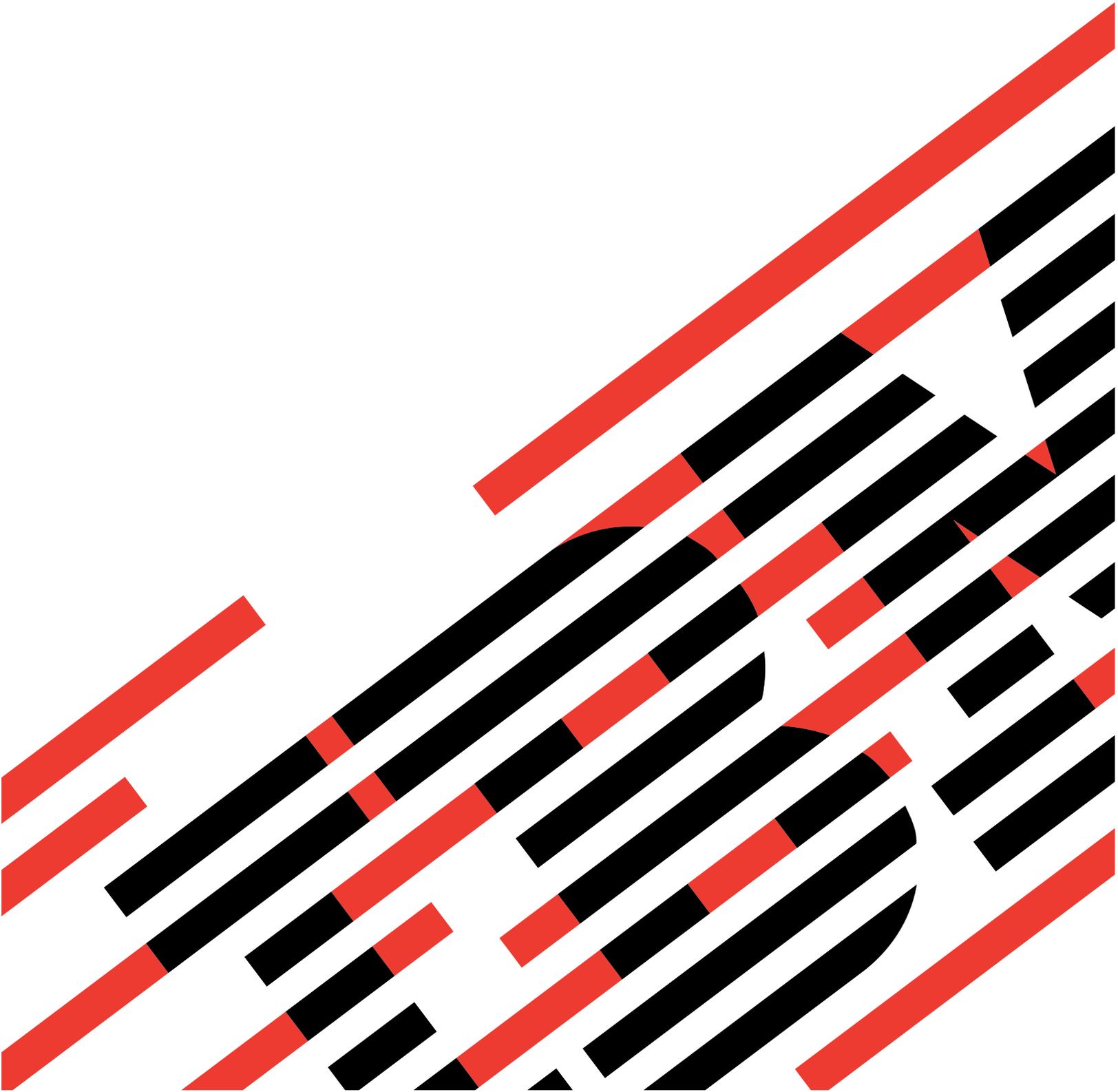


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E-mail

This topic provides you with concepts and procedures for configuring and administering e-mail on your iSeries server. This information assumes that you have worked on the iSeries 400 before and have a working knowledge of TCP/IP, Simple Mail Transfer Protocol (SMTP), and e-mail concepts.

For more information about e-mail, see the following:

- **What's new for V5R1?**
Find out what information is new on the Information Center's e-mail topic.
- **Print this topic**
If you would rather read this information on paper, then print the entire topic as a PDF file.
- **E-mail overview**
Find information on basic e-mail concepts.
- **Setting up iSeries 400 to be an e-mail server**
Find the basic steps for configuring your server for e-mail.
- **Administering e-mail on iSeries 400**
Find instructions on how to work with e-mail. This topic provides information on configuring dial-up connections, using an Internet Service Provider (ISP) for e-mail delivery, securing your network, and other administrative tasks.
- **Sending and receiving e-mail on the iSeries 400**
Find instructions on how to send and receive e-mail through a Post Office Protocol (POP) client program, like Netscape Mail, Microsoft Outlook, or Eudora, or a SNADS client, like the Send Distribution (SNDDST) command.

Advanced e-mail topics:

- **SMTP and DNS**
Access information on e-mail addressing and on SMTP and Domain Name System (DNS) server configuration.
- **SMTP protocol**
Find a list of SMTP commands.
- **Supported POP protocol**
Find a listing of client commands supported by the iSeries server.
- **Troubleshooting e-mail**
Find tips and instructions on how to deal with e-mail problems.
- **Other information about e-mail**
Find references to other information about e-mail

Tip: Read how to access SMTP through Operations Navigator.

What's new for V5R1

The V5R1 iSeries 400 has several new SMTP server functions to make e-mail administration and security easier and more powerful.

- **Supporting Delivery Status Notification** allows mail clients to request and receive status when mail is delivered, relayed or fails.
- **Acting as an ISP's mail server** allows remote mail servers to dial-in and request mail that is being held though your Internet Service Provider.
- **Sending and receiving e-mail using an ISP** allows you to send and receive e-mail in batches at scheduled times.
- **Multiple domain support** allows you to host mail support for several companies, without each company knowing that they are on the same server.

- **Selectable subsystems for jobs** (See 17) allows you to improve system performance by running the SMTP server in its own subsystem.
- **Hosting a Domino and SMTP server on same system - dual stack support (bindings)** allows you to run the iSeries 400 SMTP and Domino natively, and you can force the SMTP client to bind to a particular interface, for Network Address Translation (NAT) purposes.
- **Restricting connections** is expanded to provide instructions on how to prohibit unsolicited e-mail from reaching your server. Connect your server to hosts that store addresses of known e-mail abusers, or configure your server to restrict the connection to specific IP addresses.
- **Mail filtering to prevent virus proliferation** allows you to filter mail by subject, type/subtype, filename/extension, and originator's address.
- **Restricting relays** allows you to specify as closely as possible who may or may not use your machine for relay.

Print this topic

To view or download the PDF version, select E-mail (about 162 KB or 38 pages).

To save a PDF on your workstation for viewing or printing:

1. Open the PDF in your browser (click the link above).
2. In the menu of your browser, click **File**.
3. Click **Save As...**
4. Navigate to the directory in which you would like to save the PDF.
5. Click **Save**.

If you need Adobe Acrobat Reader to view or print these PDFs, you can download a copy from the Adobe

Web site (www.adobe.com/products/acrobat/readstep.html) .

E-mail overview

You depend on electronic mail (e-mail) as an essential business tool. The iSeries 400 uses protocols, like SMTP and POP, to make your e-mail run smoothly and efficiently on the network. See the following topics to learn about basic e-mail concepts:

- **SMTP on iSeries 400**
Find out how SMTP allows the iSeries server to send and receive mail.
- **POP on iSeries 400**
Find out how the POP mail interface distributes mail.
- **Protocols used in e-mail**
Find out how the client and server communicate using special protocols.
- **MAPI-based mail**
Find out how the POP server works for the MAPI-based client.

See Setting up iSeries 400 to be an e-mail server to set up your server for e-mail.

SMTP on iSeries 400

Simple Mail Transfer Protocol (SMTP) e-mail is the protocol that allows iSeries 400 to send and receive e-mail. The SMTP protocol is essentially end-to-end delivery of mail from one mail server to another. There is a direct connection between an SMTP sender (the client) and the destination SMTP receiver (the server). The SMTP client keeps the mail at the sender until it transmits and copies it successfully to the SMTP receiver (server).

SMTP on iSeries 400 supports the distribution of notes, messages, and ASCII text documents. SMTP can support formats other than plain text by using the Multipurpose Internet Mail Extensions (MIME) protocol. The MIME protocol is the data format of the message that SMTP sends.

About SMTP e-mail delivery

In order for e-mail to reach its destination, SMTP must be able to deliver it to both the correct host and user ID that resides on that host.

First, SMTP checks to see if the e-mail addressee is a user on the local system. If SMTP determines that it is not, SMTP forwards the e-mail to the next host system. The next host may or may not be the final host. SMTP determines the name of the host from addressing information that is found in the SMTP protocol.

SMTP then resolves the host's address by using either the domain name server or the local host table. See SMTP and Domain Name System (DNS) for more information on address resolution for e-mail.

For inbound e-mail, the SMTP server first converts the destination host name into an Internet Protocol (IP) address. Because of the aliasing function, the server can have several host names. Therefore, the SMTP server uses the sockets interface to determine if the IP address is one of those used by the interfaces for the local host.

See Configuring your iSeries 400 for email for information on how to begin using your iSeries 400 as an SMTP server.

SMTP and DNS

The purpose of the Domain Name System (DNS) and host tables is to convert a host name to an IP address. The host name is what people use as a part of their e-mail account; the IP address is what SMTP uses to find the correct mail server to send mail to.

See the Information Center topic on DNS for complete information on DNS.

These are topics that relate DNS to SMTP:

- Setting up your DNS domain.
- Mail and MX records.

POP on iSeries 400

The **Post Office Protocol (POP) server** is the iSeries 400 implementation of the Post Office Protocol Version 3 mail interface. This server allows iSeries 400 systems to act as POP servers for any clients that support the POP mail interface. This includes clients running on Windows, OS/2, AIX and Macintosh.

The POP server provides electronic mailboxes on iSeries 400 systems from which clients can retrieve mail. It uses the AnyMail/400 mail server framework and the system distribution directory to process and distribute e-mail. It uses Simple Mail Transfer Protocol (SMTP) to forward mail.

The **system distribution directory** is an IBM-supplied function that allows you to create entries for user IDs or system addresses specific to your network.

All incoming mail from SMTP for local users (users with mail accounts on this iSeries 400) is processed by the AnyMail/400 framework. The mail server framework is a mail distribution structure that allows the distribution of e-mail. The mail server framework calls exit programs or snap-ins to handle specific mail types.

For the client/server interface to work, SMTP must be running for the following reasons:

- Both Internet mail and mail that is sent to clients on the same system go through SMTP.

- Any mail that goes through the mail server framework needs to go through SMTP (through a snap-in) to be delivered to external users.

The POP server serves as a temporary holding area for mail until it is retrieved by the mail client — it does not provide a "mail store" function. When the mail client connects to the server, it queries the contents of its mailbox to see if there is any mail to retrieve. If there is, it retrieves the mail one message at a time. Once a message has been retrieved, the client normally instructs the server to mark that message for deletion when the client session is complete. The client retrieves all of the messages in the mailbox and then issues a command (in the form of a QUIT verb) that tells the server to delete all of the messages that are marked for deletion and to disconnect from the client.

Multipurpose Internet Mail Extensions (MIME) is the Internet standard for sending mail with headers that describe the contents of the mail messages to the receiving client. These messages can be video, image, audio, or binary files, or text messages.

POP mail clients use *verbs* to communicate with the POP server. Verbs supported by the iSeries 400 POP server are described in Supported POP protocol.

The POP Version 3 mail interface is defined in RFC 1725. RFC stands for Request for Comments. RFCs are the vehicles that are used to define evolving Internet standards.

Protocols used in e-mail

In order for the client and server to communicate with each other, they must use special protocols. The SMTP server and POP server use different protocols. The protocol uses these program-generated commands between the SMTP client and SMTP server programs, and the POP client and POP server programs. The protocol command set identifies the various kinds of data that the clients and servers can exchange. Follow the links below for more information.

- SMTP protocol
- POP protocol

MAPI-based mail

The iSeries 400 POP server can act as a messaging and address book server for MAPI-based clients. With this support, all mail is sent to the POP server on the iSeries 400 by way of extensions to the standard POP client/server interface. No SMTP connection on the client is required.

Client Access-based clients can send and receive mail through the POP server with any of these address types:

- INTERNET (the standard Internet format, sometimes referred to as an SMTP address)
- OFFICEVISION (the SNADS address itself, not an SMTP address that is converted to SNADS. This type also includes AS/400 distribution lists.)
- AS400FAX (the dialing sequence as defined by the Facsimile Support for OS/400 LPP).

This support also includes an address book function that provides high-performance client/server access to an address book that is periodically refreshed from the iSeries 400 system distribution directory.

Finally, the following connection types are supported between the Client Access-based client and the POP server:

- TCP/IP protocol
- IPX/SPX protocol
- SNA protocol.

When you connect to the POP server using Client Access, you gain the benefit of secure logon - the password encryption that Client Access provides.

See AS/400 Address Book for more information on the supported address types, and for information about how data is mapped from the system distribution directory to the address book cache. See Configuring POP for Client Access-Based Mail Users for information on how to configure this support.

iSeries 400 address book

The POP Server and the Client Access-based MAPI address book provider also provide a public address book. Mail-enabled applications on the client can view entries in the address book or send mail to users listed in the address book. For example, the Microsoft Exchange client talks to a MAPI interface.

Therefore, a Client Access user running Microsoft Exchange can select an entry from the address book and send mail to the user represented by that entry.

The addresses in the iSeries 400 address book are from the system distribution directory and distribution Lists on the iSeries 400. The Data mapping from System Distribution Directory to POP Server Address Book Cache (See 7) table shows where data in the address book comes from. The address type of an iSeries 400 address book entry is determined by the preferred address in the system distribution directory. Distribution lists always have an address type of OFFICEVISION. The **Preferred address** in MAPI Address Type Definitions table gives the preferred address of each type of address in the iSeries 400 address book.

MAPI Address Type Definitions

MAPI Address Type	Preferred Address	Format and Description
INTERNET	SMTP name	<p>Format: <userid>@<domain></p> <p>This is the standard internet format. From the system distribution directory, <userid> is the <i>SMTP user ID</i> field and <domain> is the <i>SMTP domain</i> field. For example:</p> <pre>system5.endicott.ibm.com aol.com gd1vm6</pre> <p><userid> and <domain> must be separated by a single '@' character, and blanks are <u>not</u> allowed within or between the parts. Leading and trailing blanks to the whole address should be tolerated and ignored.</p> <p>Examples:</p> <pre>mandydog@system1.endicott.ibm.com lisa@system5 joe@vnet.ibm.com</pre>

MAPI Address Type	Preferred Address	Format and Description
OFFICEVISION	User ID/Address (for individual directory entries), or List ID and List ID qualifier (for distribution lists)	<p>Format: <UUUUUUUU> <AAAAAAA></p> <p>This type is also called the "SNADS address" or "DEN/DGN" by some. From the system distribution directory, <UUUUUU> is the <i>User</i> field, and <AAAAAA> is the <i>Address</i> field. Both values can be a maximum of eight characters long (and can be shorter than eight characters). Neither <UUUUUU> nor <AAAAAA> can contain the blank character. They must be separated by at least one blank character. Leading and trailing blanks to the whole address should be tolerated and ignored.</p> <p>Examples:</p> <pre>MANDY SYSTEM1 LISA SYSTEM5 JAMIE GRADE5 ELYSE GRADE1 CALDWELJ SYSTEM2</pre>
AS400FAX	Other preferred address (FAXTELNBR)	<p>Format: <facsimile-telephone-number></p> <p>Within the system distribution directory, this is considered one of the "Other" address types. (Set <i>Preferred address</i> to 4 (Other preferred address).) The actual<facsimile-telephone-number> used as the address is found in the system distribution directory <i>FAX telephone number</i>. The address is a "dialing sequence", including access code sequences. It is expected to follow the rules for the Facsimile Support for OS/400 LPP <i>telephone-number</i>.¹ Leading and trailing blanks to the whole address should be tolerated or ignored.</p> <p>Examples:</p> <pre>7525421 9=16077525421 8+8525421 *70/18005551212</pre>
<p>Notes:</p> <p>1. The <i>telephone number</i>, made up of dialing and control codes, is described in the <i>Facsimile Support for AS/400 Programmer's Guide and Reference</i>  . See the detailed description of the SNDFAX command. Also see the <i>Facsimile Support for AS/400 Installation Guide</i>  for more information on creating FAX entries in the system distribution directory.</p>		

The entries described in MAPI Address Type Definitions (See 5) table are built into an address book cache that includes these address types and E-mail addresses as well as other information from the system distribution directory.

Address types: Standard POP implementations can address mail only with Internet addresses. If an Internet address needs to be converted to a different type of address, the conversion is performed by a gateway somewhere in the network. (The gateway may be the AS/400 Mail Server Framework  .) Client Access-based mail clients, in conjunction with the POP server, have another option. They can address mail with several different types of addresses.

The MAPI Address Type Definitions (See 5) table shows each type of address supported by Client Access-based mail. The MAPI interface, implemented by Client Access-based mail service providers,

allows any mail-enabled application to address mail with any of these types of addresses. The type names shown in the table are the actual MAPI address-type strings that Client Access-based mail registers with MAPI. The table simply shows the valid address types and their corresponding formats.

Address book cache: The POP server does not read the system distribution directory every time a client requests something from it. Instead, a cache is built from the system distribution directory entries and distribution lists. The POP server uses this cache to retrieve address book data for clients.

The address book cache is built and maintained by the POP server when the ADRBOOK parameter is set to *YES. The Refresh interval element of the ADRBOOK parameter determines how often the address book is updated from the system distribution directory. (See Configuring POP for Client Access-based mail users for a description of the ADRBOOK parameter.)

Table 4. Data mapping from System Distribution Directory to POP Server Address Book Cache

Field in Address Book Cache	Fields in the System Distribution Directory
<display-name>	<p>Full name or Description</p> <p>If Full name is not blank, it is used. If Full name is blank, Description is used.</p> <p>For Distribution Lists, the Description field is always used (Distribution List entries do not have a Full name field).</p>
<address-type>	<p>For individual system distribution directory entries, use Preferred address to determine the type.</p> <p>The cache <address-type> field is filled in using the following rules:</p> <ul style="list-style-type: none"> • If Preferred address is "**USRID" (User ID/Address), use MAPI address type OFFICEVISION • If Preferred address is "**SMTP" (SMTP), use MAPI address type INTERNET • If Preferred address is "FAXTELENB" (considered an "Other" address type), use MAPI address type AS400FAX • If Preferred address is not one of the values above, the address type is not supported by iSeries MAPI service providers and the entry is not put into the address book cache. <p>For iSeries Distribution lists, <address-type> is OFFICEVISION.</p>
<email-address>	<p>(User ID -and- Address) or (SMTP user ID -and- SMTP domain) or FAX telephone number</p> <p>The cache <email-address> field is filled using the following rules:</p> <ul style="list-style-type: none"> • If the address book cache <address-type> is now "OFFICEVISION", concatenate the following: <ol style="list-style-type: none"> 1. The 8-character system distribution directory User ID (including trailing blanks) for individual SDD entries, or List ID for iSeries Distribution Lists. 2. A single blank 3. The Address (trailing blanks not required) for individual system distribution directory entries, and List ID qualifier for iSeries Distribution Lists. • If the address book cache <address-type> is now "INTERNET", concatenate the following: <ol style="list-style-type: none"> 1. SMTP user ID (without trailing blanks) 2. A single "@" character 3. The SMTP domain (trailing blanks not required). • If the address book cache <address-type> is now "AS400FAX", use system distribution directory FAX telephone number (trailing blanks not required).
<comment>	No system distribution directory data is currently being extracted for this field.

Setting up iSeries 400 to be an e-mail server

Set up your iSeries server to be an e-mail server by using these instructions. These procedures take you through basic setup tasks.

1. **Configure TCP/IP.** If you already have TCP/IP configured, including the local domain and host names, then proceed to the next step.
2. **Configure SMTP and POP servers.**
3. **Enroll e-mail users.**
4. **Start the required servers.** Verify that the iSeries 400 starts the servers you need for activating the SMTP and POP servers.

See SMTP on iSeries 400 for information on how the iSeries 400 works as an SMTP server.

Configuring TCP/IP for e-mail

If you are setting up e-mail on your system for the first time, complete the following steps. If you already have TCP/IP configured on your iSeries 400, you can skip these steps and configure your SMTP and POP servers.

1. In Operations Navigator, expand your **iSeries 400 Server** —> **Network** —> **Protocols**.
2. Right-click **TCP/IP** and select **New TCP/IP Interface** and the type of network the new interface represents. The first dialog of the New TCP/IP Interface wizard appears. Follow the wizard's instructions. The wizard asks you to supply the following information:
 - Type of connection
 - Hardware resource
 - Line description
 - IP address
 - Host name
 - Domain name

Note:

The host name and domain name you use for the wizard constitute your fully qualified domain name. SMTP requires a fully qualified domain name to communicate with other SMTP hosts, from which it receives e-mail.

For example, if the local host name is ASHOST and the local domain name is DOMAIN.COMPANY.COM, the fully qualified domain name is:
ASHOST.DOMAIN.COMPANY.COM.

- Servers to start up
3. Once you are finished with the wizard, right-click **TCP/IP** and select **Properties**. The **TCP/IP Properties** dialog appears.
 4. Click the **Host Table** tab.
 5. Click **Add**. The **TCP/IP Host Table Entry** dialog appears.
 6. Enter the IP address and the host name you used in the New TCP/IP Interface wizard.
 7. Click **OK** to close the **TCP/IP Host Table Entry** dialog.
 8. Click **OK** to close the **TCP/IP Properties** dialog.

Now that you have configured TCP/IP, you need to configure the SMTP and POP servers.

Configuring SMTP and POP servers for e-mail

Simple Mail Transfer Protocol (SMTP) and Post Office Protocol (POP) servers, make e-mail possible on your iSeries server. **Both** the SMTP and the POP server must be correctly configured.

Configuring the SMTP server

When you configured TCP/IP, the server automatically configured SMTP for you. All that remains is to change a few SMTP properties to ensure that the SMTP server works correctly for e-mail.

1. In Operations Navigator, expand **your iSeries 400 server** → **Network** → **Servers** → **TCP/IP**.
2. Double-click **SMTP**. The **SMTP Properties** dialog appears.
3. Click the following tabs to set the following parameters.

Click on this tab...	And ...
General	Select Start when TCP/IP is started .
General	Select No maximum for the Message split size field.
General	If you have a mail router, enter the name of the mail router, for example, mailrouter.company.com. The mail router name is the system name where SMTP routes the mail if the e-mail is not local mail. See the Operations Navigator help for more details.
General	If you have a firewall setup, select Forward outgoing mail to router through firewall .
General	If you exchange e-mail with Domino servers, clear the Interpret percent sign as routing character field.
Automatic Registration	If you are using the SNDDST command to send e-mail and the RCVDST command to receive e-mail, and you are using SNADS addressing instead of internet addressing, select the Automatically add remote users to system distribution directory check box.
Automatic Registration	If you are using the the SNDDST command to send e-mail and the RCVDST command to receive e-mail, click System alias table in the Add users to field.

4. Click **OK** to accept the changes.

Configuring the POP server

The POP server delivers mail, to a POP client, from the user mailbox, when requested by the POP client. You must configure the POP server to completely prepare your iSeries server for e-mail. If you have Client Access-based mail users, there are different instructions for configuring the POP server.

To configure the POP server for a mail program such as Netscape Mail or Eudora Pro, complete the following steps:

1. In Operations Navigator, expand **iSeries 400 server** → **Network** → **Servers** → **TCP/IP**.
2. Double-click **POP**. The **POP Properties** dialog appears.
3. Refer to the table below to set the following parameters.

Click on this tab...	And...
General	Select Start when TCP/IP is started .
General	Select Allow standard POP connection .
Configuration	Select No maximum for the Message split size field.
Configuration	If POP clients are logging on through dialup lines and receiving large pieces of mail, increase the Inactivity timeout value .
Mappings	Select Use only when unsupported CCSID is indicated .

4. Click **OK** to accept the changes.

Now that you have configured the SMTP and POP servers, you need to enroll e-mail users.

Configuring POP for Client Access-based mail users

You can configure the POP server for Client Access-based mail. You will want to select the protocols that you would like to support. If you plan to use the address book, then you will also want to select the option in the POP server properties.

To configure the POP server for MAPI-based clients, complete the following steps:

1. In Operations Navigator, expand **iSeries 400 server** —> **Network** —> **Servers** —> **TCP/IP**.
2. Right-click **POP**, and select **Properties**.
3. On the **General** tab, select the **Host server protocols for Client Access clients** that you would like to support. You can select any combination of the following protocols:

TCP/IP

Support TCP/IP protocol for Client Access for OS/400 clients.

IPX

Support IPX/SPX protocol for Client Access for OS/400 clients.

SNA

Support SNA protocol for Client Access clients. If you are using the SNA protocol, see Setting the Number of SNA Servers.

4. If you plan to use the address book, click the **Configuration** tab, and select the **Use address book checkbox**. Specify the Refresh interval, which is the number of minutes that you would like the POP server to check to see if the address book cache is current. If not, the address book will be refreshed from the system distribution directory.

The refresh interval is a trade-off between timely availability of changes to the system distribution directory, and processor utilization. You may want to refresh large address books less frequently because of the processor time required to do a refresh. Small address books can be refreshed more frequently without greatly affecting processor utilization. The interval you choose should be based on your own situation, and the size of your address books.

Regardless of what the refresh interval is set to, if there have been no changes to the system distribution directory since the last time the address book cache was refreshed, a refresh is not performed. The refresh interval specifies how often the POP server checks to see if the cache is still current; if it is not current, it is refreshed.

When you use the address book the POP server builds and maintains an address book cache. This is described in iSeries 400 address book.

Stop and restart the SMTP and POP servers for the changes to take effect.

If you do not have Client Access-based mail users, you should follow the instructions for Configuring the SMTP and POP servers.

Now that you have configured the SMTP and POP servers, you need to enroll e-mail users.

Enrolling e-mail users

You need to create user profiles to enroll e-mail users. User profiles are how iSeries identifies an addressee or sender of e-mail. Any user you want as part of your e-mail system must have a user profile on the iSeries server.

By creating a user profile for each user, you enroll the users in the system distribution directory automatically. The system distribution directory is what SMTP uses to determine where to deliver local e-mail.

To create user profiles for SNADS and POP e-mail users, complete the following steps:

1. In Operations Navigator, expand your **iSeries 400 server** —> **Users and Groups**.
2. Right-click **All Users** and select **New User**. The **New User** dialog appears.
3. Type a user name and password for the user.
4. Click the **Capabilities** button.
5. Click the **Privileges** tab. Ensure that the Privilege class is User.
6. Click **OK**.
7. Click the **Personal** button.
8. Click the **Mail** tab.
9. Choose the **Mail Service Level**.
 - If your user is a SNADS user, select **OfficeVision or JustMail**.
 - If your user is a POP mail user, select **Lotus Mail or other POP3 client**.
10. Choose the **Preferred Address type**.
 - If your user is a SNADS user, select **User ID and address**.
 - If your user is a Lotus Notes, POP3 client, or Domino user, select **SMTP Name**
11. Click **OK**. If you are enrolling a SNADS user, their enrollment is complete. If you are enrolling a POP user, continue to the next step.
12. Click the **Jobs** button.
13. Click the **Session Startup** tab.
14. For the **Initial Menu** field, select **Sign off**. With this setting, any attempt to sign on iSeries 400, other than to retrieve e-mail or change their password, automatically signs the user off.
15. Click **OK**.
16. Click **OK**.
17. Repeat these instructions until all of the e-mail users have user profiles.

Now that you have enrolled e-mail users, you need to start the servers.

Starting and stopping the servers for e-mail

Start the required iSeries 400 servers to ensure that everything works properly and all the configuration changes you made take place. Sometimes, it may be necessary for you to restart the servers. This can be done by stopping the servers, and then completing the steps to start the servers once again.

Starting the servers for e-mail

To start the servers, follow these steps:

1. In Operations Navigator, expand your **iSeries 400 server** —> **Network**.
2. Right-click **TCP/IP Configuration**, and select **Properties**. The **TCP/IP Configuration Properties** dialog appears.
 - If the TCP/IP status is **Started**, click **OK** and continue to the next step.
 - If not, click **Cancel** to close the **TCP/IP Configuration Properties** dialog; then right-click **TCP/IP Configuration** and select **Start**. Click **OK** when finished.
3. Expand **Servers** —> **TCP/IP**. If the SMTP and POP servers are not started, then follow these steps to start them:
 - a. Right-click **SMTP**, and select **Start**.
 - b. Right-click **POP**, and select **Start**.

4. Open an iSeries 400 character based interface.
5. On the command line, type
STRMSF

to start the Mail Server Framework.
6. If you are enrolling SNADS users, then on the command line, type
STRSBS QSNADS

to start the QSNADS subsystem.

You have started your servers, and your iSeries 400 is now an e-mail server with enrolled e-mail users. View e-mail information for more procedures and concepts about e-mail on iSeries 400.

Stopping the servers for e-mail

To stop the servers, follow these steps:

1. In Operations Navigator, expand your **iSeries 400 server** —> **Network** —> **Servers** —> **TCP/IP**. If the SMTP and POP servers are started, then follow these steps to stop them:
 - a. Right-click **SMTP**, and select **Stop**.
 - b. Right-click **POP**, and select **Stop**.
2. Open an iSeries 400 character based interface.
3. On the command line, type
ENDMSF

to end the Mail Server Framework.
4. If you are enrolling SNADS users, then on the command line, type
ENDSBS QSNADS

to end the QSNADS subsystem.

Administering e-mail on the iSeries 400

These topics are intended for iSeries 400 users and mail administrators who are familiar with the architecture of e-mail and messages on the iSeries server. Follow the links for instructions on how to complete the following tasks:

- **Configuring a dial-up mail connection**
Use these steps to manually create a dial-up connection profile.
- **Configuring the ISP dial-up connection using a wizard**
Use this wizard to configure a new dial-up connection profile.
- **Sending and receiving e-mail using an ISP**
Find out how to send and receive e-mail in batches at scheduled time intervals.
- **Acting as an ISP's mail server**
Follow these steps to allow remote mail servers to dial-in and request mail that is being held through your Internet Service Provider.
- **Removing POP e-mail users**
This topic provides instructions in Operations Navigator for removing POP e-mail users.
- **Preventing large e-mail messages from splitting**
See what parameters need to be set to prevent your large e-mail messages from splitting, and being delivered in smaller, confusing pieces.
- **Supporting Delivery Status Notification**
If your users would like to receive messages on the delivery status of their outgoing mail, you must approve the support of Delivery Status Notification.

- **Hosting a Domino and SMTP server on the same system**
- **SMTP server performance**
Learn how to manage a busy SMTP server.
- **Mail security**
Learn how to secure your iSeries e-mail environment.

Configuring a dial-up mail connection

To manually create a dial-up connection profile, complete the following steps:

1. In Operations Navigator, expand your **iSeries 400 server->Network->Remote Access Services**.
2. Right-click **Receiver Connection Profiles**, and select **New Profile**.
3. Select **PPP** for the **Protocol type**.
4. Select **Switched line** for **Connection type**.
5. Expand **TCP/IP Configuration**, and select **Connections**.
6. Expand **Servers** —> **TCP/IP**.
7. Right-click **SMTP**, and select **Properties**.
8. Click the **Scheduler** tab. Select the **Start scheduler when SMTP is started** checkbox, and specify the connection profile that you created.
9. Click the **ETRN** page, and select the **Support ETRN (Dial-up mail retrieval)** checkbox. Click **Add** to specify the domain name for your ISP's outgoing server's address.
10. Enable the firewall and point to the outgoing ISP's mail server.
11. Continue with the wizard to set up a new Internet Service Provider dial-up connection.

Configuring the Internet Service Provider Dial-up Connection Wizard

Before you can use the SMTP scheduler function to send large amounts of e-mail through an Internet Service Provider, you must configure a dial-up connection profile to access a server application. The Internet Server Provider Dial-up Connection Wizard does this for you. If you do not have AT&TGN support, see *Manually configuring a dial-up mail connection for a preliminary step*.

The connection wizard provides you with the IP addresses of the mail servers (SMTP and POP), their assigned domain name, account name, and password.

To run the wizard and configure your SMTP scheduler, follow these steps:

1. In Operations Navigator expand your **iSeries 400 server** —> **Network** —> **Servers** —> **TCP/IP**.
2. Right-click **Connection Profiles** and select **New IBM Global Network Dial Connection**.
3. On the Welcome panel, click **Next** to get started.
4. On the **Application Type** panel, select **Mail exchange application** and click **Next**.
5. Continue with the wizard to set up a new IBM Global Network dial connection.

When you have configured the dial-up connection, you are ready to Send e-mail through your ISP.

Sending and receiving e-mail using an ISP

If your company does not want to spend money for an expensive leased line, iSeries 400 provides a way for you to send and receive your company's e-mail in batches at scheduled times, through your Internet Service Provider (ISP). The Internet Service Provider Dial-up Connection Wizard takes you through setting up the connection. Then, use the SMTP scheduler to set the time intervals that you want iSeries 400 to connect to your ISP and send your company's e-mail.

To set the SMTP scheduler to send your e-mail to an ISP, complete the following steps:

1. In Operations Navigator, expand your **iSeries 400 server** —> **Network** —> **Servers** —> **TCP/IP**.

2. Double-click **SMTP**. The **SMTP Properties dialog** appears.
3. Click the **Scheduler** tab.
4. Select the **Start scheduler when SMTP is started** checkbox.
5. Select the **Point-to-point connection profile** you configured with the AT&T Global Network Dialer Wizard, or select a manually configured **Point-to-point connection profile**.
6. Set the **Mail transfer interval** to the number of minutes you want SMTP to deliver your queued e-mail.
7. If your ISP is not with the AT&T Global Network, select the **Issue ETRN when connecting to remote server** checkbox.
8. Enter the **Server IP address** for the incoming mail server on the ISP's network, and enter the **Registered ISP host.domain** for which this SMTP server will issue an ETRN.
9. Click **OK**.

Acting as an ISP's mail server

If your company has an iSeries machine connected to the Internet and would like to receive mail for remote dial-up branch offices, the iSeries SMTP server can be used for this purpose.

The iSeries machine must have a fixed IP address and be registered with a DNS. Each host.domain for which the remote dial-up servers will be retrieving mail must also have MX entries in the DNS pointing to this iSeries machine. The iSeries machine must also have aliases for these host.domains in its local host table. If the remote dial-up servers are iSeries 400 servers, then they must be configured for Sending and receiving e-mail using an ISP.

To service e-mail requests from remote dial-up mail servers, complete the following steps:

1. In Operations Navigator, expand your **iSeries 400 server** → **Network** → **Servers** → **TCP/IP**.
2. Double-click **SMTP**. The **SMTP Properties dialog** appears.
3. Click the **ETRN** tab.
4. Select the **Support ETRN (Dial-up mail retrieval)** checkbox.
5. Click **Add** to specify your ISP's host and domain name. This may be done multiple times if multiple mail servers are requesting their mail.
6. Click **OK**.
7. Click **OK**.

See Sending and receiving e-mail through an ISP, for additional information.

Removing POP e-mail users

To remove an e-mail user from iSeries 400, you must delete their system distribution directory entry in Operations Navigator.

1. On the command line, type WRKDIRE (the Work with Directory Entries command). The System Distribution Directory display appears.
2. Tab down until you are in the *Opt* field by the user you want to delete.
3. Type a 4 (Remove) and press **Enter**. This prevents the user from receiving any more e-mail.
4. Sign on to a POP mail client program as that user. Receive and delete any e-mail.

See Administering SMTP and e-mail on the iSeries 400 for more information about administrative tasks.

Preventing large e-mail messages from splitting

To prevent the separation of large e-mail messages into smaller e-mails, you need to disable the SMTP splitting function.

To disable SMTP e-mail splitting, follow these steps:

1. In Operations Navigator, expand your **iSeries 400 server** → **Network** → **Servers** → **TCP/IP**.
2. Double-click **POP**. The **POP Properties** dialog appears.
3. Click the **Configuration** tab.
4. For the **Message Split Size** field, select **No maximum**.

Note: Turning e-mail message splitting off may cause problems when sending large e-mail to networks that cannot handle large messages.

Supporting Delivery Status Notification

Delivery Status Notification allows your mail clients to request to receive status messages when mail is delivered, relayed, or fails. If you want to allow your mail clients to make this request, you must enable Delivery Status Notification in Operations Navigator.

To support Delivery Status Notification, complete the following steps:

1. In Operations Navigator, expand your **iSeries 400 server** → **Network** → **Servers** → **TCP/IP**.
2. Right-click **SMTP**, and select **Properties**.
3. Click the **Additional Parameters** page.
4. Select the **Support Delivery Status Notification (DSN)** checkbox, and specify **DSN notification Responsible Person address**.
5. Click **OK**.

Notes: Using Delivery Status Notification takes up resources that can affect the maximum number of recipients on a piece of e-mail.
You are only allowing Delivery Status Notification to be employed by your users. If a user wishes to use the Delivery Status Notification function, they must set the parameters in their mail client. The parameters vary from mail client to mail client.

Hosting a Domino and SMTP server on same system

To force the SMTP server to use a specific Internet address, for V5R1, follow these steps:

1. In Operations Navigator, select your **iSeries 400 server** → **Network** → **Servers** → **TCP/IP**.
2. Right-click **SMTP**, and select **Properties**.
3. Click the **Bindings** tab.
4. Select "Use all interfaces" to bind all interfaces to port 25.
5. Select "Select an interface" to specify the client and server bound interfaces that you would like to bind.

Note: If you want to use Network Address Translation (NAT) either on iSeries 400 or on your firewall, you must force the iSeries 400 SMTP client to use one or more specific Internet addresses.

6. Click **OK**.

To force the SMTP server to use a specific Internet address, prior to V5R1, follow these steps:

1. On the iSeries 400 command line, type:

```
CRTDTAARA DTAARA(QUSRSYS/QTMSBNDIP) TYPE(*CHAR) LEN(16) VALUE('Internet address')
AUT(*USE)
```

This creates a data area that contains the specific Internet address.
2. Stop and start the SMTP server. On the command line, type:

ENDTCPSVR *SMTP

3. On the command line, type:
STRTCPSVR *SMTP

To force the SMTP client to use a specific Internet address, prior to V5R1, follow these steps:

1. On the iSeries 400 command line, type:
CRTDTAARA DTAARA(QUSRSYS/QTMSCBNDIP) TYPE(*CHAR) LEN(16) VALUE('Internet address')
AUT(*USE)
This creates a data area that contains the specific Internet address.
2. Stop and start the SMTP server. On the command line, type:
ENDTCPSVR *SMTP
3. On the command line, type:
STRTCPSVR *SMTP

Now SMTP receives only mail that is addressed to this Internet address. Check the domain name system (DNS) server, local host table, and system distribution directory to ensure that this forced Internet address is present.

SMTP server performance

Do you have a busy SMTP server that uses multiprocessing? This may be because your SMTP server uses all its capacity for adding and ending prestart jobs for each e-mail request.

If you find that the number of prestart jobs is affecting iSeries 400 performance, you can set the threshold lower. If you want more jobs, you can set the number of prestart jobs higher.

With prestart jobs, every e-mail request runs as its own job. This method allows each job to focus solely on its client or server program's needs and requests. Each job can make longer time-out calls to enable the posting of host names for the purpose of not receiving unsolicited bulk e-mail.

To manage a busy SMTP server, you can change the following values:

- The number of jobs to start on initialization
- A threshold number for jobs
- The number of jobs to add when the server reaches the threshold
- A maximum for the number of running jobs to allow
- Selecting a subsystem for jobs

To manage a busy server, you need to change values on the SMTP server and the SMTP client.

The SMTP server works with the daemon and prestart jobs: QTSMTPSRVD and QTMSMTPSRVP. The SMTP client works with the daemon and prestart jobs: QTSMTPLTD and QTSMTPLTP.

1. To change the values on the SMTP server, on the iSeries 400 command line, type CHGPJE (the Change Job Entries command). The Change Job Entries display appears.
2. Enter the following values at the prompt and press **Enter**.

Prompt	Value
Subsystem	QSYSWRK
Library	QSYS
Program	QTMSSRCP
Library	QTCP
Start jobs	*SAME

Initial number of jobs	4
Threshold	2
Additional number of jobs	2
Maximum number of jobs	20

These values guarantee that the server will start four prestart jobs, start two additional jobs when the available jobs fall below two, and allow a maximum of twenty prestart jobs.

1. To change the values on the SMTP client, on the command line, type CHGPJE (the Change Job Entries command). The Change Job Entries display appears.
2. Enter the following values after the prompt and press **Enter**.

Prompt	Value
Subsystem	QSYSWRK
Library	QSYS
Program	QTMSCLCP
Library	QTCP
Start jobs	*SAME
Initial number of jobs	4
Threshold	2
Additional number of jobs	2
Maximum number of jobs	20

These values guarantee that the SMTP client will start four prestart jobs, start two additional jobs when the available jobs fall below two, and allow twenty prestart jobs as the maximum.

Selectable subsystems for jobs

You can specify a separate subsystem for the SMTP server. This should increase performance, because the need to share resources is eliminated.

To specify a separate subsystem, complete the following steps:

1. In Operations Navigator, expand your **iSeries 400 server** —> **Network** —> **Servers** —> **TCP/IP**.
2. Right-click **SMTP** and select **Properties**.
3. Click the **Additional Parameters** tab.
4. Select the **Subsystem description** radio button.
5. Enter the new subsystem's name and the library where the subsystem description and job queue will be created.

The program will check for existence of the specified subsystem. If it does not exist, the program will create it along with routing table entries, auto-start job entries, pre-start job entries and job descriptions. Even if the subsystem does not already exist, the library for the subsystem description and job queue must already exist. When the startup job for the server is executed, it will specify the parameters for the newly created subsystem and then submit the server jobs for batch startup in that subsystem.

Mail security

It is important to promote a secure environment in your iSeries 400 SMTP server. You must protect your SMTP server and your users from internal and external hindrances.

The following tasks can be completed to help ensure a secure e-mail environment:

- Sending e-mail through a router or firewall
- Restricting relays
- Restricting connections
- Mail filtering to prevent virus proliferation

See Administering SMTP and email on iSeries 400 for more administrative tasks.

Sending e-mail through a router or firewall

An e-mail router is an intermediate system that SMTP delivers mail to when it cannot locate the recipient's exact IP address. The e-mail router routes the e-mail to the IP address or to another router. Route your outgoing e-mail to an alternative system if your local system fails to deliver the e-mail to the system. If you have a firewall, you can use the firewall as your router.

Before you follow these steps to configure a router, see the Prerequisites for an e-mail router.

To set the router, follow these steps:

1. In Operations Navigator, expand your **iSeries 400 server** → **Network** → **Servers** → **TCP/IP**.
2. Double-click **SMTP**. The **SMTP Properties** dialog appears.
3. Click the **General** tab.
4. Enter the **Mail router** name.

To route e-mail through a firewall, follow these steps:

1. In Operations Navigator, expand your **iSeries 400 server** → **Network** → **Servers** → **TCP/IP**.
2. Double-click **SMTP**. The **SMTP Properties** dialog appears.
3. Click the **General** tab.
4. Enter the name of the firewall, for example, FWAS400.company.com in the Mail Router field.
5. Select **Forward outgoing mail to router through firewall**.

Prerequisites for an e-mail router: Before you configure an e-mail router, consider the following:

- The intermediate system does not have to be an iSeries server. The mail router only requires a host table that contains all host systems to which it needs to route e-mail. If an iSeries server is the mail router, it does not require any particular system level.
- You can set up only one intermediate system for routing between the source and target systems. You cannot nest mail routers.
- SMTP must be able to get an IP address for the mail router when it starts, either from the local host table or through the Domain Name System (DNS) server. If SMTP cannot get an IP address for the mail router, then SMTP runs without using a router.
- The SMTP client firewall support uses the mail router to forward e-mail that is destined for a host outside the local (protected) domain. In order to deliver e-mail, the mail router must be a system that is authorized to forward e-mail through the firewall. Also, all mail recipients whose domain is not on the iSeries 400 go through the router when you turn on the SMTP firewall support.

If you have met these prerequisites, see how to Send e-mail through a router.

Restricting relays

A common concern that you may face is protecting your server from people who try to use your e-mail server for spamming, or sending large amounts of bulk e-mail. To avoid these problems, use the relay restriction function to specify as closely as possible who can use your machine for relay. You have five options for allowing relay:

- Allow all relay messages
- Block all relay messages

- Accept relay messages from only the near domains list
- Accept relay messages from only the address relay list
- Accept relay messages from both the near domains and address relay lists

To specify users that can send e-mail to the Internet, follow these steps:

1. In Operations Navigator, expand your **iSeries 400 server** → **Network** → **Servers** → **TCP/IP**.
2. Right-click **SMTP**, and select **Properties**.
3. Click the **Relay Restrictions** tab.
4. Select the appropriate relay restriction from the five options offered here.

Note: If you choose **Accept relay messages from only the near domains list** or **Accept relay messages from both the near domains and address relay lists**, then you will need to click the **General** tab to list the near domains from which you are accepting relay.

5. Click **Help** for more information.
6. Click **OK**.

See Restricting connections, as a preliminary step to preventing unsolicited mail, by not allowing known offenders to connect to your e-mail server.

Restricting connections

You can prevent the connection of users who may abuse your e-mail server. Unwanted users may connect to your server, and send unsolicited mail. This unsolicited e-mail takes a great amount of central processing unit (CPU) cycles and space. Also, if your server allows others to relay unsolicited mail, other servers might block the mail that comes from your server.

You can specify IP addresses of known unwanted users, or you can connect to a host that contains a Realtime Blackhole List (RBL) server. These Realtime Blackhole Lists provide a listing of known IP

addresses that send unsolicited mail. See the MAPS (Mail Abuse Prevention System LLC)  website for an example of a host that contains a Realtime Blackhole List. See the Open Relay Behaviour-Modification

System (ORBS)  website for hosts that offer open relays.

To specify known IP addresses or a host with a Realtime Blackhole List, complete the following steps:

1. In Operations Navigator, expand your **iSeries 400 server** → **Network** → **Servers** → **TCP/IP**.
2. Right-click **SMTP**, and select **Properties**.
3. Click the **Connection Restrictions** page.
4. Click **Add** to add host names of servers with a Realtime Blackhole List that you would like to use.
5. Click **Add** to add specific IP addresses to restrict attempted connections.
6. Click **Help**, for more information.
7. Click **OK**.

For more information on protecting your e-mail server, see the Mail security topic.

Mail filtering to prevent virus proliferation

There are times when a well known virus may be trying to infiltrate your e-mail servers. To help prevent the spread of the virus, you can create filters to look for a particular subject, type, filename, and originator's address in incoming e-mail. The e-mail can then be quarantined or discarded.

To create a filter, follow these steps:

1. In Operations Navigator, expand your **iSeries 400 server** → **Network** → **Servers** → **TCP/IP**.
2. Right-click **SMTP**, and select **Properties**.
3. Select the **Filters** page.

4. Select **Keep message** or **Discard message**. Selecting **Keep message** will save a copy of the message, which will not be delivered to the recipient.
5. Click **Add** to specify the message criteria that identifies the potential virus. Messages matching this criteria will not be delivered to the recipient.
6. Click **Help** for more information.
7. Click **OK**.

Note: In addition to these tools, you should implement supplemental anti-virus solutions.

Sending and receiving e-mail on the iSeries 400

Your iSeries 400 is a mail server and has e-mail users (SNADS, POP, or Lotus) enrolled on it. Using either a POP client or a SNADS client, your e-mail users can send, receive, and read e-mail.

There are different ways to allow your users to send and receive email, such as the following:

- **Setting up POP e-mail clients**
This topic provides instructions for setting up a standard POP mail client.
- **Using SNADS to send e-mail**
You can send e-mail on an iSeries 400 server with a SNADS client program using the Send Distribution (SNDDST) command.
- **Using SNADS to receive e-mail**
You can receive mail on an iSeries 400 server with a SNADS client program using the Receive Distribution (RCVDST) command.
- **Sending MIME mail with the QtmmSendMail API**
Learn how to use MIME Mail (QtmmSendMail) API to send e-mail from your iSeries server.

If your users are having trouble sending or receiving e-mail, see the Troubleshooting e-mail section for advice on determining the problem.

Setting up POP e-mail clients

iSeries 400 uses the POP server to store and forward e-mail. The e-mail client works with the POP server to receive and store e-mails for the users on the client side. There are a number of e-mail clients available to support POP including Eudora, Netscape Mail, and Lotus Notes. The steps you must take to configure the client are specific to that client's interface. However, the information that you must provide is the same. These steps, using Netscape Mail as an example, are as follows:

1. Gather POP e-mail client program information.
 - User ID and a fully qualified domain name (the host name plus the domain name). This is the user's e-mail address for receiving mail and is typically in the form of userID@hostname.domainname.

Note:

On some clients, you may have to enter the host address several times: to specify the POP server's host for receiving mail, to specify SMTP's host for sending mail, and to identify the sender of the e-mail to the recipients.

- POP user or account name. This is the same as the iSeries 400 user profile name.
 - The user password. This password must be the same as the iSeries 400 user profile password.
2. Identify the user and the user's preferences.
In Netscape Mail, for example, the user would look for **Edit** → **Preferences** → **Mail and News Groups** → **Identity**.
 - User name. This is the iSeries 400 user profile name.
 - User's e-mail address. This is the user ID and fully qualified domain name.

- Reply-to address. This can be the same as the user's e-mail address that the network administrator designates, but a user profile must be on the iSeries 400 server.
3. Identify the outgoing mail (SMTP) server.
You need to identify the SMTP server on the e-mail client because it is the server that allows the client's users to send mail out. In Netscape Mail, for example, the user would look for **Edit —> Preferences —> Mail and News Groups —> Mail Servers**.
 - POP user or account name. This is the user ID on the user's e-mail address; it is also the iSeries 400 user profile name.
 - Outgoing mail (SMTP) server. This is the iSeries 400 host name.
 4. Identify the incoming mail (POP) server.
In Netscape Mail, for example, the user would look for **Edit —> Preferences —> Mail and News Groups —> Mail Servers**.
 - Incoming mail server. This is the iSeries 400 host name.

Using SNADS to send e-mail

To send e-mail on iSeries 400 with a SNADS client program using the Send Distribution (SNDDST) command, follow this procedure. The sender of the e-mail must be a local, SNADS user.

Note: You can also use Internet addressing on SNDDST mail.

To send e-mail on the iSeries 400, open an emulation session, and complete the following steps:

1. On the iSeries 400 command line, type SNDDST and press **Enter**. The **Send Distribution** display appears.
2. Press **F10** to see all the parameters.
3. At the first prompt, **Information to be Sent**, enter *LMSG and press **Enter**.
4. Enter the recipient's user ID and system address or an Internet address.
5. Enter a message description at the **Description** prompt.
6. Press the Page Down key and type your e-mail at the **Long Message** prompt.
7. Press **Enter** to send the e-mail.

See Setting up headers to differentiate between recipients to learn about working with headers.

You can also attach files to the e-mail.

See Using SNADS to receive e-mail, for information on receiving e-mail.

Setting up headers to differentiate between recipients

The Change Distribution Attributes (CHGDSTA) command changes the content of message services attributes (X.400 support) for mail distributions. The Keep Recipient (KEEPRCP) parameter specifies which recipient information is stored and sent within each mail distribution. The setting of this parameter affects how the MIME headers get created for a note from OfficeVision.

In order for CC and BCC tags to show up in MIME headers (and client screens), you must set the KEEPRCP parameter to *ALL. BCC recipients are not shown regardless of the setting of this parameter because they are not intended to be. The TO and CC recipients will show up in the text of the OfficeVision note.

See Administering SMTP and e-mail on iSeries 400 for more information on administrative tasks.

Attaching files to an e-mail when using SNDDST

When Sending email on the iSeries 400, using the SNDDST command, you may want to send a file or document with the e-mail. SNDDST is only capable of sending a single document or file at a time. If you would like to send multiple attachments, Send MIME mail with the (QtmmSendMail) API.

To attach and send a document with your e-mail, on the command line, type:

```
SNDDST TYPE(*DOC) DSTD(your description) TOUSRID(anyuser) DOC(yourdoc) FLR(yourfolder)
```

To attach and send a file with your e-mail, on the command line, type:

```
SNDDST TYPE(*FILE) DSTD(description) TOUSRID(any user) MSG(message optional)  
DOCFILE(youlib/yourfile) DOCMBR(yourmbr)
```

Note:

If you receive error messages, you may be attempting to send a file or document that the iSeries server does not accept. You can use the iSeries CPY commands to convert the file to a file or document that is compatible with the SNDDST command.

Converting file types to send with SNDDST: With the iSeries server playing a larger role in the Internet, a method is needed to send information easily from the OS/400 to e-mail clients.

Assuming that the spoolfile is already created, and the physical file and folder already exist, you must convert the file into a sendable format. The conversions are done by using 400 commands, as shown below.

Move the spool file to a data base physical file.

```
CPYSPLF FILE(splfile) TOFILE(dbfile) JOB(job3/job2/job1) SPLNBR(splnbr) TOMBR(mbr)
```

Move data base physical file to a folder.

```
CPYTOPCD FROMFILE(lib/dbfile) TOFLR(folder) FROMMBR(mbr) REPLACE(*YES)
```

Send the document.

```
SNDDST TYPE(*DOC) TOUSRID(user address) DSTD(MAIL) DOC(mbr) FLR(folder)
```

Supporting Internet addressing for SNADS users

Does your network use iSeries 400 SNA distribution services (SNADS) and an office application to send and receive e-mail? If so, configure your system so your users can use Internet addresses with the Send Distribution command (SNDDST).

Follow these steps:

1. On the iSeries 400 command line, type:
ADDIRE USRID(INTERNET GATEWAY) USRD('Allow OfficeVision to send INTERNET Mail')
SYSNAME(INTERNET) MSFSRVLVL(*USRIDX) PREFADR(NETUSRID *IBM ATCONXTXT)
2. On the iSeries 400 command line, type CHGDSTA SMTPRTE(INTERNET GATEWAY) and press **Enter**.

Now your SNADS users can send e-mail to the Internet with the SNDDST command by entering an Internet e-mail address at the Internet Recipient prompt.

For more information on integrating e-mail networks, view the IBM redbook, AS/400 Electronic-Mail

Capabilities (SG24-4703)  .

Using SNADS to receive e-mail

To receive e-mail on iSeries 400 with a SNADS client program using the Receive Distribution (RCVDST) command, follow this procedure. The recipient of the e-mail must be a local, SNADS user.

1. On the command line, type QRYDST (the Query Distribution command).
2. Press **F4** for the parameter prompt.
3. Press **F10** to view additional parameters.
4. In the **File to Receive Output** field, type file and library names that are easy to remember and press **Enter**. The iSeries 400 creates these physical files.
5. On the command line, type WRKF (the Work with Files command) and press **Enter**. The **Work with Files** display appears.
6. Type the file name and library you specified in step 4 and press **Enter**. The display lists all your distributions (e-mail). There is a long string of numbers for each piece of mail.
7. Copy the seventh through twenty-sixth characters.
8. On the command line, type RCVDST (the Receive Distribution command) and press **Enter**.
9. In the **Distribution Identifier** field, paste the seventh through twenty-sixth characters you copied.
10. In the **File to receive output field**, enter the file name and the same library name you used previously and press **Enter**. The list of distributions appears.
11. Press **F20 (Shift + F8)** to scroll left and read the message or messages.

See Sending e-mail on the iSeries 400 for information on sending e-mail.

Send MIME mail (QtmmSendMail) API

The Send MIME Mail (QtmmSendMail) API allows you to send e-mail from an iSeries program. This API supports sending multiple mail attachments at one time, but the Send Distribution (SNDDST) command does not. The QtmmSendMail API is in the service program QTCP/QTMMSEND. Application programs must bind to this service program.

The QtmmSendMail API works in the following way:

1. You create an ASCII file with an entire MIME note. The headers are all in US-ASCII coded character set identifier (CCSID) 367.
2. The application calls the QtmmSendMail API and gives it both the name of the file and the addresses that the framework and SMTP must use to forward the e-mail.

Authorities:

The MIME integrated-file-system file must exist for the duration of the QMSF framework pass. The conversion and delivery exit points that are called by the QMSF job must be able to read this file. A built-in exit program removes (unlinks) the link. If this is the last link, the framework deletes the file.

Directory authority

The data authority must be *X for product QMSF.

File authority

QTCP and QMSF must have:

- Data authority *RWX
- Object authority *ALL

Required parameter group:

File name

(Input Char(*)) The character string of the integrated-file-system file name of the ASCII MIME note. You must specify the entire path. After the framework finishes processing the file, it unlinks the file. If this is the last link, the framework deletes the file. This file must contain an Internet-ready MIME note that adheres to the standards that are called Request for Comment (RFC).

Length of file name

(Input Binary(4)) The number of bytes in the file name (the absolute path name). The maximum length is 255 bytes (no NULL that is assumed at the end).

Originator address (SMTP)

(Input Char(*)) The character string of an SMTP originator address; for example, smith@myhost.mytown.com. All SMTP addresses should be in coded character set identifier (CCSID) 500.

Length of originator

(Input Binary(4)) The length of the originator address string (not including any NULL). The maximum length is 256 bytes.

First recipient address (SMTP)

(Input ADDT0100(*)) The first address structure that contains a recipient address. All SMTP addresses should be in CCSID 500.

Total number of recipients

(Input Binary(4)) The number of recipient address structures (there must be at least one).

Error code

(I/O Char(*)) The structure that returns error information.

ADDT0100 Format:

This table shows the layout for format ADDT0100:

Offset		Type	Field	Field description
Dec	Hex			
0	0	BINARY(4)	Offset to next address structure	The number of bytes from the beginning of this address structure to the beginning of the next one. It must be at least the size of the fixed part of this address structure and the recipient address length.
4	4	BINARY(4)	Address length	The length in bytes of the SMTP address. The maximum length is 256 bytes. This maximum length is determined by Internet standards.

8	8	CHAR(8)	Address Format name	The characters that identify the particular structure. (Current value ADDT0100). It is used for level control of the structure.
16	10	BINARY(4)	Distribution type	The type of recipient. Possible values are: <ul style="list-style-type: none"> • 0 Normal • 1 Carbon copy • 2 Blind carbon copy
20	14	BINARY(4)	Reserved	This field is reserved and must be set to 0.
		CHAR(*)	Address	The actual SMTP address (no NULLS included). All SMTP addresses should be in CCSID 500.

Error messages:

CPFA0A9

The object was not found.

CPFA0CE

The path name parameter that was specified resulted in an error.

CPF3C12

The length of data is not valid.

CPF3C17

An error occurred with input data parameter.

CPF3C21

The format name &1 is not valid.

CPF3C39

The value for the reserved field is not valid.

CPF3C75

An error occurred with entry lengths and offsets parameter.

CPF3C88

The number of variable length records &1 is not valid.

CPF3E0A

The resource limits were exceeded.

Troubleshooting e-mail

Do you have common iSeries 400 e-mail problems for which you need authoritative solutions? A few tips are detailed in this topic.

- Perform SMTP problem analysis
View a list of steps to determine whether your SMTP is working correctly.
- Track undelivered mail
Use these instructions for e-mail delivery and configuration problems.
- Check problems with Send MIME Mail (QtmmSendMail) API
Go through this troubleshooting process to determine problems you are having with the Send MIME Mail (QtmmSendMail) API.
- Check component journals
Use these instructions to check error-recording journals and determine where your SMTP problems lie.

You can also prevent SMTP from splitting large e-mail messages. iSeries 400 SMTP splits large e-mail messages into multiple parts. Older clients sometimes receive multiple-part text e-mail messages as separate messages. This topic includes instructions on what to do about this problem.

Performing SMTP problem analysis

If you are sure that TCP/IP has been configured for email, follow these steps to identify likely sources of SMTP problems:

- Go to the iSeries 400 Service PTF facility  to determine whether you have all the necessary PTFs.
- Check whether the necessary e-mail servers are started and running.
- Verify the local domain name.
 1. In Operations Navigator, expand your **iSeries 400 server** → **Network** → **Protocols**.
 2. Double-click **TCP/IP**.
 3. Click the **Host Domain Information** tab.
- Set the SMTP retry values lower.
 1. In Operations Navigator, expand your **iSeries 400 server** → **Network** → **Servers** → **TCP/IP**.
 2. Double-click **SMTP**.
 3. Click the **Outbound Mail Retries** tab.
- Verify that the user ID and address of the receiver are in the system distribution directory.
 1. In Operations Navigator, expand your **iSeries 400 server** → **Users and Groups** → **All Users**.
 2. Right-click the **Profile** of the user ID, and select **Properties..**
 3. Click **Personal**, and go to the **Mail** tab to verify the address.
- Verify whether a host table entry is necessary for the e-mail to reach the destination address.
 1. On the command line, type CHGTCPHTE (the Change TCP/IP Host Table Entry command) and enter the e-mail server's Internet address.
 2. If no host table entry appears, then enter the host name for that Internet address.
- Run the Trace TCP/IP Applications command. On the command line, type TRCTCPAPP.
- Check the component journals.

Tracking undelivered e-mail

You can use a generic user ID to track problems with undeliverable e-mail. This tactic can be useful for both e-mail delivery and configuration problems.

1. Create the user ID, NONDELIVERY. On the command line, type CRTUSRPRF (the Create User Profile command) and press **Enter**.
2. On the command line, type WRKDIRE (the Work with Directory Entries command) and press **Enter**.
3. Type 1 to add the user to the system distribution directory.
4. Ensure that the Mail Store value is 2 and the Preferred Address value is 3.
5. Press PF19 (Add Name for SMTP).

6. Type NONDELIVERY@localhost.domain as the SMTP address for any POP user.

This user receives a copy of the undeliverable e-mail.

Note: The user ID you enter must be an actual ID so that it can effectively monitor nondelivery notices. The sender receives a copy of the nondelivery notice with a list of the recipients who did not receive the e-mail.

See Performing SMTP problem analysis, for more information.

Solving problems with QtmmSendMail API

Use this information if you have a non-working Send MIME Mail (QtmmSendMail) API on your iSeries 400.

Check the API call.

Ensure that you are receiving error messages from the API on your workstation display. See a list of error message (See 25) descriptions that can be returned by this API.

If you code to return the error, then the program returns it to the program. However, if you set this value to 0, as shown below, then the error appears on your workstation display.

C Example

```
Qus_EC_t          Snd_Error_Code;  
Snd_Error_Code.Bytes_Provided=0;
```

RPG Example

```
DAPIError      DS  
D APIBytes      1      4B 0  
D CPFID         9      15  
C              Eval  APIBytes  = 0
```

Check the MIME file.

1. Check the MIME file placement. The MIME file must be in the ROOT system and start with a "/", for example, /myfile.txt, and the file name must include the path /mydirectory/myfile.mime.
2. Check the authority levels. QMSF and QTCP profiles must have the authority to read and delete the MIME file.
 - a. On the iSeries command line, type WRKLNK (the Work with Object Links command).
 - b. Type 9 (Display) to work with the QMST and QTCP authorities. The Work with Authority display appears.
3. Ensure that the MIME file has an end-of-header statement between the header and the body.

Check the mail server framework jobs (QMSF jobs in the QSYSWRK system).

1. If the MSF stopped processing the message, check the MSF jobs for error messages.
2. If the framework job completed, the MIME file should be deleted. This means that the framework processed the MIME file. Your problem is not with the API, but in your SMTP configuration. Go through SMTP problem analysis to further investigate the problem.

Checking component journals

Your iSeries server uses various queues, programs, and journaling documents so you can tell why your email server is not delivering your mail. The journaling function can be helpful in offering insight as to what may be going wrong with your e-mail system. Journaling uses processing unit cycles, so the machine performs best when journaling is off.

The journaling function documents the following items:

transitions: programs to queues, queues to program.

events: arrival of mail via the server, delivery of mail via the client, storage of mail on retry queues or resource busy queues.

tracking and some measurement data: 822 Message ID, MSF Message ID, size of message, originator, recipients.

To turn on journaling and view the journal contents, follow these steps:

1. In Operations Navigator expand **your iSeries 400 server** → **Network** → **Servers** → **TCP/IP**.
2. Double-click **SMTP**. The **SMTP properties** dialog appears.
3. Select the **Enable journal entries** check box.
4. Open an emulation session.
5. To convert the SMTP journal entries to a viewable form, on the command line, type:
DSPJRN JRN(QZMF) OUTPUT(*OUTFILE) OUTFILE(*jrnlib/zmfstuff*) OUTMBR(MAR2)
ENTDTALEN(512).
jrnlib is the name of the library, and *zmfstuff* is the name of the physical file.
6. To view the SMTP journal entries, type the following on the command line:
DSPPFM FILE(*jrnlib/zmfstuff*) MBR(MAR2).
7. Press F20 (Shift + F8) to see the journal-specific information.

See Details: Reading mail server journal entries for information on deciphering your SMTP journals.

Details: Reading mail server journal entries

Find information on reading the component journal entries for the SMTP Client and the SMTP server in the tables below. For additional codes and comments to assist you in troubleshooting e-mail, see Mail server journal entries  .

Table 1. Log entries for the SMTP Client.

Type	Action	SubType/Codes	Comments
LG	Dequeueing of container for processing	8B	Just after floater tag is set log dequeue of Mail
LG	successful mail delivery	88 82	Log each successfully send to recipient Plan to log each recipient too
LG	Undeliverable mail	83	Log undelivered mail
LG	1st level timeout	8C	Log when adding to 1st level retry queue
LG	2nd level timeout	8D	Log when adding to 2nd level retry queue
LG	mail is ready to be retried	8E 8F	Log when retried mail put back on QTMSOUTQ
LG	COD being sent back to originator	87	Log when COD is enqueued on BRSR queue
LG	Cannot process, resource busy	86	Log when mail gets put back on QTMSOUTQ because connection matrix full

LG	examine recipient records	86	Log when mail gets put back on QTMSOUTQ because recipient status changed, ie MS record resolved ready to deliver the message.
LG	undeliverable	87	Log transfer of mail to QTMSINQ for undelivery notice, two places
LG	MX query	8K	Log a res_send failure and errno of why if failed along with query buffer

Table 2. Log entries for the SMTP Server

Type	Action	SubType/Codes	Comments
LG	receiving mail	94 91 92 9T 99	Log reception of mail just after receiving ending sequence CRLF <.> CRLF(local) Originator and recipient are logged. Message Size nnnnn where nnnnn is the number of bytes. Msgld
LG	receiving relayed mail	95 91 92	Log MAIL just after receiving ending sequence CRLF <.> CRLF (relayed) Originator and recipient are logged
LG	passing off mail to Bridge client	97	Log entry of MAIL into QTMSINQ (incoming mail)
LG	passing off mail to client for remote delivery	96	Log entry of MAIL into QTMSOUTQ (relayed mail)
LG	2nd level timeout	8D	Log when adding to 2nd level retry queue
LG	mail is ready to be retried	8E 8F	Log when retried mail put back on QTMSOUTQ
LG	COD being sent back to originator	87	Log when COD is enqueued on BRSR queue
LG	Cannot process, resource busy	86	Log when mail gets put back on QTMSOUTQ because connection matrix full
LG	examine recipient records	86	Log when mail gets put back on QTMSOUTQ because recipient status changed, ie MS record resolved ready to deliver the message.
LG	undeliverable	87	Log transfer of mail to QTMSINQ for undelivery notice, two places
LG	MX query	8K	Log a res_send failure and errno of why if failed along with query buffer

Note: All of the journal entries documented here use the LG type, which stands for "log entry."

Other information about e-mail

For more information on using e-mail on iSeries 400, as well as for help on integrating Lotus Notes on iSeries 400, see these IBM books and Web sites:

- **AS/400 Electronic-Mail Capabilities**  .
View this popular IBM redbook for in-depth information about e-mail and SMTP.
- **AnyMail/400 Mail Server Framework Support**  .
Read about the framework that drives the iSeries mail server.
- **Lotus Domino 4.5 on the IBM Integrated PC Server**  .
Read about how to integrate SMTP and Lotus Notes for your e-mail needs.
- Mail enabling iSeries applications with Java  .
Learn several means of SMTP mail enabling your iSeries applications.
- Domino and Notes User Assistance Documentation Library  .
View comprehensive information about Notes and Domino.
- **IBM Secureway: iSeries and the Internet**
See this topic to secure your iSeries network.
- **AS/400 Technical Support Web site**  .
Download current PTFs for your system by using your workstation as a gateway to the Internet PTF page, or view iSeries solutions from the Technical Information and Databases category.



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