

# Gumbo Mail

Programmer's Guide and Reference  
Licensed Program 2A55SM2 V2R1M0



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## **Edition**

### **Tenth Edition (February 2020)**

This edition applies to the licensed program Gumbo Mail (Program 2A55SM2), Version 2 Release 1 Modification 0, and to all subsequent releases and modifications until otherwise indicated in new editions. This revision makes all previous editions obsolete. Make sure you are using the proper edition for the level of the product.

This manual is available as option 1 from the GUMBOMAIL menu, in PDF format in directory /Gumbo/Proddata/2A55SM2/doc on your system, and on the web at [www.gumbo.com](http://www.gumbo.com)

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## Chapter 1 Introduction

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### What's In This Chapter

This chapter introduces you to Gumbo Mail. The chapter:

- Describes the features of Gumbo Mail.
- Describes what Gumbo Mail does.
- Describes product support features.
- Describes Gumbo Mail's relationship to other products.
- Outlines future directions for the product.
- Describes conventions used in this manual.

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### Gumbo Mail Features

Gumbo Mail is a software utility that allows you to send email with MIME attachments directly from your Power server. With Gumbo Mail you can add timely, convenient and inexpensive email output to any application. Gumbo Mail integrates with IBM i's built-in mail support to provide delivery to any email recipient. All processing is performed on the Power server, providing a stable platform for generating email.

Gumbo Mail's features include:

- Control over the message headers including:
  - From: address.
  - Multiple To:, Cc:, Bcc:, and ReplyTo: address(es).
  - Subject:
  - Confirmation of delivery (read receipt) request.
  - Direct entry of custom MIME headers.
- Support for digitally signing the generated email. Recipients can be sure of the email's source and verify that it has not been altered.
- Support for creating messages in a variety of character encodings including UTF-8.
- Support for specifying the message body directly, as text or html.
- Support for including files from IBM i's Integrated File System (IFS), either as attachments or in the message body.
- MIME and S/MIME compliance.
- Double Byte Character Set (DBCS) enabled.
- Support for IBM i distribution lists.
- A Java free IBM i implementation that avoids the JavaMail API and the Java Virtual Machine.

Commands to help you trouble shoot and, optionally, automatically configure IBM i to send mail are also included with Gumbo Mail.

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### What Gumbo Mail Does

Gumbo Mail is Gumbo Software, Inc.'s rendition of the popular SendMail program, implemented on IBM i. The main function of Gumbo Mail is accessed by running the Gumbo Send Mail (GSENDMAIL)

command. The command creates a MIME compliant email message from the specified input and email address(es) and hands it off to IBM i for delivery using IBM i's built-in mail support.

IBM i processes the email and either delivers it directly to the recipient(s) or forwards it to a mail server for delivery.

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## Product Support Features

**GUMBO** products include a range of standard features that make them easy to use, easy to manage, and easy to live with:

- Extensive manual, both online as menu option 1 and in PDF
- Context sensitive help for every command and parameter.
- Menu that provides organized access to the product's features.
- Products are packaged as licensed programs and participates in the full range of support provided by IBM i Licensed program installation, PTF management, etc. are handled with the same commands used to manage IBM® software.
- Unlike IBM® Licensed Programs, our products are packaged to allow multiple releases to be installed at the same time, which facilitates new release testing.
- Product PTFs are available on the web at [www.gumbo.com](http://www.gumbo.com) or can be retrieved and installed in a single step using our Retrieve Gumbo PTF (RTVGSIPTF) command.
- Our products include a hot site friendly automatic authorization function that allows you to immediately move operations to any back up or fail over machine without contacting us for a license key or authorization code.
- We include a Check Gumbo Mail Authorization (CHKSM2AUT) command that allows you to exercise the product's authorization algorithm and insure there are no authorization "surprises".
- An installation verification option is available on the menu. You can easily verify that the product is correctly installed.
- All (applicable) objects in our products are digitally signed allowing you to verify their integrity. Modifications that could jeopardize the security of your system are easily detected with IBM i's Check Object Integrity (CHKOBJITG) command.
- Our products are upward compatible with future releases of IBM i. You can install a new releases of IBM i without installing a new release from us.
- Our products are compatible with all IBM i security levels. We use only published interfaces.

---

## Product Positioning

Gumbo Software, Inc. has several IBM i based products:

Number	Licensed Program
<b>2A55SAM</b>	Spool-a-Matic - Convert IBM i spooled files to PDF, RTF, HTML, etc. in the Integrated File System
<b>2A55SM1</b>	SpoolMail - Email IBM i spooled files as PDF, RTF, HTML, etc.
<b>2A55XL1</b>	Excel-erator - Convert IBM i database files into spreadsheets in the Integrated File System or as email
<b>2A55SM2</b>	Gumbo Mail - Send email from your applications
<b>2A55DCR</b>	Dicer - Merge/sort/split/duplicate spooled files
<b>2A55RDA</b>	Report Designer - Edit DDS, RPG and ILE/RPG print specifications
<b>2A55RM1</b>	Report Manager - Automate report distribution, bursting and spooled file management

There is some overlap between and unique function within the products. Choose the product or combination of products that provide the function you need:

Function	Product						
	SAM	SM1	XL1	SM2	DCR	RDA	RMI
Primary input to product	SPL	SPL	DBF	IFS	SPL	SRC	SPL
Primary output from product	IFS	EML	I/E	EML	SPL	SRC	SPL
Monitor output queues for work	YES	YES	-	-	-	-	YES
Spooled file distribution	-	-	-	-	-	-	YES
Burst (split) spooled files	YES	YES	-	-	YES	-	YES
Merge/sort/duplicate spooled files	-	-	-	-	YES	-	YES
Convert spool to TXT stream file	YES	YES	-	-	-	-	YES
Convert spool to PDF/RIF/etc stream file	YES	YES	-	-	-	-	-
Convert DB file to spreadsheet	-	-	YES	-	-	-	-
Email stream file as attachment	-	YES	YES	YES	-	-	YES
Write stream to Integrated File System	YES	-	YES	-	-	-	YES
Set up IBM i SMTP and mailhub	-	YES	YES	YES	-	-	YES
Edit DDS, RPG, ILE/RPG source code	-	-	-	-	-	YES	-
Where: DBF = Database file EML = Email IFS = Stream file in the Integrated File System I/E = Both IFS and EML SPL = Spooled file SRC = Source code							

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## Future Directions

Future releases of Gumbo Mail will include enhanced functionality based on customer feedback. Additionally, enhancements may be added to an existing release by Program Temporary Fix (PTF).

Contact **GUMBO** to suggest additional enhancements.

---

## Manual Conventions

A note on conventions used in this manual. In several places, instructions for entering commands are given. When the command is intended to be run from a PC command prompt, it is flagged by [\[pc\]](#). When the command is intended to be run from an IBM i command line, it is flagged by [\[i\]](#), or is not flagged at all. [\[Enter\]](#) denotes the enter key.





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## Chapter 2 Installation

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### What's In This Chapter

This chapter describes:

- How to install Gumbo Mail.
- How to verify that Gumbo Mail is installed correctly.
- How to include the GUMBOMAIL library in a job's library list.
- How to determine release dependencies.
- How to test a new release while leaving the old in production.
- How to remove Gumbo Mail from the system.
- How to find additional installation information.
- How to contact technical support.
- Hot site installation.
- Permanent Authorization Codes.

---

### Installing Gumbo Mail

Follow these instructions to install Gumbo Mail V2R1M0 on IBM i using physical media or a virtual image:

#### Prepare

If you are upgrading a previous release (if Gumbo Mail is currently installed), perform these steps before installing the software:

1. Read the Enhancement Summary to determine if any changes affect your installation.
2. Insure that the product is not in use, as the installation process must clear the product's library. This will fail if objects such as menus are in use. If the installation fails, the previous release will be restored.

#### Install

**Note:** If you are installing from a save file downloaded as an executable zip (.exe), use the save file specific "readme.htm" instructions included in the download.

1. Sign on to the system as the security officer (QSECOFR).
2. Verify that your machine is at IBM i V7R3M0 or later by running:

```
WRKLICINF
```

**Note:** If you are running a version of IBM i earlier than V7R3M0 you cannot install Gumbo Mail V2R1M0 on your machine. You must install an earlier version of Gumbo Mail or upgrade the operating system.

3. Verify that user domain objects are allowed in the libraries GUMBOMAIL and QSRV, by running:

```
WRKSYSVAL  SYSVAL(QALWUSRDMN)
```

Take option 5 to display the value. If the value is not \*ALL, use option 2 to add libraries GUMBOMAIL and QSRV to the list of libraries where user domain objects are allowed.

**Note:** QSRV is required to correctly process PTFs when they are loaded and applied.

4. Insure that IBM i will be able to verify the signatures that we apply to our product's objects by installing our Signing Certificate and Root CA Certificate using Digital Certificate Manager. Alternately, insure that signature verification will not prevent the restore operation by running:

```
WRKSYSVAL SYSVAL(QVFYOBJRST)
```

Take option 5 to display the value. If the value is 3 or higher, use option 2 to temporarily change the value to 1.

5. Mount the physical media or virtual image on the appropriate device.
6. Submit the Restore Licensed Program (RSTLICPGM) command to batch:

```
RSTLICPGM LICPGM(2A55SM2) DEV(device-name) LNG(2924)
```

**Note:** Where "device-name" is the device where the media or image was mounted and is usually OPT01.

**Note:** During the restore operation, the system operator message queue may receive inquiry message CPA3DE4 "Directory not registered. (C G)". Unless you are using a directory naming convention similar to ours (that is the directory specified in the CPA3DE4's second level text is unrelated to our software), you can safely respond with a "G" to reestablish the relationship between the directory and the product. Typically the message will occur three or four times.

## Finish

When the RSTLICPGM command completes, library GUMBOMAIL and directory '/Gumbo/ProdData/2A55SM2' contain the new software. To complete the installation:

1. If you have an Authorization or Instructions letter with your permanent authorization code, enter the code now.

**Note:** Gumbo Mail automatically grants 30 days usage for new installs or 90 days usage for release upgrades.

2. Retrieve the current cumulative Gumbo Mail PTF package by running the following command:

```
GUMBOMAIL/RTVGSIPTF
```

**Note:** **GUMBO** recommends downloading the current cumulative PTF package after installing the software.

3. Visit our PTF page at [www.gumbo.com](http://www.gumbo.com) and check the **Additional IBM i PTF Information** section for IBM PTFs you may need to install.
4. You can access the Gumbo Mail menu by running the following command:

---

## Verifying Gumbo Mail Installation

You can verify that Gumbo Mail has been correctly installed by running the Check Product Option (CHKPRDOPT) command:

```
CHKPRDOPT PRDID(2A55SM2) RLS(V2R1M0) CHKSIG(*NONE)
```

**Note:** If you have installed our digital certificates, specify CHKSIG(\*ALL) instead of CHKSIG(\*NONE) and digital signatures will be checked.

If the message 'No errors detected by CHKPRDOPT.' is displayed on the bottom of your display when the command finishes, Gumbo Mail is installed correctly.

If the message is not displayed, check your job log messages or see the Recovery Procedures in the *Software Installation Problems* section of the *Trouble-Shooting* chapter of this manual.

---

## Library List Considerations

Library GUMBOMAIL must be in the library list of jobs using Gumbo Mail commands, or the commands must be qualified with library GUMBOMAIL. Depending on your installation and intended use, you can choose to:

- Add library GUMBOMAIL to the system library list. This insures every job in the system has access to Gumbo Mail commands. However, this introduces problems with installing new releases and is not recommended.
- Add library GUMBOMAIL to the initial library list parameter of job descriptions controlling jobs that will use Gumbo Mail commands. (recommended)
- Run an ADDLIBLE GUMBOMAIL command in individual threads requiring Gumbo Mail commands.
- Qualify the command names on each use:

```
GUMBOMAIL/CHGSM2DFT
```

Library GUMBOMAIL will be temporarily added to the product portion of the current thread's library list.

Determine the best method for your installation and perform any changes required.

---

## Release Considerations

Gumbo Mail operates under IBM i V7R3M0 or higher. Releases occur on a different schedule than IBM releases. Once Gumbo Mail is installed, the following considerations apply:

- A new release of IBM i may be installed without installing a new release of Gumbo Mail.

Gumbo Mail uses only published or IBM sanctioned interfaces and is upward compatible with all releases of IBM i. The Gumbo Mail authorization code does not change.

- A new release of Gumbo Mail may be installed without installing a new release of IBM i.

Any change in the requirements for operating system release level will be noted in the documentation accompanying the Gumbo Mail release. The new authorization code must be entered.

- A new release of Gumbo Mail may be installed over any prior release of Gumbo Mail.

You can skip "missed" releases.

- More than one release of Gumbo Mail may be installed on a system at one time.

By restoring Gumbo Mail to a library other than GUMBOMAIL, a new release can be installed for testing while the old release remains in production. Any release-to-release considerations that may apply will be noted in the documentation accompanying the new release. Additional operational considerations may apply. For more information on renaming a library during licensed program installation, see the Restore Licensed Program (RSTLICPGM) command and the New Release Testing section of this chapter.

- When a new release of Gumbo Mail is installed in the same library as an old release the following processing is performed in order to preserve data and Gumbo Mail authorization information:
  1. The Gumbo Mail library is saved to QGPL/SM2VxRyMz. Where VxRyMz is the old release.
  2. Product objects that contain default settings and operational information are copied to library QTEMP.
  3. The Gumbo Mail library is cleared.
  4. Gumbo Mail is restored.
  5. Default settings and operational information are copied back to the product objects.
  6. All objects duplicated to QTEMP are deleted.
  7. Save file QGPL/SM2VxRyMz is deleted.

**Note:** Gumbo recommends making a backup of the old release before installing a new release of Gumbo Mail.

---

## New Release Testing

Unlike IBM licensed programs, **GUMBO** licensed programs are packaged in a way that allows multiple release to be installed at the same time. This feature allows you to test a new release while the old release remains in production.

The key to new release testing are the LIB() and CODHOMEDIR() parameters of IBM i's Restore License Program (RSTLICPGM) command which allow you to restore the product to a library name and directory different from those used during packaging.

To test a new release, follow this procedure:

1. Review the Enhancement Summary for any release-to-release considerations that could affect your installation.
2. Install the new release in library SM2V2R1M0 and directory '/Gumbo/ProdData/2A55SM2V2R1M0':

```
RSTLICPGM LICPGM(2A55SM2) DEV(device-name) LNG(2924)
LIB(SM2V2R1M0) REPLACERLS(*NO)
CODHOMEDIR(' /Gumbo/ProdData/2A55SM2V2R1M0')
```

Where "device-name" is the device where the media or image was mounted.

3. Prompt CHGSM2DFT on both releases and copy any changes from the existing release to the new release.
4. Perform your new release testing.
5. When testing is complete, you must delete the new release.

```
DLTLICPGM LICPGM(2A55SM2) RLS(V2R1M0) OPTION(*ALL)
```

**Note:** Do not delete nor rename libraries and directories to move the new release into production. Doing so will corrupt the license program information kept internally by IBM i. If this has already occurred, see the Software Installation Problems section of the *Trouble-Shooting* chapter of this manual.

6. Follow the installation instructions to place the new release into production.

---

## Deleting Gumbo Mail

Follow these instructions to remove Gumbo Mail from IBM i:

1. Sign on to the system as the security officer (QSECOFR).
2. Delete the Gumbo Mail library by using the Delete Licensed Program (DLTLICPGM) command:

```
DLTLICPGM LICPGM(2A55SM2) OPTION(*ALL)
```

These instructions delete an otherwise healthy installation of Gumbo Mail. If the installation has been damaged, follow the instructions for Installation Fails in the *Software Installation Problems* section of the *Trouble-Shooting* chapter of this manual.

---

## Additional Installation Information

Additional detailed installation information and instructions can be found in *IBM i and related software > PDF file... > Installing, upgrading, or deleting IBM i and related software SC41-5120* topic in the IBM i Knowledge Center at [http://www.ibm.com/support/knowledgecenter/ssw\\_ibm\\_i](http://www.ibm.com/support/knowledgecenter/ssw_ibm_i).

---

## Technical Support

If you encounter a problem with Gumbo Mail you should:

- Review the information in the Trouble Shooting chapter for a description of and solution to common problems.
- Load and apply the current cumulative PTF package for the software. You can obtain the current package by visiting the web site listed below.

If the problem remains unresolved, contact [support@gumbo.com](mailto:support@gumbo.com).

---

## Hot Site Installation

In the event of a catastrophic system failure, an otherwise properly licensed and authorized copy of our product may be copied to a backup or failover machine. The product's authorization algorithm will detect that the software is operating on a machine serial number different from the licensed and authorized serial number and automatically create and install a 30-day temporary authorization code for the backup or failover machine. You do not need to contact Gumbo Software, Inc. in the event of an emergency.

An otherwise properly licensed and authorized copy of this product may be transferred to a backup or failover machine for the purpose of testing your emergency recovery procedures and the product's automatic temporary authorization function.

The correct sequence of steps is as follows:

1. Install the software and enter the permanent authorization code on your production machine.
2. Save the software from your production machine using the Save Licensed Program (SAVLICPGM) command. This creates an authorized copy, save it with your backups.
3. When restoring to the backup or failover machine you must first insure that any previous copies have been deleted. To delete a previous copy use the Delete Licensed Program (DLTLICPGM) command.
4. Restore the authorized copy to the backup or failover machine using the Restore License Program (RSTLICPGM) command.
5. Confirm that the authorized copy was correctly restored by running the Check Product Option (CHKPRDOPT) command.
6. The first time the software is used on the backup or failover machine the product's authorization algorithm will create and install a temporary authorization code running for 30 days. This allows you install the authorized copy in advance of a disaster.

---

## Permanent Authorization Codes

When you purchase a product from us, or when we send you a new release of a product, you receive a permanent authorization code. Here we describe how to determine the information you must give us in order to receive a permanent authorization code and how to determine if the permanent authorization code you have received is correct for your installation.

The overwhelming majority of licenses purchased from us are **System Wide Licenses**. The other possibility, a **Partition Only License**, is described at the end of this section. For a System Wide License, permanent authorization codes are specific to a **Serial Number**, a **Processor Group**, and our product's **Release**. For a Partition Only License, permanent authorization codes are specific to a **Serial Number**, a **Partition ID Number**, the partition's **Maximum Processor Capacity**, and our product's **Release**.

In all cases, our permanent authorization codes are specific to a release of our product. The release of IBM i never makes a difference. To determine the release of our product installed on IBM i, run:

```
DSPPTF LICPGM(2A55SM2)
```

Where the possible LICPGM numbers are:

Number	Licensed Program
<b>2A55SAM</b>	Spool-a-Matic - Convert IBM i spooled files to PDF, RTF, HTML, etc. in the Integrated File System
<b>2A55SM1</b>	SpoolMail - Email IBM i spooled files as PDF, RTF, HTML, etc.
<b>2A55XL1</b>	Excel-erator - Convert IBM i database files into spreadsheets in the Integrated File System or as email

- 2A55SM2** Gumbo Mail - Send email from your applications
- 2A55DCR** Dicer - Merge/sort/split/duplicate spooled files
- 2A55RDA** Report Designer - Edit DDS, RPG and ILE/RPG print specifications
- 2A55RM1** Report Manager - Automate report distribution, bursting and spooled file management

The 5th line of the panel shows the release you are running. It is V2R1M0 in this example.

```

                                Display PTF Status
                                System:  GUMBO7
Product ID . . . . . : 2A55SM2
IPL source . . . . . : ##MACH#A
Release . . . . . : V2R1M0

Type options, press Enter.
 5=Display PTF details  6=Print cover letter  8=Display cover letter

      PTF                                IPL
Opt  ID      Status                       Action

(No PTFs found.)

                                Bottom
F3=Exit  F11=Display alternate view  F17=Position to  F12=Cancel

```

**Note:** It is possible that more than one release of a product is installed. To check, press `[Enter]`. If you are returned to the command line, only one release is installed.

All of our permanent authorization codes are serial number dependent. For a System Wide License they are also Processor Group dependent. To determine your system's serial number and processor group, run:

```
WRKLICINF
```

Lines 3 and 4 of the resulting panel show the serial number and processor group of your system.

```

Work with License Information
GUMBO7
04/06/20 18:08:32

System serial number . . . . . : 1234567
Processor group . . . . . : P10

Type options, press Enter.
  1=Add license key  2=Change  5=Display detail  6=Print detail
  8=Work with license users  ...

License
Opt  Product  Term  Feature  Description
---  ---      ---  ---      ---
___  5770SS1  V7R3M0  5050  IBM i
___  5770SS1  V7      5051  IBM i
___  5770SS1  V7R3M0  5103  Media and Storage Extensions
___  5770SS1  V7R3M0  5112  PSF 1-45 IPM Printer Support
___  5770SS1  V7R3M0  5113  PSF 1-100 IPM Printer Support
___  5770SS1  V7R3M0  5114  PSF Any Speed Printer Support
___  5770SS1  V7R3M0  5116  HA Switchable Resources
More...

Parameters or command
====>
F3=Exit          F5=Refresh  F11=Display Usage Information  F12=Cancel
F17=Position to  F23=More options
(C) COPYRIGHT IBM CORP. 1980, 2016.

```

For a Partition Only License, permanent authorization codes depend on the Partition ID Number and maximum processor capacity. How you determine the number and processor capacity of partitions on your system depends on whether or not you use HMC (Hardware Management Console) or SST (System Service Tools) to manage your hardware.

If you use HMC (Hardware Management Console):

1. Go to Systems Management: Partitions task > Partition Properties > Hardware > Processors.
2. Read the Processing Units, Maximum: value.

If you use SST (System Service Tools):

1. Start system service tools by running:
   
STRSST
2. After entering a Service tools user ID and Service tools password, select the option to Work with system partitions.
3. Select the option to Display partition information.
4. Select the option to Display partition processing configuration.
5. Note the Partition ID Number and Total Processor Maximum.



```

Display Partition Processing Configuration
System: GUMBO7
Number of system processors . . . . . : 2
Number of available system processors . . . . . : 0
Size of system main storage (MB) . . . . . : 4096
Size of available system main storage (MB) . . . . . : 0
Interactive feature available . . . . . : 0 %

Partition
Identifier Name Current / Pending Minimum / Maximum
0 PRIMARY 1 / 1 1 / 1
1 SECONDARY 1 / 1 1 / 1

F3=Exit F5=Refresh F6=Print F10=Main storage
F11=Display allocated I/O resources F12=Cancel

```

**Note:** A Partition only license is not valid for a machine with only one partition.

**Note:** Our product's algorithm checks the authorization against the Total Processors Current (aka. Assigned) value. If the maximum configured is larger than the license, the algorithm will grant usage as long as the current configured is within the license's limit, and will issue a warning.



---

## Chapter 3 Menu

---

### What's In This Chapter

This chapter describes how to access the Gumbo Mail menu, and reviews the functions that can be performed from the menu.

---

### Accessing Menu GUMBOMAIL

The Gumbo Mail commands and functions that you will use most often are collected on menu GUMBOMAIL. To access the menu use the Go To Menu (GO) command:

```
GO MENU(GUMBOMAIL/GUMBOMAIL)
```

Library GUMBOMAIL is added to the product portion of the current thread's library list while the menu is displayed.

---

### GUMBOMAIL Menu Options

```
GUMBOMAIL                               Gumbo Mail                               System:  SM2

Select one of the following:

    1. Reference Manual

Gumbo Mail
    2. Gumbo Send Mail                       GSENDMAIL

Verification and Set Up
    10. Verify the product is installed correctly
    11. Mail Verification And Set Up Menu

Other Options
    61. Display Current PTF Status           DSPPTF
    62. Change Gumbo Mail Authorization     CHGSM2AUT
    63. Search Help Index                   STRSCHIDX
    64. Change Gumbo Mail Default          CHGSM2DFT
                                           More...

Selection or command
====>

F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel
© Copyright Gumbo Software, Inc. 2002, 2020. All Rights Reserved.
```

#### Option 1. Reference Manual

Provides access to the Gumbo Mail Programmer's Guide and Reference Manual.

#### Option 2. Gumbo Send Mail

The Gumbo Send Mail (GSENDMAIL) command generates an email message and sends it to a recipient(s).

#### Option 10. Verify the product is installed correctly

Installation verification checks to make sure that Gumbo Mail has been correctly installed by running IBM i's Check Product Option (CHKPRDOPT) command.

### **Option 11. Mail Verification And Set Up Menu**

The Mail Verification And Set Up menu provides commands to help you set up mail on your system and verify that it is operating correctly.

#### **Option 61. Display Current PTF Status**

Displays the Gumbo Mail PTFs that have been applied to the software.

#### **Option 62. Change Gumbo Mail Authorization**

The Change Gumbo Mail Authorization (CHGSM2AUT) command changes the authorization code for Gumbo Mail. The command is used to extend a demonstration period or to permanently authorize Gumbo Mail for a system or a partition.

#### **Option 63. Search Help Index**

Search help index allows you to access the Gumbo Mail help index and search for specific information.

#### **Option 64. Change Gumbo Mail Default**

The Change Gumbo Mail Default (CHGSM2DFT) command changes values used by Gumbo Mail to control processing and other activities.

#### **Option 65. Check Gumbo Mail Authorization**

The Check Gumbo Mail Authorization (CHKSM2AUT) command executes Gumbo Mail's authorization verification function. This allows you to determine whether and how the product is authorized for use.

#### **Option 66. Retrieve Gumbo PTF**

The Retrieve Gumbo PTF (RTVGSIPTF) command checks a remote system for new product PTFs, and, if available, downloads and installs them.

#### **Option 67. Work with Source Code for Tools and Examples**

Access source code found in file S2SOURCE which provides useful functions and demonstrates coding techniques used with Gumbo Mail.

---

## Chapter 4 Set Up

---

### What's In This Chapter

This chapter provides information on setting up your Power server to send email created by Gumbo Mail. The chapter describes:

- How to select a quick start mail set up procedure.
- Quick start mail set up - Mailhub.
- Quick start mail set up - Direct Delivery.
- How to use the Verify Local SMTP (VFYLOCAL) command.
- How to use the Verify Mailhub Server (VFYMAILHUB) command.
- Manual mail set up steps
- Additional mail set up resources.

---

### Selecting A Quick Start Procedure

Gumbo Mail creates email by constructing a MIME formatted message and passing it to IBM i for processing and delivery. If IBM i is already configured for email delivery, no additional set up is needed and you can skip this chapter. If Gumbo Mail is the first application on IBM i to generate email for delivery, there are IBM i configuration changes you must perform. Gumbo Mail includes a Mail Verification And Set Up menu (GO GUMBOMAIL/MAILSETUP) that provides tools to help you make them.

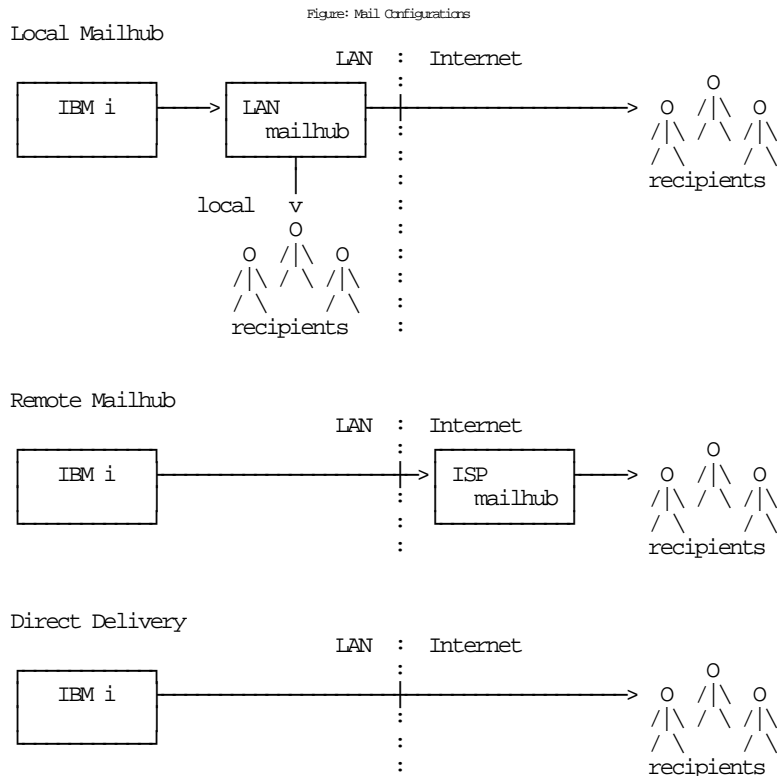
However, the scope of this chapter is limited. If any of the following apply to your installation, proceed directly to the Additional Mail Set Up Resources section for references to help in configuring IBM i:

- Domino for IBM i is installed on the system.
- Multiple TCP/IP interfaces (other than \*LOOPBACK) are configured.
- Multiple email domains require support.

There are two quick start mail set up procedures for configuring IBM i mail services described in this chapter. The procedures are:

- Quick start mail set up - Mailhub
- Quick start mail set up - Direct Delivery.

You only perform, at most, one of these. To select the correct procedure consider the following simplified configurations:



For most customers IBM i is attached to a local area network that also has a mail server attached to it. Typically, the mail server runs on a PC with Exchange, Domino, SendMail, or similar mail application installed. In addition, typically, this mail server should be responsible for delivering mail, and will serve as the forwarding mailhub server for IBM i. If this is your situation, proceed to the Quick Start Mail Set Up - Mailhub section.

For some customers, the mail server belonging to their internet service provider (ISP) is used to deliver email. If this is your situation, proceed to the Quick Start Mail Set Up - Mailhub section.

If you do not have a mail server capable of serving as a mailhub, or do not have access to an ISP's server, you must configure IBM i to deliver email directly. Proceed to the Quick Start Mail Set Up - Direct Delivery section.

## Quick Start Mail Set Up - Mailhub

To configure IBM i to use a forwarding mailhub server follow these steps. If any of the steps fail, move on to the detailed sections of this chapter.

1. Install Gumbo Mail on IBM i (see the Installation chapter for details).
2. Display the main menu (GO GUMBOMAIL/GUMBOMAIL).
3. Run the option to verify that Gumbo Mail is installed correctly.
4. Display the Mail Verification And Set Up menu.
5. Run option 12 to set up IBM i.
6. Determine the name and IP address of the mailhub.
7. Run option 14 to set up the mailhub specifying its name and IP.
8. Press F12 to return to the main menu.
9. Send a test to yourself using your "real" email address.

10. Check your email.

If after a reasonable time no email arrives, perform the following additional steps.

1. Add your "real" email address to your directory entry by running (this example uses "real" email address "billg@acme.com" and the directory entry "MYUSER MYSYSTEM"):

```
CHGDIRE USRID(MYUSER MYSYSTEM)
        MSFSRVLVL( *SYSMS ) PREFADR( *SMTP )
        USRDFNFLD( ( SMTPAUSRID SMTP 'billg' )
                  ( SMTPDMN SMTP 'acme.com' ) )
```

**Note:** If you are still signed on as QSECOFR, start a second session and sign on with your regular user profile to perform the send.

2. Display the Mail Verification And Set Up menu.
3. Run option 61 to restart/purge local mail on IBM i.

**Note:** If IBM i is currently being used to generate email from another application, make sure the Clear SMTP during restart (SMTPPURGE) and Clear MSF during restart (MSFPURGE) parameters specify \*NO to prevent email from being deleted.

4. Send a test to yourself taking by taking the default \*CURRENT.
5. Check your email.

If after a reasonable time no email arrives, move on to the detailed sections of this chapter. For additional information, see the *Trouble-Shooting* chapter of this manual.

---

### Quick Start Mail Set Up - Direct Delivery

If your installation does not include a mail server or if you do not have access to an ISP's mail server, you can configure IBM i to directly deliver email to the world at large using the following steps. If any of the steps fail, move on to the detailed sections of this chapter.

1. Install Gumbo Mail on IBM i (see the Installation chapter for details).
2. Display the main menu (GO GUMBOMAIL/GUMBOMAIL).
3. Run the option to verify that Gumbo Mail is installed correctly.
4. Display the Mail Verification And Set Up menu.
5. Run option 12 to set up IBM i.
6. Configure IBM i access to DNS (see Manual Mail Set Up Steps).
7. Remove previously configured mailhub and mail router (see Manual Mail Set Up Steps).
8. Update the public DNS records for your domain (see Manual Mail Set Up Steps).
9. Press F12 to return to the main menu.
10. Send a test to yourself using your "real" email address.
11. Check your email.

If after a reasonable time no email arrives, perform the following additional steps.

1. Add your "real" email address to your directory entry by running (this example uses "real" email address "billg@acme.com" and the directory entry "MYUSER MYSYSTEM"):

```
CHGDIRE USRID(MYUSER MYSYSTEM)
        MSFSRVLVL(*SYSMS) PREFADR(*SMTP)
        USRDFNFLD((SMTPAUSRID SMTP 'billg')
                  (SMTPDMN SMTP 'acme.com'))
```

**Note:** If you are still signed on as QSECOFR, start a second session and sign on with your regular user profile to perform the send.

2. Display the Mail Verification And Set Up menu.
3. Run option 61 to restart/purge local mail on IBM i.

**Note:** If IBM i is currently being used to generate email from another application, make sure the Clear SMTP during restart (SMTPPURGE) and Clear MSF during restart (MSFPURGE) parameters specify \*NO to prevent email from being deleted.

4. Send a test to yourself taking by taking the default \*CURRENT.
5. Check your email.

If after a reasonable time no email arrives, move on to the detailed sections of this chapter. For additional information, see the *Trouble-Shooting* chapter of this manual.

---

## Using The SMTP Set Up Command

The Verify Local SMTP (VFYLOCAL) command performs automatic verification and set up of SMTP on IBM i. The command accepts a single parameter that determines if changes are made to IBM i. To verify IBM i without making any changes select option 11 on the Mail Verification And Set Up menu or run the following command:

```
VFYLOCAL SETUP(*NO)
```

To make changes to IBM i select option 12 on the Mail Verification And Set Up menu or run the following command:

```
VFYLOCAL SETUP(*YES)
```

In both cases SMTP verification is performed. Only if SETUP(\*YES) is specified does the command try to perform set up functions. You must be authorized to perform all of the verification and set up functions or the command fails. You can insure that you are authorized to perform all functions by signing on as QSECOFR.

**Note:** If you prefer to manually perform the functions of this program see the Appendix for a detailed description.

A log of activity is created during verification and set up. To view the log run DSPJOB, take option 4 and display the last spooled file.

If errors were encountered, detailed information can be found in your joblog. To view the information generated by VFYLOCAL, run the following command after the command has completed:

```
DSPJOBLOG
```



When the joblog is displayed, press F10 to display detailed messages and F18 to position to the end of the log.

The recommended procedure is to run verification first and review the results before running automatic set up.

---

## Using The Mailhub Set Up Command

The Verify Mailhub Server (VFYMAILHUB) command performs automatic verification and set up of a forwarding mailhub server for IBM i. The command accepts three parameters that determine if changes are made to IBM i and the identity of the mailhub. To verify the mailhub without making any changes select option 13 on the Mail Verification And Set Up menu or run the following command (substitute the name and IP address of your forwarding mailhub server for "host\_name" and "ip"):

```
VFYMAILHUB RMTSYS(host_name) INTNETADR(ip) SETUP(*NO)
```

To make changes to IBM i select option 14 on the Mail Verification And Set Up menu or run the following command (substitute the name and IP address of your external mailhub for "host\_name" and "ip"):

```
VFYMAILHUB RMTSYS(host_name) INTNETADR(ip) SETUP(*YES)
```

In both cases mailhub verification is performed. Only if SETUP(\*YES) is specified does the command try to perform set up functions. You must be authorized to perform all of the verification and set up functions or the command fails. You can insure that you are authorized to perform all functions by signing on as QSECOFR.

**Note:** If you prefer to manually perform the functions of this program see the Appendix for a detailed description.

A log of activity is created during verification and set up. To view the log run DSPJOB, take option 4 and display the last spooled file.

If errors were encountered, detailed information can be found in your joblog. To view the information generated by VFYMAILHUB, run the following command after the command has completed:

```
DSPJOBLOG
```

When the joblog is displayed, press F10 to display detailed messages and F18 to position to the end of the log.

The recommended procedure is to run verification first and review the results before running automatic set up.

---

## Manual Mail Set Up Steps

Depending on IBM i's, network configuration and your intended usage, there are several manual mail set up steps you may need to perform in order to use SMTP. These are described here.

### Installing TCP Connectivity Utilities

In order to send email from IBM i, SMTP support must be installed. SMTP functions are delivered free of charge with IBM i as part of a separately installed licensed program product: 57xx-TC1 TCP/IP Connectivity Utilities. Detailed installation information and instructions can be found in *IBM i and related software > PDF file... > Installing, upgrading, or deleting IBM i and related software SC41-5120*.

## Changing Local Host and Domain Names

SMTP uses IBM i's local host and domain name to identify itself to remote SMTP hosts to which it is sending mail. To configure the names:

- Run the Configure TCP/IP (CFGTCPIP) command.
- Select option 12 (Change TCP/IP domain information).
- Enter a host and domain name for IBM i.

As an example, we use **ofc.gumbo.com** as the domain name and the **mailout** as the host name on our machine. If your domain is widget.com you might use:

```
Change TCP/IP Domain (CHGTCPDMN)

Type choices, press Enter.

Host name . . . . . 'mailout'

Domain name . . . . . 'ofc.widget.com'

Domain search list . . . . . *DFT

Host name search priority . . . *LOCAL      *REMOTE, *LOCAL, *SAME
Domain name server:
  Internet address . . . . . '8.8.8.8'
                          '8.8.4.4'

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

## Creating a TCP Interface

A TCP interface establishes IBM i's identity (internet address) on a given line description. Typically, the line description for a local area network is used.

In order to add a TCP interface to a line description, you must determine the IP address and subnet mask to use. If you have a network administrator or other person responsible for assigning internet (IP) addresses, contact them. If you will connect IBM i directly to the Internet, you must request that your internet service provider assign you an IP address or you must request that the Internet Corporation for Assigned Names and Numbers (ICANN) assign you a network number. If you will not connect IBM i directly to the internet, and otherwise do not have an IP address for your system, you can use IP address "192.168.1.1" and Subnet Mask "255.255.255.0". This number is taken from the class B "192.168.0.0" network, which is reserved for internal networks as described in *RFC1597*. To add an interface after you have determined an IP address and subnet mask, run the following command:

```
ADDTCPIFC  INTNETADR(192.168.1.1) +
           LIND(line_description_name) +
           SUBNETMASK(255.255.255.0)
```

Substitute your values for the three parameters.

## Adding Host Name To Host Table

In order to deliver email correctly IBM i's SMTP host name must be associated with an IP address of one its TCP interfaces. This can be accomplished through DNS or you can add a local host table entry. To add a host table entry for IP address "192.168.1.1" with host name mailout, run the following command:

```
ADDTCPHTE  INTNETADR('192.168.1.1') +  
           HOSTNAME('mailout')
```

Substitute your values for the two parameters. If the IP address already exists in the host table, use Change TCP/IP Host Table Entry (CHGTCPHTE) command to add the additional host name to the IP address.

## Configuring IBM i Access To DNS

When not using a mailhub, IBM i must access domain name system (DNS) servers to determine how to deliver email for a recipient. Typically, IP addresses for DNS servers are supplied by your internet service provider (ISP) or network administrator. If neither is available, a reasonable guess as to the IPs to use can be retrieved from a PC attached to the local area network that contains IBM i:

- **[PC]** Choose Start > Programs > Accessories > Command Prompt
- **[PC]** Run command:

```
ipconfig /all [Enter]
```

- **[PC]** Note the IP addresses given for DNS Servers.

```
Host Name . . . . . : PC001  
Primary Dns Suffix . . . . . :  
Node Type . . . . . : Unknown  
IP Routing Enabled. . . . . : No  
WINS Proxy Enabled. . . . . : No  
DNS Suffix Search List. . . . . : ofc.widget.com  
  
Ethernet adapter Widget Net:  
  
Connection-specific DNS Suffix . . : ofc.widget.com  
Description . . . . . : Broadcom 802.11b/g WLAN  
Physical Address. . . . . : 00-11-22-33-44-55  
Dhcp Enabled. . . . . : Yes  
Autoconfiguration Enabled . . . . : Yes  
IP Address. . . . . : 192.0.2.10  
Subnet Mask . . . . . : 255.255.255.192  
Default Gateway . . . . . : 192.0.2.1  
DHCP Server . . . . . : 192.0.2.132  
DNS Servers . . . . . : 8.8.8.8  
                        8.8.4.4  
Lease Obtained. . . . . : Sunday, July 21, 2017 4:30:38 PM  
Lease Expires . . . . . : Monday, July 22, 2017 4:30:38 PM  
  
C:\Documents and Settings\Programmer>
```

To configure IBM i to use DNS servers and confirm correct operation:

- From the IBM i command line, type CHGTCPDMN and press F4.

- Enter the DNS IP addresses in the Domain name server: Internet address (INTNETADR) parameter, press enter.

```

Change TCP/IP Domain (CHGTCPDMN)

Type choices, press Enter.

Host name . . . . . 'mailout'

Domain name . . . . . 'ofc.widget.com'

Domain search list . . . . . *DFT

Host name search priority . . . *LOCAL      *REMOTE, *LOCAL, *SAME
Domain name server:
  Internet address . . . . . '8.8.8.8'
                          '8.8.4.4'

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

```

This example uses the Google DNS IP addresses 8.8.8.8 and 8.8.4.4

- Run the command:  
`ping ibm.com`
- If you do not get the message "Unknown host, ibm.com" DNS is working correctly.

**Note:** You may or may not get ping replies, but that is not important.

### Removing Previously Configured Mailhub and Mail Router

IBM i will deliver email directly if a mailhub and mail router are not configured. To check or remove the mailhub and mail router specifications, prompt the Change SMTP Attributes (CHGSMTPA) command, page down once and change the Mail router (MAILROUTER) parameter to \*NONE:

```

Change SMTP Attributes (CHGSMTPA)

Type choices, press Enter.

User ID delimiter . . . . . '.'          *SAME, *DFT, ?, =, ., &, $...
Mail router . . . . . *NONE

Coded character set identifier      00819      1-65533, *SAME, *DFT
Outgoing EBCDIC/ASCII table:
  Outgoing EBCDIC/ASCII table . . . *CCSID      Name, *SAME, *CCSID, *DFT
  Library . . . . . _____      Name, *LIBL, *CURLIB
Incoming ASCII/EBCDIC table:
  Incoming ASCII/EBCDIC table . . . *CCSID      Name, *SAME, *CCSID, *DFT
  Library . . . . . _____      Name, *LIBL, *CURLIB
Firewall . . . . . *YES          *SAME, *YES, *NO
Journal . . . . . *YES          *SAME, *YES, *NO
Process all mail through MSF . . . *YES          *SAME, *YES, *NO
Percent routing character . . . . *YES          *SAME, *YES, *NO

More...

F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

```

If you are running V5R4M0 skip this step. If you are running V6R1M0 or later, page down three more times and change the Forwarding mailhub server (FWDHUBSVR) parameter to \*NONE:

```

Change SMTP Attributes (CHGSMTPA)

Type choices, press Enter.

Override reject connect list . . . *NO          *SAME, *NO, *YES
Allow bare line feed . . . . . *YES          *SAME, *NO, *YES
Verify identification . . . . . *NO          *SAME, *NO, *YES
Allow authentication . . . . . *NONE          *SAME, *RELAY, *LCLRLY, *NONE
Verify MSF messages . . . . . *NO          *SAME, *YES, *NO
Verify from user . . . . . *ALL          *SAME, *ALL, *LIST, *NONE
Forwarding mailhub server . . . . *NONE

Bottom

F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

```

### Updating Public DNS Records

When directly delivering email to the world at large, IBM i contacts each recipient's mail server and introduces itself using the fully qualified SMTP host name configured using the Change TCP/IP Domain (CHGTCPDMN) command. In the example below, the machine introduces itself as mailout.ofc.widget.com.

```

Change TCP/IP Domain (CHGTCPDMN)

Type choices, press Enter.

Host name . . . . . 'mailout'

Domain name . . . . . 'ofc.widget.com'

Domain search list . . . . . *DFT

Host name search priority . . . *LOCAL      *REMOTE, *LOCAL, *SAME
Domain name server:
  Internet address . . . . . '8.8.8.8'
                          '8.8.4.4'

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

```

When a recipient's mail server is contacted by IBM i, the mail server sees the traffic as coming from the publicly visible IP address of your connection. For example, the external IP address of your DSL modem. To determine the IP address seen externally, go to <http://network-tools.com>. The IP address shown in the search box is the external public IP address of your connection.

Increasingly, mail servers are confirming the identity of machines sending email by performing a DNS look up on the fully qualified host name sent during the introduction, mailout.ofc.widget.com in this example. If the IP address returned by DNS is not the same as the visible IP address the traffic is coming from, email is rejected or discarded as spam.

To insure that IBM i passes this test, you must add, or have your domain registrar add, an address record for IBM i's fully qualified SMTP host name to the DNS records for your domain. In this example:

```
mailout.ofc.widget.com. IN A nnn.nnn.nnn.nnn
```

Is added to the DNS records for the domain widget.com where nnn.nnn.nnn.nnn is the publicly visible IP address determined above. This usually requires contacting your domain name registrar or the ISP hosting your domain, and is not an IBM i setting.

### Setting Up Local Users

A local user is someone who has a user profile (sign-on) on IBM i. You should set up each local user who will be sending email to insure that the apparent "From:" address in the email will be correct and to insure that replies reach the sender. You do not need to set up local users who will not be sending mail. To configure hypothetical user JOE SALES (user profile JOES) as joe@acme.com, perform the following:

- If Joe already has a directory entry run:

```

CHGDIRE USRID(JOE SALES) MSFSRVLVL(*SYSMS)
        PREFADR(*SMTP)
        USRDFNFLD((SMTPAUSRID SMTP 'joe')
                 (SMTPDMN SMTP 'acme.com'))

```

- If Joe does not have a directory entry run:

```

ADDDIRE USRID(JOE SALES) USRD('Sample entry')
      USER(JOES) SYSNAME(*LCL)
      MSFSRVLVL(*SYSMS) PREFADR(*SMTP)
      USRDFNFLD((SMTPAUSRID SMTP 'joe')
                (SMTPDMN SMTP 'acme.com'))

```

The user is now ready to send mail from IBM i as joe@acme.com. For more details or information on setting up remote users, see the *Email Addresses* section of the *Implementation* chapter of this manual.

### Changing The System Start Program

You may wish to check your system's start up program to insure that the required subsystems are started automatically when IBM i IPLs. The following steps are recommended:

- Insure that the SMTP server starts automatically when the Start TCP/IP (STRTCP) command is run:

```
CHGSMTPA AUTOSTART(*YES)
```

- Insure that your system start up program starts TCP/IP by including the command:

```
STRTCP
```

- Insure that your system start up program starts the IBM i Mail Server by including the command:

```
STRMSF
```

### Changing The Time Zone System Value

The time stamp placed in the email is based on the QTIMZON system value. Since most IBM i's have the correct time, an incorrect time stamp usually indicates an incorrect time zone setting. For information on correctly setting the QTIMZON system value see the *System management > Time management* topic in the IBM i Knowledge Center at [http://www.ibm.com/support/knowledgecenter/ssw\\_ibm\\_i](http://www.ibm.com/support/knowledgecenter/ssw_ibm_i).

**Note:** QTIMZON also affects the timestamp applied to files in the Integrated File System (IFS).

### Changing The SMTP Port Number

Some installations use an SMTP port number other than the well-known port 25. You can control the port number used by IBM i's SMTP stack by running the Configure TCP/IP (CFGTCP) command, selecting option 21. Configure related tables, then selecting option 1. Work with service table entries.

---

## Additional Mail Set Up Resources

The information in this chapter was drawn and condensed from the IBM i Knowledge Center. You can find additional detail and more comprehensive coverage of IBM i configuration by going to the *Networking > TCP/IP applications, protocols, and services > E-mail* topic in the IBM i Knowledge Center at [http://www.ibm.com/support/knowledgecenter/ssw\\_ibm\\_i](http://www.ibm.com/support/knowledgecenter/ssw_ibm_i).

For Domino on IBM i users, our software uses IBM i's SMTP services to deliver mail. Valuable information on setting up Domino's and IBM i's SMTP stack to coexist can be found in the IBM Redbook

*V5 TCP/IP Applications on the IBM eServer iSeries Server SG24-6321* available at  
[http://www.ibm.com/support/knowledgecenter/ssw\\_ibm\\_i](http://www.ibm.com/support/knowledgecenter/ssw_ibm_i).



---

## Chapter 5 Implementation

---

### What's In This Chapter

This chapter describes how to implement Gumbo Mail in your environment. The chapter:

- Gives an overview of implementation choices.
- Describes changing programs to send email.
- Describes manually sending email.
- Describes email address details.
- Describes adding line breaks to the message.
- Describes digitally signing the message.
- Describes accessing files in the Integrated File System.

---

### Overview

The first step in implementing Gumbo Mail is to set up IBM i's mail functions if this has not already been done. Refer to the Set Up chapter in this manual for detailed instructions. After set up you are ready to begin implementation.

The main function of Gumbo Mail is accessed by running the Gumbo Send Mail (GSENDMAIL) command. The command creates a MIME compliant email message from the specified input and email address(es) and hands it off to IBM i for delivery using IBM i's built-in mail support. To implement Gumbo Mail in your environment you have two basic choices:

1. Modify the programs that will be sending email to directly run the Gumbo Send Mail (GSENDMAIL) command.

<b>Pros</b>	The emailing is automatic.
<b>Cons</b>	Programs must be modified and recompiled.

2. Manually run the Gumbo Send Mail (GSENDMAIL) command from a command line.

<b>Pros</b>	Good for casual or on demand use, no program changes required.
<b>Cons</b>	Requires manual operations and scheduling.

In all cases, using IBM i distribution lists can simplify the sending of email. See the section on Using Distribution Lists later in this chapter. Also, see the following sections for a detailed discussion of the choices.

---

### Changing Programs

Gumbo Mail can be implemented by changing programs that will be sending email directly. A typical batch Control Language (CL) program that creates a PC file in the Integrate File System (IFS) would contain the following CL sequence:

```
CHGCURDIR  DIR( '/Reports/Weekly/Inventory' )
OVRDBF     FILE( INVENTORY ) TOFILE( INVLIB/INVENTORY )
OVRDBF     FILE( CUSTOMER ) TOFILE( INVLIB/CUSTOMER )
CALL       PGM( INVLIB/INV320 )
```

.  
.  
If program INV320 generates PC file Status.pdf then the following changes will send the file to the distribution list INV320 REPORT:

```
.  
.  
CHGCURDIR  DIR( '/Reports/Weekly/Inventory' )  
OVRDBF     FILE(INVENTORY) TOFILE(INVLIB/INVENTORY)  
OVRDBF     FILE(CUSTOMER) TOFILE(INVLIB/CUSTOMER)  
CALL       PGM(INVLIB/INV320)  
GSENDMAIL  SUBJECT('Weekly Status Report') +  
           MSG('Attached is your weekly status report.') +  
           OBJ((Status.pdf)) +  
           TOUSRID(INV320 REPORT)
```

.  
.  
The PC file is emailed as soon as program INV320 has completed processing.

We recommend using a distribution list with the same name as the program. This moves the distribution details outside of the program and the list of recipients can be updated without changing the program again.

---

## Manually Sending email

Gumbo Mail can be implemented by assigning an operator the task of manually sending email. Suppose the operator should send the files Status.pdf and Updates.pdf in the directory /Reports/Weekly/Inventory to the distribution list INV320 REPORT. The following command sends them with a delivery confirmation request:

```
GSENDMAIL  SUBJECT('Weekly Status Report')  
           OBJ(( '/Reports/Weekly/Inventory/Status.pdf' )  
             ( '/Reports/Weekly/Inventory/Updates.pdf' ))  
           CFMDEL(*YES) TOUSRID(INV320 REPORT)
```

---

## Email Addresses

There are three choices for addressing mail created by Gumbo Mail, direct SMTP addressing, special values, and directory entries stored in the system distribution directory. With direct SMTP addressing, you enter the email address directly on the parameter, no additional address set up is required. Gumbo Mail supports the full range of email address formats, including route specification and *RFC3490 Internationalizing Domain Names in Applications (IDNA)*. Valid formats for email addresses include:

- 'mali@acme.com'
- '<mali@acme.com>'
- 'Mohammed Ali <mali@acme.com>'
- '"Mohammed Ali" <mali@acme.com>'
- 'Mohammed Ali (I am the Greatest) <mali@acme.com>'

In all of these examples the message is delivered to the mailbox mali@acme.com.

## Address Resolution For Special Values

Gumbo Mail supplies several special values for specifying email addresses. For example, \*CURRENT is the default value on the From (originator) Address parameter.

Gumbo Mail uses the following steps to resolve an email address for special values that imply an IBM i user profile.

- If the user profile implied by the special value is enrolled in the system distribution directory and the entry contains an email address the email address is used.
- If the user profile implied by the special value is enrolled in the system distribution directory and the entry does not contain an email address an IBM i style address is generated in the form: usrid?address@host.domain.
- If the user profile implied by the special value is not enrolled in the system distribution directory an email address is generated in the form: userprofile@host.domain

**Note:** In the above, host and domain are taken from the values entered on the CFGTCP option 12 panel.

Therefore, to have the correct email address resolved, you should add or update a system distribution directory entry for each user profile that will be referenced by the special values you will use. Usually this is every user profile that will send email.

To see the list and meaning of special values supported on a particular parameter, prompt the command and display help information by pressing F1.

## Setting Up Directory Entry Email Addresses For Local Users

IBM i's system distribution directory can contain addressing information for users. Directory entries can be created for users who are local to the system (have an IBM i user profile) and for users who are remote (do not have an IBM i user profile). Local users can receive their mail from the system using IBM i's POP server or from a remote mail application such as Exchange. You should set up each local user who will be sending email to insure that the apparent "From:" address in the email will be correct and to insure that replies reach the sender. To add a directory entry for user profile **MYUSER**, run the following command: (for this example, assume the user's email address is billg@acme.com):

```
ADDIRE USRID(MYUSER MYSYSTEM) USRD('Sample entry')
      USER(MYUSER) SYSNAME(*LCL)
      MSFSRVLVL(*SYSMS) PREFADR(*SMTP)
      USRDFNFLD((SMTPAUSRID SMTP 'billg')
                (SMTPDMN SMTP 'acme.com'))
```

**Note:** If you are running Lotus Domino for IBM i, run:

```
ADDIRE USRID(MYUSER MYSYSTEM) USRD('Sample entry')
      USER(MYUSER) SYSNAME(*LCL)
      MSFSRVLVL(*DOMINO) PREFADR(*SMTP)
      USRDFNFLD((SMTPAUSRID SMTP 'billg')
                (SMTPDMN SMTP 'acme.com'))
```

To update an existing directory entry for user profile **MYUSER**, run the following command:

```
CHGDIRE USRID(MYUSER MYSYSTEM)
        MSFSRVLVL(*SYSMS) PREFADR(*SMTP)
        USRDFNFLD((SMTPAUSRID SMTP 'billg')
                  (SMTPDMN SMTP 'acme.com'))
```

## Setting Up Directory Entry Email Addresses For Remote Users

You do not need to set up remote user in order to send them email, but it will enable you to use distribution lists. To add a directory entry for a remote user who will receive email mail from IBM i, run the following command (for this example, assume the user's email address is johnp@acme.com):

```
ADDSDIRE USRID(RMT1 EMAIL) USRD('Sample entry 2')
      USER(*NONE) SYSNAME(TCPIP)
      MSFSRVLVL(*SYSMS) PREFADR(*SMTP)
      USRDFNFLD((SMTPAUSRID SMTP 'johnp')
                (SMTPDMN SMTP 'acme.com'))
```

**Note:** The choice of USRID(RMT1 EMAIL) is arbitrary, select names that are convenient. The system name must be **TCPIP**.

To add a directory entry for a Domino user who does not have an IBM i user profile, run the following command (for this example, assume the user's email address is suej@acme.com):

```
ADDSDIRE USRID(DOMINO EMAIL) USRD('Sample entry 3')
      USER(*NONE) SYSNAME(TCPIP)
      MSFSRVLVL(*DOMINO) PREFADR(*SMTP)
      USRDFNFLD((SMTPAUSRID SMTP 'suej')
                (SMTPDMN SMTP 'acme.com'))
```

**Note:** The choice of USRID(DOMINO EMAIL) is arbitrary, select names that are convenient. The system name must be **TCPIP**.

## Using Distribution Lists

Once you have directory entries set up you can also set up distribution lists. These are lists of recipients (both local and remote) that can be maintained independently of the programs that use the lists. By sending to a distribution list, you send to each entry on the list.

Like directory entries, distribution list IDs have two parts. To make it convenient to manage the system, set up a naming convention for list IDs; for example, INV320 REPORT and INV330 REPORT could be list IDs for recipients of the INV320 and INV330 reports respectively. Such a convention allows lists to be easily associated with their use.

Suppose that the INV320 report should be sent to billg@acme.com and to johnp@acme.com. To create a distribution list to reflect this, run the following commands:

1. Create the distribution list:

```
CRTDSTL LSTID(INV320 REPORT)
      LSTD('INV320 report distribution')
```

2. Add 2 entries to the distribution list:

```
ADDSDSTLE LSTID(INV320 REPORT)
      USRID((MYUSER MYSYSTEM) (RMT1 EMAIL))
```

You are now ready to send to the two users with one command by specifying the **To (distribution list)** parameter:

```
(other command parameters) ... TOUSRID(INV320 REPORT)
```

---

## Adding Line Breaks to the Message

### When Using \*TEXTPLAIN

The following CL program fragment shows how to create a message variable that contains a line break (carriage return/line feed pair):

```
    ...
DCL VAR(&MSG) TYPE(*CHAR) LEN(5000)
DCL VAR(&CRLF) TYPE(*CHAR) LEN(2) VALUE(X'0D25')
DCL VAR(&LIN1) TYPE(*CHAR) LEN(72) VALUE('First line.')
DCL VAR(&LIN2) TYPE(*CHAR) LEN(72) VALUE('Second line.')
    ...
CHGVAR VAR(&MSG) VALUE(&LIN1 |< &CRLF |< &LIN2)
    ...
```

The resulting message is:

```
First line.
Second line.
```

The equivalent RPG is:

```
    ...
C          ...      move      x'0d25'      crlf          2
C          ...      move1     'First line.' lin1         72
C          ...      move1     'Second line.'lin2        72
    ...
C          ...      eval      msg = %trimr(lin1) + crlf + lin2
    ...
```

### When Using \*TEXTHTML

The following CL program fragment shows how to create a message variable that contains a line break.

```
    ...
DCL VAR(&MSG) TYPE(*CHAR) LEN(5000)
DCL VAR(&BR) TYPE(*CHAR) LEN(2) VALUE('<br>')
DCL VAR(&LIN1) TYPE(*CHAR) LEN(72) VALUE('First line.')
DCL VAR(&LIN2) TYPE(*CHAR) LEN(72) VALUE('Second line.')
    ...
CHGVAR VAR(&MSG) VALUE(&LIN1 |< &BR |< &LIN2)
    ...
```

The resulting message is:

```
First line.
Second line.
```

The equivalent RPG is:

```
    ...
C          ...      move      '<br>'      br          4
C          ...      move1     'First line.' lin1         72
C          ...      move1     'Second line.'lin2        72
    ...
C          ...      eval      msg = %trimr(lin1) + br + lin2
    ...
```

---

## Digitally Signing The Message

Email produced by Gumbo Mail can optionally be digitally signed using S/MIME Signed Message format. S/MIME (Secure / Multipurpose Internet Mail Extensions) is a standard for public key encryption and signing of email encapsulated in MIME. A signed message is an ordinary message with a digital signature added by the sender. The signature has two purposes: it identifies the sender, and it verifies that the content of the message has not been altered since the message was sent.

You create digitally signed email by specifying an **Application ID** when the email is created. There are two ways to accomplish this: at the command level and at the system (or LPAR) level. The command level overrules the system level. For command level, specify an **Application ID** directly on the send command's new **Signing key** (SGNKEY) parameter. For the system level, specify an **Application ID** on the CHGSM2DFT command's new **Signing key** (SGNKEY) parameter.

The shipped default values for the **Signing key** (SGNKEY) parameters are \*DEFAULT and \*NONE respectively.

**Application ID** refers to the name you have given to a digital certificate when placing it in the \*OBJECTSIGNING Certificate Store using IBM i's Digital Certificate Manager (DCM). DCM is option 34 of IBM i. You can determine if DCM has been installed by running the Display Software Resources (DSPSFWRSC) command.

Complete information on setting up DCM, creating and storing certificates and adding **Application IDs**, can be found in the *Security > Digital Certificate Manager* topic in the IBM i Knowledge Center at [http://www.ibm.com/support/knowledgecenter/ssw\\_ibm\\_i](http://www.ibm.com/support/knowledgecenter/ssw_ibm_i).

---

## Accessing Integrated File System Files

Files are created in IBM i's Integrated File System (IFS). There is a variety of ways to access the contents of the IFS. The following common methods are described here:

- Accessing the file from a PC using IBM i's support for Windows Network Neighborhood (NetServer).
- Creating the file directly on a Windows machine using the IFS's QNTC file system.
- Transferring the file using FTP from a PC.
- Transferring the file using FTP from IBM i.
- Accessing the file from a PC using IBM i Access.

Complete, detailed, information can be found in the *Files and file systems > Integrated file system* topic in the IBM i Knowledge Center at [http://www.ibm.com/support/knowledgecenter/ssw\\_ibm\\_i](http://www.ibm.com/support/knowledgecenter/ssw_ibm_i).

### Windows Network Neighborhood (NetServer)

IBM i Support for Windows Network Neighborhood (IBM i NetServer) allows a TCP/IP attached PC to access the Integrated File System using the file and print sharing built into Windows.

IBM i NetServer support does not require you to install any additional software on your personal computer. Similarly, IBM i NetServer does not require any software other than base IBM i.

Follow these guidelines to get IBM i NetServer set up. These instructions assume that you do not have access to Navigator for i. Whenever possible, you should use Navigator for i.

**Note:** You must have \*IOSYSCFG special authority to change any part of NetServer configuration. In addition, you must have \*SECADM special authority to change the NetServer guest user profile. These changes will take effect the next time NetServer is started.

1. [\[U\]](#) Verify that IBM i's TCP/IP support is configured.
2. [\[U\]](#) Use the Work with Subsystems (WRKSBS) command to confirm that the QSERVER subsystem has started.
3. [\[U\]](#) Verify that the NetServer name is unique on the network. To change the NetServer default server and default domain name, use the following command:

```
CALL QZLSCHSN PARM(server_name domain_name  
                  'text description or comment' X'00000000') [Enter]
```

4. [LI](#) To change NetServer guest support, use the following command:

```
CALL QZLSCHSG PARM(guest_user_profile X'00000000') [Enter]
```

Users who require the file and print-sharing capabilities of NetServer, but do not have an IBM i user profile need a guest user profile.

**Note:** The Guest User Profile should not have a password or any special authority.

5. [LI](#) Stop and start NetServer, using the following commands:

```
ENDTCPSVR SERVER (*NETSVR) [Enter]  
STRTCPSVR SERVER (*NETSVR) [Enter]
```

To create additional shares you must use Navigator for i and follow these steps:

1. [PC](#) Open a connection to your system in Navigator for i.
2. [PC](#) Expand Network.
3. [PC](#) Expand Servers.
4. [PC](#) Click TCP/IP to retrieve a list of TCP/IP servers available.
5. [PC](#) Right-click NetServer and select Open.
6. [PC](#) Right-click Shared Objects and select New and then File.
7. [PC](#) Use the General Properties page to configure the new file share with a name, description, access, maximum number of users, and directory path name.

**Note:** The Navigator for i online help provides more details about NetServer file share properties.

Once a share has been created, map to it from your Windows PC by following these steps:

1. [PC](#) Right-click the Start button and choose Explore to open the Windows Explorer.
2. [PC](#) Open the Tools pull-down menu on the Windows Explorer and select Map network drive.
3. [PC](#) Select the letter of a free drive for the file share.
4. [PC](#) Enter the name of a NetServer file share. For example:

```
\\server_name\Sharename
```

**Note:** server\_name is the NetServer name entered above, and Sharename is the file share name entered above.

5. [PC](#) Click OK.

Alternately, you can use Network Neighborhood to access the share:

1. [PC](#) Open Windows Network Neighborhood.
2. [PC](#) Open QSYSTEM1 (Where QSYSTEM1 is the server name of NetServer on IBM i).
3. [PC](#) Select a file share.

## QNTC File System

IBM i's QNTC file system allows the Integrated File System to write directly to Windows file shares (disk) as if it were local IBM i disk storage.

Path (file) names in QNTC consist of the file system name, the Windows server name, the sharename, the directory and sub-directory names, and the object name. Path (file) names have the following form:

```
/QNTC/Servername/Sharename/MyDirectory/MyFile.pdf
```

Use the Make Directory (MKDIR) command to add a Windows machine to QNTC. For example:

```
MKDIR DIR( '/QNTC/NTSRV1 ' ) [Enter]
```

Adds the NTSRV1 server into the QNTC file system directory structure to enable access of files and directories on that server.

For additional detailed information, search IBM i Knowledge Center for "QNTC".

## FTP Using PC

FTP can be used from your PC to transfer the files to another system. In brief, the steps for retrieving the file /mydirectory/myfile.pdf from IFS to your PC are:

1. [\[U\]](#) Insure the IBM i FTP server is active by running this command from a command line:

```
STRTCPSVR SERVER( *FTP ) [Enter]
```

2. [\[PC\]](#) Choose Start > Programs > Accessories > Command Prompt to open a command prompt.
3. [\[PC\]](#) Open an FTP connection to IBM i by running (use your system's name or IP address):

```
FTP system_name [Enter]
```

4. [\[PC\]](#) Enter a user name and password as prompted.
5. [\[PC\]](#) Change to binary (image) mode by running:

```
binary [Enter]
```

6. [\[PC\]](#) Switch to IBM i's Integrated File System by running:

```
quote site namefmt 1 [Enter]
```

7. [\[PC\]](#) Retrieve the file by running:

```
get /mydirectory/myfile.pdf [Enter]
```

8. [\[PC\]](#) End FTP and command prompt by running:

```
quit [Enter]  
exit [Enter]
```

For more details see *Networking* topic in the IBM i Knowledge Center at [http://www.ibm.com/support/knowledgecenter/ssw\\_ibm\\_i](http://www.ibm.com/support/knowledgecenter/ssw_ibm_i).



## FTP Using IBM i

FTP can be used from IBM i to transfer the files to another system interactively or in batch. The interactive procedure is similar to the PC procedure, using "put" instead of "get". In brief, the steps for transferring the file /mydirectory/myfile.pdf from IFS to another system in batch are:

1. [U](#) Create a source member containing the FTP commands that you would otherwise have to type at the terminal during an interactive session with the target server. By way of example, we use the following command sequence in member FTPCMDS in QGPL/QCLSRC.

```
user password
binary
namefmt 1
put /mydirectory/myfile.pdf
quit
```

2. [U](#) Add the following statements to your program:

```
...
OVRDBF FILE ( INPUT ) TOFILE ( QGPL / QCLSRC ) MBR ( FTPCMDS )
OVRDBF FILE ( OUTPUT ) TOFILE ( QGPL / QCLSRC ) MBR ( FTPLOG )
FTP      RMTSYS ( system_name )
...
```

For more details see *Networking > TCP/IP applications, protocols, and services > FTP* topic in the IBM i Knowledge Center at [http://www.ibm.com/support/knowledgecenter/ssw\\_ibm\\_i](http://www.ibm.com/support/knowledgecenter/ssw_ibm_i).

### IBM i Access

IBM i Access includes software that connects to IBM i and makes the integrated file system available to the PC. For more information see *IBM i Access* topic in the IBM i Knowledge Center at [http://www.ibm.com/support/knowledgecenter/ssw\\_ibm\\_i](http://www.ibm.com/support/knowledgecenter/ssw_ibm_i).



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## Chapter 6 Commands

---

### What's In This Chapter

This chapter describes the control language (CL) commands supplied by Gumbo Mail. The commands are arranged in alphabetic order by command name (mnemonic). Each description includes environment and threadsafe classification, a brief general description, detailed parameter explanations, examples and message information. Additional explanatory material can be found in the *Programming > Control Language > CL Concepts > CL Commands > CL command information and documentation* topic in the IBM i Knowledge Center at [http://www.ibm.com/support/knowledgecenter/ssw\\_ibm\\_i](http://www.ibm.com/support/knowledgecenter/ssw_ibm_i).

---

## Change Gumbo Mail Authorization (CHGSM2AUT)

**Where allowed to run:** All environments (\*ALL)  
**Threadsafe:** No

The Change Gumbo Mail Authorization (CHGSM2AUT) command changes the authorization code for Gumbo Mail. The command is used to extend a demonstration period or to permanently authorize Gumbo Mail for a system or a partition.

The proposed authorization information is tested against the authorization algorithm to confirm that it will authorize Gumbo Mail. If the test fails, no change is made.

---

### Parameters

Keyword	Description	Choices	Notes
<a href="#">AUTH</a>	Authorization code	<i>Hexadecimal value</i>	Required, Positional 1
<a href="#">EXPDAT</a>	Expiration date (CCYYMMDD)	<i>Character value, *NONE</i>	Optional, Positional 2
<a href="#">LICTYP</a>	License type	<i>*SYS, *LPAR</i>	Optional, Positional 3
<a href="#">PRCMAX</a>	Processor maximum capacity	<i>Decimal number</i>	Optional, Positional 4

---

### Authorization code (AUTH)

Specifies the authorization code to use. The authorization code is 8 hex digits that may be entered in upper or lower case.

This is a required parameter.

***hexadecimal-value*** Specify the case insensitive authorization code.

---

### Expiration date (CCYYMMDD) (EXPDAT)

Specifies the date on which the authorization expires.

**\*NONE** The authorization is permanent.  
***date*** The date on which the authorization expires in CCYYMMDD format.

---

### License type (LICTYP)

Specifies the type of license that is authorized.

**\*SYS** The authorization is for a system wide license, which enables any and all partitions on the system but is specific to the processor group.  
**Note:** The authorization code must be entered in each partition.  
**\*LPAR** The license is specific to one of the partitions on the system and specific to a number of processors within the partition. A partition license must be entered in the partition for which it is intended.

---

### Processor maximum capacity (PRCMAX)

Specifies the maximum processor capacity for which the partition is licensed. The value is expressed in terms of processors where 1.00 is 100% of a processor's capacity or the same as 1 processor, .50 is 50% of a processor's capacity or .5 processors, 2.00 is 200% of a processor's capacity or 2 processors, etc.

***decimal-number*** Specify the maximum processor capacity.

---

## Examples

### Example 1:

```
CHGSM2AUT AUTH(01234567)
```

This command changes the authorization code to a permanent system wide license code.

### Example 2:

```
CHGSM2AUT AUTH(01234567) LICTYP(*LPAR) PRCMAX(1.3)
```

This command changes the authorization code to a permanent partition only license code for 1.3 processors in the current partition.

---

## Error messages

### \*ESCAPE messages

```
AUT9909          Gumbo Mail authorization change was not performed.
```

---

## Change Gumbo Mail Default (CHGSM2DFT)

**Where allowed to run:** All environments (\*ALL)  
**Threadsafe:** No

The Change Gumbo Mail Default (CHGSM2DFT) command changes values used by Gumbo Mail to control processing and other activities.

---

### Parameters

Keyword	Description	Choices	Notes
SGNKEY	Signing key	Single values: <b>*SAME</b> , *NONE Other values: <i>Element list</i>	Optional, Positional 1
	Element 1: Application ID	<i>Character value</i>	

---

### Signing key (SGNKEY)

Specifies the default digital certificate used to sign email.

The signature included with the email allows the recipient to validate the identity of the sender and provides additional assurance that the email has not been tampered with after it is signed.

A certificate is referenced by specifying the name (Application ID) of an **object signing** application created using IBM i's Digital Certificate Manager.

- \*SAME**            The value is not changed.
- \*NONE**            No signing operation is performed.
- application-id***    Specify the application identifier to use in the signing operation.

---

### Examples

#### Example 1:

```
CHGSM2DFT  SGNKEY ( CUSTOMERRESPONSE )
```

This command changes the Signing key to the Application ID with name "CUSTOMERRESPONSE". Unless overruled on the GSENDMAIL command, all email sent will be signed using this certificate.

#### Example 2:

```
CHGSM2DFT  SGNKEY ( *NONE )
```

This command changes the Signing key to \*NONE which suppresses default signing of email.

---

### Error messages

#### \*ESCAPE messages

- SM21016**            Unable to change Gumbo Mail defaults.

---

## Check Gumbo Mail Authorization (CHKSM2AUT)

Where allowed to run: All environments (\*ALL)  
Threadsafe: No

The Check Gumbo Mail Authorization (CHKSM2AUT) command executes Gumbo Mail's authorization verification function. This allows you to determine whether and how the product is authorized for use.

---

### Parameters

Keyword	Description	Choices	Notes
MSGQ	Message queue	Single values: <b>*NONE</b> Other values: <i>Qualified object name</i>	Optional, Positional 1
	Qualifier 1: Message queue	<i>Name</i>	
	Qualifier 2: Library	<i>Name</i> , <b>*LIBL</b> , <b>*CURLIB</b>	

---

### Message queue (MSGQ)

Specifies a message queue that should receive messages if the product is not permanently authorized.

#### Single values

**\*NONE** Messages are not sent to an external message queue.

#### Qualifier 1: Message queue

*name* Specify the name message queue that receives messages.

#### Qualifier 2: Library

**\*LIBL** All libraries in the thread's library list are searched.

**\*CURLIB** Use the current library for the job. If no library is specified as the current library for the job, QGPL is used.

*name* Specify the name of the library.

---

### Examples

#### Example 1:

```
CHKSM2AUT
```

This command executes Gumbo Mail's authorization verification function to determine whether and how the product is authorized for use.

#### Example 2:

```
CHKSM2AUT MSGQ(QSYSOPR)
```

This command executes Gumbo Mail's authorization verification function to determine whether and how the product is authorized for use. If the product is not permanently authorized for use, a failure message is sent to the system operator's message queue.

---

### Error messages

#### \*ESCAPE messages

**AUT9901** We're sorry, the Gumbo Mail demonstration period is over.  
**AUT9905** Unable to access machine information.  
**AUT9907** Gumbo Mail processor group change grace period has expired.  
**AUT9916** Gumbo Mail release upgrade grace period has expired.  
**AUT9918** We're sorry, more than 30 days have elapsed since the Gumbo Mail was first installed.  
**AUT9921** Gumbo Mail unpartitioned system grace period has expired.  
**AUT9926** Gumbo Mail processor limit exceeded grace period has expired.  
**AUT9930** Gumbo Mail authorization check failed.





---

## Display Mail Log (DSPMAILLOG)

**Where allowed to run:** All environments (\*ALL)  
**Threadsafe:** No

The Display Mail Log (DSPMAILLOG) command shows the system mail log (IBM i journal QZMF). The mail log contains information about the processing of mail.

**Note:** Mail journaling must be turned on. To turn on mail journaling, specify JOURNAL(\*YES) on the CHGSMTPA command. Only journal receivers in the current chain are searched.

**Note:** Mail journals are only maintained if DIRTYPE(\*SDD) is specified on the CHGSMTPA command. If this is not the case for your system, use IBM's WRKSMTPEMM command.

---

### Parameters

Keyword	Description	Choices	Notes
PERIOD	Time period	<i>Element list</i>	Optional, Positional 1
	Element 1: Starting date and time	<i>Element list</i>	
	Element 1: Starting time	<i>Time, *AVAIL</i>	
	Element 2: Starting date	<i>Date, *CURRENT, *BEGIN</i>	
	Element 2: Ending date and time	<i>Element list</i>	
	Element 1: Ending time	<i>Time, *AVAIL</i>	
OUTPUT	Output	<i>* *PRINT</i>	Optional, Positional 2

---

### Time period (PERIOD)

Specifies the period of time for which the logged message data is shown. This parameter contains two lists of two elements each.

#### Element 1: Starting date and time

**Element 1: Starting time** One of the following specifies the starting time from which entries are shown. Entries created before this time on the **Starting date** are not shown.

- \*AVAIL** All data that is available for the specified date is shown.
- time** Specify the start time from which data for the specified date is shown. The time is specified in 24-hour format and can be specified with or without a time separator:
- Without a time separator, specify a string of 4 or 6 digits (hhmm or hhmmss) where hh = hours, mm = minutes, and ss = seconds.
  - With a time separator, specify a string of 5 or 8 digits where the time separator specified for your job is used to separate the hours, minutes, and seconds. If you enter this command from the command line, the string must be enclosed in apostrophes. If a time separator other than the separator specified for your job is used, this command will fail.

**Element 2: Starting date** One of the following specifies the starting date from which entries are shown. Entries created before this date are not shown.

- \*CURRENT** The current date is used.
- \*BEGIN** The data from the beginning of the log is shown.
- date** Specify the start date from which data is shown. The date must be specified in the job date format.

#### Element 2: Ending date and time

**Element 1: Ending time** One of the following specifies the ending time to which entries are shown. Entries created after

this time on the **Ending date** are not shown.

**\*AVAIL**  
**time**

All data that is available for the specified date is shown.

Specify the end time to which data for the specified date is shown. The time is specified in 24-hour format and can be specified with or without a time separator:

- Without a time separator, specify a string of 4 or 6 digits (hhmm or hhmmss) where hh = hours, mm = minutes, and ss = seconds.
- With a time separator, specify a string of 5 or 8 digits where the time separator specified for your job is used to separate the hours, minutes, and seconds. If you enter this command from the command line, the string must be enclosed in apostrophes. If a time separator other than the separator specified for your job is used, this command will fail.

**Element 2: Ending date** One of the following specifies the ending date to which entries are shown. Entries created after this date are not shown.

**\*CURRENT**  
**\*END**  
**date**

The current date is used.

The data to the end of the log is shown.

Specify the end date to which data is shown. The date must be specified in the job date format.

---

## Output (OUTPUT)

Specifies where the output from the command is sent. CHAR(10)

**\_** The output is displayed (if requested by an interactive job) or printed with the job's spooled output (if requested by a batch job).

**\*PRINT** The output is printed with the job's spooled output.

---

## Examples

### Example 1:

```
DSPMAILLOG
```

The mail log entries for today are displayed on the screen.

### Example 2:

```
DSPMAILLOG PERIOD(( *AVAIL *BEGIN) (*AVAIL *END))  
OUTPUT(*PRINT)
```

All available mail log entries in the current journal receiver chain are printed.

---

## Error messages

### \*ESCAPE messages

**MSU1074** Error encountered processing request.  
**MSU1076** No data for requested time range.  
**MSU5151** Mail journaling has not been turned on.

## Gumbo Send Mail (GSENDMAIL)

Where allowed to run: All environments (\*ALL)  
 Threadsafes: No

The Gumbo Send Mail (GSENDMAIL) command generates an email message and sends it to a recipient(s).

### Parameters

Keyword	Description	Choices	Notes
TOSMTPNAME	To (recipient)	Single values: <b>*CURRENT</b> , *NONE Other values (up to 300 repetitions): <i>Element list</i>	Optional, Positional 1
	Element 1:	<i>Character value</i> , *USRID, *USRPRF	
SUBJECT	Subject	<i>Character value</i> , <b>*NONE</b>	Optional, Positional 2
MSG	Message	Single values: <b>*NONE</b> Other values: <i>Element list</i>	Optional, Positional 3
	Element 1: Content	<i>Character value</i>	
	Element 2: Content-Type (Send as)	<b>*TEXTPLAIN</b> , *TEXTHTML	
OBJ	Objects	Single values: <b>*NONE</b> Other values (up to 64 repetitions): <i>Element list</i>	Optional, Positional 4
	Element 1: Name	<i>Path name</i>	
	Element 2: Content-Type (Send as)	*NOTE, <b>*ATTACH</b> , *TEXTPLAIN, *TEXTHTML, *ATTACHPDF, *ATTACHPS	
	Element 3: Multipart/alternative group	1-9, <b>*NONE</b>	
	Element 4: Content-ID	<i>Character value</i> , <b>*NONE</b> , *GEN, *OBJECT	
CC	Cc (carbon copy)	Single values: <b>*NONE</b> Other values (up to 300 repetitions): <i>Element list</i>	Optional, Positional 6
	Element 1:	<i>Character value</i> , *CURRENT, *USRID, *USRPRF	
BCC	Bcc (blind carbon copy)	Single values: <b>*NONE</b> Other values (up to 300 repetitions): <i>Element list</i>	Optional, Positional 7
	Element 1:	<i>Character value</i> , *CURRENT, *USRID, *USRPRF	
FROM	From (originator)	<i>Character value</i> , <b>*CURRENT</b> , *USRID	Optional, Positional 8
CFMDEL	Confirmation of delivery	<b>*NO</b> , *YES, *OBS, Y, N, O	Optional, Positional 9
REPLYTO	Reply to	Single values: <b>*NONE</b> Other values (up to 300 repetitions): <i>Element list</i>	Optional, Positional 10
	Element 1:	<i>Character value</i> , *CURRENT, *USRID, *USRPRF	
CHRENC	Character encoding of mail	<b>*UTF8</b> , *ISO88591, *ISO88592, *ISO88595, *ISO88596, *ISO88597, *ISO88598, *ISO88599, *BIG5, 1208, 819, 912, 915, 1089, 813, 916, 920, 950	Optional, Positional 11
SGNKEY	Signing key	Single values: <b>*DEFAULT</b> , *NONE Other values: <i>Element list</i>	Optional, Positional 12
	Element 1: Application ID	<i>Character value</i>	
HDRFLD	Header field	Single values: <b>*NONE</b> Other values (up to 32 repetitions): <i>Element list</i>	Optional, Positional 13
	Element 1:	<i>Character value</i>	
PRIORITY	Priority	<b>*NONE</b> , *HIGHEST, *HIGH, *NORMAL, *LOW, *LOWEST, *HIGHO, *NORMALO, *LOWO	Optional, Positional 14
TOUSRID	To (distribution list)	Single values: <b>*NONE</b> Other values: <i>Element list</i>	Optional, Positional 5
	Element 1: User ID	<i>Character value</i>	
	Element 2: Address	<i>Character value</i>	

---

## To (recipient) (TOSMTPNAME)

Specifies the email address(es) to which the email is sent. CHAR(128)

### Single values

**\*CURRENT** The email address stored in the directory entry associated with the user running the command is used.

**Note:** If a value is specified on the To (distribution list) (TOUSRID) parameter it overrides \*CURRENT.

**\*NONE** An email address is not specified.

### Other values (up to 300 repetitions)

**\*USRID** Specify the directory entry or distribution list that supplies the email address(es). The correct form is: **\*USRID:NAME:ADDRESS** where **NAME** is either a directory entry's "User ID" or a distribution list's "List ID" and where **ADDRESS** is either a directory entry's "Address" or a distribution list's "List ID qualifier". The email address found on the directory entry, or the email address found on each directory entry found on the distribution list, is/are used.

**\*USRPRF** Specify the user profile that supplies the email address. The correct form is: **\*USRPRF:NAME** where **NAME** is a user profile. The directory entry associated with the profile is located and the email address contained in the directory entry is used.

**email-address** Specify the email address of the recipient.

---

## Subject (SUBJECT)

Specifies the subject for the email. CHAR(128)

**Note:** When prompting, the input field can be expanded by typing an ampersand (&) in the first position of the field followed by a blank, and pressing enter.

**\*NONE** No subject is included in the email.

**character-value** Specify the subject of the email.

---

## Message (MSG)

Specifies a message to include in the email, and its content type.

### Single values

**\*NONE** This parameter does not place a message in the email.

### Element 1: Content

**character-value** Specify the content placed in the email. CHAR(5000)

### Element 2: Content-Type (Send as)

**\*TEXTPLAIN** Copy the content into the body of the mail message specifying content type "text/plain".

Line breaks can be added by placing hex value X'0D25' in the data. See manual section "Adding Line Breaks to the Message" for coding details.

**\*TEXTHTML** Copy the content into the body of the mail message specifying content type "text/html".

Line breaks can be added by placing '<br>' in the data. See manual section "Adding Line Breaks to the Message" for coding details.

---

## Objects (OBJ)

Specifies the path name of the object or a pattern to match the name of the object(s) to send. A maximum of 64 path names can be specified.

The object path name can be either a simple name or a name that is qualified with the name of the directory in which the object is located. A pattern can be specified in the last part of the path name. An

asterisk (\*) matches any number of characters and a question mark (?) matches a single character. If the path name is qualified or contains a pattern, it must be enclosed in apostrophes.

For more information on specifying path names, see *Programming > Control language > CL concepts > IBM i objects > Object naming rules* topic in the IBM i Knowledge Center at [http://www.ibm.com/support/knowledgecenter/ssw\\_ibm\\_i.CHAR\(5000\)](http://www.ibm.com/support/knowledgecenter/ssw_ibm_i.CHAR(5000))

Objects can be designated as part of a group of alternatives and/or can be assigned a Content-ID to designate it as a member of a group of related objects which allows reference between objects. There is interplay between alternative group and related group. The following rules are applied:

- The MSG() parameter, if specified, has implied Content-ID of \*NONE and an implied alternate group of \*NONE.
- Objects in each alternate group number are considered in turn with alternate group \*NONE treated as group 0.
- If a group contains more than one object and at least one object has a Content-ID specified, a related group is formed.
- The first object within the alternate group that does not have a Content-ID specified is considered the root of and included in the related group. All other objects without a Content-ID are not included in the related group.
- If all objects in an alternate group have a Content-ID then the first object is considered the root of the related group.

### Single values

**\*NONE** No objects are sent.

### Element 1: Name

**path-name** Specify an object path name or pattern to match.

### Element 2: Content-Type (Send as)

**\*ATTACH** Send the object as Content-Type "application/octet-stream" and Content-Disposition "attachment".

**\*TEXTPLAIN** Copy the object into the body of the mail message specifying Content-Type "text/plain". The CCSID of the file must match the value specified for CHRENC().

**Note:** Some servers disregard this request and form an attachment from the message in all cases. Some servers disregard this request for the second and subsequent body parts. If this is the case, try MSG(\*NONE).

**\*TEXTHTML** Copy the object into the body of the mail message specifying Content-Type "text/html". The CCSID of the file must match the value specified for CHRENC().

**Note:** Some servers disregard this request and form an attachment from the message in all cases. Some servers disregard this request for the second and subsequent body parts. If this is the case, try MSG(\*NONE).

**\*ATTACHPDF** Send the object as Content-Type "application/pdf" and Content-Disposition "attachment". Use this value if the file contains Adobe's Portable Document Format (pdf) data.

**\*ATTACHPS** Send the object as Content-Type "application/postscript" and Content-Disposition "attachment". Use this value if the file contains postscript data.

**\*NOTE** Same as \*TEXTPLAIN which is preferred.

### Element 3: Multipart/alternative group

**\*NONE** The object is not a member of a "multipart/alternative" group.

**1-9** Specify a group number for forming "multipart/alternative" groups. All objects with the same group number are members of a "multipart/alternative" in the generated email.

### Element 4: Content-ID

**\*NONE** A Content-ID field is not included in the generated email.

**\*GEN** A Content-ID is generated for the object.

**\*OBJECT** The object name is used as the Content-ID after removing any directory qualifiers.  
***character-value*** Specify a content identifier used by another part of the email to reference this object. For example, specify "Image.png" and reference it in html with <image src="cid:Image.png">. Although most clients are fairly lenient, RFC-2392 calls for a universally unique, url escaped, identifier of the form "foo4%25foo1@bar.net".

---

## Cc (carbon copy) (CC)

Specifies the email address(es) to which a copy is sent. CHAR(128)

### Single values

**\*NONE** An email address is not specified.

### Other values (up to 300 repetitions)

**\*CURRENT** The email address stored in the directory entry associated with the user running the command is used.  
**\*USRID** Specify the directory entry or distribution list that supplies the email address(es). The correct form is: **\*USRID:NAME:ADDRESS** where **NAME** is either a directory entry's "User ID" or a distribution list's "List ID" and where **ADDRESS** is either a directory entry's "Address" or a distribution list's "List ID" qualifier". The email address found on the directory entry, or the email address found on each directory entry found on the distribution list, is/are used.  
**\*USRPRF** Specify the user profile that supplies the email address. The correct form is: **\*USRPRF:NAME** where **NAME** is a user profile. The directory entry associated with the profile is located and the email address contained in the directory entry is used.  
***character-value*** Specify the email address to receive a copy.

---

## Bcc (blind carbon copy) (BCC)

Specifies the email address(es) to which a blind copy is sent. CHAR(128)

### Single values

**\*NONE** An email address is not specified.

### Other values (up to 300 repetitions)

**\*CURRENT** The email address stored in the directory entry associated with the user running the command is used.  
**\*USRID** Specify the directory entry or distribution list that supplies the email address(es). The correct form is: **\*USRID:NAME:ADDRESS** where **NAME** is either a directory entry's "User ID" or a distribution list's "List ID" and where **ADDRESS** is either a directory entry's "Address" or a distribution list's "List ID" qualifier". The email address found on the directory entry, or the email address found on each directory entry found on the distribution list, is/are used.  
**\*USRPRF** Specify the user profile that supplies the email address. The correct form is: **\*USRPRF:NAME** where **NAME** is a user profile. The directory entry associated with the profile is located and the email address contained in the directory entry is used.  
***character-value*** Specify the email address to receive a blind copy.

---

## From (originator) (FROM)

Specifies the email address that appears as the **From** on the generated the email. You can use this to control the address used when the recipient replies to the email.

**Note:** One or more of the special values for this parameter access the system distribution directory to determine an email address based on the implied user profile. If the user profile does not have a directory entry (I.e. the user has not been enrolled), the user name is used to construct an email address. If the user has been enrolled but an email address has not been specified on the directory entry, the user id and address are used to construct an email address. In either case, the constructed address, in all likelihood, is not a valid email address. The email will deliver but recipient replies will be lost (bounce).

**\*CURRENT** The email address stored in the directory entry associated with the user running the command is used.  
**\*USRID** Specify the directory entry or distribution list that supplies the email address(es). The correct form is:

**\*USRID:NAME:ADDRESS** where **NAME** is either a directory entry's "User ID" or a distribution list's "List ID" and where **ADDRESS** is either a directory entry's "Address" or a distribution list's "List ID qualifier". The email address found on the directory entry, or the email address found on each directory entry found on the distribution list, is/are used.

**\*USRPRF** Specify the user profile that supplies the email address. The correct form is: **\*USRPRF:NAME** where **NAME** is a user profile. The directory entry associated with the profile is located and the email address contained in the directory entry is used.

**character-value** Specify the email address of the originator.

---

## Confirmation of delivery (CFMDEL)

Specifies whether a request for a read receipt is sent with the message. Message recipients can choose whether or not to send receipts. If the message recipient agrees to send a read receipt, the receipt will be sent when the message is opened.

**\*NO** Confirmation of delivery is not requested.

**\*YES** Confirmation of delivery is requested.

**\*OBS** Confirmation of delivery is requested as with **\*YES** but the obsolete non-standard "Return-Receipt-To" header field is also included in the message. Some mail user/transport agents understand the obsolete field but do not understand the standard "Disposition-Notification-To" supplied by **\*YES**.

---

## Reply to (REPLYTO)

Specifies the email address(es) to which replies should be sent when replies should go to an address other than the From (originator) (FROM) parameter or should go to multiple addresses. CHAR(128)

### Single values

**\*NONE** Replies are directed to the address the email is from.

### Other values (up to 300 repetitions)

**\*CURRENT** The email address stored in the directory entry associated with the user running the command is used.

**\*USRID** Specify the directory entry or distribution list that supplies the email address(es). The correct form is: **\*USRID:NAME:ADDRESS** where **NAME** is either a directory entry's "User ID" or a distribution list's "List ID" and where **ADDRESS** is either a directory entry's "Address" or a distribution list's "List ID qualifier". The email address found on the directory entry, or the email address found on each directory entry found on the distribution list, is/are used.

**\*USRPRF** Specify the user profile that supplies the email address. The correct form is: **\*USRPRF:NAME** where **NAME** is a user profile. The directory entry associated with the profile is located and the email address contained in the directory entry is used.

**character-value** Specify the email address to which replies should be directed.

---

## Character encoding of mail (CHRENC)

Specifies the character set used to create the email and MIME headers (the transfer encoding).

**\*UTF8** Unicode 8 bit transfer encoding (1208).

**\*ISO88591** ISO-8859-1 Latin 1 Western European "8-bit ASCII" (819).

**\*ISO88592** ISO-8859-2 ROECE Latin 2 Eastern European (912).

**\*ISO88595** ISO-8859-5 Cyrillic (915).

**\*ISO88596** ISO-8859-6 Arabic (1089).

**\*ISO88597** ISO-8859-7 Greek (813).

**\*ISO88598** ISO-8859-8 Hebrew (916).

**\*ISO88599** ISO-8859-9 Latin 9 other Latin-using languages (920).

**\*BIG5** Traditional Chinese, Taiwan Industry Standard PC Data Mixed for Big5 (950).

---

## Signing key (SGNKEY)

Specifies the digital certificate used to sign the email.

The signature included with the email allows the recipient to validate the identity of the sender and provides additional assurance that the email has not been tampered with after it is signed.

A certificate is referenced by specifying the name (Application ID) of an **object signing** application created using IBM i's Digital Certificate Manager.

<b>*DEFAULT</b>	The certificate previously entered using the CHGSM2DFT command is used.
<b>*NONE</b>	No signing operation is performed.
<b>application-id</b>	Specify the application identifier to use in the signing operation.

---

## Header field (HDRFLD)

Specifies fields that are inserted directly into the header of the generated email. No editing or inspection is performed. You must specify the header field exactly as it is to appear in the email, specifically it must be syntactically correct as described in *RFC5322 Internet Message Format, 2.2 Header fields*. See <http://tools.ietf.org/html/rfc5322#section-2.2> for details. The data provided is converted to the encoding of the email and CRLF is appended to the header field inserted. Improper use of this parameter will render the generated email invalid and undeliverable.

### Single values

<b>*NONE</b>	This parameter does not place header fields in the email.
--------------	---

### Other values (up to 32 repetitions)

<b>character-value</b>	Specify the header field inserted into the email.
------------------------	---

---

## Priority (PRIORITY)

Specifies the priority of the message. Depending on the value specified, X-Priority and/or importance MIME fields are included in the message headers. INT(2)

<b>*NONE</b>	X-Priority and/or importance are not included in the message.
<b>*HIGHEST</b>	X-Priority 1, emulating Thunderbird.
<b>*HIGH</b>	X-Priority 2, emulating Thunderbird.
<b>*NORMAL</b>	X-Priority 3, emulating Thunderbird.
<b>*LOW</b>	X-Priority 4, emulating Thunderbird.
<b>*LOWEST</b>	X-Priority 5, emulating Thunderbird.
<b>*HIGHO</b>	X-Priority 1, importance high, emulating Outlook.
<b>*NORMALO</b>	X-Priority 3, importance normal, emulating Outlook.
<b>*LOWO</b>	X-Priority 5, importance low, emulating Outlook.

---

## To (distribution list) (TOUSRID)

**Note:** If this parameter is specified and the To (recipient) (TOSMTPNAME) parameter is not specified, the entered value overrides the default value of the To (recipient) (TOSMTPNAME) parameter.

Specifies the Distribution list or network user to receive the email. CHAR(8), CHAR(8)

### Single values

<b>*NONE</b>	A network user or distribution list is not specified.
--------------	---

### Element 1: User ID

<b>character-value</b>	Specify the user ID (DEN) of the network user. CHAR(8)
------------------------	--



## Element 2: Address

**character-value** Specify the address (DGN) of the network user. CHAR(8)

---

## Examples

### Example 1:

```
GSENDMAIL    TOSMTPNAME((jim@acme.com))
              SUBJECT('Weekly Status Report')
              OBJ('/Reports/Weekly/Inventory/Status.pdf')
              ('/Reports/Weekly/Inventory/Updates.pdf')
              BCC((sue@acme.com)) CFMDEL(*YES)
```

This command sends the files Status.pdf and Updates.pdf, both located in directory /Reports/Weekly/Inventory, to jim@acme.com. A blind copy is also sent to sue@acme.com. The message contains a subject and short message and a delivery confirmation is requested.

### Example 2:

```
GSENDMAIL    SUBJECT('Weekly Status Report') +
              MSG('Attached is your weekly status report.') +
              OBJ((Status.pdf)) +
              TOUSRID(INV320 REPORT)
```

This command sends file Status.pdf located in the job's current directory to the distribution list INV320 REPORT. A subject and short message are included.

---

## Error messages

### Parameter dependencies

- SM27001** A To (recipient) or a network user id must be specified.
- SM27002** A To (recipient) or a network user id can be specified, but not both.

### \*ESCAPE messages

- SM21014** Unable to email message to .

---

## Restart/Purge Local Mail (INZLOCAL)

**Where allowed to run:** All environments (\*ALL)  
**Threadsafe:** No

The Restart/Purge Local Mail (INZLOCAL) command ends and restarts IBM i mail components. This may be required to clear problems or to make configuration changes immediately effective.

---

### Parameters

Keyword	Description	Choices	Notes
<a href="#">SMTP</a>	Restart SMTP server	<u>*YES</u> , *NO, Y, N	Optional, Positional 1
<a href="#">SMTPPURGE</a>	Clear SMTP during restart	* <u>NO</u> , *YES, Y, N	Optional, Positional 2
<a href="#">MSF</a>	Restart MSF server	<u>*YES</u> , *NO, Y, N	Optional, Positional 3
<a href="#">MSFPURGE</a>	Clear MSF during restart	* <u>NO</u> , *YES, Y, N	Optional, Positional 4

---

### Restart SMTP server (SMTP)

Specifies the whether the SMTP server is restarted.

\*YES            The SMTP server is first ended then started.  
**\*NO**            The command does not restart the SMTP server.

---

### Clear SMTP during restart (SMTPPURGE)

Specifies the whether the SMTP server is purged during the restart.

**Note:** Clear means that all IBM i SMTP email will be deleted. If you are not sure, select \*NO.

\*NO            Existing messages are not cleared.  
**\*YES**           Existing messages are cleared.

---

### Restart MSF server (MSF)

Specifies the whether the MSF server is restarted.

\*YES            The MSF server is first ended then started.  
**\*NO**            The command does not restart the MSF server.

---

### Clear MSF during restart (MSFPURGE)

Specifies the whether the MSF server is cleared during the restart.

**Note:** Clear means that mail server framework distributions (emails) will be deleted from this system. If you are not sure, select \*NO.

\*NO            The MSF is not cleared.  
**\*YES**           The MSF is cleared.

---

### Examples

#### Example 1:

```
INZLOCAL
```

This command restarts the SMTP server and Mail Server Framework jobs.

**Example 2:**

```
INZLOCAL      SMTPPURGE(*YES) MSFPURGE(*YES)
```

This command restarts the SMTP server and Mail Server Framework jobs after purging all data they contain.

---

**Error messages****Parameter dependencies**

**MSU7012** SMTP cannot be cleared unless it is also restarted.  
**MSU7013** MSF cannot be cleared unless it is also restarted.

---

## Ping SMTP Mail Server (PINGMAIL)

**Where allowed to run:** All environments (\*ALL)  
**Threadsafe:** No

The Ping SMTP Mail Server (PINGMAIL) command establishes an SMTP connection with a remote system to insure it will process email from the local IBM i.

The detailed send and receive data from the connection is recorded in the joblog and can be view using the Display Job Log (DSPJOBLOG) command.

### Limitation

- The data received from the remote system is not inspected. If the remote system returns an error (RC=4xx or 5xx) subsequent data in the joblog is not reliable.
- The command cannot perform STARTTLS. Remote systems that require STARTTLS cannot be tested.

**Note:** When prompting, input fields can be expanded by typing an ampersand (&) in the first position of the field followed by a blank, and pressing enter.

---

### Parameters

Keyword	Description	Choices	Notes
<a href="#">RMTSYS</a>	Remote system	Character value, *INTNETADR	Required, Positional 1
<a href="#">SMTPNAME</a>	To SMTP name (email address)	Character value, *NONE	Optional
<a href="#">SMTPNAME2</a>	From SMTP name (email address)	Character value, *SMTPNAME	Optional
<a href="#">AUTHUSRNAM</a>	Authentication username	Character value, *NONE	Optional
<a href="#">AUTHPWD</a>	Authentication password	Character value	Optional
<a href="#">PORT</a>	Port	0-65534, <b>25</b>	Optional
<a href="#">INTNETADR</a>	Remote internet address	Character value	Optional

---

### Remote system (RMTSYS)

Specifies the remote system name of the host with which the Ping SMTP Mail Server operation takes place. To be successful, the name must be valid, and the remote system must be able to communicate with the local system.

This is a required parameter.

- \*INTNETADR** The INTNETADR parameter is used.  
**character-value** Specify the remote system name to use.

---

### To SMTP name (email address) (SMTPNAME)

Specifies an email address to verify with the remote host. A short email message is sent to the address. The message is inserted directly into the mail server under test, bypassing all of IBM i's mail machinery. This makes it is easier to determine if a mail delivery problem is most likely caused by the mail server or by IBM i's configuration.

- \*NONE** An email address is not specified.  
**character-value** Specify the email address to use.

---

## From SMTP name (email address) (SMTPNAME2)

Specifies the from email address included in the test message.

**\*SMTPNAME** The To SMTP name (email address) is used as the From SMTP name (email address).  
**character-value** Specify the email address to use.

---

## Authentication username (AUTHSRNAM)

Specifies the user name used to authenticate with the remote system.

**\*NONE** Authentication is not performed.  
**character-value** Specify the user name to send to the remote system for authentication.

---

## Authentication password (AUTHPWD)

Specifies the password used to authenticate with the remote system.

**character-value** Specify the password to send to the remote system for authentication.

---

## Port (PORT)

Specifies the port on which the remote system is listening.

**25** Use the well-known port 25 for SMTP.  
**integer** Specify any port in the range of 1 to 65534 on which the remote system is listening for SMTP connections.

---

## Remote internet address (INTNETADR)

Specifies the remote internet address. The internet address is specified in the form **nnn.nnn.nnn.nnn**, where **nnn** is a decimal number ranging from 0 through 255. An internet address is not valid if it has a value of all binary ones or all binary zeros for the network identifier (ID) portion or the host ID portion of the address. If the internet address is entered from a command line, enclose the address in apostrophes.

**character-value** Specify the internet address of the remote system. If the internet address is entered from a command line, enclose the address in apostrophes.

---

## Examples

### Example 1:

```
PINGMAIL RMTSYS(system2.widget.com)
```

This command tests system2 in the widget.com domain to insure that it will process email.

### Example 2:

```
PINGMAIL RMTSYS(*INTNETADR) INTNETADR('168.243.199.2')
```

This command tests the system at IP address 168.243.199.2 to insure that it will process email.

---

## Error messages

### Parameter dependencies

**MSU7009** When \*INTNETADR is specified Remote internet address must be specified.  
**MSU7010** RMTSYS(\*INTNETADR) required when INTNETADR is specified.

### \*ESCAPE messages

**MSU1068** Error encountered verifying mail server.  
**MSU1077** Connection to mail server at address complete, but errors occurred.

---

## Retrieve Gumbo PTF (RTVGSIPTF)

**Where allowed to run:** All environments (\*ALL)  
**Threadsafe:** No

The Retrieve Gumbo PTF (RTVGSIPTF) command checks a remote system for new product PTFs, and, if available, downloads and installs them.

The command assumes that IBM i has connectivity to the PTF server. Unless you are running your own internal server hosting our PTFs, this means that IBM i has access to the internet and is not blocked by a firewall.

The command first checks the availability of new PTFs by retrieving a product and release specific file (Ex. q2s10LastPtf.txt) from the remote system and comparing its contents to the last PTF applied locally. If newer PTFs are available, a product and release specific PTF save file (Ex. q2s10all.svf) is downloaded, and the PTFs it contains are loaded and applied.

**Note:** **GUMBO** only delivers immediate PTFs. Immediate PTFs do not require an IPL and an IPL is never performed by the command.

---

### Parameters

Keyword	Description	Choices	Notes
<b>LICPGM</b>	Product	Character value, <b>*THIS</b> , 2A55DCR, 2A55DMP, 2A55RDA, 2A55RM1, 2A55SAM, 2A55SM1, 2A55SM2, 2A55XL1	Optional, Positional 1
<b>RLS</b>	Release	Character value, <b>*THIS</b>	Optional, Positional 2
<b>CHECK</b>	Check	<b>*YES</b> , <b>*NO</b> , <b>*ONLY</b>	Optional
<b>RMTSYS</b>	Remote system	Character value, <b>*GUMBOPTF</b> , *GUMBOFTP	Optional
<b>PROTOCOL</b>	Protocol (Obsolete)	<b>*HTTP</b> , *FTP	Optional
<b>PROXY</b>	Proxy	Single values: <b>*NONE</b> Other values: <i>Element list</i>	Optional
	Element 1: Host name	Character value	
	Element 2: User name	Character value, <b>*NONE</b>	
	Element 3: User password	Character value	

---

### Product (LICPGM)

Specifies the product for which PTFs are retrieved. All **GUMBO** products take the form 2A55tla where "tla" identifies the product. Run DSPSFWRSC '2A55\*' to determine which **GUMBO** products are installed. CHAR(7)

<b>*THIS</b>	Use the product (2A55SM2) containing this copy of the Retrieve Gumbo PTF (RTVGSIPTF) command.
<b>2A55DCR</b>	Dicer
<b>2A55DMP</b>	Dumpster
<b>2A55RDA</b>	Report Designer
<b>2A55RM1</b>	Report Manager
<b>2A55SAM</b>	Spool-a-Matic
<b>2A55SM1</b>	SpoolMail
<b>2A55SM2</b>	Gumbo Mail
<b>2A55XL1</b>	Excel-erator
<b>character-value</b>	Specifies the 7-character identifier of the product for which PTFs are retrieved.

---

## Release (RLS)

Specifies the release for which PTFs are retrieved. Run DSPSFWRSC to determine which **GUMBO** products are installed. CHAR(6)

- \*THIS** Use the release of the product (V2R1M0) containing this copy of the Retrieve Gumbo PTF (RTVGSIPTF) command.
- character-value** Specify the release level of the product in the format VxRyMz, where Vx is the version number, Ry is the release number, and Mz is the modification level.

---

## Check (CHECK)

Specifies if checking for newer PTFs is performed. CHAR(10)

- \*YES** Check for newer PTFs is performed before downloading. If newer PTFs are not available, processing stops.
- \*NO** No check for newer PTFs is performed before downloading.
- \*ONLY** Only a check for newer PTF availability is performed. Nothing is downloaded, regardless of the result.

---

## Remote system (RMTSYS)

Specifies the name of remote system which serves PTF save files for download. CHAR(255)

- \*GUMBOPTF** Use **GUMBO's** PTF server.
- \*GUMBOFTP** Obsolete value which maps to \*GUMBOPTF which is preferred.
- character-value** Specify the remote system name to use.

**Note:** When prompting, the input field can be expanded by typing an ampersand (&) in the first position of the field followed by a blank, and pressing enter.

---

## Protocol (Obsolete) (PROTOCOL)

Obsolete parameter that specified protocol used to communicate with the PTF server. CHAR(10)

GUMBO switched PTF communications to exclusively HTTP and the function of this parameter was removed. The parameter remains for compatibility with existing customer code but it is ignored.

- \*HTTP** Communication uses HTTP.
- \*FTP** Obsolete.

**Note:** FTP has been phased out and this value results in a message. Communication uses HTTP.

---

## Proxy (PROXY)

Specifies a proxy server that facilitates connection to the PTF server.

### Single values

- \*NONE** No proxy server is required to connect to the PTF server.

### Element 1: Host name CHAR(255)

- character-value** Specifies the proxy server's host name. To specify a custom port number append :NN to the host name where NN is the custom port number. Ex. server2:8080.

**Note:** When prompting, the input field can be expanded by typing an ampersand (&) in the first position of the field followed by a blank, and pressing enter.

### Element 2: User name CHAR(80)

- \*NONE** The proxy server does not require log in with a user name.
- character-value** Specifies the user name needed to log in to the proxy server.

**Note:** When prompting, the input field can be expanded by typing an ampersand (&) in the first position of the field followed by a blank, and pressing enter.

### Element 3: User password CHAR(128)

**character-value** Specifies the user password needed to log in to the proxy server.

**Note:** When prompting, the input field can be expanded by typing an ampersand (&) in the first position of the field followed by a blank, and pressing enter.

---

## Examples

### Example 1:

```
RTVGSIPTF
```

The Gumbo PTF server is check for new PTFs available for product 2A55SM2 release V2R1M0. If available, the PTFs are downloaded and installed.

### Example 2:

```
RTVGSIPTF  PRODUCT(2A55SM2) RLS(V2R1M0) CHECK(*ONLY)
```

The Gumbo PTF server is check for new PTFs available for product 2A55SM2 release V2R1M0. No other processing is performed.

---

## Error messages

### \*ESCAPE messages

**PID1007** Retrieve PTF failed for product .

**PID7001** When a proxy is specified, protocol \*HTTP must be specified.



---

## Verify Local SMTP (VFYLOCAL)

**Where allowed to run:** All environments (\*ALL)  
**Threadsafe:** No

The Verify Local SMTP (VFYLOCAL) command verifies or sets up SMTP on the local system.

Details of the verification process are printed with the job's spooled output in file S2LOG.

---

### Parameters

Keyword	Description	Choices	Notes
SETUP	Make changes to system	*NO, *YES, Y, N	Optional, Positional 1

---

### Make changes to system (SETUP)

Specifies the whether the command makes changes to the system.

**\*NO**                    The command does not make changes to the local system.  
**\*YES**                   The command makes changes to the local system.

---

### Examples

#### Example 1:

```
VFYLOCAL    SETUP ( *NO )
```

This command verifies that SMTP is set up correctly on the local system.

#### Example 2:

```
VFYLOCAL    SETUP ( *YES )
```

This command sets up SMTP on the local system.

---

### Error messages

#### \*ESCAPE messages

**MSU5037**            SMTP verification/set up failed

---

## Verify Mailhub Server (VFYMAILHUB)

**Where allowed to run:** All environments (\*ALL)  
**Threadsafe:** No

The Verify Mailhub Server (VFYMAILHUB) command verifies or sets up a forwarding mailhub server for use by the local system.

Details of the verification process are printed with the job's spooled output in file S2LOG.

The command is intended for initial configuration of a system. If a mailhub server and/or host logon information for it have previously been configured, this command cannot be used to modify the system. You can remove a previously configured forwarding mail hub server by running:

```
CHGSMTPA    FWDHUBSVR ( *NONE )
```

You can remove previously configured host logon information by running:

```
RMVSMTPLD  TYPE( *HOSTAUTH ) HOSTNAME( 'configured_host_name' )
```

**Note:** When prompting, input fields can be expanded by typing an ampersand (&) in the first position of the field followed by a blank, and pressing enter.

---

### Parameters

Keyword	Description	Choices	Notes
<b>RMTSYS</b>	Remote system	Character value, <b>*MAILHUB</b> , *INTNETADR	Optional
<b>INTNETADR</b>	Remote internet address	Character value, <b>*RMTSYS</b> , *MAILHUB	Optional
<b>AUTHUSRNAM</b>	Authentication username	Character value, <b>*NONE</b>	Optional
<b>AUTHPWD</b>	Authentication password	Character value	Optional
<b>SETUP</b>	Make changes to system	*YES, <b>*NO</b> , Y, N	Optional

---

### Remote system (RMTSYS)

Specifies the remote system name of the host with which the Verify Mailhub Server operation takes place. To be successful, the name must be valid, and the remote system must be able to communicate with the local system.

- \*MAILHUB** The name of the configured SMTP forwarding mailhub server is used.
- \*INTNETADR** The INTNETADR parameter is used.
- character-value** Specify the remote system name to use.

---

### Remote internet address (INTNETADR)

Specifies the remote internet address. The internet address is specified in the form **nnn.nnn.nnn.nnn**, where **nnn** is a decimal number ranging from 0 through 255. An internet address is not valid if it has a value of all binary ones or all binary zeros for the network identifier (ID) portion or the host ID portion of the address. If the internet address is entered from a command line, enclose the address in apostrophes.

- \*RMTSYS** The internet address of the specified remote system is used.
- \*MAILHUB** The internet address of the configured SMTP forwarding mailhub server is used.
- character-value** Specify the internet address to use.

---

### Authentication username (AUTHUSRNAM)

Specifies the user name used to authenticate with the remote system. CHAR(80)

Valid characters are case sensitive and include all alpha-numeric characters (a-z, A-Z, and 0-9), and the following special characters: characters: `.,!#$%&*+/-/;=@?_~^.`

**\*NONE** Authentication is not performed.  
**character-value** Specify the user name to send to the remote system for authentication.

---

### Authentication password (AUTHPWD)

Specifies the password used to authenticate with the remote system. CHAR(128)

Valid characters are case sensitive and include all alpha-numeric characters (a-z, A-Z, and 0-9), and the following special characters: characters: `.,!#$%&*+/-/;=@?_~^.`

**character-value** Specify the password to send to the remote system for authentication.

---

### Make changes to system (SETUP)

Specifies the whether the command makes changes to the system.

**\*NO** The command does not make changes to the local system.  
**\*YES** The command makes changes to the local system.

---

### Examples

#### Example 1:

```
VFYMAILHUB RMTSYS(*MAILHUB) SETUP(*NO)
```

Command verifies that the currently configured forwarding mailhub server is set up and operating correctly.

#### Example 2:

```
VFYMAILHUB RMTSYS(sys1.widget.com)  
INTNETADR(192.168.1.2) SETUP(*YES)
```

This command sets up sys1.widget.com at address 192.168.1.2 as the forwarding mailhub server for this IBM i.

---

### Error messages

#### Parameter dependencies

**MSU7011** RMTSYS(\*INTNETADR) and INTNETADR(\*RMTSYS) are mutually exclusive.

#### \*ESCAPE messages

**MSU5165** Mailhub server verification/set up failed

---

## Verify Mail Router (VFYROUTER)

Where allowed to run: All environments (\*ALL)  
Threadsafe: No

**Note:** THIS COMMAND HAS BEEN SUPERCEDED AND WILL BE REMOVED IN A FUTURE RELEASE. Use Verify Mailhub Server (VFYMAILHUB) instead.

The Verify Mail Router (VFYROUTER) command verifies or sets up a remote mail router for use by the local system.

**Note:** If a mail router has previously been configured, this command cannot be used to change it.

Details of the verification process are printed with the job's spooled output in file S2LOG.

---

### Parameters

Keyword	Description	Choices	Notes
<a href="#">RMTSYS</a>	Remote system	Character value, <a href="#">*ROUTER</a> , *INTNETADR	Optional, Positional 1
<a href="#">INTNETADR</a>	Remote internet address	Character value, <a href="#">*RMTSYS</a> , *ROUTER	Optional, Positional 2
<a href="#">SETUP</a>	Make changes to system	*YES, <a href="#">*NO</a> , Y, N	Optional, Positional 3

---

### Remote system (RMTSYS)

Specifies the remote system name of the host with which the Verify Mail Router operation takes place. To be successful, the name must be valid, and the remote system must be able to communicate with the local system.

- [\\*ROUTER](#) The name of the configured SMTP mail router is used.
- [\\*INTNETADR](#) The INTNETADR parameter is used.
- character-value* Specify the remote system name to use.

---

### Remote internet address (INTNETADR)

Specifies the remote internet address. The internet address is specified in the form **nnn.nnn.nnn.nnn**, where **nnn** is a decimal number ranging from 0 through 255. An internet address is not valid if it has a value of all binary ones or all binary zeros for the network identifier (ID) portion or the host ID portion of the address. If the internet address is entered from a command line, enclose the address in apostrophes.

- [\\*RMTSYS](#) The internet address of the specified remote system is used.
- [\\*ROUTER](#) The internet address of the configured SMTP mail router is used.
- character-value* Specify the internet address to use.

---

### Make changes to system (SETUP)

Specifies the whether the command makes changes to the system.

- [\\*NO](#) The command does not make changes to the local system.
- [\\*YES](#) The command makes changes to the local system.

---

### Examples

#### Example 1:

```
VFYROUTER RMTSYS(*ROUTER) SETUP(*NO)
```

Command verifies that the currently configured mail router is set up and operating correctly.

**Example 2:**

```
VFYROUTER  RMTSYS(sys1.widget.com)
            INTNETADR(192.168.1.2) SETUP(*YES)
```

This command sets up sys1.widget.com at address 192.168.1.2 as the mail router for this IBM i.

---

**Error messages**

**Parameter dependencies**

**MSU7011** RMTSYS(\*INTNETADR) and INTNETADR(\*RMTSYS) are mutually exclusive.

**\*ESCAPE messages**

**MSU5139** Mail router verification/set up failed



---

## Chapter 7 Trouble-Shooting

---

### What's In This Chapter

This chapter provides information and procedures useful for correcting or reporting Gumbo Mail problems. The chapter:

- Describes general trouble-shooting.
- Describes software installation problems.
- Describes general mail delivery problems.
- Describes MSF specific delivery problems.
- Describes SMTP specific delivery problems.

---

### General Trouble-Shooting

If a command from Gumbo Mail fails to run to completion or if the results you receive are different from those expected, perform these items:

- Check the detailed messages in your job log:
  1. Run the DSPJOBLOG command.
  2. Press F10 to display detailed messages.
  3. Locate the messages related to the error.
  4. Place your cursor on each message in turn and press F1.
  5. Take any corrective actions suggested by the messages.
- Download the current cumulative PTF package from [www.gumbo.com](http://www.gumbo.com).
- Check the bottom of the PTF page at [www.gumbo.com](http://www.gumbo.com) for IBM PTFs that may be required.
- Review the detailed trouble shooting procedures in this chapter for solutions related to your problem.

If you are unable to correct the problem, prepare a problem report and contact your service provider.

---

### Software Installation Problems

This section describes problems, causes, and solutions specific to software installation.

- Installation Generates "Directory not registered. (C G)"

<b>Symptom</b>	During installation inquiry message id CPA3DE4 "Directory not registered. (C G)" is issued.
<b>Cause</b>	IBM i has lost the relationship between the product and the directory and hence the message.
<b>Solution</b>	You can safely take a "G" to this message. You will receive the message three or four times.

- Installation Fails

<b>Symptom</b>	Installation fails and diagnostic message id CPF9898 "Unable to clear old release. Is the software being used?" appears in the job log. Or, when the installation verification option is run, verification fails with diagnostic message id CPD0C2E appearing in the job log.
<b>Cause</b>	This usually arises from attempting to install a new release over an old release while objects in the old release are in use.
<b>Solution</b>	End the jobs that are holding locks on (using) objects from the old release and perform the installation again.

- Installation Fails or Installation Verification Fails

<b>Symptom</b>	Installation or installation verification fails and messages in the job log do not help in recovering.
<b>Cause</b>	The software is not installed correctly or the installation is damaged. This can be caused for a variety of reasons including renaming of libraries, directories, or objects that make up the product.
<b>Solution</b>	<p>Get the system to a stable consistent state by completely removing the product then re-installing it by performing the following:</p> <ol style="list-style-type: none"> <li>1. Check the system library list by running:  <code>DSPSYSVAL SYSVAL(QSYSLIBL)</code>  <b>Note:</b> If GUMBOMAIL is present, remove it with WRKSYSVAL and IPL the system.</li> <li>2. Delete the licensed program by running:  <code>DLTLICPGM LICPGM(2A55SM2) RLS(*ALL) OPTION(*ALL)</code>  <b>Note:</b> It is okay if this fails with diagnostic CPD3D91 "Product 2A55SM2 option *ALL release *ALL not installed."</li> <li>3. Delete the product's library by running:  <code>DLTLIB LIB(GUMBOMAIL)</code>  <b>Note:</b> It is okay if this fails with escape CPF2110 "Library GUMBOMAIL not found."</li> <li>4. Delete the product's directories by running:  <code>RMVDIR DIR( '/Gumbo/ProdData/2A55SM2' ) SUBTREE(*ALL) RMVLNK(*YES)</code>  <b>Note:</b> It is okay if this fails with escape CPFA0A9 "Object not found. ...".            If there are no other <b>GUMBO</b> products installed:  <code>RMVDIR DIR( '/Gumbo/ProdData' )</code>  <code>RMVDIR DIR( '/Gumbo' )</code>  <b>Note:</b> It is okay if these fail with escape CPFA0A9 "Object not found. ...".</li> <li>5. Rebuild IBM i's internal licensed program information by running:  <code>CALL PGM(QSYS/QSZRECOV)</code>  <b>Note:</b> This takes several minutes depending on machine size.</li> <li>6. Install the product according to the instructions in the Installation chapter.</li> <li>7. Enter your authorization code.</li> </ol>

---

## General Mail Delivery Problems

This section describes common problems, causes, and solutions for general mail delivery problems. They are listed roughly in the order in which you should proceed. During general mail delivery trouble shooting you should send tests to yourself. Once this works properly, you can move on.

The bulk of the entries in this section are derived from trouble shooting performed by or with customers and in some sense presume that you have an "average" installation. The "average" installation is IBM i connected to a LAN with the post office (a.k.a. mailhub) on a LAN attached PC running Exchange or Domino, with a connection to the internet at large. At the "average" installation this is the first application to generate email from IBM i. Some of the entries in this section may not apply to your situation.

- System Mailhub Configuration Is Unknown

<b>Symptom</b>	The name of the configured mailhub is unknown.
<b>Cause</b>	You did not originally configure the system for email delivery.
<b>Solution</b>	Prompt the CHGSMTPA command and inspect the Forwarding mailhub server (FWDHUBSVR) parameter. If the value is *NONE, a mailhub is not configured. Otherwise, the name of the mailhub is shown.



- Source Of Problem Is Unknown

**Symptom** The send operation runs to completion but no mail arrives.

**Cause** The problem may be with the mailhub or with IBM i, but the source is unknown.

**Solution** Run PINGMAIL to generate a test message to your email address and directly deliver it to the mailhub by passing IBM i's mail machinery entirely:

**Note:** Substitute the name of your mailhub for the value "mailhub\_server" and substitute your email address for the value "you@domain.com" in the following command.

```
PINGMAIL RMTSYS(mailhub_server) SMTPNAME(you@domain.com)
```

If you receive the test message, the mailhub is working correctly and an IBM i issue is indicated. In particular, if the rest of the entries in this section do not correct the problem, you may have a DNS issue.

If you do not receive the test message then there is a problem with the mailhub. You may be able to get an indication of the problem by reviewing the SMTP conversation, which appears in your joblog. Run DSPJOBLOG, press F10 and page back for details.

- IBM i Servers Are Down

**Symptom** The send operation runs to completion but no mail arrives.

**Cause** The IBM i servers responsible for mail delivery may be down, particularly if IBM i has been IPLed.

**Solution** Rerun VFYLOCAL to verify that all local servers are up and running:

```
VFYLOCAL SETUP(*NO)
```

If local verification fails, run:

```
VFYLOCAL SETUP(*YES)
```

- Mailhub Is Not Processing Mail

**Symptom** The send operation runs to completion but no mail arrives.

**Cause** The mailhub responsible for mail delivery may be down, or not accepting mail from IBM i.

**Solution** Rerun VFYMAILHUB to verify that the mailhub is up and running:

```
VFYMAILHUB SETUP(*NO)
```

If mailhub verification fails, run:

```
VFYMAILHUB SETUP(*YES)
```

- Mailhub Refuses Mail with "Funny" Originator Address

**Symptom** The send operation runs to completion but no mail arrives. Or mail arrives for some users but not all users, for example for all but AOL accounts.

**Cause** An email address is not assigned to your directory entry and the mailhub does not like the "funny" address IBM i generates for the originator's address.

**Solution** Assign your email address to your system distribution directory entry: (assume for this example that your "User ID and Address" are "BILLG S1234567" and you "real" email address is "billg@acme.com")

```
CHGDIRE USRID(BILLG S1234567)
      MSFSRVLVL(*SYSMS) PREFADR(*SMTP)
      USRDFNFLD((SMTPAUSRID SMTP 'billg')
                (SMTPDMN SMTP 'acme.com'))
```

**Note:** If you are a local Domino for IBM i user substitute MSFSRVLVL(\*DOMINO) for MSFSRVLVL(\*SYSMS).

- SMTP Servers Require Reinitialization

**Symptom** The send operation runs to completion but no mail arrives.  
**Cause** IBM i's SMTP servers may need to reinitialize. This is undocumented but our experience and discussions with IBM i's SMTP architect confirm this.  
**Solution** Reinitialize IBM i's SMTP servers:  
 INZLOCAL SMTP(\*YES) SMTPPURGE(\*NO) MSF(\*NO) MSFPURGE(\*NO)

- SMTP Servers Are Clogged With Junk

**Symptom** The send operation runs to completion but no mail arrives.  
**Cause** IBM i's SMTP server may contain dead letters or other junk that it cannot deliver. This can be the result of previous attempts to set up mail on the system.  
**Solution** Clean out IBM i's SMTP server:  
**Note:** Only perform this procedure if you are sure there is no valid deliverable mail in the SMTP server.  
**Note:** This procedure should be required at most once per system during initial set up.  
 INZLOCAL SMTP(\*YES) SMTPPURGE(\*YES) MSF(\*YES) MSFPURGE(\*YES)

- Mail Server Framework Is Reporting Errors

**Symptom** The send operation runs to completion but no mail arrives.  
**Cause** IBM i's Mail Server Framework jobs may be unable to process mail and are reporting errors.  
**Solution** Review job logs for the Mail Server Framework jobs:  
 1. Work with active jobs by running the following command:  
 WRKACTJOB  
 2. Page down to the QSYSWRK subsystem.  
 3. Locate the job or jobs with the name QMSF and repeat the following steps for each job.  
 4. Display the job by using option 5 and pressing enter.  
 5. Display the job log by selecting option 10 and pressing enter.  
 6. Display detailed messages by pressing F10.  
 7. You should see a job started (CPF1124) and job submitted (CPI1125) message. If there are no other messages, the Mail Server Framework is not reporting errors. (End of procedure).  
 8. Display detailed information for each additional message by placing your cursor on the message and pressing F1.  
 9. Take any corrective action specified in the messages.  
 10. See the MSF Specific Delivery Problems section of this chapter.

- Mail Server Framework Is Ending Abnormally

**Symptom** The send operation runs to completion but no mail arrives.  
**Cause** IBM i's Mail Server Framework jobs may be unable to process mail and are ending abnormally.

**Solution**

Review job logs for the Mail Server Framework jobs:

1. Locate job logs for Mail Server Framework jobs that have ended by running the following command:

```
WRKSPLF SELECT(QMSF)
```

If there are no spooled output files, the Mail Server Framework is not ending abnormally (end of procedure).

2. Page down to the end of the list of spooled files.
3. Display the date and time of the spooled files by pressing F11. If there are no recent spooled files, the Mail Server Framework is not ending abnormally (end of procedure).
4. For each recent job log repeat the following steps:
5. Display the job log by using option 5 and pressing enter.
6. Review the job log for diagnostic and escape messages.
7. Take any corrective action specified in the messages.
8. See the MSF Specific Delivery Problems section of this chapter.

- SMTP Servers Are Reporting Errors

**Symptom**

The send operation runs to completion but no mail arrives.

**Cause**

IBM i's SMTP server jobs may be unable to process mail and are reporting errors.

**Solution**

Review job logs for the SMTP server jobs:

1. Work with active jobs by running the following command:  
WRKACTJOB
2. Page down to the QSYSWRK subsystem.
3. Locate the 4 SMTP server jobs with names that start with QTSMTP\*. Repeat the following steps for each job.
4. Display the job by using option 5 and pressing enter.
5. Display the job log by selecting option 10 and pressing enter.
6. Display detailed messages by pressing F10.
7. You should see a job started (CPF1124) and job submitted (CPI1125) message. If there are no other messages, the Mail Server Framework is not reporting errors. (End of procedure).
8. Display detailed information for each additional message by placing your cursor on the message and pressing F1.
9. Take any corrective action specified in the messages.
10. See the SMTP Problems section of this chapter.

- SMTP Servers Are Ending Abnormally

**Symptom**

The send operation runs to completion but no mail arrives.

**Cause**

IBM i's SMTP server jobs may be unable to process mail and are ending abnormally.

**Solution**

Review job logs for the SMTP server jobs:

1. Locate job logs for SMTP server jobs that have ended by running the following command:  
WRKSPLF SELECT(QTCP)

If there are no spooled output files, the SMTP server jobs are not ending abnormally (end of procedure).

2. Page down to the end of the list of spooled files.
3. Display the date and time of the spooled files by pressing F11. If there are no recent spooled files, the SMTP server jobs are not ending abnormally (end of procedure).
4. For each recent job log repeat the following steps:
5. Display the job log by using option 5 and pressing enter.
6. Review the job log for diagnostic and escape messages.
7. Take any corrective action specified in the messages.
8. See the SMTP Problems section of this chapter.

---

## MSF Specific Delivery Problems

This section describes problems, causes, and solutions specific to IBM i's Mail Server Framework.

- MSF Job Log Contains QTCPTMM/ATTABOX Messages

<b>Symptom</b>	A QMSF job is complaining about a directory such as QTCPTMM/ATTABOX.
<b>Cause</b>	IBM i's MSF jobs depend on specific directories in the Integrated File System which are added by installing the TCP/IP Utilities and may have been deleted.
<b>Solution</b>	Check the existence of the TCP/IP related directories and reinstall them if they are missing by: <ol style="list-style-type: none"><li>1. Run the WRKLNK command and locate the QTCPTMM directory.</li><li>2. Display QTCPTMM's contents using option 5.</li><li>3. Verify that subdirectories ATTABOX, ENCODE, MAIL, SMTPBOX and TMP exist.</li><li>4. If directories are missing continue with this procedure otherwise end of procedure.</li><li>5. Use the DLTICPGM command to remove the TCP/IP Utilities.</li><li>6. Use the RSTLCPGM command to reinstall the TCP/IP Utilities.</li></ol>

- MSF Job Log Contains "System storage threshold exceeded" Message

<b>Symptom</b>	A QMSF job complains that "System storage threshold exceeded".
<b>Cause</b>	IBM i's MSF jobs stop processing mail when amount of disk space used rises above a set percentage. IBM i ships with this value set to 90%.
<b>Solution</b>	Either free disk space by deleting unused items or bump the threshold value with this procedure: <ol style="list-style-type: none"><li>1. Run the STRSST command and select option 3 Work with disk units.</li><li>2. Select option 2 Work with disk configuration.</li><li>3. Select option 3 Work with ASP threshold.</li><li>4. Use 1=Select for the appropriate ASP (usually ASP 1).</li><li>5. Press F1=Help to review help for the Change Storage Threshold display.</li><li>6. Change the ASP threshold to 95% or a comfortable value for your installation.</li></ol>

---

## SMTP Specific Delivery Problems

This section describes problems, causes, and solutions specific to IBM i's SMTP servers.

- SMTP Retries Set To Zero

<b>Symptom</b>	The send operation runs to completion but no mail arrives, or mail arrives for a while then stops until the next IPL.
<b>Cause</b>	The mailhub is periodically slow or unavailable and IBM i's SMTP attributes for retries are set too low or set to zero.
<b>Solution</b>	Increase the retry values to give the mailhub more chances at fielding the incoming mail: <ol style="list-style-type: none"><li>1. Prompt the CHGSMTPA command.</li><li>2. Increase the number of retries for the retries by minute parameter.</li><li>3. Increase the number of retries for the retries by day parameter.</li><li>4. Press enter.</li></ol>

- Multiple Garbled Email Messages Arrive

<b>Symptom</b>	Multiple messages arrive for a send operation and the messages are garbled.
<b>Cause</b>	IBM i's SMTP is splitting the messages.
<b>Solution</b>	Turn off message splitting entirely by changing the POP attributes: CHGPOPA      MSGSPLIT (*NOMAX)

- Time On Mail Is Incorrect

**Symptom** Mail delivers but contains the wrong time.

**Cause** IBM i's QTIMZON system value is not set.

**Solution** See Manual Mail Set Up Steps section of the Set Up chapter for instructions to correct this value. For related information see the *System management > Time management* topic in the IBM i Knowledge Center at [http://www.ibm.com/support/knowledgecenter/ssw\\_ibm\\_i](http://www.ibm.com/support/knowledgecenter/ssw_ibm_i).



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## Appendix A Process Descriptions

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### What's In This Appendix

This appendix provides detailed descriptions of the processing performed by Gumbo Mail's mail set up and verification programs. In highly secure environments, it may be against policy to allow third party software to change your system. If this is your situation, you can perform these steps manually. The appendix details:

- Processing Performed During SMTP Verification
- Processing Performed During SMTP Set Up
- Processing Performed During Mailhub Verification
- Processing Performed During Mailhub Set Up

---

### SMTP Verification Process

The following verification steps are performed by the Verify Local SMTP (VFYLOCAL) command when SETUP(\*NO) is specified.

**Note:** No changes are made to your system during verification.

- Verify that TCP Utilities have been installed on the system.

The system is checked to insure that library QTCP exists. If the library is found then the TCP Connectivity Utilities have been installed on the system.

- Verify that the SMTP distribution queues are present.

The system is checked for the existence of QSMTPQ distribution queue.

- Verify that a host and domain name have been configured for the system.
  - If the host name is blank, verification fails.
  - If the domain name is blank, verification fails.
- Verify that the system distribution directory is searchable.

A search is attempted on the system distribution directory.

- Verify that the IBM i Mail Server is active.

The system is checked for an active job with the job name QMSF. If one or more QMSF jobs are active then the Mail Server is active.

- Verify that TCP is active.

The system is checked for an active job with the job name QTCPWRK (before V6 JOB QTCPIP). If job is active then TCP is active.

- Verify that TCP loopback is operating correctly.

The TCP interfaces are searched to locate the \*LOOPBACK IP address. The \*LOOPBACK interface is started if it is not active and its IP address is PINGed to verify that TCP is operating correctly.

- If the \*LOOPBACK interface is not found, verification fails.
- If the \*LOOPBACK interface is not active and cannot be started, verification fails.
- If the \*LOOPBACK interface cannot be PINGed, verification fails.
- Verify that a TCP interface is defined.

The TCP interfaces are searched to locate one or more IP addresses (excluding \*LOOPBACK).

- If no interfaces are found, verification fails.
- Verify that active TCP interfaces are reachable.

The TCP interfaces are searched to locate one or more IP addresses (excluding \*LOOPBACK). Each interface is contacted (PINGed) to verify the connection.

- If an interface is not active, verification fails.
- If an interface cannot be contacted, verification fails.
- Verify that the SMTP server is active.

The system is checked for an active job with the job name QTSMTPSRVR or QTSMTPSRVD. If either job is active then the SMTP server is active.

- Verify that this host's IP address can be reached by SMTP.
  - Retrieve the host and domain names for this system.

If the host name is blank, verification fails.

- Verify TCP/IP connection to the host name.

If the host is contacted, verification is complete and no further processing is performed.

- Verify TCP/IP connection to the host.domain name.

If the host.domain name cannot be contacted, verification fails.

- Verify that message splitting has been turned off.

The current setting cannot be retrieved so no test is performed and it is assumed that splitting has not been turned off yet.

After all tests are completed, a message summarizing the results is issued.



---

## SMTP Set Up Process

The following set up work is performed by the Verify Local SMTP (VFYLOCAL) command when SETUP(\*YES) is specified.

- If the TCP utilities have not been installed on the system.
  - Manual intervention is required to install the utilities. Automatic set up cannot perform the installation.
- If QSMTQP distribution queue is not found.
  - Create the distribution queue using the Add Distribution Queue command:

```
ADDSTQ      DSTQ(QSMTQP) RMTLOCNAME(TCPIPLOC)
            DSTQTYPE(*RPDS)
```

- If a host or domain name have not been configured.
  - Manual intervention is required to configure a host and domain name. Use option 12 (Change local domain and host names) of the Configure TCP/IP (CFGTCP) command. Automatic set up cannot perform the change.
- If the system distribution directory entry cannot be searched.
  - The directory is changed to allow searches using the Change System Directory Attributes command:

```
CHGSYSDIRA  ALWSCH(*YES)
```

- If the IBM i Mail Server is not active.
  - Start the Mail Server using the STRMSF command:

```
STRMSF
```

- If TCP is not active.
  - Start TCP using the STRTCP command:

```
STRTCP
```

- If TCP loopback is not operating correctly.
  - If missing, \*LOOPBACK interface is added using command:

```
ADDTCPIFC  INTNETADR('127.0.0.1') LIND(*LOOPBACK) +
            SUBNETMASK('255.0.0.0') MTU(576)
```

- If loopback PING fails:

Manual intervention is required to correct the problem, which is beyond the scope of set up.

- If no TCP interfaces are found.

Manual operation is required to add an interface using the ADDTCPIFC command.

- If a TCP interface cannot be contacted.

Manual operation is required to correct the problem. If the interface cannot be contacted because it is not active, start the interface using the STRTCPIFC command.

- If the SMTP server is not active.
  - Start the SMTP server using the STRTCPSVR command:

```
STRTCPSVR  SERVER( *SMTP )
```

- If the host's IP address cannot be reached by SMTP.
  - If system is using a remote name server, set up fails.

Manual operation required. Contact the remote name server's administrator to add this system's host name.

- If multiple TCP interfaces are found, set up fails.

Manual operation required. Add this system's name to IBM i's host table using the ADDTCPHTE command.

- If no TCP interfaces are found, set up fails.

Manual operation required. Add a TCP interface using the ADDTCPIFC command.

- An entry is added for this host using the Add TCP Host Table Entry command:

```
ADDTCPHTE  INTNETADR(&INTERNET) HOSTNAME((&HOST)) +
           TEXT('Entry Added By Gumbo Auto TCP/IP +
              Config')
```

- If message splitting has not been turned off.
  - Message splitting is turned off

The POP attributes are changed:

```
CHGPOPA    MSGSPLIT( *NOMAX )
```

After all steps are completed, a message summarizing the results is issued.

---

## Mailhub Verification Process

The following verification steps are performed by the Verify Mail Router (VFYMAILHUB) command when SETUP(\*NO) is specified.

**Note:** No changes are made to your system during verification.

- Verify that TCP is active.

The system is checked for an active job with the job name QTCPWRK (before V6 JOB QTCPIP). If job is active then TCP is active.

- Resolve system names and internet addresses for command parameters and current mail hub server.

- Verify domain name server.

If a domain name server is configured, it is tested to insure that it is responding. If it does not respond, verification fails.

- Retrieve currently configured mail hub server name and IP
- Resolve internet address parameter.

If a special value was specified, it is resolved. If it can not be resolved, verification fails.

- Resolve remote system parameter.

If a special value was specified, it is resolved. If it can not be resolved, verification fails.

- Edit the resulting names and IPs for conflicts.

- Edit remote system and internet address IP.

If the IP of the remote system is different from the internet address, verification fails.

- Edit remote system and internet address names.

If the name of the internet address is different from the remote system name, verification fails.

- Edit current mail hub server and internet address IP.

If the IP of the current mail hub server is different from the internet address, verification fails.

- Verify that the internet address is responding.

The internet address is PINGed to insure that it is reachable and responding. If it is not, verification fails.

- Verify that the internet address is accepting SMTP mail.

The internet address is tested to insure that it is accepting SMTP mail from this system. If it is not, verification fails.

- Verify that remote system's IP can be resolved.

If an IP cannot be resolved, verification fails.

- Verify that the mail hub server is configured.

If the remote system is not configured as the mail hub server, verification fails.

After all tests are completed, a message summarizing the results is issued.

---

## Mailhub Set Up Process

The following set up work is performed by the Verify Mail Router (VFYMAILHUB) command when SETUP(\*YES) is specified.

- If TCP is not active.
  - Start TCP using the STRTCP command:

```
STRTCP
```

- If a mail hub server is currently configured.

SETUP(\*YES) is suppressed. No changes will be made to the system. VFYMAILHUB will be processed as SETUP(\*NO). To avoid suppression, remove the current mail hub server by running:

```
CHGSMTPA FWDHUBSVR ( *NONE )
```

- If an entry currently exists on the SMTP \*HOSTAUTH list for the remote system.

SETUP(\*YES) is suppressed. No changes will be made to the system. VFYMAILHUB will be processed as SETUP(\*NO). To avoid suppression, remove the current SMTP \*HOSTAUTH list entry by running:

```
RMVSMTPL TYPE ( *HOSTAUTH ) HOSTNAME ( 'configured_host_name' )
```

- If system name and internet address resolution fails.
  - If a domain name server is configured but not responding.

Manual intervention required. Either insure that the configured domain name server is available or remove the domain name server from IBM i's configuration using option 13 of the CFGTCP menu.

- If the internet address parameter cannot be resolved.

Manual intervention required to correct the internet address parameter.

- If the remote system parameter cannot be resolved.

Manual intervention required to correct the remote system parameter.

- Edit the resolved names and IPs for conflicts.
  - If the remote system and internet address IPs are different.

Manual intervention required to correct the parameters.

- If the remote system and internet address names are different.

Manual intervention required to correct the parameters.

- If the current mail hub server and internet address IPs are different.

Manual intervention required. Either correct the parameters or remove the currently configured mail hub server by running the following command:

```
CHGSMTPA FWDHUBSVR( *NONE )
```

- If the internet address is not responding.

Manual intervention required. Either correct the internet address or make the system at that address ready.

- If the internet address is not accepting SMTP mail.

Manual intervention required. Either correct the internet address, or contact the system's administrator and request that the system accept SMTP from IBM i. The words you use to request this differ depending on the software running on the remote system:

- For Microsoft's Exchange Server request that the "Internet Mail Connector" be configured and started. Then request that "SMTP forwarding" be enabled for your system's IP.
- For Lotus' cc:Mail request that the "Link to SMTP" be configured and started.
- For all others request that the "SMTP gateway" be configured and started.

- If the remote system's IP cannot be resolved.

Add an entry using the Add TCP/IP Host Table Entry (ADDTCPHTE) command:

```
ADDTCPHTE INTNETADR(&INTNETADR) HOSTNAME(( &RMTSYS )) +
          TEXT('Mailhub added by Gumbo +
              VFYMAILHUB command')
```

- If authentication username and password are included.

Add the authentication information to the SMTP \*HOSTAUTH list:

```
ADDSMTPLE TYPE( *HOSTAUTH) HOSTNAME(&RMTSYS) +
          USERNAME(&AUTHUSRNAM) PASSWORD(&AUTHPWD)
```

- If the mail hub server is not configured.

Configure the mail hub server using the Change SMTP Attributes (CHGSMTPA) command:

```
CHGSMTPA FWDHUBSVR (&RMTSYS)
```

After all steps are completed, a message summarizing the results is issued.

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## Appendix B Notices

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