	Tabs between fields.
Enter / Ctrl + Enter	Destructive Field Exit (Text mode).
Gray "Plus"	The "+" key on the numeric keypad. This is the true "Field +" and destructive "FieldExit" (wipes the remainder of the field).
Gray "Minus"	The "-" key on the numeric keypad. This is the true "Field –". Works in signed numeric fields only; otherwise, just inserts a dash ("-").
Shift + 6	Inserts a caret (" ^ ") character, which is then converted to/from the "not" character on the AS/400.

Shift + \	Solid bar in Java, used in C source code.
Alt + \	Broken bar, which displays as a solid bar until you leave the field); used in AS/400 CLP sources (see notes below on Pipe Characters).

Table 13, Strategi Keyboard Mapping

Notes:

- The "cent" character (a measure of US currency) can be displayed, but cannot be keyed in.

- The Java applet tag is set to an initial behavior of "Enter" or "FieldExit (Ctrl + Enter)" using the parameter:

  <PARAM NAME=enter_key_action VALUE=field_exit>
  <! or default VALUE=enter>

- The main "FieldExit" (Enter or Ctrl + Enter, depending on the parameter setting above), acts as a "Tab" in GUI mode, but as a true (destructive) "FieldExit" in Text mode.

- Please note that none of the "Alt +" combinations work at all in MSIE 3.x (although the buttons on the right-click popup dialog still function properly), as MSIE 3.x will not support any use of the "Alt" key. This was a known bug in MSIE 3.x, which was fixed in MSIE 4.0. The F10 and F22 keys also do not work in MSIE 3.x, and there is currently no workaround available (although on-screen buttons, if they are present, do work).

- Conversion of carets, bars, cents, etc. depends on the correct EBCDIC/ASCII tables being configured.

- The Insert button only appears if the current display mode is "Text", as all GUI input boxes will normally have "insert on". Note: the keyboard "Insert" key does not function in Netscape v3 and v4 under Windows '95, although **Alt + I** does function properly.

Pipe Characters

The primary pipe character, as used in C program sources on the AS/400, is entered normally, using "**Shift + **", displaying a solid bar (as it does in other Windows programs).

The secondary pipe character, needed for CL programs, is not accepted by Java text boxes (not even as an Alt + 0nnn entry). We display it as a broken bar on output, and use "**Alt + **" for keying. For Netscape, the secondary pipe character displays as a solid bar when keyed, then all solid bars are changed to broken bars on "Field Exit" or "Enter". For Explorer 4, "**Alt + **" must be keyed at least once when in the field to flag usage, then "**Shift + **" must be used to enter the characters, changing on "Field Exit" (as it does for Netscape. MSIE 3.x does not allow this to be keyed.).

Both bars cannot be keyed into the same field, only one or the other. Conversion from solid to broken bars on the Field Exit applies to all bars (if any of them have been keyed in with "**Alt + **").

Additional Strategi Features

Strategi Emulation Screen, Page Action Buttons

At the bottom right of the Strategi emulation screen, there are three buttons:

```
Enter   PgUp   PgDn
```
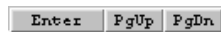
Figure 20, Strategi Page Action Buttons

Clicking on the buttons will perform an "Enter" (same as right "Ctrl" key on the PC keyboard), "Page Up" or "Page Down", as appropriate.

If you find the buttons hide any meaningful text at the right-hand end of the status line, the buttons can be dismissed by doing a "right-click" with the mouse anywhere on the line where the buttons are. They can be made to reappear on the current screen with another "right-click", or will automatically appear on the next screen displayed.

Mouse Selection

The Java applet supports mouse selection of typical AS/400 lists, where there may be selections such as:

```
1=Select      4=Delete   8=Work with job
```

at the top, and a number of rows each with a single input field for entry of the option number. Clicking one of the options causes it to be highlighted, and an information message appears at the bottom of the emulation window, saying something like:

```
"Click on line for 8=Work, DoubleClick to Enter".
```

Clicking anywhere on one of the lines in the list will then cause that option number to be placed in the input box for that line; "double-clicking" will not only enter the option # but will also press "Enter". Clicking anywhere else on the screen will un-highlight the option; **Page Up** or **Page Down** will also un-highlight the option.

If there is a "1=Select option", it is automatically highlighted as the screen is displayed (including after a "PageUp/Down", even if a different option may have been highlighted before the "PageUp/Down").

The detailed rules are:

a. This is only available in GUI mode, not Text mode. Options can be anywhere on the screen.

b. Options consist of one or two characters, then an "=", then some text. Two-character options starting with "F" are ignored (they are F-key buttons). The option number, or first word of the option text, must be clicked. "Option 1=Select" is automatically selected on a new screen, unless there is a status message at the foot of the screen.

c. The line item option entry fields must be 1 or 2 characters long. Clicking on the screen background, other than an option or option line, results in normal cursor positioning, and de-highlights any option.

d. Strategi's ability to enter "5=Display", etc., by clicking on the relevant list line also applies to lines that have multiple input fields, as long as only one field looks like an option (one or two characters long, and a normal text field). This allows selection in, for example, the standard SEU list display.

e. Highlighting the options will not occur if there are no lines on which mouse select would be valid.

Disabling AS/400 Function Keys

Strategi permits suppression of the AS/400's "Attention", "System Request", and/or "Host Print" keys. The buttons in the "Strategi Function" box (brought up via right-mouse-button click) are grayed out (disabled), and the corresponding **Alt +** keys have no effect. To disable any or all of these keys, insert the following HTML into the webpage loading the Strategi applet:

<PARAM NAME=Disable_Keys VALUE=xxxyyyzzz>

where **xxxyyyzzz** can be any, or all, of the following:

Value	Description
ATN	Attention
SRQ	System Request
PRT	Host Print

Table 14, Disabling AS/400 Function Keys

For example:

<PARAM NAME=Disable_Keys VALUE=ATNSRQPRT>

would suppress all three function keys, while

<PARAM NAME=Disable_Keys VALUE=SRQPRT>

would suppress just System Request and Print.

The ATN, SRQ, and PRT codes can be in any order, and any case.

This can be useful in restricting casual user access without going through the complex AS/400 steps that are otherwise needed. Note: if you want these disabled to all users, regardless of whether they launch the Strategi applet in GUI or Text modes, you will need to insert this code into both BASEGUI.HTM and BASETEXT.HTM):

Return to Previous Field

When the cursor is outside an input field, **Shift + Tab** causes the cursor to go back to the previous field.

Errorline Messages

Let's say, for example, that you use **Alt + P** to print a screen, then immediately do **Alt + Shift + G** to toggle GUI/Text mode. The AS/400 "errorline message" (confirming the "Print" key has been processed) is normally overwritten by the local feedback (saying the GUI/Text mode will change on next screen). The two messages can be switched between by left-mouse-button clicking on the message itself.

Appendix 1 - Support and Services

ADVANCED BusinessLink Corp wants you to get the most for your software investment, right from the start. That is why, whatever your business needs, we offer a level of support to fit: support for your end-users, support for a single help desk, or support for your worldwide information services organization.

Because we are committed to offering consistent, reliable support, BusinessLink concentrates technical expertise in three global Customer Support Centers based on three continents, enabling each center to offer both depth and breadth of technical knowledge.

Customer Care Program

ADVANCED BusinessLink Corp. provides support and service through our Customer Care Program. This service includes hardware (where applicable) and software maintenance, free software upgrades, and technical support through telephone, e-mail and fax during our normal business hours. Please see our Technical Support Website at http://support.businesslink.com for current support availability.

Technical Support

If you are unable to reach a support person by phone, the next best way to reach us is by sending email to the appropriate regional service center. A support person will get the message the same day, or, at latest, first thing the next business morning.

Technical Support Website

The BusinessLink Technical Support website (also referred to as the "Tech Zone") can be found at http://support.businesslink.com. BusinessLink offers this website as an additional source of technical information for our customers. Available information ranges from frequently asked questions (FAQs), HSM demonstration code, online documentation and software updates.

AS/400 Support

ADVANCED BusinessLink Corp. is not a reseller of IBM AS/400 systems. Because of that, we are unable to provide more than minimal technical support for AS/400-related hardware or operating system problems.

For your convenience, however, the Internet World Wide Web address for IBM's AS/400 Technical Support website is http://as400service.rochester.ibm.com/. This site provides access to not only AS/400 technical support, but also IBM's knowledge databases, technical publications, fixes, Q&A, download libraries, forums and mail support.

Website

http://www.businesslink.com

Appendix 2 – Secure Sockets Layer and Strategi

Secure Sockets Layer Registration

If your organization has determined it has a need for high-level security and protection for its data, Advanced BusinessLink Corp. is capable of arranging for Secure Sockets Layer encryption. The normal data-encryption level permitted by the U.S. government, for export purposes, is 40-bit encryption. There is a greater degree of protection available, however, for companies on United States soil through Secure Sockets Layer encryption (SSL) and, potentially, for international companies.

Strategi is fully capable of supporting 40-bit, 56-bit or 128-bit SSL data encryption through an additional SSL module. The level of data encryption your company can legally use, however, depends on where your company is located. If all entities of your company are entirely within the United States of America, you are permitted full use of either 40-bit, 56-bit or 128-bit data encryption.

If any entities of your company are outside of the United States, the U.S. Department of Commerce will determine the level of encryption you can use. 40-bit data encryption is authorized for export without any special permission; export of 56-bit or 128-bit encryption technology requires authorization by the U.S. Department of Commerce. Per U.S. Department of Commerce, Bureau of Export Administration Form BXA-6002 (Rev. 7/96):

> "Applications for export must be submitted on Form BXA-748P Multipurpose Application. These forms may be obtained by calling (202) 482-3332. Assistance in filling out the form, or any aspect of exporting, is provided by the Export Counseling division in Washington, D.C. at (202) 482-4811, or the Western Regional Office in Newport Beach, California at (714) 660-0144.

> See Commerce Country Chart (Supplement No. 1 to part 738 of the EAR (Export Administration Regulations) to determine which countries require a license. Use the Country Column Chart information given on the front of this form in conjunction with the Country Chart to determine the licensing requirements for your particular items. For items classified EAR99, see part 746 of the EAR to determine the licensing requirements."

If desired, we can recommend established export consultants who will work with you to prepare the necessary applications with the U.S. Department of Commerce for 56-bit or 128-bit encryption.

40-bit data encryption has proven itself to be secure enough to meet most companies' needs. Even with very fast Pentium machines, it can take up to a day to crack the encryption on one data packet; once that happens, though, the "cracker" must go back to "square one" and begin working on the next data packet from the beginning. Thus, the amount of time it would take to decode an entire data stream means devoting months, if not years, of computing power to decoding one complete data file.

Advanced BusinessLink Corp. products have proven themselves over the years to provide industrial-grade data encryption. For our company, providing the level of encryption you may desire for your data is important. From an integrity standpoint, we can only provide you with the level of encryption security your company has been fully authorized to use. While there may be vendors who claim they can provide 56-bit or 128-bit data encryption without going through the proper channels, we feel it would be unfair, not only to our clients but also to ourselves, if we were to compromise ADVANCED BusinessLink Corp.'s reputation for honesty in that manner.

Corporate Identity

Domestic

As part of processing the Digital ID request, Verisign must verify your corporate identity. The quickest way for Verisign to do this is using your Dun & Bradstreet (D-U-N-S) number.

If your company does business within the United States, and you do not know your company's D-U-N-S number (or do not have a D-U-N-S number), please go to https://digitalid.verisign.com/dnb_query.htm (the "blank space" in this URL is actually the underline "_" character) to search for it, or apply for a new one for free. If you do not wish to use a D-U-N-S number, or your company is not in the United States, you can fax or mail Verisign any of the following additional information (Proof of Right) when you complete the enrollment form:

- Articles of Incorporation
- Partnership Papers
- Business License
- Fictitious Business License
- Federal Tax ID Confirmation

International

International D-U-N-S numbers must be listed in the Dun and Bradstreet database for at least two months before Verisign can verify your company's information. If you have received your D-U-N-S number less than two months ago, you must provide "Proof of Right to Use" documentation (https://digitalid.verisign.com/non-engl.html#proofOfRight). For additional information, go to "Enrollment Help for Our International Customers" at https://digitalid.verisign.com/non-engl.html. All documents must be submitted in English. Please make sure to reference your server/domain name on all correspondence; list your server as "Advanced BusinessLink". Verisign's fax number is 415-961-8870 (international customers please add +1). Their mailing address is:

Digital ID Center
Verisign, Inc.
1390 Shorebird Way
Mountain View, CA 94043, USA

SSL Authorization

Installing SSL on a Strategi webserver is a straightforward process. If your organization has purchased the SSL add-on module (this is included at no-charge with the Strategi Enterprise and Global systems), please go to the BusinessLink Technical Support website and select the document titled "Installing SSL on Strategi Webserver" http://support.businesslink.com/docs/bulletins/security/tsb_sec004.htm.

Your organization will be dealing directly with Verisign to obtain the SSL authorization. Strategi has been designed to make the pre- and post-Verisign work easy to accomplish; the above-mentioned document has all the step-by-step information you will need.

Pricing

Information on Verisign's pricing and methods of payment can be found at their site, https://digitalid.verisign.com. Information on ADVANCED BusinessLink Corp.'s pricing for adding and supporting SSL capability in Strategi can be obtained from your BusinessLink sales representative.

Data Encryption Links

We have included here several links from which you can gain additional information on the subject of data encryption. With the fluid nature of the web, of course, there is no guarantee these links will still be in place by the time your read this document, but they are provided for your convenience. The inclusion of these links in this document in no way, shape or form represents any type of endorsement, either official or unofficial, by ADVANCED BusinessLink Corp., of any materials or references contained therein:

"HOW SSL WORKS: AN INTRODUCTION TO KEY CRYPTOGRAPHY" can be found at http://home.netscape.com/security/techbriefs/ssl.html.

The latest Frequently Asked Questions ("FAQ") on Cryptography can be found at this address: http://www.rsa.com/rsalabs/newfaq/.

For the latest news on current data encryption issues, go to http://www.crypto.com/. This site has all the latest stories and information on U.S. Government Encryption Policy.

Another source of information on current encryption development is the Electronic Privacy Information Center (EPIC) at http://www.epic.org/alert/alert_vol_4.html (Note: the blank spaces in the URL are actually the underline "_" character).

SSL Securing the Strategi Applet

For the Strategi Java-applet-loading page to be SSL-secured, it needs to be loaded from a page under the SSL-secured domain name "umbrella", and customers need to access it by entering through the domain name vs. the external IP address.

The Strategi applet does not itself run SSL, but rather uses the browser's SSL connection to exchange industrial-strength RC4 session keys. By using the browser's SSL to setup each Strategi session, the Strategi applet ensures it uses different keys for each session. As a result, the data stream cannot be "hacked" by someone using a TCP/IP traffic-monitoring device.

From the BusinessLink/WEB (another ADVANCED BusinessLink Corp. product) manual:

> "BusinessLink products provide the highest level of security available, not only through data encryption but also by implementing a multiple-level password and "passphrase" system (for additional encryption security, the passphrase can contain up to 50 characters, such as a complete sentence). All of this is designed to ensure that only the users you want to interact with your AS/400 will actually be able to send to and receive data from it.

> "All Java traffic is scrambled, so anyone watching the TCP/IP packets will see only random garbage, even between otherwise identical emulation sessions. Once the Java user and passphrase have been accepted, the passphrase is used to further encrypt the data; even someone who has analyzed the applet code will be unable to retrieve the actual data. The strength of the security is directly related to the length of passphrase used, with at least thirty to forty characters recommended; the longer the passphrase, the stronger the security.

> "This, then, provides a much higher level of security than the 8 - 10 character passwords commonly used by others. The longer the encryption key, the harder it is to crack the passphrase and, thus, the greater the security. Please note that we're talking here not about an encryption level of 40 to 50 _bits_, but 40 to 50 _bytes_.

From Sun Microsystems (http://java.sun.com/javastore/jserv/ssl.html):

> "Secure Sockets Layer (SSL) Protocol Explained

> "The Secure Sockets Layer (SSL) Protocol provides several layers of security available for all users of a web server equipped with SSL. All data coming from and going to an SSL equipped server is encrypted. This ensures that anyone who may be able to spy on the data transmission will not be able to understand the data. An SSL equipped server can also identify itself to anyone who visits it. This ensures that your clients can trust that they have indeed connected to the server they intended to reach."

While someone might, once the connection is established, be able to brute-force redirect the Strategi session to another server, this other server will not know the session key. There is no danger of data being exchanged between the wrong server and the Java emulation session; because they can't communicate, the two will simply sit and stare at each other.

Also from the Sun website:

> "When a client makes an SSL request, the server replies with a message and a certificate signed by a certification authority that establishes the server's identity. If the client trusts the certification authority, which may be the server itself or a trusted third party, a secure connection is established."

If someone were to attempt to spy on the data, even if they knew what the program was doing and knew the encryption algorithm, it still wouldn't do any good, because they wouldn't have access to the passphrase-generated encryption key.

Appendix 3 – Strategi Webmaster

Strategi's Webmaster is a utility, installed on a PC, to manage and modify website content. When executed, it connects to the Strategi webserver and synchronizes the directory content of the Webserver and the remote PC.

Complete instructions on installing and using Webmaster can be found in the Webmaster manual, available in the same location you retrieved this manual.

Please go to our support website at view the document labeled "Strategi Website Creation and Maintenance"
http://support.businesslink.com/docs/bulletins/strategi/tsb_sgi012.htm.

Downloading and printing this document will provide you with an excellent step-by-step reference guide.

Website Maintenance

Strategi supports the "long filenames" used in Windows '95 +; however, some care must be taken in naming and renaming website files, as discussed below:

Renaming Files in Windows '95/'98/NT

File renaming in Windows '95 (and Windows '98/NT) can double-up extensions, causing Webmaster to appear to lose files on the Webserver.

If an extension is typed in when renaming a file, and "Hide MS-DOS file extensions for file types that are registered" is on (and it is on, by default, in Windows' Explorer "View", "Options", "View"), then the file extension can be doubled up.

Thus, typing in "homepage.htm" (when renaming "xyz.htm") results in "homepage.htm.htm".

Properties on a right-click of the file obey the "Hide" setting, and show just "homepage.htm" as the full name. "File", "Save As" is more intelligent, obeying the known extensions, so keying "homepage.htm" would be acceptable, but "homepage.old" would save as "homepage.old.htm", etc., unless you put it in double-quotes (which you cannot do with the "Rename" command).

It is recommended that, for website development or any work requiring exact file names, Hiding Extensions should be turned off in Windows' Explorer "View", "Options", "View".

Webserver Default Extensions

Strategi defaults to using the file extension ".htm" if no extension is given, or if ".html" is asked for and not found).

For example:

- http://www.businesslink.com/java77
- http://www.businesslink.com/java77.htm
- http://www.businesslink.com/java77.html

all will successfully return the "java77.htm" document.

Specifying the ".htm" is slightly faster, since "java77" and "java.html" would be handled as redirections, adding an extra step to the processing.

If no extension is asked for, and both a directory and a matching ".htm" exist, the .htm will be selected; otherwise directory name requests are unchanged (i.e., if there is a directory "/homepage.htm", it is returned to the browser, otherwise the homepage in the parent directory is tried).

Appendix 4 – Default Website Setup

Strategi Website

To help you become operational as quickly as possible, we have included a sample website with your Strategi installation. Feel free to use the Strategi webpages as a place to start in constructing your company's own website.

Default Strategi Website Pages

The Strategi website (http://www.yourcompany.com/homepage), when initially accessed by an Internet visitor, displays the following screen:
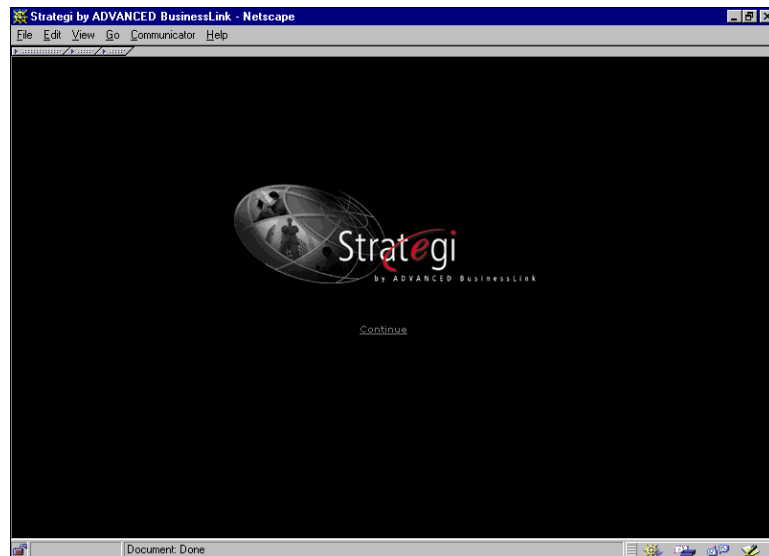
Figure 21, Strategi /HOMEPAGE.HTM

Clicking on the Strategi "globe" logo (or on the "Continue" hyperlink, displays the next screen:

Figure 22, Strategi /RESOURCES/MAIN.HTM Webpage

We have set up the Strategi website in this fashion so that you can change the /homepage.htm to become your company's website homepage, and can then have a link from there (or from any other appropriate page) to the /resources/main.htm page displayed immediately above.

From the /resources/main.htm page, the viewer is given the option of starting Strategi on their PC in one of 2 modes, GUI mode or 5250 emulation mode, selected by clicking on the appropriate button in the right-hand column. This is accomplished by actually having 2 different HTML pages, each of which loads the Strategi applet with the appropriate parameters, set to display the desired GUI (/basegui.htm) or Text-mode 5250 emulation (/basetext.htm) screen. Upon loading, the applet displays the following sign on screen:
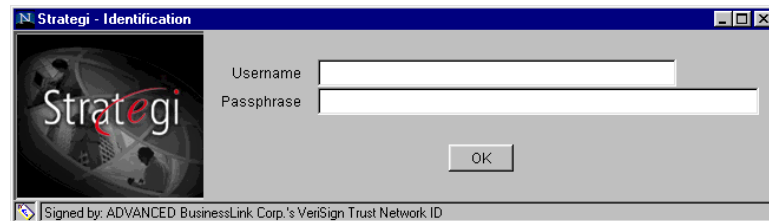
Figure 23, Strategi Applet Sign-On Window

Making Changes to the "/resources" area

The Strategi "/resources" directory/website is completely overwritten when you upgrade Strategi. Therefore, any changes that you made to that area of the site would disappear. It is important, then, if you want to make changes, to create your own copy of resources and make changes in this customized area instead of the main "/resources" site. The following URL:

http://support.businesslink.com/docs/bulletins/strategi/tsb_sgi011.htm

describes how to create such a customized version.

Strategi Applet Parameters

Many of Strategi 5250 Emulation Java Applet features are controlled/configured via HTML parameter tags within the page that loads the java applet. This list below details all of the applet tags that can be used with the Strategi Java Applet.

<applet code="abljem.class" codebase="/applets" archive="abljem.zip">
Required
Description:
    applet code: The html start tag and the main java class file required.
    codebase: The webserver location for abljem.class and any other .class files (used by MSIE).
    archive: The compressed class archive (used by Netscape).
Default Value: Same as example.

<PARAM NAME=allow_132_column VALUE=yes>
Optional
Description: Specifies if the screens viewed in "display objects" will appear in 132-column mode.
Values: Yes or No
Default: Yes

<PARAM NAME=allow_prtbin_dialog_cancel VALUE=yes>
Optional
Description: causes the Cancel button to not appear, and window close to be ignored, on the Binary Print dialog. The default is Yes, consistent with earlier versions.

    Setting a value of No makes it harder for users to lose prints, but forces entry of a plausible path in that dialog, which might lead to reports of the applet being locked up if invalid paths are entered, or to session failure if the dialog is left up for too long.
Values: yes or no
Default: yes

<PARAM NAME=applet_link VALUE="<HSM NAME="applet_link>">
Optional
Description: When Digital Client Certificates or SSL with Website Authentication are used, this value will be replaced with a key that will auto-login the user to the applet. This prevents requirement for two signons.
Values: The key will be available only if the user is logged into the zone with a Digital Certificate or with SSL and authentication.
Default: None

<PARAM NAME=attribute_XX_colors VALUE="###,###,### ; ###,###,###">
Optional
Description: Enables color mapping for the 5250 applet, mapping RGB color values to AS/400 screen color attributes. These PARAMS specify which colors to be used. The XX will be replaced with an attribute number (20 through 3E, e.g. "attribute_3E_colors").
Limitations: In order for these mappings to take effect, the "input_colors" parameter must be commented out.
Values: RGB triplet format
    ###,###,### ; ###,###,### = foreground ; background
Default: normal screen colors

<PARAM NAME=autodelete_binary_prints VALUE=no>
Optional
Description: Specifies whether prtbin files should be automatically deleted as soon as they are delivered to the printer.
Values: yes or no
Default: No

<PARAM NAME=autodelete_URLs_keeping VALUE=0>
Optional
Description: Controls the automatic deletion of old URLs.
Values: Any numeric value
Default: 0 – does not autodelete any files.

<PARAM NAME=autoretrieve_URLs VALUE=yes>
Optional
Description: Controls the automatic retrieval of values.
Values:
Yes: If an item is sent to an out queue, it will automatically open the print.
No: If an item is sent to an out queue, it will stay in the available files window and no action will take place.
Default: Yes

<PARAM NAME=bold_highintensity VALUE=false>
Optional
Description: Changes color mappings to a bold/high intensity setting.
Values: True or False
Default: False

<PARAM NAME=cabbase VALUE="/applets/abljem.cab">
Required
Description: Specifies cab location for MSIE.
Values:
    abljem.cab: Loads the applet normally.
    abljem.caa: Loads a signed version of the applet.
Default: abljem.cab

<PARAM NAME=column_separators VALUE="N">
Optional
Description: Specifies how to treat fields with the column separator attribute. Fields
    with the column separator attribute are by default underlined.
Limitations: Version 1.5.3 and later
Values:
    N (none): Provides consistency with earlier versions of Strategi
    U (underlined): Underlines column-separated fields.
    Dot: Uses small central dots.
Default: N

<PARAM NAME=connection_port VALUE="ppppp">
Optional
    Description: Specifies the port for the emulation applet to connect to, where
    ppppp is the port number. This must be used in conjunction with the Strategi
    Special Value of COMSSERVERADDRESS. Both values must contain the
    same port number.

<PARAM NAME=connection_security VALUE="pass">
Optional
Description: Specifies if a java identification prompt requesting a passphrase will be
    displayed. If this PARAM is omitted, the AS/400 signon screen will be
    immediately displayed.
Default: Pass - requests passphrase.

<PARAM NAME=cursor_colors VALUE="###,###,### ; ###,###,###">
Optional
Description: Enables color mapping of the emulation screen cursor.
Limitations: Text Mode Only
Values: RGB triplet format
    ###,###,### ; ###,###,### = foreground ; background
Default: White Text on Blue

<PARAM NAME=delete_without_retrieve VALUE=yes>
Optional
Description: Determines if users may delete files before opening them.
Values:
    Yes: Users may delete a file before opening it.
    No: Users must open a file at least once before they can delete it.
Default: No

<PARAM NAME=disable_keys VALUE=xxxyyyzzz>
Optional
Description: Used to specify keys to be disabled.
Values:
    ATN: Disables attention key.
    SRQ: Disables System Request key.
    PRT: Disables Host Print key.
Default: Commented out. All keys are enabled.

<PARAM NAME=display_mode VALUE=GUI>
Optional
Description: Determines initial display mode. Overrides user's settings and saved
    values. Users may toggle with **Alt + Shift + G.**
Default: Whatever is set for the user.
Values:
    GUI: User will enter applet in GUI mode.
    Text: User will enter applet in Text mode.

<PARAM NAME=dup_character VALUE="x">
Optional
Description: Specifies what the Dup Character will be displayed as on the 5250 applet
Values: any character
Default: "#"

<PARAM NAME=enter_key_action VALUE=field_exit>
Optional
Description: Specifies default enter key behavior.
Values:
    field_exit: Enter key acts as field exit (PC enter).
    enter: Enter key acts as AS/400 enter.
Default: field_exit

<PARAM NAME=error_line_colors VALUE="###,###,### ; ###,###,###">
Optional
Description: Used to specify error line colors.
Values: RGB triplet format
    ###,###,### ; ###,###,### = foreground ; background
Default: Normal screen colors.

<PARAM NAME=feedback_line_colors VALUE="###,###,### ; ###,###,###">
Optional
Description: Used to specify feedback line colors.
Values: RGB triplet format
    ###,###,### ; ###,###,### = foreground ; background
Default: Normal screen colors.

<PARAM NAME=filelist_image VALUE="jlogo2.jpg">
Optional
Description: Specifies image to be displayed on the left side of the Available Files
    window.
Default: no picture

<PARAM NAME=http_tunnel VALUE=fallback>
Optional
Description: Specifies whether to use HTTP tunneling which forces requests for port
    43856 to port 80.
Values:
    Always: tunneling will always occur
    Fallback: tunneling will occur if normal 43856 connection fails
    Never: tunneling will never occur
Default: Never

<PARAM NAME=initial_binary_prints VALUE=yes>
Optional
Description: Specifies whether to automatically print prtbin files that are available
    when the applet loads.
Values: yes or no
Default: No

<PARAM NAME=input_background_color VALUE="###,###,###">
Optional
Description: Specifies what color to use for the input background.
Values: Any color in RGB format.
Default: White

<PARAM NAME=input_colors VALUE="###,###,### ; ###,###,###">
Optional
Alternative to: Input_Background_Color & Input_Text_Color PARAMS
Description: Specifies input box background and foreground colors.
Limitations: GUI Mode Only
Values: RGB triplet format
    ###,###,### ; ###,###,### = foreground ; background
Default: Black Text on White

<PARAM NAME=input_text_color VALUE="###,###,###">
Optional
Description: Determines what color to use for the input text.
Values: Any color in RGB format.
Default: Black

<PARAM NAME=login_image VALUE="jlogo.jpg">
Optional
Description: Specifies image to be displayed on the left side of the name/passphrase
    applet window.
Default: no picture

<PARAM NAME=login_passphrase_prompt VALUE="Pass:">
Optional
Description: Identification login window passphrase prompt.
Default: Passphrase

<PARAM NAME=login_user_prompt VALUE="User:">
Optional
Description: Identification login window user name prompt.
Default: Name

<PARAM NAME=option_button_image VALUE="button.gif">
Optional
Description: Used to specify the "clickable" button image to be placed next to item
    numbers in GUI mode.
Default: No buttons on menu items.

<PARAM NAME=plus_field_exit VALUE="no">
Optional
Description: Specifies whether or not the Numeric Keypad Plus key will be action
    key-exit or not.
Values: Yes or No
Default: No

<PARAM NAME=product_title VALUE="product title">
Optional
Description: Title to be displayed at the top of the login applet window.
Values: Any title you would like to specify to be shown.
Default: Strategi - Identification

<PARAM NAME=screen_background_color VALUE="###,###,###">
Optional
Description: Specifies what color to use for the screen background.
Values: Any color in RGB format.
Default: White

<**PARAM NAME=screen_colors VALUE="###,###,### ; ###,###,###">**
Optional
Alternative To: Screen_Background_Color & Screen_Text_Color PARAMS
Description: Specifies colors to be used for foreground and background.
Limitations: Applies to GUI mode only.
Values: RGB triplet format
    ###,###,### ; ###,###,### = foreground ; background
Default: Dark Grey Text On White

<PARAM NAME=screen_text_color VALUE="###,###,###">
Optional
Description: Specifies what color to be used for screen text.
Values: Any color in RGB format.
Default: Dark Gray

<PARAM NAME=textmode_buttons VALUE=no>
Optional
Description: Determines if text mode buttons are active.
Values: Yes or No
Default: No

<PARAM NAME=textmode_error_line_colors VALUE="###,###,###">
Optional
Description: Specifies what colors to use for error lines in text mode.
Values: Any color in RGB format.
Default: Normal screen colors.

\<PARAM NAME=textmode_feedback_line_colors VALUE="###,###,###">
Optional
Description: Specifies what colors to use for the feedback line when in text mode.
Values: Any color in RGB format.
Default: Normal screen colors.

\<PARAM NAME=tunnel_URL_vary VALUE=false>
Optional
Description: Specifies specific behavior of HTTP tunneling with respect to caching
    screens.
Values:
True: Makes each tunneled HTTP request different (by having a varying random
    number on each), which causes IE to locally cache every screen. Could be
    valuable if an intermediate proxy, etc. was wrongly caching requests for the fixed
    tunneling URL.
False: Causes IE to cache only the latest screen.
Default: False

\<HSM NAME=user_agent VALUE="useragt">\</hsm>
Required
Description: Used to identify client browser for proper field alignment.
Values: useragt
Default: useragt

\<PARAM NAME="user_agent" VALUE="usragt"> \<! need "">
Required
Description:
    Used to identify client browser for proper field alignment.
    HSM start tag; replaces "usragt" with browser's identification tag.
Values: User_agent will be replaced with the user agent string that represents what
    browser the user is using.
Default: useragt

\<PARAM NAME=window_title VALUE="title">
Optional
Description: Used to specify title to appear at the top of the browser window.
Values: Any desired title.
Default: "BusinessLink for Java – AS/400 Session (###)"
    Substitute domain name for ###

\</APPLET>
Required
Description: Applet end tag.

Appendix 5– Troubleshooting Strategi Connections

"Unable to make TCP/IP connection"

Cause

The user is attempting access from behind a firewall that is blocking the connection, or the applet cannot communicate on port 43856 due to improper workstation TCP/IP setup.

Solution

Open port 43856 to allow both inbound and outbound traffic and verify that TCP/IP is correctly configured on the workstation. In some network environments, workstations must be configured to use a Winsock proxy client. Most HTTP proxies do not provide the TCP/IP support required of the applet.

Detail

Many network administrators are concerned about opening ports above 1024 to incoming traffic, for fear of attempts at unauthorized access to their system. There is, however, a solution which severely restricts access on those ports, by limiting access to a specific IP address (in this case, the IP address of the AS/400). This solution is called "filtering by address". Filtering by address lets you restrict the flow of packets based on the source and/or destination addresses of the packets, without having to consider what protocols are involved. Such filtering can be used to allow certain external hosts (such as the Strategi Webserver) to talk to certain internal hosts (your network), and to prevent an outsider from injecting "forged" packets (packets handcrafted so they appear to come from somewhere other than their true source) into your network. (An excellent discussion of this can be found in the book "Building Internet Firewalls" by D. Brent Chapman and Elizabeth D. Zwickey, O'Reilly and Associates, Inc.)

Com.ms.applet.applet.security.exception

The following message is displayed on the status bar and/or Java console when the applet attempts to start: "Exception: Com.ms.applet.applet.security.exception: could not resolve IP for Host [xxx.xxx.xxx.xxx] see the trust proxy prop".

Cause

MSIE 3.02 bug regarding communications operations performed by Java applets back to hosts.

Solution

Use any version of Netscape 3.0+ or MSIE 4.0+.

Cannot retrieve files in 'available files' window.

Cause

The user is attempting to retrieve files from the "Available Files" list without the browser window being on top and visible.

Solution

Make sure the HTML page that launched the applet is on top of any other open applications; the easiest way to do this is by minimizing all other open windows.

Security Exception

Netscape states a security exception has occurred (displayed on the status bar or in the Java console).

Cause

When the applet attempts to establish a socket connection back to the host, Netscape's browser will first perform a DNS lookup to prevent certain "spoofing" attacks. If the DNS lookup fails, the browser will state a security exception in the Java console and the applet will terminate. Netscape has decided that a failed DNS lookup presents a security threat, and applets loaded via a proxy can no longer even connect back to their home webserver unless navigator can successfully do a DNS lookup.

Solution

There are 3 possible solutions to this problem:
- Reconfigure firewall to proxy DNS
- Use a different browser
- Reconfigure Navigator to trust the proxy

The least complex of the three options is to reconfigure Navigator to trust the proxy by manually editing the Netscape preferences file. On Windows 95/98 and NT platforms, the Netscape preferences file should be in the following location:

> *\Program Files\Netscape\Users\<user name>\prefs.js*

Be sure to edit this file only while all instances of Netscape are shut down, as Netscape will overwrite prefs.js when it exits.

To enable the 'trust proxy' preference, add the following line to the end of the file:

> *user_pref("security.lower_java_network_security_by_trusting_proxies", true);*

Once the file has been saved, starting Netscape will now load this preference and allow the applet to function properly through proxy connections.

Appendix 6– Strategi Event Java Documentation

Interface com.businesslink.sgi.api.StrategiEvent

public interface StrategiEvent

A StrategiEvent is an interface which defines all standard methods and properties required by a Strategi event. Specific events may include other public methods and properties as appropriate. Such additions will be documented by such events.

Classes that implement StrategiEvent are constructed by Strategi and passed to Strategi event handlers when they are invoked. It is never expected that application classes would need to implement this interface.

Methods

- getInputStream()

  ```
  public InputStream getInputStream() throws IOException
  ```

  Returns an inputStream of the event's datacontent.

- getProperty(String)

  ```
  public String getProperty(String name)
  ```

  Returns the value of the specified event property.

  Parameters:
  name – the name of the property to return

- getProperty(String, String)

  ```
  public String getProperty(String name,
        String defaultProperty)
  ```

  Returns the value of the specified event property. If that event property is not found, the default property is returned.

  Parameters:
  name – the name of the property to return
  defaultProperty – default property value

- getProperties()

  ```
  public Properties getProperties ()
  ```

Returns a Properties object containing all the properties defined for the event.

- getTextWriter()

  ```
  public PrintWriter getTextWriter()
  ```

  Returns a printWriter that can be used for output by the event. This printWriter is that used by Strategi and is most useful for writing to Strategi's log.

- hasProperty(String)

  ```
  public boolean hasProperty(String name)
  ```

  Indicates whether the named property is defined in the event

  Parameters:
          name – the name of a property to inquire about

- writeDataTo(OutputStream)

  ```
  public long writeDataTo(OutputStream out) throws IOException
  ```

  Provides the basic capability to write the event data to the specified output stream.

  Returns the number of bytes written

  Parameters:
          out – OutputStream to use

Standard Properties for ScbPackedFileEvent

StrategiEvents are often sent files. The StrategiEventHandler will receive files in the form of an ScbPackedFileEvent. When the file is retrieved, it will have a number standard, system-set properties will exist for every event, and may additionally include more properties defined by the author of the event.

Standard Event Name	Description
*EVENT	The name of the event which caused the handler to be invoked
*USERNUMBER	Number of the user which transferred the file, if applicable
*GROUP	The name of the transfer group, as defined by the user
*TRACKINGNUMBER	The tracking number assigned by Strategi, for this transfer, within this user and transfer group
*PACKEDLENGTH	The length of the file in packed form
*UNPACKEDLENGTH	The length of the file when it is not packed
*FILENAME	The original name of the file when it was sent

*FILEPATH	The original path from which the file was sent

Interface com.businesslink.sgi.api.StrategiEventHandler

public interface StrategiEventHandler

This interface defines the methods which must be implemented by an event handler. An event handler is used to process event objects passed to it from the Strategi system.

Methods

- processEvent(StrategiEvent)

    ```
    public void processEvent(StrategiEvent event) throws
        Throwable
    ```

    Processes a Strategi event. For example, when a file transfer has completed within Strategi, and an event handler has been configured for the associated event name, Strategi will invoke the event handler to process the file.

    To indicate that an error has occurred processing the event, the event handler should throw an appropriate exception. This will cause the receive file to be marked with a failed status.

    Parameters:
        event – the event object to process

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