IBM

IBM Systems - iSeries
Networking
E-mail

Version 5 Release 4

IBM

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E-mail

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> **Note**
>
> Before using this information and the product it supports, read the information in "Notices," on page 47.

Contents

E-mail

You can learn the concepts and procedures for configuring and administering e-mail on your iSeries™ server.

This information assumes that you have worked on the iSeries server before and have a working knowledge of TCP/IP, Simple Mail Transfer Protocol (SMTP), and e-mail concepts.

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E-mail concepts

You depend on electronic mail (e-mail) as an essential business tool. The iSeries server uses protocols, like Simple Message Transfer Protocol (SMTP) and Post Office Protocol (POP), to make your e-mail run smoothly and efficiently on the network.

These additional e-mail concepts will help you understand other e-mail distribution methods.

Multipurpose Internet Mail Extensions
> Multipurpose Internet Mail Extensions (MIME) is a standardized method for organizing divergent file formats. SMTP is limited to 7-bit ASCII text with a maximum line length of 1000 characters. MIME was developed to support more advanced file types, such as rich text, images, and audio or video files. MIME encodes files of binary type data to appear as simple SMTP data, using headers to distinguish different file types within the message, before sending the message with SMTP. The mail client then receives the message and decodes it to the proper file types by interpreting the MIME headers to read the file.

AnyMail/400 framework
> All incoming mail from SMTP for local users (users with mail accounts on this iSeries server) 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.

SNADS
> System Network Architecture Distribution Services (SNADS) is an IBM® asynchronous distribution service that defines a set of rules to receive, route, and send electronic mail in a

network of servers. In this topic, SNADS refers to a user's profile in which the **Preferred address** is set to **User ID/Address**. The preferred address tells the mail server framework what fields to use in the system distribution directory for the address. For more information about using SNADS, refer to the SNADS topics in Send and receive e-mail on iSeries server.

Related concepts

"Send and receive e-mail on iSeries server" on page 20
Your iSeries server 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.

Related reference

MIME content types
Standard Internet text notes consist of a general header and a text body. MIME notes, however, can contain multiple parts, which allows multimedia attachments to be included with the text.

Simple Mail Transfer Protocol on iSeries server

Simple Mail Transfer Protocol (SMTP) e-mail is the protocol that allows iSeries server to send and receive e-mail.

SMTP is essentially the 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 server 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. 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 contain video, audio, or binary parts.

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. Suppose that mail is sent to bobsmith@mycompany.com.

First, SMTP checks to see if the e-mail addressee (bobsmith) is a user on the local server. If SMTP determines that it is not, SMTP forwards the e-mail to the next host server. The next host might or might 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. The host name is what people use as a part of their e-mail account (mycompany.com); the IP address is what SMTP uses to find the correct mail server to send mail to (192.1.1.10). See the DNS topic for complete information about DNS.

These topics relate DNS to SMTP:
- Setting up your DNS domain
- Mail and mail exchange (MX) records

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.

Related concepts

DNS

Mail and MX records

You can set up e-mail by configuring TCP/IP, setting up Simple Mail Transfer Protocol (SMTP) and Post Office Protocol (POP) servers, and starting the e-mail servers. You can set up your iSeries server to be an e-mail server.

Post Office Protocol on iSeries server

The Post Office Protocol (POP) server is the iSeries implementation of the Post Office Protocol Version 3 mail interface.

It provides electronic mailboxes on the iSeries server from which clients can retrieve mail. Any mail client that supports the POP3 protocol can use this server, such as Netscape Mail, Outlook Express, or Eudora. Clients might be running on any platform, such as Windows®, OS/2®, AIX®, or Macintosh.

The POP server serves as a temporary holding area for mail until it is retrieved by the mail client. 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. After a message has been retrieved, the client 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 that tells the server to delete all of the messages that are marked for deletion and to disconnect from the client.

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

For more information about the POP protocol works, use the RFC Index to look up RFC 1725, which defines the POP Version 3 mail interface standard.

You can use iSeries Navigator to configure and manage Simple Mail Transfer Protocol (SMTP) and Post Office Protocol (POP) e-mail servers.

To use e-mail, you need to configure Simple Mail Transfer Protocol (SMTP) and Post Office Protocol (POP) servers on your iSeries server.

The Post Office Protocol (POP) Version 3 mail interface is defined in Request for Comments (RFC) 1725. RFC is the mechanism used to define evolving Internet standards.

Related information

RFC Index

E-mail example: Send and receive e-mail locally

This example demonstrates how e-mail is processed between local users.

Situation

Jane Smith, the Human Resources director, needs to send a message to Sam Jones in the Legal department. They both work at MyCompany headquarters. By following this process, you will be able to see how e-mail is handled on your iSeries server.

The objectives of this example are as follows:

- Demonstrate how e-mail clients and servers relate to each other, and how a message is processed

- Use the SMTP server to send mail
- Deliver mail to a POP user

Details

The following image depicts the network for MyCompany and how a mail message passes through the various layers in order to get to its final destination. After the image, you will find a step-by-step description of the path the mail message takes through this network.
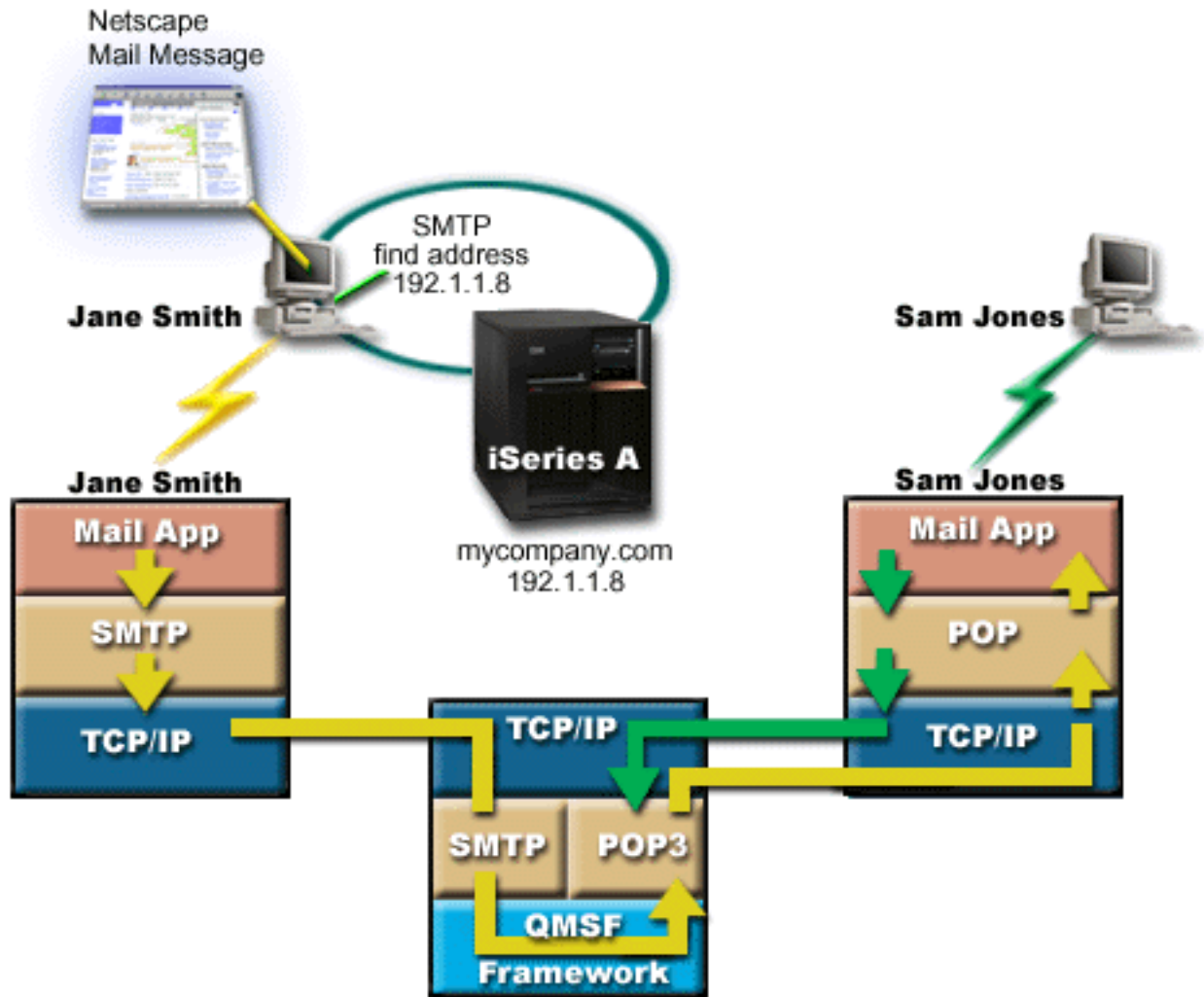
Figure 1. Sample network configuration

Jane is using the Netscape mail client. She writes a message and sends it to SamJones@mycompany.com.

Phase 1: SMTP client to SMTP server

The SMTP client on Jane's PC uses the configuration data that was entered for the outgoing server and identity. The identity field is used for the **From** address. The outgoing server is the host that is contacted by the PC SMTP client. Because the address is entered as a domain, the SMTP client queries Domain Name System (DNS) to get the IP address of the SMTP server, and discovers that it is 192.1.1.8.

The SMTP client now contacts the SMTP server on the SMTP port (Port 25 at 192.1.8). The dialog that is used between the client and the server is the SMTP protocol. The SMTP server accepts the delivery of the mail, and the message is transmitted from the client to the server using TCP/IP.

Phase 2: SMTP server delivers the message to the POP server

The SMTP server tests the domain of the recipient to see if it is local. Because it is local, the mail is written out to an IFS file and the QMSF Framework Create Message application programming interface (API) is used to put the message information in the QMSF queue. The QMSF framework allows the distribution of e-mail, calling exit programs or snap-ins to handle specific mail types. The message information identifies Sam's address as SMTP format, so the framework calls the SMTP Address Resolution exit program. This program again checks that the message is local. Because it is local, it uses the system distribution directory (data entered through WRKDIRE) to find the recipient's SMTP address. It finds Sam's address, and finds the mail service level is system message store in the directory entry for this user, therefore it recognizes it as a POP account. Then SMTP Address Resolution adds his profile information to the message information. It marks the information as POP local delivery. The QMSF Framework then calls the POP Local Delivery exit program, which finds the profile information and the name of the IFS file and delivers the mail to Sam's mailbox.

Phase 3: POP Client retrieves message for Sam Jones from the POP server

Some time later, Sam decides to use his mail client (Netscape) to check his mailbox for e-mails. The POP client on his PC is configured to check the POP server at mycompany.com for the user name SamJones and password (******). The domain name is again changed to an IP address (using DNS). The POP client contacts the POP server using the POP port and the POP3 protocol. The mailbox user name and password are used by the POP server on the iSeries to check that the user name and password match the profile and password of an iSeries user. After it is validated, the profile name is used to find Sam's mailbox. The POP client loads the message, and sends a request back to the POP server to delete the mail from the POP mailbox. The message is then displayed in Netscape for Sam to read.

Related concepts

"Plan for e-mail"
Before setting up e-mail, you should have a basic plan for how you will be using e-mail on your iSeries server.

Related reference

"Simple Mail Transfer Protocol" on page 38
Simple Mail Transfer Protocol (SMTP) is a TCP/IP protocol used in sending and receiving e-mail. It is typically used with POP3 or Internet Message Access Protocol to save messages in a server mailbox and download them periodically from the server for the user.

"Post Office Protocol" on page 39
The Post Office Protocol (POP) Version 3 mail interface is defined in Request for Comments (RFC) 1725. RFC is the mechanism used to define evolving Internet standards.

Plan for e-mail

Before setting up e-mail, you should have a basic plan for how you will be using e-mail on your iSeries server.

Before you start setting up e-mail, answer the following questions:
1. What will my e-mail addresses look like?
2. What is the IP address of my Domain Name Server (DNS)?
3. Do I have a firewall? If the answer is yes, what is its IP address?
4. Do I have a mail proxy, mail router, or mail relay? If the answer is yes, what is its IP address?
5. Will I be using a Domino® database?

6. Will I be using iSeries POP to receive mail?

You might want to refer to the e-mail example for basic information about how e-mail works.

If you will be using Domino and iSeries SMTP, refer to Hosting a Domino and SMTP server on the same iSeries server. For additional information about Domino, refer to the Domino topic or the Lotus Domino on iSeries home page.

When you are ready to set up e-mail, use the steps provided in Configure e-mail.

Control e-mail access provides tips for protecting your e-mail servers from flooding and spamming.

If you do not plan to use the SMTP or POP servers, disable them to ensure that they will not be used without your knowledge.

Related concepts

"E-mail example: Send and receive e-mail locally" on page 3
This example demonstrates how e-mail is processed between local users.

Domino

Related tasks

"Configure e-mail" on page 9
You can set up e-mail by configuring TCP/IP, setting up Simple Mail Transfer Protocol (SMTP) and Post Office Protocol (POP) servers, and starting the e-mail servers. You can set up your iSeries server to be an e-mail server.

Related information

Lotus Domino on iSeries home page

Control e-mail access

You should control who accesses your server through e-mail to protect your data from malicious attacks.

Related concepts

Independent disk pools

"Determine problems with e-mail" on page 40
You can use simple steps to determine what is causing a problem with e-mail.

Related tasks

"Restrict relays" on page 17
A common concern that you might 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 server for relay.

"Restrict connections" on page 19
You can prevent the connection of users who might abuse your e-mail server.

Related information

AS/400 Internet Security: Protecting Your AS/400 from HARM on the Internet

Control Simple Mail Transfer Protocol access

To prevent your server from being attacked by malicious or unsolicited mail (spam), you should control Simple Mail Transfer Protocol (SMTP) access.

If you want to allow SMTP clients to access your iSeries server, you should protect your server from attack by performing the following tasks:

*   If possible, avoid using an *ANY *ANY entry in the system distribution directory. When your server does not have an *ANY *ANY entry, it is more difficult for someone to attempt to use SMTP to flood your server or overwhelm your network. Flooding occurs when your auxiliary storage is filled with unwanted mail that is being routed through your iSeries to another server.

- Set adequate threshold limits for your auxiliary storage pools (ASPs) to prevent a user from swamping your server with unwanted objects. You can display and set the thresholds for ASPs by using either system service tools (SST) or dedicated service tools (DST). Independent disk pools in the Backup and recovery topic provides more information about ASP thresholds.
- Tune the maximum number of prestart jobs that will be created by doing a CHGPJE. This will limit the number of jobs created during a denial of service attack. The default is 256 for the maximum threshold.
- Prevent outsiders from using your connection to send unsolicited e-mail (spam) by restricting relays and connections.

Control Post Office Protocol access

To ensure the security of your server, you should control Post Office Protocol (POP) access.

If you want to allow POP clients to access your iSeries server, be aware of the following security considerations:
- The POP mail server provides authentication for clients who attempt to access their mailboxes. The client sends a user ID and password to the server.

  Note: The password is sent in the clear and can be vulnerable.

  The POP mail server verifies the user ID and password against the iSeries user profile and password for that user. Because you do not have control over how the user ID and password are stored on the POP client, you might want to create a special user profile that has very limited authority on your iSeries server. To prevent anyone from using the user profile for an interactive session, you can set the following values in the user profile:
      Set initial menu (INLMNU) to *SIGNOFF
      Set initial program (INLPGM) to *NONE
      Set limit capabilities (LMTCPB) to *YES
- To prevent a malicious intruder from flooding your server with unwanted objects, be sure that you have set adequate threshold limits for your auxiliary storage pools (ASPs). The ASP storage threshold prevents your server from stopping because the operating system does not have sufficient working space. You can display and set the thresholds for ASPs by using either system service tools (SST) or dedicated service tools (DST).
- Although you need to ensure that your ASP threshold prevents your server from being flooded, you also need to ensure that your iSeries server has adequate space to properly store and deliver mail. If your server cannot deliver mail because the iSeries server does not have adequate storage for transient mail, this is an integrity problem for your users. When system storage use is high, mail stops running.

  Note: Typically storage space is not a significant problem. When a client receives mail, the iSeries server deletes the mail from the server.

  Related concepts

  "Determine problems with e-mail" on page 40
  You can use simple steps to determine what is causing a problem with e-mail.

Prevent e-mail access

Depending on how you use your system, you might want to prevent users from accessing e-mail through SMTP and POP servers. You can prevent e-mail access entirely or allow access occasionally.

Prevent Simple Mail Transfer Protocol access

If you do not want anyone to use Simple Mail Transfer Protocol (SMTP) to distribute mail to or from your iSeries server, you should prevent the SMTP server from running.

SMTP is configured by default to start automatically when TCP/IP starts. If you do not plan to use SMTP at all, do not configure it on your iSeries server (or allow anyone else to configure it).

Prevent Simple Mail Transfer Protocol from starting when TCP/IP starts:

You might need to use Simple Mail Transfer Protocol (SMTP) occasionally, but want to limit the amount of access users have the SMTP server.

To prevent SMTP server jobs from starting automatically when you start TCP/IP, follow these steps:
1. In iSeries Navigator, expand **your iSeries Server** → **Network** → **Servers** → **TCP/IP**.
2. Right-click **SMTP** and select **Properties**.
3. Clear **Start when TCP/IP starts**.

Prevent access to Simple Mail Transfer Protocol ports:

To secure your Simple Mail Transfer Protocol (SMTP) server from unknown applications, you might want to prevent access to SMTP ports.

To prevent access SMTP from starting and to prevent someone from associating a user application, such as a socket application, with the port that the iSeries server normally uses for SMTP, perform the following steps:
1. In iSeries Navigator, expand **your iSeries Server** → **Network** → **Servers** → **TCP/IP**.
2. Right-click **TCP/IP Configuration** and select **Properties**.
3. In the TCP/IP Configuration Properties window, click the **Port Restrictions** tab.
4. On the Port Restrictions page, click **Add**.
5. On the Add Port Restriction page, specify the following settings:
   - **User name**: Specify a user profile name that is protected on your iSeries server. (A protected user profile is a user profile that does not own programs that adopt authority and does not have a password that is known by other users.) By restricting the port to a specific user, you automatically exclude all other users.
   - **Starting port**: 25
   - **Ending port**: 25
   - **Protocol**: TCP
6. Click **OK** to add the restriction.
7. On the **Port Restrictions** page, click **Add** and repeat the procedure for UDP.
8. Click **OK** to save your port restrictions and close the **TCP/IP Configuration Properties** window. The port restriction takes effect the next time that you start TCP/IP. If TCP/IP is active when you set the port restrictions, you should end TCP/IP and start it again. The port restriction takes effect the next time that you start TCP/IP. If TCP/IP is active when you set the port restrictions, you should end TCP/IP and start it again.

Hold Systems Network Architecture Distribution Services queues:

You can hold Systems Network Architecture Distribution Services (SNADS) distribution queues, which the SMTP application uses to distribute e-mail. This will provide you with extra protection to limit distribution of e-mail.

To hold the distribution queues, enter the following commands on the character-based interface:

HLDDSTQ DSTQ(QSMTPQ)PTY(*NORMAL)
HLDDSTQ DSTQ(QSMTPQ)PTY(*HIGH)

Prevent Post Office Protocol access
If you do not want anyone to use Post Office Protocol (POP) to access your iSeries server, you should prevent the POP server from running.

If you do not plan to use POP at all, do not configure it on your iSeries server (or allow anyone else to configure it).

Prevent Post Office Protocol from starting when TCP/IP starts:

You might need to use Post Office Protocol (POP) occasionally, but want to limit the amount of access users have the POP server.

POP is configured by default to start automatically when TCP/IP starts. To prevent POP server jobs from starting automatically when you start TCP/IP, follow these steps:

1. In iSeries Navigator, expand **your iSeries Server** → **Network** → **Servers** → **TCP/IP**.
2. Right-click **POP** and select **Properties**.
3. Clear **Start when TCP/IP starts**.

Prevent access to Post Office Protocol ports:

To secure your Post Office Protocol (POP) server from unknown applications, you might want to prevent access to POP ports.

To prevent POP from starting and to prevent someone from associating a user application, such as a socket application, with the port that the iSeries server normally uses for POP, complete the following steps:

1. In iSeries Navigator, expand **your iSeries Server** → **Network** → **Servers** → **TCP/IP**.
2. Right-click **TCP/IP Configuration** and select **Properties**.
3. In the TCP/IP Configuration Properties window, click the **Port Restrictions** tab.
4. On the Port Restrictions page, click **Add**.
5. On the Add Port Restriction page, specify the following settings:
    - **User name**: Specify a user profile name that is protected on your iSeries server. (A protected user profile is a user profile that does not own programs that adopt authority and does not have a password that is known by other users.) By restricting the port to a specific user, you automatically exclude all other users.
    - **Starting port**: 109
    - **Ending port**: 110
    - **Protocol**: TCP
6. Click **OK** to add the restriction.
7. On the Port Restrictions page, click **Add** and repeat the procedure for UDP.
8. Click **OK** to save your port restrictions and close the TCP/IP Configuration Properties window.

The port restriction takes effect the next time that you start TCP/IP. If TCP/IP is active when you set the port restrictions, you should end TCP/IP and start it again.

Configure e-mail

You can set up e-mail by configuring TCP/IP, setting up Simple Mail Transfer Protocol (SMTP) and Post Office Protocol (POP) servers, and starting the e-mail servers. You can set up your iSeries server to be an e-mail server.

Related concepts

"Simple Mail Transfer Protocol on iSeries server" on page 2
Simple Mail Transfer Protocol (SMTP) e-mail is the protocol that allows iSeries server to send and receive e-mail.

"Plan for e-mail" on page 5
Before setting up e-mail, you should have a basic plan for how you will be using e-mail on your iSeries server.

Access e-mail servers with iSeries Navigator

You can use iSeries Navigator to configure and manage Simple Mail Transfer Protocol (SMTP) and Post Office Protocol (POP) e-mail servers.

To access POP or SMTP in iSeries Navigator, follow these steps:

1. Double-click the **Client Access Express** folder.
2. Double-click **iSeries Navigator**. If this is your first time using iSeries Navigator, then click the **New Connection** icon to establish a connection to your iSeries server.
3. In iSeries Navigator, expand **your iSeries Server → Network → Servers → TCP/IP**.
4. Double-click **SMTP** to open the SMTP Properties dialog, or double-click **POP** to open the POP Properties dialog.

From there, you can view the online help by clicking **Help**. You can also click the question mark on the title bar and drag and drop it onto a field for help.

> **Related concepts**
>
> "Post Office Protocol on iSeries server" on page 3
> The Post Office Protocol (POP) server is the iSeries implementation of the Post Office Protocol Version 3 mail interface.

Configure TCP/IP for e-mail

Before you can configure e-mail on your iSeries server, you need to set up TCP/IP.

If you are setting up e-mail on your iSeries server for the first time, complete the following steps. If you already have TCP/IP configured on your iSeries server, you can proceed directly to Configure Simple Mail Transfer Protocol (SMTP) and (POP) servers for e-mail.

1. In iSeries Navigator, expand **your iSeries Server → Network → TCP/IP Configuration**.
2. Right-click **Interfaces** and select **New 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
3. After 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.

> **Related concepts**
>
> "Determine problems with e-mail" on page 40
> You can use simple steps to determine what is causing a problem with e-mail.
>
> **Related tasks**
>
> "Configure Simple Mail Transfer Protocol and Post Office Protocol servers for e-mail"
> To use e-mail, you need to configure Simple Mail Transfer Protocol (SMTP) and Post Office Protocol
> (POP) servers on your iSeries server.

Configure Simple Mail Transfer Protocol and Post Office Protocol servers for e-mail

To use e-mail, you need to configure Simple Mail Transfer Protocol (SMTP) and Post Office Protocol
(POP) servers on your iSeries server.

Note: Both the SMTP and the POP server must be correctly configured.

> **Related concepts**
>
> "Post Office Protocol on iSeries server" on page 3
> The Post Office Protocol (POP) server is the iSeries implementation of the Post Office Protocol Version
> 3 mail interface.
>
> **Related tasks**
>
> "Configure TCP/IP for e-mail" on page 10
> Before you can configure e-mail on your iSeries server, you need to set up TCP/IP.

Configure the Simple Mail Transfer Protocol server

You need to configure the Simple Mail Transfer Protocol (SMTP) server before you use it correctly for
e-mail.

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 iSeries Navigator, expand **your iSeries server** → **Network** → **Servers** → **TCP/IP**.
2. Double-click **SMTP**. The SMTP Properties dialog box appears.
3. Click the following tabs to set the parameters listed in the following table.

Click this tab	Then perform the following action
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 server name where SMTP routes the mail if the e-mail is not local mail. See the iSeries 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.

Click this tab	Then perform the following action
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.

Configure the Post Office Protocol server

You need to configure the Post Office Protocol (POP) server before you use it to deliver mails to POP clients.

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.

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

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

Click this tab	Then perform the following action
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.

Enroll e-mail users

You need to create user profiles to enroll e-mail users. User profiles are how iSeries server 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 Simple Mail Transfer Protocol (SMTP) uses to determine where to deliver local e-mail.

To create user profiles for Systems Network Architecture Distribution Services (SNADS) and Post Office Protocol (POP) e-mail users, complete the following steps:

1. In iSeries Navigator, expand **your iSeries 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.

   Note: This password will be used by POP users to access their POP mailboxes.

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. Verify that the required domain name is displayed for the SMTP e-mail domain.

    Note: The default name is typically correct, but if you have multiple local domains you might need to change it.
12. Click **OK**. If you are enrolling a SNADS user, their enrollment is complete. If you are enrolling a POP user who will use the iSeries server **only** to retrieve e-mail, continue to the next step.
13. Click the **Jobs** button.
14. Click the **Session Startup** tab.
15. For the **Initial Menu** field, select **Sign off**. With this setting, any attempt to sign on an iSeries server, other than to retrieve e-mail or change their password, automatically signs the user off.
16. Click **OK**.
17. Click **OK**.
18. Repeat these instructions until all of the e-mail users have user profiles.

    Related concepts

    "Send and receive e-mail on iSeries server" on page 20
    Your iSeries server 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.

    Related tasks

    "Use Systems Network Architecture Distribution Services to send e-mail" on page 24
    You can send e-mail on an iSeries server with a Systems Network Architecture Distribution Services (SNADS) client program using the Send Distribution (SNDDST) command.

Start and stop e-mail servers

Start the required iSeries servers to ensure that everything works properly and all the configuration changes you made take place. Sometimes, it might 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 again.

Related tasks

"Check e-mail servers" on page 28
Verify the status of e-mail servers and make sure that they are all running before using the servers.

Start the servers for e-mail

To start the servers, follow these steps:
1. In iSeries Navigator, expand **your iSeries 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 character-based interface and type STRMSF to start the Mail Server Framework.
5. If you are using SNADS, type STRSBS QSNADS to start the QSNADS subsystem.

You have started your servers, and your iSeries server is now an e-mail server with enrolled e-mail users.

Stop the servers for e-mail

To stop the servers, follow these steps:
1. In iSeries Navigator, expand **your iSeries 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 character-based interface and type ENDMSF to end the Mail Server Framework.
3. If you are using SNADS, type ENDSBS QSNADS to end the QSNADS subsystem.

Configure a dial-up mail connection profile

If you do not have AT&T Global Network support, you must first configure a mail connection profile.

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

Note: If you have AT&T Global Network support, you can skip to Configure the ISP Dial-up Connection wizard.
  1. In iSeries Navigator, expand **your iSeries 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** check box, and specify the connection profile that you created.
  9. Click the ETRN page and select the **Support ETRN (Dial-up mail retrieval)** check box. Click **Add** to specify the domain name for your ISP's outgoing server's address.
 10. Enable the firewall and point to the outgoing Internet service provider's (ISP's) mail server.
 11. Continue with the wizard to set up a new ISP dial-up connection.

   Related tasks

   "Configure the ISP Dial-up Connection wizard"
   You need to configure a dial-up connection profile before using the Simple Mail Transfer Protocol (SMTP) scheduler function to send large amounts of e-mail through an Internet service provider.

Configure the ISP Dial-up Connection wizard

You need to configure a dial-up connection profile before using the Simple Mail Transfer Protocol (SMTP) scheduler function to send large amounts of e-mail through an Internet service provider.

The Internet service provider (ISP) Dial-up Connection wizard does this for you. If you do not have
AT&T Global Network support, see Configure a dial-up mail connection profile 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 iSeries Navigator, expand **your iSeries Server** → **Network** → **Remote Access Services**.
2. Right-click **Originator Connection Profiles** and select **New AT&T 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 AT&T Global Network dial connection.

When you have configured the dial-up connection, you are ready to schedule batch ISP e-mail jobs.

> **Related tasks**
>
> "Configure a dial-up mail connection profile" on page 14
> If you do not have AT&T Global Network support, you must first configure a mail connection profile.
>
> "Schedule batch ISP e-mail jobs"
> To limit the time required to establish a connection, you can schedule mail dial-up jobs to connect to
> your Internet service provider (ISP) at regular intervals.

Schedule batch ISP e-mail jobs

To limit the time required to establish a connection, you can schedule mail dial-up jobs to connect to your
Internet service provider (ISP) at regular intervals.

If your company does not want to spend money for an expensive leased line, iSeries server provides a
way for you to send and receive your company's e-mail in batches at scheduled times, through your ISP.
Use the ISP Dial-up Connection wizard to configure the connection. Then use the SMTP scheduler to set
the time intervals that you want iSeries server 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 iSeries Navigator, expand **your iSeries 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** check box.
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** check box.
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**.

> **Related tasks**
>
> "Configure the ISP Dial-up Connection wizard" on page 14
> You need to configure a dial-up connection profile before using the Simple Mail Transfer Protocol
> (SMTP) scheduler function to send large amounts of e-mail through an Internet service provider.

"iSeries as an ISP e-mail server"
You can use iSeries Simple Mail Transfer Protocol (SMTP) server to receive mail for remote dial-up branch offices.

iSeries as an ISP e-mail server

You can use iSeries Simple Mail Transfer Protocol (SMTP) server to receive mail for remote dial-up branch offices.

If your company has an iSeries server 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 server 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 server. The iSeries server must also have aliases for these host.domains in its local host table. If the remote dial-up servers are iSeries servers, then they must be configured for scheduled batch ISP e-mail jobs.

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

1. In iSeries Navigator, expand **your iSeries 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)** check box.
5. Click **Add** to specify your ISP's host and domain name. This can be done multiple times if multiple mail servers are requesting their mail.
6. Click **OK**.

   Related tasks

   "Schedule batch ISP e-mail jobs" on page 15
   To limit the time required to establish a connection, you can schedule mail dial-up jobs to connect to your Internet service provider (ISP) at regular intervals.

Support multiple domains

You can configure your Simple Mail Transfer Protocol (SMTP) server to support multiple domains in order to host ISP functions.

In order for the iSeries SMTP server to host ISP functions, it is necessary for SMTP to appear to operate in multiple domains. The SMTP client will use this configuration information to know which interface to bind to, when it sends the e-mail, and which mail to consider local (resolve and send on its own) or forward to a configured firewall mail daemon.

1. In iSeries Navigator, expand **your iSeries Server → TCP/IP → Network**.
2. Right-click **SMTP** and select **Properties**.
3. Click the **Multiple Domains** tab.
4. Click **Add** to specify the domains and interfaces that you would like to support.
5. Click **OK**.

   Related concepts

   Prerequisites for an e-mail router
   This topic tells what you should do before you configure an e-mail router.

Secure e-mail

You can learn the procedures for using firewalls, restricting relays and connections, and filtering out viruses.

It is important to promote a secure environment in your iSeries Simple Mail Transfer Protocol (SMTP) server. You must protect your SMTP server and your users from internal and external hindrances.

Send e-mail through a router or firewall

An e-mail router is an intermediate system that Simple Message Transfer Protocol (SMTP) delivers mail to when it cannot locate the recipient's exact IP address.

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

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 server fails to deliver the e-mail to the system. If you have a firewall, you can use the firewall as your router.

To set the router, follow these steps:

1. In iSeries Navigator, expand **your iSeries 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 iSeries Navigator, expand **your iSeries 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**.

Restrict relays

A common concern that you might 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 server for relay.

You have six options for allowing relay:

- Allow all relay messages
- Block all relay messages
- Accept relay messages for only recipients in the near domains list
- Accept relay messages from only the address relay list
- Accept relay messages using both the near domains and address relay lists
- Accept relay messages from POP clients for a specified period of time

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

1. In iSeries Navigator, expand **your iSeries 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 six options offered here.

    Note: If you choose **Accept relay messages for only recipients in the near domains list** or **Accept relay messages using 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**.

7. If the SMTP server is currently running, you need to end and restart the SMTP server for the changes to take effect:

   a. Right-click **SMTP** and select **Stop**.

   b. Right-click **SMTP** and select **Start**.

   Related concepts

   "Control e-mail access" on page 6
   You should control who accesses your server through e-mail to protect your data from malicious attacks.

Accept relay messages from Post Office Protocol clients:

One of the options for relay restriction enables Post Office Protocol (POP) clients to relay messages through Simple Mail Transfer Protocol (SMTP) for a specified period of time after they log on to the POP server.

This function is commonly called POP before SMTP. It is particularly useful for mobile employees that use dynamic IP addresses, because security checking functions that use fixed IP addresses are not effective for checking dynamic IP addresses. You can enable a mobile employee to authenticate once to the POP server and to send e-mail for a designated period of time (15 - 65535 minutes) without authenticating again.

For example, you might configure the server to allow your remote users to relay messages through the SMTP server during a four-hour (240-minutes) period of time after they log on to the POP server. In this example, a mobile worker logs on to the POP server to retrieve his e-mail. The POP server records the user's IP address and a time stamp in a queue. An hour later, the user decides to send an e-mail message. When he sends the e-mail message using SMTP, the SMTP server checks the queue to verify that the user accessed the POP server to retrieve e-mail sometime during the configured time period. After the user is verified, the SMTP server relays the e-mail message to the SMTP client for delivery to the e-mail recipient.

Note: To more precisely control the users that can access your e-mail server, you can use the relay restriction function and the connection restriction function together. For example, you might want to restrict specific groups of users from connecting to your e-mail server but allow certain POP clients within that group to use your SMTP server to send e-mail messages.

To enable POP clients to relay messages for a specified length of time, follow these steps:

1. In iSeries Navigator, expand **your iSeries Server** → **Network** → **Servers** → **TCP/IP**.

2. Right-click **SMTP** and select **Properties**.

3. Click the **Relay Restrictions** tab.

4. For **Allow relay messages**, select **Specified**.

5. Select **From the POP client for the following duration (15 - 655535)** and enter a time value to specify the number of minutes to allow a client to send mail using the SMTP server.

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

7. Click **OK**.

Use relay restriction and connection restriction functions together:

i5/OS™ enables you to use the relay restriction function along with the connection restriction function to carefully control who can access your e-mail server.

You can restrict specific groups of users from connecting to your e-mail server but allow certain Post Office Protocol (POP) clients within that group to use your SMTP server to send e-mail messages.

For example, you know that users within a specific range of IP addresses routinely send spam e-mail. Therefore, you want to restrict addresses in that range from connecting to your e-mail server. However, several of the IP addresses in the IP address range represent trusted i5/OS users, and you want to enable those users with i5/OS user profiles to relay messages for a specified period of time after they log on to the POP server.

Fortunately, you can use the connection restriction function to restrict connections of the specific range of IP addresses and use the relay restriction function to allow certain trusted users (POP clients) within the restricted range to send e-mail using your Simple Mail Transfer Protocol (SMTP) server. i5/OS first checks to see if you configured the server to allow POP clients to relay messages for a specified period of time. Then, it checks for restricted connections. This i5/OS capability enables you to precisely control who can use your SMTP server to relay messages and who can connect to your e-mail server.

If you choose to use the connection restriction function and the relay restriction functions together, you need to create the appropriate data area in the QUSRSYS library to enable the POP server authentication capability to override the connection restriction configuration. You need to create the data area before you configure the relay restriction and connection restriction in iSeries Navigator. At a later date, you might want to remove the relay restriction that allows the POP clients within the restricted group to use your e-mail server. In that case, you need to delete the data area.

To create or delete the data area in QUSRSYS, follow these steps from the command line on the character-based interface:

1. Enter CRTDTAARA DTAARA (QUSRSYS/QTMSPOPOVR) TYPE(*CHAR) to create the data area, or enter DLTDTAARA DTAARA (QUSRSYS/QTMSPOPOVR) TYPE(*CHAR) to delete the data area.
2. If the SMTP server is currently running, you need to end and restart the SMTP server for the changes to take effect:
   a. Enter ENDTCPSVR *SMTP to end the SMTP server.
   b. Enter STRTCPSVR *SMTP to restart the SMTP server.

   Note: After you create the data area, refer to the "Restrict relays" on page 17 and "Restrict connections" topics for configuration details.

Restrict connections

You can prevent the connection of users who might abuse your e-mail server.

Unwanted users might 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 Mail Abuse Prevention System (MAPS) LLC Web site for an example of a host that contains a Realtime Blackhole List.

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

1. In iSeries Navigator, expand **your iSeries 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 Realtime Blackhole Lists 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**.

   Related concepts

"Control e-mail access" on page 6
You should control who accesses your server through e-mail to protect your data from malicious attacks.

Related information

MAPS (Mail Abuse Prevention System LLC)

Filter e-mail to prevent virus proliferation

There are times when a well-known virus might 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, file name, and originator's address in incoming e-mail. The e-mail can then be quarantined or discarded.

With virus filtering, questionable e-mails are automatically saved or discarded based on parameters established by the administrator. E-mails can be filtered by any or all of the following criteria:

1. **Address** individuals or domains
2. **Subject** - ILOVEYOU
3. **Attachment name** - lovebug.vbs or *.vbs
4. **MIME type** - image/* or image/jpg

The values can contain wildcard characters. One wildcard character is an asterisk (*), which specifies that one or more arbitrary characters can be at the position of the wildcard. For example, *.vbs can be used to check for filenames with an extension of .vbs. An originator of *@us.ibm.com filters all mail from IBM in the United States, and a filter of image/* filters type image for all subtypes.

To create a filter, follow these steps:

1. In iSeries Navigator, expand **your iSeries 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. Click **Help** for more information.
6. Click **OK** to save your changes.

Note: In addition to these tools, you should implement supplemental antivirus solutions.

Send and receive e-mail on iSeries server

Your iSeries server 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.

Your users can send and receive e-mail in the following different ways:

Related concepts

"E-mail concepts" on page 1
You depend on electronic mail (e-mail) as an essential business tool. The iSeries server uses protocols, like Simple Message Transfer Protocol (SMTP) and Post Office Protocol (POP), to make your e-mail run smoothly and efficiently on the network.

Related tasks

"Enroll e-mail users" on page 12
You need to create user profiles to enroll e-mail users. User profiles are how iSeries server 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.

Set up Post Office Protocol e-mail clients

If you want to receive and store e-mails by using the Post Office Protocol (POP) server, you need to set up an e-mail client at first.

iSeries 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 might 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 user profile name.
   - The user password. This password must be the same as the iSeries user profile password.
2. Identify the user and the user's preferences. In Netscape Mail, for example, the user looks for **Edit** → **Preferences** → **Mail and News Groups** → **Identity**.
   - User name. This is the iSeries 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 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 looks 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 user profile name.
   - Outgoing mail (SMTP) server. This is the iSeries host name.
4. Identify the incoming mail (POP) server. In Netscape Mail, for example, the user looks for **Edit** → **Preferences** → **Mail and News Groups** → **Mail Servers**.
   - Incoming mail server. This is the iSeries host name.

QtmmSendMail API

You can use the Send MIME Mail (QtmmSendMail) API to send e-mail from an iSeries program.

The QtmmSendMail API supports sending multiple mail attachments at one time, but the Send Distribution (SNDDST) command does not. This API is in the service program QTCP/QTMMSNDM. 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.

ADDTO100 format

This table shows the layout for format ADDT0100.

Offset Dec	Offset Hex	Type	Field	Field description
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.

Offset Dec	Offset Hex	Type	Field	Field description
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: • **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.

Related concepts

"Solve problems with the QtmmSendMail API" on page 42
Use this troubleshooting process to resolve problems that you are having with the Send MIME Mail (QtmmSendMail) API.

"Attach files" on page 26
You can use Send Distribution command (SNDDST) to send e-mail with an attached file or document.

JavaMail

You can use JavaMail to develop e-mail client applications.

The JavaMail API provides a platform-independent and protocol-independent framework you can use to build Java™ technology based e-mail client applications. You can use the JavaMail API to create a mail client capable of sending multimedia mail messages, as well as enabling a full fledged IMAP (Internet Mail Access Protocol) implementation supporting folders, authentication, and attachment handling.

Because SMTP only supports character data, it uses MIME to represent complex data such as formatted text, file attachments (text and binary), and multimedia content. If you use the iSeries QTMMSENDMAIL API, your application must take care of converting the data into the appropriate content. The JavaMail implementation provides MIME processing capabilities natively.

As of OS/400® V5R2, JavaMail components were included as part of the IBM Developer Kit for Java.

Related concepts

JavaMail

Related information

Mail Enabling AS/400 Applications with Java

Send spooled files as PDF files

You can send spooled files in Adobe Portable Document Format (PDF) and distribute the documents by e-mail.

Using the Infoprint® Server for iSeries, you can produce Adobe Portable Document Format (PDF) files from any iSeries output. You can send these generated PDF files as e-mail attachments. You can send a

single spooled file to an address. You can also split up a spooled file into several PDFs and send each one to a different address. Using this method, you can send customer invoices to separate PDF files and send the appropriate invoice to each customer's e-mail address. The Infoprint Server for iSeries licensed program (5722-IP1) is required to use this output method.

For more information about using the Infoprint Server to send PDF files, including examples for configuring e-mail distribution, refer to the following sources:

- Infoprint Server User's Guide (2803 KB)
- Chapter 4, "Using the Infoprint Server for iSeries PDF transform" in IBM eServer™ iSeries Printing Redbook VI - The Output of e-business™ (7803 KB)

Use Lightweight Directory Access Protocol for addresses

You can use Lightweight Directory Access Protocol (LDAP) to provide a public address book based on the system directory.

Before V5R2, clients that supported Messaging Application Programming Interface (MAPI), such as Microsoft® Exchange can use a public address book. The address book was created by data mapping from the system distribution directory to the POP server address book cache. At V5R2, MAPI support is no longer available on the iSeries server.

You can use IBM Directory Server for iSeries (LDAP) to replace the function previously served by MAPI. Using LDAP, you can provide a single address book that can be accessed by all users from the client application.

In order to use LDAP, complete the following tasks:

1. Get started with Directory Server.
2. Publish information to the directory server.
3. Configure your mail client to use LDAP. The steps to complete this task will depend on your mail client (Netscape or Eudora, for example). Edit the properties in your mail client to specify the LDAP server as the Directory Server for mail addressing.

   Related tasks

   Get started with Directory Server

   Publish information to the directory server

   Related reference

   IBM Directory Server for iSeries (LDAP)

Use Systems Network Architecture Distribution Services to send e-mail

You can send e-mail on an iSeries server with a Systems Network Architecture Distribution Services (SNADS) client program using the Send Distribution (SNDDST) command.

The following procedure describes how to send e-mail on iSeries server using the Send Distribution (SNDDST) command. The sender of the e-mail must be a local SNADS user. A local SNADS user has a profile configured by a local system distribution directory entry. For more information, see Enroll e-mail users.

To send e-mail on the iSeries server, follow these steps:

1. In the iSeries character-based interface, 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 server 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.

Note: You can also use Internet addressing when you send mail with the Send Distribution (SNDDST) command.

> **Related tasks**
>
> "Enroll e-mail users" on page 12
> You need to create user profiles to enroll e-mail users. User profiles are how iSeries server 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.
>
> "Use Systems Network Architecture Distribution Services to receive e-mail" on page 27
> You can receive mail on an iSeries server with a Systems Network Architecture Distribution Services (SNADS) client program using the Receive Distribution (RCVDST) command.

Set 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 SNDDST.

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 show up in the text of the SNDDST note.

Multipurpose Internet Mail Extension content types

Standard Internet text notes consist of a general header and a text body. Multipurpose Internet Mail Extension (MIME) notes, however, can contain multiple parts, which allow multimedia attachments to be included with the text.

If the general header contains a content type of `Multipart/Mixed`, one or more attachments follow. There are beginning and ending boundaries for each attachment. The boundary identifier is set on the *boundary=* parameter that follows the Content-Type header tag. See Figure 1 for an example of a multipart MIME note. In this example, each part has a content type, and each text content type can optionally have a character set (charset) defined.

```
      From
@SYSNAM6.CITY.COMPANY.COM:popct08@SYSNAM6.city.company.com Wed
Jan 10
11:33:18 1996 Return-Path:
<@SYSNAM6.CITY.COMPANY.COM:popct08@SYSNAM6.city.company.com> Received: from
SYSNAM6.city.company.com by
fakeps2.city.company.com (COMPANY
         OS/2 SENDMAIL VERSION 1.3.2)/1.0) id AA0329; Wed, 10
Jan 96 11:33:18 -0500 Date: Wed, 10
Jan 96
11:33:18 -0500 Message-Id: <9601101633.AA0329@fakeps2.city.company.com> Received:
  from endmail9 by SYSNAM6.CITY.COMPANY. (IBM i5/OS SMTP V03R02M00) with TCP;
Wed, 10
Jan 1996 10:23:42
+0000. X-Sender: popct08@SYSNAM6.city.ibm.com (Unverified) X-Mailer: Windows
Eudora Pro
Version 2.1.2
Mime-Version:1.0Content-Type:multipart/mixed;boundary="====================_821301929==
  _"
To: fake@fakeps2.city.company.com From:
endmail9 <popct08@SYSNAM6.city.company.com> Subject:
eudora attachments
X-Attachments:C:\EUDORA\ARGYLE.BMP;--====================_821301929==_
Content-Type: text/plain; charset=

 "us-ascii" An example of using Eudora to send a text
andbitmap.--====================_821301929==_
Content-Type: application/octet-stream; name="ARGYLE.BMP";
x-mac-type="424D5070"; x-mac-creator="4A565752"
Content-Transfer-Encoding: base64
Content-Disposition: attachment; filename=

"ARGYLE.BMP"
Qk12AgAAAAAAAHYAAAAoAAAAIAAAACAAAAABAAQAAAAAAAACAAAAAAAAAAAAAAAAQAAAAAAAA
AAAAgAAAgAAAAICAAIAAAACAAIAAgIAAgADAwMAAAAD/AAD/AAAA//8A/wAAAP8A/wD//wAA
////AE1EREREREREZERERERERE1E1ERERERERsZERERERETURE1ERERERGxsZERERERNRERE1ERE
REbGxsZERERE1ERERE1ERERsbGxsZERETURERERE1ERGxsbGxsZERNRERERERE1EbGxsbGxsZE1E
RERERERE1sbGxsbGxsbURERERERERG1sbGxsbGxtZERERERERERbG1sbGxsbG1sZERERERERsbG1s
bGxsbWxsZERERERGxsbG1sbGxtbGxsZERERbGxsbGxsbG1sbGxsbGxsZE1sbGxsbGxsbWxsbGxsZE
RGxsbGxsbG1tbGxsbGxZEbGxsbGxsbG1sbGxsbGxZEbGxsbGxW1sbGxsbGxkREbGxsbGxtbG
1sbGxsbGREbGxsbG1sbG1sbGxsZERERbGxsbGxWxsbG1sbGxkERERERGxtbGxsbG1sbGRERERE
REbG1sbGxsbG1sZERERERERERbWxsbGxsbG1kRERERERNbGxsbGxsbG1ERERERERE1EbGxsbGxs
ZE1EREREETUREbGxsbGxkRE1EREREERNRERERbGxsbGRERE1ERERE1ERERbGxsbGxsZERERE1ERETURE
REREbGxkRERERE1ERNRERERERbGRERERERE1E1EREREREREZERERERERE3URERERERERERERE--====================_821301929==_--
```

Figure 2. Example of a multipart MIME note

Support Internet addressing for the SNDDST command

You can send an e-mail to the Internet with the Send Distribution command (SNDDST) by entering an Internet e-mail address at the Internet Recipient prompt.

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

Follow these steps to configure your mail system:

1. In the iSeries character-based interface, type: ADDDIRE USRID(INTERNET GATEWAY) USRD('Allow SNDDST to send INTERNET Mail') SYSNAME(INTERNET) MSFSRVLVL(*USRIDX) PREFADR(NETUSRID *IBM ATCONTXT)
2. 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.

Related information

AS/400 Electronic-Mail Capabilities

Attach files

You can use Send Distribution command (SNDDST) to send e-mail with an attached file or document.

When sending e-mail on the iSeries server using the SNDDST command, you might 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, in the character-based interface, type:

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

To attach and send a *file* with your e-mail, in the character-based interface, type:

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

Note: If you receive error messages, you might 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.

Convert 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 i5/OS to e-mail clients.

Assuming that the spooled file 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 iSeries commands, as shown in the following example:

1. Move the spooled file to a database physical file:

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

2. Move the physical database file to a folder:

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

3. Send the document:

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

   Related reference

   "QtmmSendMail API" on page 21
   You can use the Send MIME Mail (QtmmSendMail) API to send e-mail from an iSeries program.

Use Systems Network Architecture Distribution Services to receive e-mail

You can receive mail on an iSeries server with a Systems Network Architecture Distribution Services (SNADS) client program using the Receive Distribution (RCVDST) command.

To receive e-mail on iSeries server 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. In the character-based interface, type QRYDST (the Query Distribution command) and press F4. The list of distributions appears.
2. Press F10 to view additional parameters.
3. In the **File to Receive Output** field, type file and library names that are easy to remember and press Enter. The iSeries server creates these physical files.
4. Type WRKF (the Work with Files command) and press Enter. The Work with Files display appears.
5. Type the file name and library you specified in step 3 and press F4.
6. The display lists all your distributions (e-mail). Type 5 next to the distribution you want to display and press Enter.
7. At the Display Physical File Member (DSPPFM) display screen, press Enter.

8. On the next display screen, there will be a long string of numbers for each piece of mail. Copy the seventh through twenty-sixth characters.

9. Press F3 twice to exit.

10. Type RCVDST (the Receive Distribution command) and press Enter.

11. In the **Distribution Identifier** field, paste the seventh through twenty-sixth characters you copied.

12. In the **File to receive output** field, enter a new file name and the same library name you used previously and press Enter.

13. Type DSPPFM (Display Physical File Member) to display the file you just created.

14. Press F20 (Shift + F8) to scroll left and read the message or messages.

Related tasks

"Use Systems Network Architecture Distribution Services to send e-mail" on page 24
You can send e-mail on an iSeries server with a Systems Network Architecture Distribution Services (SNADS) client program using the Send Distribution (SNDDST) command.

Manage e-mail

As an experienced user or administrator, you can manage e-mail servers, users, and messages to ensure distribution of e-mail in your network.

Check e-mail servers

Verify the status of e-mail servers and make sure that they are all running before using the servers.

One of the most common problems with e-mail is that the proper servers are not started. Perform the following procedure in iSeries Navigator to verify the status of the servers that are integral to e-mail on iSeries server:

1. In iSeries Navigator, expand **your iSeries Server** → **Work Management** → **Server Jobs**.

2. Verify that the SMTP server is active. Find **Qtsmtp** jobs in the Job Name column of the Active Server Jobs list.

3. If there are no **Qtsmtp** jobs listed, start the SMTP servers.

4. Verify that the Mail Server Framework server is active. Find **Qmsf** jobs in the Job Name column of the Active Server Jobs list.

5. If there are no Qmsf jobs listed, type STRMSF (the Start the Mail Server Framework command) in the character-based interface.

6. Verify that the POP server is active. Find **Qtpop** jobs in the Job Name column of the Active Server Jobs list.

7. If there are no **Qtpop** jobs listed, start the POP servers.

8. Verify that the SNADS server is active. Find **Qsnads** jobs in the Job Name column of the Active Server Jobs list.

9. If no QSNADS jobs are listed, start SNADS. In the character-based interface, type STRSBS QSNADS.

All your e-mail servers must be started for e-mail to work.

Related concepts

"Start and stop e-mail servers" on page 13
Start the required iSeries servers to ensure that everything works properly and all the configuration changes you made take place. Sometimes, it might 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 again.

"Determine problems with e-mail" on page 40
You can use simple steps to determine what is causing a problem with e-mail.

Remove Post Office Protocol e-mail users

This topic provides instructions for removing Post Office Protocol (POP) e-mail users by using iSeries Navigator.

To remove an e-mail user from iSeries server, you must delete this system distribution directory entry.

1. In the character-based interface, 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. Press Enter again to confirm. This prevents any more e-mail from being delivered to the user's POP mailbox.
4. Sign on to a POP mail client program as that user. Receive and delete any e-mail.

Prevent large e-mail messages from splitting

You might need to prevent your large e-mail messages from splitting, and being delivered in smaller, confusing pieces.

Simple Mail Transfer Protocol (SMTP) can be configured to split large messages into smaller pieces. However, many mail clients cannot reassemble the pieces, resulting in unreadable messages. If you find that your recipients cannot read large messages because they are broken into several pieces, you might want to disable the SMTP splitting function.

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

1. In iSeries Navigator, expand **your iSeries 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 might cause problems when sending large e-mail to networks that cannot handle large messages.

> **Related concepts**
> "Troubleshoot e-mail" on page 40
> This information is designed to help you solve problems related to e-mail that you might experience.

Support Delivery Status Notification

If your users would like to receive messages on the delivery status of their outgoing mail, you must select the support of 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.

To support Delivery Status Notification, complete the following steps:

1. In iSeries Navigator, expand **your iSeries 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)** check box, and specify `DSN notification Responsible Person` address.
5. Click **OK**.

Notes:

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

Host a Domino and SMTP server on the same iSeries server

If you are running Domino and Simple Mail Transfer Protocol (SMTP) on the same iSeries server, it is recommended that you configure each one to bind to a specific IP address. This topic provides the steps for configuring the SMTP server to use a specific Internet address.

When hosting Domino and SMTP server on the same iSeries server, you should bind each server to an IP address. Mail is then sent to users of Domino or SMTP using the appropriate IP address and although it shares a port, the mail is only handled by the server for which it is intended.

To force the SMTP server to use a specific Internet address for iSeries servers running OS/400 V5R1 or later or running i5/OS V5R3 or later, follow these steps:

1. In iSeries Navigator, select **your iSeries Server** → **Network** → **Servers** → **TCP/IP**.
2. Right-click **SMTP** and select **Properties**.
3. Click the **Bindings** tab.
4. Select the **Use all interfaces** radio button, to bind all interfaces to port 25.
5. Select the **Select an interface** radio button, 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 server or on your firewall, you must force the iSeries SMTP client to use one specific Internet address.
6. Click **OK**.

To force the SMTP server to use a specific Internet address, for iSeries servers running OS/400 V5R1 or earlier, follow these steps:

1. In the iSeries character-based interface, type: `CRTDTAARA DTAARA(QUSRSYS/QTMSSBNDIP) 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. In the character-based interface, type: `ENDTCPSVR *SMTP`
3. Type: `STRTCPSVR *SMTP`

To force the *SMTP client* to use a specific Internet address, before OS/400 V5R1, follow the same steps, except in step 1 create the data area: `DTAARA(QUSRSYS/QTMSCBNDIP)`

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.

Refer to the Domino reference library for instructions on how to bind Domino SMTP to a specific TCP/IP address.

Related concepts

Network Address Translation (NAT)

Host Domino LDAP and Directory Services on the same iSeries server

If you are running Domino LDAP and Directory Services on the same iSeries server, it is recommended that you configure each one to bind to a specific IP address. This topic provides the steps for configuring Directory Services to use a specific Internet address.

When hosting Domino LDAP and Directory Services on the same iSeries server, you can either set a different port number for each server or you can bind each server to an IP address. Changing the port number can be disruptive to your clients, so specifying a specific IP address for each server might be the best solution. Domino and Simple Mail Transfer Protocol (SMTP) will each use the appropriate LDAP server for e-mail addressing.

To force the Directory Services server to use a specific Internet address, follow these steps:

1. In iSeries Navigator, select **your iSeries Server** → **Network** → **Servers** → **TCP/IP**.
2. Right-click **Directory** and select **Properties**.
3. Click the **Network** tab.
4. Click **IP Addresses**.
5. Select **Use selected IP addresses** and specify from the list which interfaces you want to bind.
6. Click **OK** to close the Directory - IP Addresses page.
7. Click **OK** to close the Directory Properties page.
8. **Optional:** If you are using Domino LDAP, see the Domino reference library for instructions on how to bind Domino LDAP to a specific TCP/IP address.
9. Start the servers for e-mail

Manage Simple Mail Transfer Protocol server performance

These are tips for managing a busy Simple Mail Transfer Protocol (SMTP) server that uses multiprocessing.

Your SMTP server might be busy because it 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 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: QTSMTPCLTD and QTSMTPCLTP.

To change the values on the SMTP server, follow these steps:

1. In the iSeries character-based interface, 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

Prompt	Value
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.

Change values for the Simple Mail Transfer Protocol server

To change the values on the Simple Mail Transfer Protocol (SMTP) server, follow these steps:

1. In the iSeries character-based interface, 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.

Change values for the Simple Mail Transfer Protocol client

To change the values on the Simple Mail Transfer Protocol (SMTP) client, follow these steps:

1. In the character-based interface, type CHGPIE (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

Prompt	Value
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.

Select new subsystem for Simple Mail Transfer Protocol server jobs

The stage needs to be set just so.

1. You can specify a separate subsystem for the Simple Mail Transfer Protocol (SMTP) server. This should increase performance, because the need to share resources is eliminated.
2. To specify a separate subsystem, complete the following steps:
   a. In iSeries Navigator, expand **your iSeries Server** → **Network** → **Servers** → **TCP/IP**.
   b. Right-click **SMTP** and select **Properties**.
   c. Click the **Additional Parameters** tab.
   d. Select the **Subsystem description** radio button.
   e. 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 processed, it will specify the parameters for the newly created subsystem and then submit the server jobs for batch startup in that subsystem.

E-mail reference information

You can find protocol information and information about journal entries, and more.

Protocol information
- Simple Mail Transfer Protocol (SMTP)
- Post Office Protocol (POP)

Mail server journal entries

This topic provides information for understanding journal entries. Use the following tables to understand the codes and messages used in journal entries.

Journal entry abbreviations

The following table provides the definitions for abbreviations used in journal entries.

Abbreviation	Definition
LIN	Local in, received a note for local delivery. The IP address that follows is the host that sent the note.
RIN	Relay in, received a note to relay to another SMTP daemon. The IP address that sent it follows.
R	Recipient

Abbreviation	Definition
O	Originator
U	Undelivered recipient
QTMSINQ	Input queue of SMTP
QTMSOUTQ	Output queue of SMTP
QTMSBSSQ	Holding queue where messages are placed when system storage threshold is exceeded.
QTMSRTQ1	First level retry queue
QTMSRTQ2	Second level retry queue
RRSL	Recipient resolved

Each journal entry has a two-character SubTypes or codes preceding it. The first character of the SubTypes or code consists of the function identifier for the entry. The second character of the SubTypes or codes consists of the action that this journal entry is documenting. The function identifiers are listed in the following table.

Function identifier	Description
7	Bridge Server Entry
8	SMTP Client
9	SMTP Server
A	MSF Non Delivery
B	MSF Local Delivery
C	MSF Message Forwarding
D	POP Create Message
E	Send Mail API
F	Domino MTA
G	Tunneling Snap-in
H	SNADS (Switcher)
I	MIME Parser (a local delivery snap-in)
L	FAX (Local Delivery)
M	SNADS
O	Filtering
P	MSF SMTP exit for Address Resolution

The following tables provide more detailed information about reading the component journal entries. They are divided as follows:

- "Log entries for the SMTP client" on page 35
- "Log entries for the SMTP server" on page 35
- "Log entries for the bridge server" on page 36
- "Message Switching Facility (MSF) exits and creates functions" on page 36

Note: All of the journal entries documented here use the log entry (LG) type.

Log entries for the SMTP client

Type	Action	SubTypes or Codes	Comments
LG	Dequeuing 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 enqued on BRSR queue
LG	Cannot process, resource busy	86	Log when mail gets put back on QTMSOUTQ because connection matric full
LG	Examine recipient records	86	Log when mail gets put back on QTMSOUTQ because recipient status changed, that is 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

Log entries for the SMTP server

Type	Action	SubTypes or 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 server	97	Log entry of MAIL into QTMSINQ (incoming mail)

Type	Action	SubTypes or Codes	Comments
LG	Passing off mail to client for remote delivery	96	Log entry of MAIL into QTMSOUTQ (relayed mail)
LG	CONNECTION REFUSED 1.2.3.4....	9S	Log connections refused based on restricted connection settings. 1.2.3.4 is the IP address rejected
LG	RELAY REFUSED 1.2.3.4....	9V	Log relays refused based on restricted relay settings. 1.2.3.4 is the IP address rejected

Log entries for the bridge server

Type	Action	SubTypes or Codes	Comments
LG	Getting mail off of the IN queue	7A	Log mail being dequeue from QTMSINQ
LG	Passing off mail to SNADS	7O	Record successful transfer to QSNADS
LG	Putting container on the BUSY queue because of space usage.	7L	Record when mail is enque'd on QTMSBSSQ because of threshold overflow
LG	Getting mail off of BUSY queue	7M	Record dequeuing mail from QTMSBSSQ, space was reclaimed and the mail can now be processed.
LG	Pass message to MSF	7H 71 72	Record when message gets inserted into framework
LG	Creation of COD message	7R 7G	Record when COD message gets inserted into framework Log the MSF MSGID because the new COD message is being created.
LG	Cannot deliver this piece of mail to a recipient	7P 7G	Log the fact that we are creating an undeliverable notice Log the MSGIDof the new undeliverable msg notice.

Message Switching Facility (MSF) exits and creates functions

Type	Action	SubTyps or Codes	Comments
LG	Creation of nondelivery message	AP A1 A2	Record non Delivery message being inserted into MSF
LG	Mail is delivered into a POP mail box	B8 B2	Record delivery of message to local pop mail box, ipaddress will be pop mailbox directory. Recipient will also be listed.

Type	Action	SubTyps or Codes	Comments
LG	Sending COD message into MSF	BR B1 B2	Record insertion of COD message into the MSF
LG	Checking availability	CN	SMTP message Forwarding MSF exit. Record MsgId that was put back on QMSF queue due to SMTP not being started.
LG	Enqueuing the mail	C6 C1 C2	Log mail being put onto QTMSOUTQ
LG	Use of the Sendmail API	EH E1 E2 ET	Record creation of message by SendMail API Message Size nnnnn where nnnnn is size of message (all attachments)
LG	Mail is targeted to a SNADS bridged remote system	G8 G2	Record when message is tunneled. Include system sent to Recipient.
LG	Mail tunneled through a SNADS bridge is received.	GQ G2	Record receiving tunneled message for local delivery Recipient
LG	Address resolution SNADS switches either from/to	H1	SNADS switched a message into the MSF
LG	Reinsertion of parsed MIME note into framework	IH I1 I2 IG	Log when the parsed MIME message is reinserted into the MSF.
LG	Rejected by Filtering	OW	Message has been rejected. Whether it was discarded or kept is noted. If it has been rewritten and delivered that is noted.

Type	Action	SubTyps or Codes	Comments
LG	Typed by SMTP Address Resolution MSF exit program	P2	Message has been tagged as follows: • **POP LclDel:** Tagged for the POP local delivery exit program to deliver. • **SMTP MsgFwd:** Tagged for forwarding to SMTP to send. • **SMTP NonDel:** Marked for nondelivery notification. • **Parse:** Sent to the parser code. • **PutBk:** Put back into the framework for some other exit to handle (for example, Domino or SNADS). • **chg to SNADS:** Changed the address type to SNADS.

Related tasks

"Check component journals" on page 41
You can check journals that record errors to determine how to solve a particular e-mail problem.

Simple Mail Transfer Protocol

Simple Mail Transfer Protocol (SMTP) is a TCP/IP protocol used in sending and receiving e-mail. It is typically used with POP3 or Internet Message Access Protocol to save messages in a server mailbox and download them periodically from the server for the user.

SMTP commands

The following table describes the SMTP commands, the command functions, and whether iSeries SMTP server supports the commands.

SMTP command	What it does	iSeries supported
HELO (Hello)	Identify the SMTP sender to the SMTP receiver.	Yes
EHLO (Extension Hello)	Enable SMTP extensions.	Yes
MAIL (Mail)	Start an e-mail transaction to deliver the e-mail to one or more recipients.	Yes
RCPT (Recipient)	Identify an individual recipient of e-mail.	Yes
DATA (Data)	Consider the lines following the command to be e-mail from the sender.	Yes
SEND (Send)	Deliver e-mail to one or more workstations.	No
SOML (Send or mail)	Deliver e-mail to one or more workstations or recipients if the user is not active.	No

SMTP command	What it does	iSeries supported
SAML (Send and mail)	Deliver e-mail to one or more workstations and recipients if the user is not active.	No
RSET (Reset)	End the current e-mail transaction.	Yes
VRFY (Verify)	Ask the receiver to confirm that a user has been identified.	Yes
EXPN (Expand)	Ask the receiver to confirm that a mailing list has been identified.	No
HELP (Help)	Ask the receiver to send helpful information to the sender.	Yes
NOOP (Noop)	Ask the receiver to send a valid reply (but specify no other action).	Yes
QUIT (Quit)	Ask the receiver to send a valid reply, and then close the transmission channel.	Yes
TURN (Turn)	Ask the receiver to send a valid reply and then become the SMTP sender, or else ask the receiver to send a refusal reply and remain the SMTP receiver.	No

Related concepts

"E-mail example: Send and receive e-mail locally" on page 3
This example demonstrates how e-mail is processed between local users.

Post Office Protocol

The Post Office Protocol (POP) Version 3 mail interface is defined in Request for Comments (RFC) 1725. RFC is the mechanism used to define evolving Internet standards.

The client software uses commands called *verbs* to communicate with the POP server. The iSeries POP server supports the following verbs.

Verb and parameters	Description
USER <id>	Pass user ID
PASS <password>	Password
STAT	Query mailbox
LIST <opt msg #>	Query message statistics
RETR <msg #>	Retrieve message
DELE <msg #>	Delete message
RSET	Reset message delete status
TOP <msg #> <lines>	Retrieve message header and data
UIDL <opt msg #>	Get message unique ID listing
NOOP	No operation
QUIT	Quit client session

Related concepts

"E-mail example: Send and receive e-mail locally" on page 3
This example demonstrates how e-mail is processed between local users.

"Post Office Protocol on iSeries server" on page 3
The Post Office Protocol (POP) server is the iSeries implementation of the Post Office Protocol Version 3 mail interface.

Troubleshoot e-mail

This information is designed to help you solve problems related to e-mail that you might experience.

You can also prevent Simple Mail Transfer Protocol (SMTP) from splitting large e-mail messages. iSeries 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.

Related tasks

"Prevent large e-mail messages from splitting" on page 29
You might need to prevent your large e-mail messages from splitting, and being delivered in smaller, confusing pieces.

Determine problems with e-mail

You can use simple steps to determine what is causing a problem with e-mail.

To identify likely sources of Simple Mail Transfer Protocol (SMTP) problems, follow these steps:
1. Verify that TCP/IP is configured for e-mail.
   a. Go to the iSeries Service PTF facility to determine whether you have all the necessary PTFs.
   b. Check e-mail servers to ensure that the necessary servers are started and running.
2. Verify the local domain name.
   a. In iSeries Navigator, expand **your iSeries Server** → **Network**.
   b. Right-click **TCP/IP Configuration** and select **Properties**.
   c. Click the **Host Domain Information** tab and verify the local domain name.
3. Set the SMTP retry values lower.
   a. In iSeries Navigator, expand **your iSeries Server** → **Network** → **Servers** → **TCP/IP**.
   b. Double-click **SMTP**.
   c. Click the **Outbound Mail Retries** tab.
4. Verify that the user ID and address of the receiver are in the system distribution directory.
   a. In iSeries Navigator, expand **your iSeries Server** → **Users and Groups** → **All Users**.
   b. Right-click the **Profile** of the user ID and select **Properties**.
   c. Click **Personal**, and go to the **Mail** tab to verify the address.
5. Verify whether a host table entry is necessary for the e-mail to reach the destination address.
   a. In the character-based interface, type CHGTCPHTE (the Change TCP/IP Host Table Entry command) and enter the e-mail server's Internet address.
   b. If no host table entry appears, then enter the host name for that Internet address.
6. Ensure you have not exceeded your storage threshold
   a. In iSeries Navigator, expand **your iSeries Server** → **Configuration and Service** → **Hardware** → **Disk Units** → **Disk Pools**.
   b. Right-click the source disk pool that you want to view and select **Properties**.
   c. Select the **Capacity** tab.
   d. If your server usage is greater than your threshold, mail might stop working. For more information, refer to Independent disk pools in the Backup and Recovery topic.
7. Verify that e-mail splitting is disabled.
   a. In iSeries Navigator, expand **your iSeries Server** → **Network** → **Servers** → **TCP/IP**.

b. Double-click **POP**. The POP Properties dialog appears.
   c. Click the **Configuration** tab.
   d. For the **Message Split Size** field, verify **No maximum** is selected.
8. Run the Trace TCP/IP Applications command. In the character-based interface, type TRCTCPAPP.
9. Check component journals to locate the problem.

   Related concepts

   "Control e-mail access" on page 6
   You should control who accesses your server through e-mail to protect your data from malicious attacks.

   Independent disk pools

   "Control Post Office Protocol access" on page 7
   To ensure the security of your server, you should control Post Office Protocol (POP) access.

   "Solve problems with the QtmmSendMail API" on page 42
   Use this troubleshooting process to resolve problems that you are having with the Send MIME Mail (QtmmSendMail) API.

   Related tasks

   "Check e-mail servers" on page 28
   Verify the status of e-mail servers and make sure that they are all running before using the servers.

   "Configure TCP/IP for e-mail" on page 10
   Before you can configure e-mail on your iSeries server, you need to set up TCP/IP.

   "Check the mail server framework jobs (QMSF jobs in the QSYSWRK system)" on page 43
   You should check mail server framework jobs to determine a possible cause of the error in the QtmmSendMail API.

   "Check component journals"
   You can check journals that record errors to determine how to solve a particular e-mail problem.

   "Track undelivered e-mail" on page 42
   You can use a generic user ID to track problems with undeliverable e-mail. This method can be useful for both e-mail delivery and configuration problems.

   Related information

   iSeries Service PTF facility

Check component journals

You can check journals that record errors to determine how to solve a particular e-mail problem.

Your iSeries server uses various queues, programs, and journaling documents so you can tell why your e-mail server is not delivering your mail. The journaling function can be helpful in offering insight as to what might 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 through the server, delivery of mail through 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.

Journal records are stored in journal receivers. These receivers are user managed. When the journal becomes full, issue the Change Journal (CHGJRN) command to change to a new journal receiver. The new SMTP Journaling function uses the QZMF journal.

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

1. In iSeries Navigator expand **your iSeries server** → **Network** → **Servers** → **TCP/IP**.

2. Double-click **SMTP**. The SMTP properties dialog appears.

3. Click the **General** tab.

4. Select the **Enable journal entries** check box.

5. Open an emulation session.

6. To convert the SMTP journal entries to a viewable form, in the character-based interface, type: `DSPJRN JRN(QZMF) OUTPUT(*OUTFILE) OUTFILE(`*jrnlib/zmfstuff*`) OUTMBR(`*MAR2*`) ENTDTALEN(512)`, where *jrnlib* is the name of the library, and *zmfstuff* is the name of the physical file.

7. To view the SMTP journal entries, type `DSPPFM FILE(`*jrnlib/zmfstuff*`) MBR(`*MAR2*`)`on the command line.

8. Press F20 (Shift + F8) to see the journal-specific information.

   Related concepts

   "Determine problems with e-mail" on page 40
   You can use simple steps to determine what is causing a problem with e-mail.

   Related reference

   "Mail server journal entries" on page 33
   This topic provides information for understanding journal entries. Use the following tables to understand the codes and messages used in journal entries.

Track undelivered e-mail

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

1. Select or create a user ID to receive notification. In the character-based interface, type `CRTUSRPRF` (the Create User Profile command) and press Enter.

2. 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 F19 (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.

   Related concepts

   "Determine problems with e-mail" on page 40
   You can use simple steps to determine what is causing a problem with e-mail.

Solve problems with the QtmmSendMail API

Use this troubleshooting process to resolve problems that you are having with the Send MIME Mail (QtmmSendMail) API.

You might encounter errors that are returned with the QtmmSendMail API. This table provides descriptions of error messages that are returned byQtmmSendMail API.

Table 1. Error messages for QtmmSendMail API

CPFA0A9	The object was not found.

Table 1. Error messages for QtmmSendMail API (continued)

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 *(name)* 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.

To recover from these errors, you can follow a process to determine the reason for these problems.

Related concepts

"Determine problems with e-mail" on page 40
You can use simple steps to determine what is causing a problem with e-mail.

Related reference

"QtmmSendMail API" on page 21
You can use the Send MIME Mail (QtmmSendMail) API to send e-mail from an iSeries program.

Check the API call

To recover from an error with the QtmmSendMail Application Programming Interface (API), you should ensure that you are receiving error messages from the API on your workstation display.

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 in the following examples, 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 Multipurpose Internet Mail Extension file

You might have problems with the Multipurpose Internet Mail Extension (MIME) file that is causing the QtmmSendMail API to return an error. You should check the MIME file to ensure that these problems are fixed.

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. In the iSeries character-based interface, 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)

You should check mail server framework jobs to determine a possible cause of the error in the QtmmSendMail API.

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.

   Related concepts

   "Determine problems with e-mail" on page 40
   You can use simple steps to determine what is causing a problem with e-mail.

Related information for e-mail

Listed here are the product manuals and IBM Redbooks™ (in PDF format), Web sites, and information center topics that relate to the E-mail topic. You can view or print any of the PDFs.

Manuals

AnyMail/400 Mail Server Framework Support (about 622 KB)

Read about the framework that drives the iSeries mail server.

IBM Redbooks

- AS/400® Electronic-Mail Capabilities (about 3593 KB)

  View this popular IBM Redbook for in-depth information about e-mail and SMTP.

- AS/400 Internet Security: Protecting Your AS/400 from HARM on the Internet (about 2160 KB)

  This Redbook provides security information, including steps for cleaning up your iSeries if your server is the victim of a flooding attack.

Web sites

- IBM SecureWay®: iSeries and the Internet

  See this Information Center topic to secure your iSeries network.

- iSeries Technical Support Web site

  Download current PDFs for your iSeries by using your workstation as a gateway to the Internet PTF page, or view iSeries solutions from the Technical Information and Databases category.

- Mail enabling iSeries applications with Java

  Learn several means of SMTP mail enabling your iSeries applications.

- RFC Index

  The e-mail protocols are defined in RFCs (Request for Comments). RFCs are the vehicles that are used to define evolving Internet standards. For additional information about the SMTP protocol, refer to RFC 2821. For the POP protocol, refer to RFC 1725.

Other information

Comprehensive information about Domino

- Lotus Domino on iSeries home page
- Domino reference library
- Domino and Notes® User Assistance Documentation Library

Saving PDF files

To save a PDF on your workstation for viewing or printing:
1. Right-click the PDF in your browser (right-click the link above).
2. Click the option that saves the PDF locally.
3. Navigate to the directory in which you want to save the PDF.
4. Click **Save**.

Downloading Adobe Reader

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