



StreamServe Persuasion SP5 **StreamServe Connect *for SAP-*** **Output+**

User Guide

Rev A

StreamServe Persuasion SP5StreamServe Connect *for SAP* - Output+ User Guide
Rev A

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Output+

This document describes how to configure StreamServe Connect *for SAP* - Output+ with your SAP system. Output+ is an add-on module to StreamServer.

Note: This document only contains StreamServe information specific to the Output+ Connect solution. For general information about StreamServer, see the standard StreamServe documentation.

Output+ is one of four StreamServe Connect solutions available for use with SAP. For information on the other solutions, see the following guides:

- StreamServe Connect *for SAP* - E-docs
- StreamServe Connect *for SAP* - Business Processes
- StreamServe Connect *for SAP* - Delivery Manager

Installation

For information on how to install the StreamServe Connect solutions, see the *StreamServe Connect for SAP - Installation Guide*.

Introduction

The Output+ Connect solution enables you to receive SAPGOF data from your SAP system and process and distribute the data using StreamServer.

SAPGOF data

SAPGOF (SAP Generic Output Format) is an internal SAP format created using the SAPGOF printer driver. StreamServe supports the following SAPGOF data formats:

- SAPGOFU – written in UTF-16 format
- SAPGOF – written in ASCII format

The header information lines of the data contain spool and print request information.

Using the Output+ Connect solution, StreamServe can receive the following types of SAPGOFU/SAPGOF data:

- **Output Text format (OTF)** — Output Text Format (OTF) data is created from Forms by the SAPscript Composer and Smart Forms in the SAP system.
- **ABAP List data** — ABAP List data is generated from Reports in ABAP/4 language directly from the SAP system.

SAPGOF data and StreamServe

SAPGOF data received as either OTF (Form) data or ABAP List (Report) data, maintains the original layout configured for the Form or the Report in the SAP system. You can use this original layout, or enhance the layout using the tools within StreamServe.

You can personalize the output for each customer, and distribute the output to multiple destinations, including printers, fax machines and fax servers, archiving solutions, e-mail, PDF, HTML, and mobile devices.

Standard SAP output architecture

In a SAP system, you can print a document and thereby generate a spool request from various sources, including:

- an ABAP program (list output)
- a program editor
- the SAPscript word processing system.

The SAP spool system manages all 'printed' documents as spool and output requests. The spool system holds the output generated by one of the document sources as a spool request. If the output is actually sent to a printer or fax machine, the spool system generates an output request and formats the data for output.

Interface between SAP and StreamServe

The interface for business documents between SAP and StreamServe comprises a virtual printer. This means that to send SAPGOF data to StreamServe, you can simply print documents in the SAP system in the usual manner.

Sending SAPGOF data from SAP to StreamServe

Output device

To process SAPGOF data generated from the SAP system using StreamServe, you use an output device of either SAPGOFU (Unicode) or SAPGOF (ASCII) type.

Transferring method

The way data is transferred from SAP to StreamServe depends on the host spool access method that you specify for the output device.

Host spool access method	Use for:
L	<ul style="list-style-type: none">• File copy using a common file share between the SAP spool server and the StreamServer host. This is recommended for high-volume printing.• Local LPD/CUPS printing on UNIX.
U	Remote LPD/CUPS printing on UNIX.
C	Local spooler service printing on Windows.
S	Remote Windows printing using the LPD server of the SAPSprint service.
F	Local printing on front-end computer. Use for testing.
E	The XOM interface. See the <i>StreamServe Connect for SAP - Delivery Manager</i> documentation.

For more information on the host spool access methods, see <http://help.sap.com>

The following diagram illustrates how SAPGOF data is sent from the SAP system to StreamServe.

Note: StreamServe employs SAP tools and interfaces in all cases.

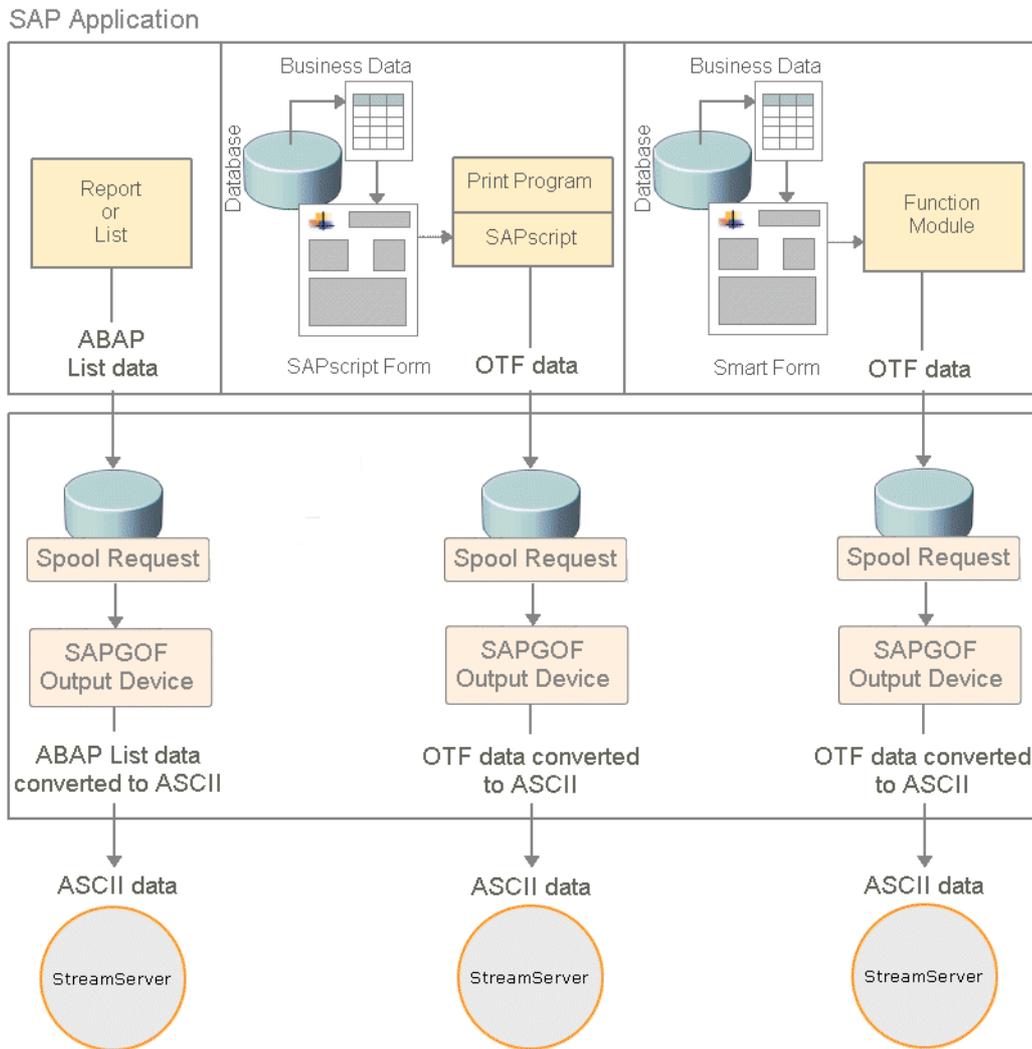


Figure 1 Sending SAPGOF data from SAP to StreamServe

1 OTF or ABAP List data is sent to SAPGOF printer driver

Within the SAP system, data is printed from SAPScript Forms or SmartForms (OTF data), or from an ABAP List report. The data is printed as a spool request using the SAPGOF output device.

2 SAPGOFU/SAPGOF printer driver writes the data to UTF-16/ASCII

The SAPGOFU/SAPGOF printer driver generates a descriptive header from the internal SAP data (OTF or ABAP List), then converts the data into UTF-16/ASCII format.

3 SAPGOFU/SAPGOF printer driver sends the data to StreamServe

The SAPGOFU/SAPGOF printer driver writes the converted data to an external printer device, which in this case is the StreamServe port.

Example of setting up SAP connectivity

This example shows one way of setting up StreamServe as a virtual printer in Windows to use remotely with SAP. In the example, ABAB List data is to be printed through the SAPSprint LPD service. The following is required:

- Install Streamserve port monitor.
See the *StreamServe Installation* documentation.
- Create a local spool folder. In this example, C:\strs_spool.
- Create and configure a local StreamServe printer.
- Install the SAPSprint service, see <http://help.sap.com>
- Check that the SAPSprint service is running on the StreamServe host (e.g. Control Panel > System and Security > Administrative tools > Services)
- Create and configure an output device in SAP.

Creating a local StreamServe printer

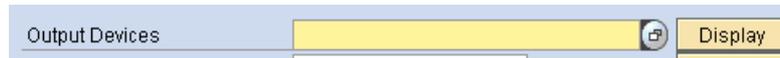
Add a new local printer by clicking **Add a printer** in the Devices and Printers dialog in Windows, and specify the following:

Note: In this example, Windows 7 is the OS.

Setting	Value
What type of printer do you want to install?	Add a local printer
Choose a printer port	Create a new port
Type of port	StreamServe
Port name	STRS
Destination: path/named pipe/address	C:\strs_spool
Manufacturer	Generic
Printers	Generic / Text Only
Printer name	STRS
Printer Sharing	Share this printer so that others on your network can find and use it
Share name	STRS
Set as default printer	Uncheck this box, it should not be the default printer, and do not print a test page.

Creating an output device

- 1 Log on to the SAP client.
- 2 Enter `/nspad` in the transaction field. The Spool Administration: Initial Screen is displayed.
- 3 On the Output Devices row, click Display.



- 4 Click Change.

- 5 Click Create.

- 6 Enter a name for the Output Device
- 7 From the Device Type drop-down list, select **SAPGOFU :Generic outp.fmt Unicode 1.0**.
- 8 Select in the Spool Server field, and double-click the SAP server to use.
- 9 Select the **Access Method** tab.
- 10 From the Host Spool Access Method drop-down list, select the following:
S: Print Using SAP Protocol
- 11 In the Host printer field, enter the StreamServe port monitor printer you have created, STRS.
- 12 In the Destination host field, enter the host name or IP address of the StreamServe port monitor printer.



For better performance, select **Do Not Query Host Spooler for Output Status**.

- 13 Save the device.

To test the device

- 1 Go back to `/nspad` and select to display output devices.
- 2 Click Print this list to output the list on your new device.



- 3 Select your output device and click Continue.



Supported SAP releases

The Output+ Connect solution supports processing of Unicode SAPGOF data from NetWeaver 2004 and newer.

Non-Unicode SAPGOF data is supported for release 4.6c and newer.

Not supported SAPGOF features

- RDE, e.g. PCL images
- “RT - Raw Text” command
- SmartForm Barcodes: Code 93 when printing to anything else but a label printer.
- Restrictions on handling of OTF Raw Data commands (RD):
 - Only bitmap data is supported
 - All raw data types other than the following are not supported:
 - G** The data contains a color bitmap graphic including a color table.
 - H** The data contains a monochrome bitmap graphic.
 - I** The data contains a monochrome bitmap graphic including a color table.
 - J** The data contains a monochrome bitmap graphic.

The StreamServe configuration

StreamServe Design Center is used to configure StreamServe Projects, which determine how StreamServer handles both OTF (Form) data and ABAP List (Report) data.

Platform	No specific configuration settings are required for the input connectors and output connectors in the platform for SAPGOF data.
Message	You configure a Message for OTF (Form) data or ABAP List (Report) data using the PreformatIN Event, and any type of Process, such as StoryTeller or XMLOUT. You must create a separate PreformatIN Event for each form or report you want to extract data from.
Resources	The SAPGOFLXF filter is defined in a Filter Chain, and added as a Resource to the Resource Set. This Filter Chain can be attached to an input connector in the Platform configuration.
Runtime	For StreamServer to recognize and handle SAPGOF data, a SAPGOFIN filter is used at runtime to convert SAPGOF data into LXF (Layout eXchange Format).

Configuration in previous StreamServe releases

Using Design Center, you can upgrade and maintain Messages created using the PageIN and FormOUT tools.

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Output+

Configuring SAP to send SAPGOF data

To configure SAP system to send OTF or ABAP List data for processing in StreamServe, you need to create an output device in your SAP system of SAPGOF type.



The SAPGOF documentation is available for SAP customers and consulting partners on SAP Net (<https://websmp103.sap-ag.de/output> - search for “Generic Output Format” to locate the PDF file on SAPGOF).

You can use SAPGOF device either to generate sample SAPGOF data, or send SAPGOF data to StreamServer for processing.

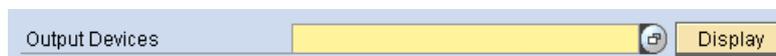
See *Sending SAPGOF data to StreamServe* on page 18.

Creating a Unicode (UTF-16) SAPGOF output device

To configure SAP to send OTF or ABAP List data in Unicode format to StreamServe, you must create an output device in your SAP system of SAPGOFU type.

To create an SAPGOF output device

- 1 Log on to your SAP system as a user with administrative permissions.
- 2 Enter `/nspad` in the transaction field. The Spool Administration: Initial Screen is displayed.
- 3 On the Output Devices row, click Display.



- 4 Click Change.
- 5 Click Create.
- 6 Enter a name for the Output Device.

- 7 Click the **DeviceAttributes** tab, and specify the device settings.:

Device settings	
Device type	Select SAPGOFU: Generic outp. fmt Unicode 1.0.
Device class	Select Standard printer.

- 8 Click the **Access Method** tab.
9 Specify the host spool settings.:

Host spool settings	
Host Spool Access Method	See Transferring method on page 7 To print sample files (for test purposes), you must use the F (Front-end) method. For an Note: If you select an access method that requires a spool server, you must specify the server on the DeviceAttributes tab.
Host printer	The name of the StreamServe printer queue, for example <code>strs</code> . For information on configuring the printer queue, see <ul style="list-style-type: none"> • Creating a local printer definition on page 18. • Example of setting up SAP connectivity on page 10. Note: The name of the host printer is case sensitive and cannot contain any spaces.

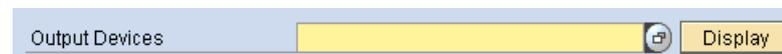
- 10 Click **Enter**.
11 Save the device definition.

Creating an ASCII SAPGOF output device

To configure SAP to send OTF or ABAP List data in ASCII format to StreamServe, you must create an output device in your SAP system of SAPGOF type.

To create an SAPGOF output device

- 1 Log on to your SAP system as a user with administrative permissions.
- 2 Enter `/nspad` in the transaction field. The Spool Administration: Initial Screen is displayed.
- 3 On the Output Devices row, click Display.



4 Click Change.



5 Click Create.



6 Enter a name for the Output Device.

7 Click the **DeviceAttributes** tab, and specify the device settings.:

Device settings	
Device type	Select SAPGOF: Generic output format ASCII .
Device class	Select Standard printer .

8 Click the **Access Method** tab.

9 Specify the host spool settings.:

Host spool settings	
Host Spool Access Method	See Transferring method on page 7 To print sample files (for test purposes), you must use the F (Front-end) method. Note: If you select an access method that requires a spool server, you must specify the server on the DeviceAttributes tab.
Host printer	The name of the StreamServe printer queue, for example <code>strs</code> . For information on configuring the printer queue, see <ul style="list-style-type: none"> • Creating a local printer definition on page 18. • Example of setting up SAP connectivity on page 10. Note: The name of the host printer is case sensitive and cannot contain any spaces.

10 Click **Enter**.

11 Save the device definition.

Sending SAPGOF data to StreamServe

To output data from your SAP system to StreamServe using the SAPGOF driver, you need to complete the configuration describe in this section. To assist you, this section contains two examples of how to send OTF data (Form data) and ABAP List data (Report data) to StreamServe using the SAPGOF driver. You should ensure that these scenarios work correctly before starting to create the actual Form or Report. These examples are configured for a Windows environment.

If you only want to generate a SAPGOF file, without sending it to StreamServe (in case StreamServe is not installed), see [Creating a SAPGOF output file](#) on page 21.

Included activities

To send SAPGOF data to StreamServe, complete the following steps:

- 1 Create a SAPGOF output device for sending SAPGOF data to StreamServe:
See [Creating an ASCII SAPGOF output device](#) on page 16.
- 2 See [Creating a local printer definition](#) on page 18.
- 3 Send sample data to StreamServe:
 - See [Sending sample Form data to StreamServe](#) on page 19
 - See [Sending sample ABAP List data to StreamServe](#) on page 20

Creating a local printer definition

To capture data on your SAP system, you need to create a printer definition on your local machine (Windows) that you can use to receive data as the StreamServe port.

To create a printer definition

- 1 On your local machine, add a printer definition with the following settings:

Printer definition settings	
Local or Network Printer	Select Local printer . Note: Ensure Automatically detect and install my Plug and Play printer is <i>not</i> selected.
Port	A new port of StreamServe type. Note: The StreamServe port type is only available when you have installed StreamServe Port Monitor.

Printer definition settings	
Port Definition	<p>A name for the port, such as <i>strs</i>.</p> <p>Note: The port name must match the name of the host printer name specified for the SAPGOF output device.</p> <p>Enter a destination path/pipe to the StreamServe spool from where StreamServer will receive data, for example:</p> <p style="padding-left: 40px;"><code>C:\StreamServe\spool</code></p>
Manufacturer	Generic
Model	Generic/Text only
Printer Name	<p>A name for the printer, For example, <i>strs</i>.</p> <p>Note: Do not specify the printer as the default printer.</p>
Shared As	<p>A share name for the printer, for example <i>strs</i>.</p> <p>Note: The share name must match the name of the host printer name specified for the SAPGOF output device.</p>

- 2 Right-click the new printer and select **Properties > Advanced > Print Processor**.
- 3 Select **passthru** and **RAW**.

Sending sample Form data to StreamServe

You print sample Form data (OTF) from your SAP system using the SAPGOF output device configured to use the local printer definition.

Note: This section uses an invoice from the SAP system as an example.

To send sample Form data to StreamServe

- 1 Log on to your SAP system as a user with administrative permissions.
- 2 In the transaction box, enter `/nvf03`. The Display Billing Document window opens.
- 3 In the Billing document box, select the billing document you want to print.
- 4 Select **Billing document > Issue output to > Printer**. The Issue Output dialog box opens.
- 5 Ensure the correct output type is used. (The standard output type for an invoice is usually RD00.) Click **Execute**.
- 6 In the Logical destination box, enter the name of the output device you created for sending SAPGOF data to StreamServe.

See *Creating an ASCII SAPGOF output device* on page 16.

- 7 Ensure **Print immediately** is selected.
- 8 Click **Execute**. If printing is successful, your SAP system will launch SAPLPD on your local machine showing the print job in the log file. See *Supported SAP releases* on page 12. The output is sent to the device.

The output file is sent to the directory specified for the port definition of the local printer definition, for example `C:\StreamServe\spool`, see *Creating a local printer definition* on page 18.



Output file extension (*.gof)

Ensure that the extension of the output file is `.gof`. If the output file has another extension, you will not be able to import the file into the PreformatIN tool, and the file will not automatically be converted to LXF format.

Sending sample ABAP List data to StreamServe

To send ABAP List data from your SAP system, you print reports in the usual manner using the SAPGOF output device. The SAPGOF device type sends the output data as an ASCII file to the host printer defined for the output queue - the StreamServe printer queue.

Note: This section uses a material document list from the SAP system as an example.

To send sample ABAP List data to StreamServe

- 1 Log on to your SAP system as a user with administrative permissions.
- 2 In the transaction box, enter `/nmb51`. The Material Document List window opens.
- 3 Click **Execute**. All available materials are listed.
- 4 Double-click the material you want to view and print as a report. The details of the material are displayed.
- 5 Select **List > Print**. The Print Screen List window opens.
- 6 In the Output device box, select the name of the output device you created for sending SAPGOF data to StreamServe.
See *Creating an ASCII SAPGOF output device* on page 16.
- 7 Ensure **Print immediately** is selected.
- 8 Click **Execute**. If printing is successful, your SAP system will launch SAPLPD on your local machine showing the print job in the log file. See *Supported SAP releases* on page 12.

The ABAP List data is output as an ASCII file to the host printer defined for the SAPGOF output device - the StreamServe printer queue.

Creating a SAPGOF output file

To create a SAPGOF output file, you need to complete the following steps:

- 1 Create a SAPGOF output device for sending sample SAPGOF data to StreamServe.

See *Creating an ASCII SAPGOF output device* on page 16.

Note: When configuring a SAPGOF output device for sending sample SAPGOF data, ensure you specify the access method as **F** to print locally to a front end printer.

- 2 *Creating a printer definition for sample SAPGOF data* on page 21

- 3 Print sample data to StreamServe:

– *Printing sample Form data to StreamServe* on page 22

– *Printing sample ABAP List data to a file* on page 23

Creating a printer definition for sample SAPGOF data

To create a SAPGOF output file, you need to create a printer definition on your local machine (Windows) that you can use to send the sample data as a file to your local machine.

To create a printer definition for sample SAPGOF data

- 1 On your local machine, add a printer definition with the following settings:

Printer definition settings	
Local or Network Printer	Local printer Note: Ensure Automatically detect and install my Plug and Play printer is <i>not</i> selected.
Port	A new port of StreamServe type. Note: The StreamServe port type is only available when you have installed StreamServe Port Monitor.
Manufacturer	Generic
Model	Generic/Text only
Printer Name	A name for the printer, For example, <i>strs</i> . Note: Do not specify the printer as the default printer.
Shared As	A share name for the printer, for example <i>strs</i> . Note: The share name must match the name of the host printer name specified for the SAPGOF output device.

- 2 Select **Printer > Properties > Advanced > Print Processor** with a Passthru print processor with a RAW default.

Printing sample Form data to StreamServe

You print sample Form data (OTF) from your SAP system using the SAPGOF output device you configured to use the local printer definition. The sample data is sent from your SAP system to your local machine as a file.

Note: This section uses an invoice from the SAP system as an example.

To print sample Form data to a file

- 1 Log on to your SAP system as a user with administrative permissions.
- 2 In the transaction box, enter `/nvf03`. The Display Billing Document window opens.
- 3 In the Billing document box, select the billing document you want to print.
- 4 Select **Billing document > Issue output to > Printer**. The Issue Output dialog box opens.
- 5 Ensure the correct output type is used. (The standard output type for an invoice is usually RD00.) Click **Execute**. The second Issue Output dialog box opens.
- 6 In the Logical destination box, enter the name of the output device you created for sending sample SAPGOF data to StreamServe. See [Creating a printer definition for sample SAPGOF data](#) on page 21.
- 7 Ensure **Print immediately** is selected.
- 8 Click **Execute**. If printing is successful, your SAP system will launch SAPLPD on your local machine showing the print job in the log file. See [Supported SAP releases](#) on page 12. The output is sent to the printer and the Print to File dialog box opens.
- 9 Enter the full path and name of the SAP output file, for example:
`C:\StreamServe\invoice.gof`
- 10 Click **OK**. You can import this file into the Event tool to build the Form Message.



Output file extension (*.gof)

Ensure that the extension of the output file is `.gof`. If the output file has another extension, you will not be able to import the file into the PreformatIN tool, and the file will not automatically be converted to LXF format.

Printing sample ABAP List data to a file

You print sample ABAP List data from your SAP system using the SAPGOF output device you configured to use the local printer definition. The sample data is sent from your SAP system to your local machine as a file.

Note: This section uses a material document list from the SAP system as an example.

To print sample ABAP List data to a file

- 1 Log on to your SAP system as a user with administrative permissions.
- 2 In the transaction box, enter /nmb51. The Material Document List window opens.
- 3 Click **Execute**. All available materials are listed.
- 4 Double-click the material you want to view and print as a report. The details of the material are displayed.
- 5 Select **List > Print**. The Print Screen List window opens.
- 6 In the Output device box, enter the name of the output device you created for sending sample SAPGOF data to StreamServe. See [Creating a printer definition for sample SAPGOF data](#) on page 21.
- 7 Ensure **Print immediately** is selected.
- 8 Click **Execute**. If printing is successful, your SAP system will launch SAPLPD on your local machine showing the print job in the log file. See [Supported SAP releases](#) on page 12. The output is sent to the printer and the Print to File dialog box opens.
- 9 Enter the full path and name of the SAP output file, for example:
 C:\StreamServe\material.gof
- 10 Click **OK**.



Output file extension (*.gof)

Ensure that the extension of the output file is .gof. If the output file has another extension, you will not be able to import the file into the PreformatIN tool, and the file will not automatically be converted to LXF format.

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Creating Messages for SAPGOF data

This chapter describes how to create StreamServe Messages for SAPGOF data — OTF (Form) data and ABAP List (Report) data — using the StreamServe Design Center and the PreformatIN tool. You can use Process tools such as PageOUT or XMLOUT, to create the final output.

Note: The StoryTeller Process tool can not be used.

Included activities

- [Creating Messages for SAPGOF data](#) on page 26
- [Defining a PreformatIN Event for SAPGOF data](#) on page 27
- [Defining a Process for SAPGOF data](#) on page 29

Creating Messages for SAPGOF data

Using Design Center to create a Message for OTF (Form) data or ABAP List (Report), you configure the Message using a PreformatIN Event, and any type of Process, such as PageOUT or XMLOUT.



Multiple-page forms or reports

If the report or form consists of multiple pages with different page layouts, you will need to configure Messages that will handle both pages. For example, you can create two Messages with different Patterns to process a two-page report with different page layouts.

To create a Message for SAPGOF data

- 1 In Design Center, create a new Message definition.
- 2 Add a PreformatIN Event to the Message.

Defining a PreformatIN Event for SAPGOF data

For each Form or Report you want to extract data from, you must create a separate PreformatIN Event.

You create an Event for SAPGOF data based on the original SAPGOF file. When you import the SAPGOF file in the PreformatIN tool, the data is automatically converted into LXF (Layout eXchange Format) format.

To configure a PreformatIN Event for a Form or a Report, you can use dynamic overlays, or you can identify and extract the data by mapping blocks and fields.

Included activities

- [Importing a sample SAPGOF file](#) on page 27
- [Identifying and extracting SAPGOF data](#) on page 28
- [Saving SAPGOF data as a dynamic overlay](#) on page 28

Importing a sample SAPGOF file

To configure the layout of SAPGOF data in a PreformatIN Event, you load a file (grab file) containing sample data from your SAP system. A grab file contains a copy of data that you can use to map the layout of Form data from your SAP system to StreamServe.



Sample file extension (*.gof)

Ensure that the extension of the file is `.gof`. If the file has another extension, you will not be able to import the file into the PreformatIN tool, and the file will not automatically be converted to LXF format.

To load a sample SAPGOF file into PreformatIN

- 1 Add the sample file to the resource set by right-clicking the samples folder in the resource set and select **Import**.
- 2 Browse to the sample file and select it.
- 3 In the Resource Type Settings dialog, select **Sample**.
- 4 Add the `sapgof2lxf.gofcfg` file to the resource set by right-clicking the **Resources** folder and select **Import**.
- 5 Browse to the configuration file and select it. The file is by default located in `<StreamServe installation>\Applications\Streamserver\<version>\Common\data\output+`
- 6 In the Resource Type Settings dialog, select **OutputPlus Configuration**.
- 7 Open the PreformatIN Event.

- 8 Select **File > Open Sample**. The Select Resource dialog opens.
- 9 Locate and select the Resource Set with the sample.
- 10 Browse to the sample file and double-click it. The Filter options dialog opens.
- 11 In the Configuration field, browse to the **outputplus configurations** folder and select the `sapgof21xf.gofcfg` file.

Identifying and extracting SAPGOF data

The minimum configuration required for a PreformatIN Event for SAPGOF data, is a unique pattern that identifies the type of Form or Report.

If you want to reformat the layout of the data, you can use PreformatIN in the standard way, including mapping blocks and fields to capture data. See the *PreformatIN* documentation.

Saving SAPGOF data as a dynamic overlay

In the PreformatIN tool, you can save an imported SAPGOF file as a dynamic overlay in the Dynamic Resources repository.

Prerequisites

Before you save a Form or Report as a dynamic overlay, you must configure the Dynamic Resources repository in the Platform in Design Center. For information about the repository properties, see the *Design Center* documentation.

To save SAPGOF data as a dynamic overlay

- 1 On the PreformatIN sheet, display the page that you want to save as a dynamic overlay.
- 2 Select **Tools > Options**. The Options dialog box opens.
- 3 Select **Use dynamic overlay**.
- 4 Click **OK**.

For more information about dynamic overlays, see the *PreformatIN* documentation.

Defining a Process for SAPGOF data

When using Design Center to create a Message for OTF (Form) or ABAP List (Report) data, you configure the Message using a PreformatIN Event, and any Process tool for designing the layout. To re-use the layout of the Form or Report, you must use PageOUT.

This section describes how to add a dynamic overlay to a PageOUT Process. For information about configuring other types of Processes, see the relevant Process tool documentation.

Prerequisites

Before you add the dynamic overlay to the output, you must save the Form or Report as a dynamic overlay in the PreformatIN Event. See [Saving SAPGOF data as a dynamic overlay](#) on page 28.

To add a dynamic overlay

- 1 Add a PageOUT Process to the Message.
- 2 Open the PageOUT Process.
- 3 Select **Edit > Add Overlay**. The Add Overlays dialog box opens.
- 4 From the Overlay list, select the dynamic overlay for the Form.
- 5 Click **OK**. The dynamic overlay for the Form opens on the PageOUT sheet.

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Creating Messages for SAPGOF data

Configuring Runtime for SAPGOF data

This chapter describes how to configure a recommended Runtime configuration for SAPGOF data using Design Center.

For more information on Runtime configurations, see the *Design Center* documentation.

The Runtime configuration specific to the Output+ Connect solution, is the SAPGOFIN filter used in a Filter Chain.

Note: Instead of adding the SAPGOFIN in the Runtime configuration, you can add the filter to the input connector in the Platform. However, adding the filter in the Runtime configuration is the recommended method.

Included activities

- [Configuring the SAPGOFIN filter](#) on page 32
- [Configuring Runtime for Form or Report Messages](#) on page 33

The SAPGOFIN filter

For StreamServer to recognize and handle SAPGOF data, a SAPGOFIN filter is used at runtime to convert SAPGOF data into LXF (Layout eXchange Format).

For information about Filter Chains, see the *Design Center* documentation.

Configuring the SAPGOFIN filter

To configure the SAPGOFIN filter

- 1 Select or create the resource set for the Message.
- 2 Add a Filter Chain to the resource set and open the Filter Chain.
- 3 Right-click in the Filter Chain editor, and select **Add Filter >SAPGOFIN**.
- 4 Browse to and select the `sapgof21xf.gofcfg` file.
- 5 Save and close the Filter Chain editor.

To select the SAPGOFIN filter on the input connector

- 1 In the Platform configuration, right-click the input connector, and select **Settings**. The Input Connector Settings dialog opens.
- 2 Click the **Filter Chain** button. The Browse for Resources dialog opens.
- 3 Browse to the filter chain folder, and select the filter chain configured for the SAPGOFIN and Codepage filters.
- 4 Click **OK**.

Configuring Runtime for Form or Report Messages

To configure Runtime for Form or Report Messages

- 1 In Design Center, create a new Runtime configuration connected to the Platform you created.
- 2 Right-click the Job of the Runtime configuration, and select **Add Message**. The Select Messages dialog box opens.
- 3 Select the Message containing the Report you want to add to the Job, and click **OK**.

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Configuring Runtime for SAPGOF data

The SAPGOFIN configuration file

The SAPGOFIN configuration file (`sapgof21xf.gofcfg`) is by default located in `<StreamServe installation>`
`\Applications\Streamserver\<version>\Common\data\output+`.

This file is used by the SAPGOFIN filter to convert SAPGOF data to LXF. The LXF data is then sent to StreamServer for further processing.



To benefit from the SAPGOFU device type, use Unicode enabled fonts.

Modifying the SAPGOFIN configuration file

The configuration file consists of different sections that you can modify to suit your installation.

common section

The `common` section applies to both OTF and ABAP list data.

conversion properties	
mapping-file	The path to <code>ssmbyte.dat</code> file required to map SAP multi-byte characters. For example: <pre><StreamServe installation> \Applications\StreamServer\<version>\Common \data\ssmbyte.dat</pre>
mode	The filter mode. Either <code>otf</code> , <code>abaplist</code> , or <code>both</code> . Default is <code>both</code> .

otf section

The `otf` section applies to OTF (Form) data only. It includes default values for processing SAP Forms (OTF data).

defaults properties	
outputshift	The amount of shift to the right for the SAPGOFIN output. See <i>PostScript drivers and the SAPGOF output device</i> on page 125.
font	The default font. If there is no mapping specified for the SAP font, the default font is used. For example <code>courier</code> .

settings properties	
<p>STAppendMode</p>	<p>When input data contains Unicode text, fields can in some cases overlap each other and horizontal lines can be printed in the right margin. To avoid this, specify <i>yes</i>. This means that consecutive ST commands will be concatenated into one single label.</p> <p>Consider the following data example:</p> <pre>SW00092 ST0296058String_one ST0289560String_two SW00054 ST0241850String_three</pre> <p>Specifying <i>yes</i> will concatenate <i>String_one</i>, <i>String_two</i>, and <i>String_three</i> since SW commands are by default ignored. To alter this behavior, see the <i>STAppendModeSkipSw</i> property.</p> <p>The default value of <i>STAppendMode</i> is <i>no</i>, meaning that:</p> <ul style="list-style-type: none"> • Strings are not concatenated and SW values are considered. • The property is set to <i>no</i> if the option is missing from the configuration file.
<p>STAppendModeSkipSw</p>	<p>If the this property is set to <i>yes</i>, or is not specified, Space Width commands are ignored and strings are concatenated even if there are SW commands in between.</p> <p>Note: This requires that <i>StAppendMode=yes</i>.</p> <p>Specify <i>no</i> to consider the Space Width values in your input data. If <i>STAppendMode=yes</i>, consecutive ST commands between SW commands are concatenated. In the <i>STAppendMode</i> example, <i>String_one</i> and <i>String_two</i> will be concatenated, but not <i>String_three</i>.</p> <p>The default value is <i>yes</i>, meaning that the property is set to <i>yes</i> if the option is missing from the configuration file.</p>

variables properties	
exclude-from-overlay	When input data contains Unicode text, fields can in some cases overlap each other and horizontal lines can be printed in the right margin. To avoid this, specify <i>yes</i> .

barcodes section

The `barcodes` section applies to OTF (Form) data only. It includes values for standard barcodes. Each barcode is identified with the name used in the SAP system.

sapname properties (Where <i>sapname</i> is the name of the barcode in the SAP system.)	
strsname	Name of the barcode in StreamServe.
height	Height of the barcode.
checkchar	The number of a character used to check that the barcode has been entered correctly.
printtext	Specifies whether or not the text is to be printed. Values are <i>Yes</i> or <i>No</i> .
rotation	Specifies the angle of rotation (in degrees) for the barcode, for example <i>90</i> .
modulesize	The minimum width in millimeters of a bar in the barcode.
alignbottom	Specifies if the barcode bottom is aligned with the character baseline. By default set to <i>yes</i> . If set to <i>no</i> , the barcode top is aligned with the baseline.

abaplist section

The `abaplist` section applies to ABAP list data only. It includes default values for processing SAP Reports (ABAP list data). The `abaplist` section is divided in two sections — `defaults` and `listcolors`.

defaults properties	
paper	The paper size, such as A4 or Letter.
format	The output (page) format, indicating the maximum number of lines and columns per printed page. For example <code>X_65_80</code> is 65 rows and 80 columns.

defaults properties	
font	The default font to be used. For example <code>courier</code> .
replacement-char	<p>SAPGOF data can contain references to SAPGOF characters. SAPGOF characters are written with a hash symbol “#” and a 3-digit code, (eg. #251), or with an ‘at’ symbol “@” and a 4-digit code (eg. @1024).</p> <p>For example:</p> <pre>MT0100809360 ST0475233Terms of delivery #251 EXW Broadview</pre> <p>If the referenced character is missing, the <code>replacement-char</code> character will be used instead.</p> <p>If the OTF data from your SAP system contains references to SAPGOF characters, <code>symbol.map</code> will map the SAPGOF characters included in the data to one of the following:</p> <ul style="list-style-type: none"> • a character in the current font (given in decimal) <pre>251 0223</pre> • a bitmap <pre>251 bitmaps/xyz.bmp</pre> • a character in another font <pre>251 FONT 0044 Wingdings</pre> • a default value <pre>DEFAULT 0032</pre> <p>The <code>symbol.map</code> file maps SAPGOF characters to the corresponding characters in the ISO 8859-1 (Latin 1) character set. The file also provides mappings for all SAP icons.</p>
additional-linespacing	Extra line spacing in points. Line spacing is specified for each page format. If page format line spacing is missing, the line spacing is equal to font size.

listcolors properties

The `listcolors` properties apply to ABAP list data only.

SAP uses standard print controls to specify the foreground (font) color and background color of ABAP List data. For a list of color print controls, see [Print controls for color control in ABAP List data](#) on page 57.

The default foreground and background colors are pre-configured in the configuration file. If you require additional colors for a print control, you can modify the color value (RGB value).

The foreground and background color are specified using the following format:

`COLnx foreground_color, background_color, style`

Where:

- `COLnx` specifies a standard print control in ABAP List data, where:
 - `COL` is a fixed prefix to identify the print control as a color control
 - `n` specifies the color number (0-7)
 - `x` specifies the type (N = normal, H = highlighted, V = inverted).
- `foreground_color` and `background_color` specify the foreground (font) color and background color as a RGB value. For example, 0:0:0 for black and 0:0:255 for blue.
- `style` can be one of the following values:
 - N (normal)
 - B (bold)
 - I (italic)
 - IB (italic bold)

Example 1 `listcolor` property

```
<property id="COL6H">0:0:0,238:0:0,B</property>
```

List color transparency properties

You can use this option to avoid that e.g. the bottom parts of letters like g and p are cut off when text is printed black on white background.

transparency	Set to <code>yes</code> to let all color definitions in the transparency-for list have a transparent background.
transparency-for	<p>A comma-separated list of colors whose background is transparent if transparency is set to <code>yes</code>. For example:</p> <pre><property id="transparency-for">COL0N, COL0H, COL1N, COL4H</property></pre> <p>You can use an asterisk if you want all background colors to be transparent:</p> <pre>"transparency-for">*</property></pre>

paper section

The `paper` section applies to ABAP data only. It specifies the page type and size.

paper properties	
paper type	The size of the paper for the Report. For example A4.
width	The width of the page in millimeters. For example 297 (for an A4 page).
height	Height of the page in millimeters. For example 420 (for an A4 page).

pageformats section

The `pageformats` section applies to ABAP data only. It specifies page format and orientation.

pageformat properties	
orientation	The page orientation of the Report. Valid values are: <ul style="list-style-type: none"> landscape portrait
marginleft	The width of the left margin in millimeters.
margintop	The width of the top margin in millimeters.
rows	The number of rows in the Report.
columns	The number of columns in the Report.
fontsize	The default font size that should be used.
linespacing	The line spacing to use for the page format. Note: For backwards compatibility: If the value is missing, the <code>fontsize</code> value is used.

Specifying font for a page format

You can use a specific font for a specific page format, by adding a font property into the page format property bag. If no font is specified, the font specified in the `defaults` property bag is used. See [Example 2](#) on page 41.

Example 2 Specifying font for a page format

```
<section type="pageformats">
  <propertybag id="X_44_120">
    <!--The SAP page orientation definition.-->
```

```

    <property id="orientation">landscape</property>
      <property id="marginleft">10</property>
      <property id="margintop">10</property>
      <property id="rows">44</property>
      <property id="columns">120</property>
      <property id="fontsize">8</property>
      <property id="font">COURIER</property>
  </propertybag>

```

fonts section

The `fonts` section maps the internal SAP font name to a StreamServe font name. When the SAPGOFIN filter process the data, all fonts used in the data stream are mapped to a StreamServe font name according to the `fonts` section in the configuration file. The data is then passed to StreamServer for further processing.

font properties	
font	Name of the font in the SAP system.
strsname	Name of the font in StreamServe.
cell2char	The cell value for a character.
charwidth	The width of the character (only used for ABAP List data).

Mapping special characters

You can use special characters in the SAPGOF data by mapping them to characters in StreamServe fonts.

Note: The `sapgof21xf.gofcfg` configuration file converts the "hook", "fork" and "chair" characters in the SAP OCRA font, to corresponding characters in the StreamServe OCR-A font.

To map a special character, you must:

- Identify the SAP font, codepage and character code for the character to convert.
- Identify which character that corresponds to the SAP character code.
- Identify the character code in the StreamServe font, by using for example the Windows Character Map application.
- Identify the `cell2char` value for the StreamServe font.
- Edit the `sapgof21xf.gofcfg` file.

To identify the character, font and codepage

- 1 The character code for the character to convert is specified in the 6th and following numbers in the CH command.
- 2 The codepage is specified in the last CP command occurring before the CH command in the 4 first numbers after CP.
- 3 The font is specified in the first FC command occurring after the CP command but before the CH command.

Example 3 *Excerpt from a SAPGOF file*

In the following example the character code is 165, the SAP codepage is 4102, and the SAP font is HELVE

```
CP41020000D
FCHELVE      100  00084X          410200056
ST0201614    0000110000001
CH00144165
```

To identify which character corresponds to the SAP character code

- 1 Log on to the SAP system.
- 2 In the transaction box, enter /nspad. The initial Spool Administration window opens.
- 3 Select **Utilities > For character sets > Output character set**
- 4 Enter the codepage and click **Execute**.
- 5 Identify which character that corresponds to the character code specified in the CH command in the SAPGOF data.

To identify the StreamServe character code

- 1 Start the Character Map application in Windows (**Accessories > System Tools > Character Map**). (Or run charmap in command line)
- 2 Select the StreamServe font and character to use.
- 3 Convert the displayed unicode hex value to a decimal value. For example, if U+0021 is displayed, convert hex(21) to the decimal value (33).

To identify the cell2char value

- 1 Create an overlay containing text in the StreamServe font to use.
- 2 Open the overlay LXF file in a text editor.
- 3 Identify the cell2char value for the StreamServe font.
 See example *Example 4* on page 43.

Example 4 *cell2char value*

A StreamServe font with cell2char value 0.895.

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```
<font id="6" name="Arial" size="12.4533,pt" cell2char="0.895"  
ptsize="11.0"/>
```

To edit the `sapgof2lxf.gofcfg` file

To map the character code in the OTF input file to the corresponding character code in the font file, you must make an entry the `sapgof2lxf.gofcfg` file. See [Example 5](#) on page 44.

Example 5 An entry for a character mapping

In the following example the Yen symbol in SAP font Helvetica is converted to the Euro symbol in StreamServe font Arial.

```
<propertybag id="HELVE">  
  <property id="strsname">  
    <!--StreamServe font name-->Arial</property>  
  <property id="cell2char">  
    <!--The cell value for the character-->0.895</property>  
  <property id="CH_165">  
    <!--maps character 165 (Yen symbol) to Euro symbol-->8364</  
property>  
</propertybag>
```

StreamServe and OTF data

SAPGOF (SAP Generic Output Format) is an internal SAP format created using the SAPGOF printer driver. SAPGOF data is written in ASCII format and contains a descriptive header and header variables.

OTF data is created by the SAPscript Composer and Smart Forms in SAP.

Example 1 SAPGOF data in OTF format

The following data is a sample of SAPGOF data in OTF format:

Header records	<pre> *MAJOR=2 *MINOR=1 *FORMAT=OTF *RQID=16523 *RQOWNER=DEV *RQCLIENT=800 *RQCREATIME=16.02.2001 14:30:04 *RQNAME=SD_009 *RQSUFFIX1=RD00 *RQSUFFIX2=INVOICE *RQORIGDEST=STSG *DVCODEPAGE=4010 *DVDEVTYPE=SAPGOF *DVORIGDEVTYPE=SAPGOF *PJAMOUNT=1 *PJCLIENT=800 *PJDEPARTMENT= *PJFORM=DINA4 *PJJOBNO=6 *PJLAUNCHED=16.02.2001 16:15:18 *PJENDPAGE=0 *PJSTRTPAGE=0 *PJTELENUM= *PJPRINTER=STSG *PJPRIO=5 *PJRECEIVER=DEV *PJTITLE= *PJUSER=DEV //XSAPGOF 046B 00000+00000+ IN01ERVINVOICE01 FIRST OPDINA4 P 144 240 1683811906000010000100000 IN02MAIN MT0100808400 CP11000000E FCHELVE 100 00084X 110000056 UL +00000000000000 SW00056 ST0124412Requirements MT0970108400 FCHELVE 100 00084X 110000056 SW00056 ST0081108Currency FCCOURIER 120 00144 110000144 ST0057604 USD MT0100808640 </pre>
Data records	<pre> //XSAPGOF 046B 00000+00000+ IN01ERVINVOICE01 FIRST OPDINA4 P 144 240 1683811906000010000100000 IN02MAIN MT0100808400 CP11000000E FCHELVE 100 00084X 110000056 UL +00000000000000 SW00056 ST0124412Requirements MT0970108400 FCHELVE 100 00084X 110000056 SW00056 ST0081108Currency FCCOURIER 120 00144 110000144 ST0057604 USD MT0100808640 </pre>

Note: This graphic has been cropped and does not display all records.

OTF data variables

You can use the following types of variables with OTF formatted SAPGOF data:

- [SAPGOF header variables](#) on page 46
- [Pre-defined Form variables](#) on page 47
- variables defined in script functions (see [Scripting Reference](#)).

If you are using the Project tool with version 3.01 of StreamServe or earlier, you can clear all variables on a page in a Form using the Clear All Page Variables option, see [Clearing variables](#) on page 102.

SAPGOF header variables

All values in the header of a SAPGOF data file can be used as variables in StreamServer. See [Header records](#) on page 48.

Note: Variables that refer to SAPGOF header data are read-only, and you cannot change their value using a script.

Example 2 *SAPGOF header variables for OTF data*

The *FORMAT variable indicates that the data is OTF (Form) data.

```
*MAJOR=2
*MINOR=1
*FORMAT=OTF
*RQID=24909
*RQOWNER=IMJSC
*RQCLIENT=800
*RQCREATIME=17.08.1999 17:58:57
*RQNAME=SD_009
*RQSUFFIX1=RD00
*RQSUFFIX2=INVOICE
*RQORIGDEST=KUB0
*DVCODEPAGE=4010
*DVDEVTYPE=SAPGOF
*DVORIGDEVTYPE=SAPGOF
*PJAMOUNT=1
*PJCLIENT=800
*PJDEPARTMENT=
*PJFORM=DINA4
*PJJOBNO=1
*PJLAUNCHED=17.08.1999 17:58:58
*PJENDPAGE=0
*PJSTRTPAGE=0
*PJTELENUM=
*PJPRINTER=XYZ123
*PJPRIO=3
*PJRECEIVER=D000195
*PJTITLE=
*PJUSER=IMJSC
```

Pre-defined Form variables

The SAPGOFIN filter generates pre-defined variables which can be used by StreamServer.

Note: For a list of header variables, see *Header records* on page 48.

Variable	Description
\$pj_doctype	The language used in the SAPGOF data. For example D (German).
\$pj_doctrigger	The page name of the Form, such as FIRST or NEXT.
\$pj_formname	The name of the SapScript or SmartForm that generated the OTF data.
\$pj_orientation	The page orientation of the Form. Valid values are: <ul style="list-style-type: none"> Landscape Portrait
\$pj_printmode	The layout of the printed Form. Valid values are: <ul style="list-style-type: none"> Simplex Duplex Long-edge Duplex Short-edge None

Example 3 *Pre-defined Form variables*

```
$pj_doctype=D
$pj_doctrigger=NEXT
$pj_orientation=Portrait
$pj_printmode=Simplex
```

OTF records

SAPGOF data is divided into two sections or 'records'. These records are:

- Header records (identified with an initial * character)
- Data records.

Header records

Header records contain information about the SAP spool request and output request. The information is specified in variables (identified with *) using the format 'variable=value'.

For information on using variables, see [SAPGOF header variables](#) on page 46.

The following variables are currently used (SAP 4.6c):

Variable Name	Description	Fixed Length
*MAJOR	Main version number.	1
*MINOR	Sub-version number.	1
*FORMAT	Data format: For Form data, the variable is set to OTF, for ABAP List data the variable is set to LIST.	-
*RQID	Spool request number.	-
*RQOWNER	User who created the spool request.	12
*RQCLIENT	Client in which the spool request was created.	3
*RQCREATIME	Creation time of the spool request.	16
*RQNAME	First part of the three-part spool request name.	6
*RQSUFFIX1	Second part of the three-part spool request name.	4
*RQSUFFIX2	Third part of the three-part spool request name.	12
*RQORIGDEST	Original output device for spool request.	4
*DVCODEPAGE	Character set number of the device type for the output request.	4
*DVDEVTYPE	Device type of output device *PJPRINTER.	8
*DVORIGDEVTYPE	Device type of the original output device *RQORIGDEST.	4
*PJAMOUNT	Number of copies.	3
*PJCLIENT	Client in which the output request was created.	3

Variable Name	Description	Fixed Length
*PJDEPARTMENT	Department of output request recipient.	12
*PJFORM	Formatting type for the output request.	16
*PJJOBNO	Output request number.	-
*PJLAUNCHED	Creation time of the spool request.	16
*PJENDPAGE	Number of the last page of the spool request to be printed.	-
*PJSTRTPAGE	Number of the first page of the spool request to be printed.	-
*PJTELENUM	Fax number for fax requests.	30
*PJPRINTER	Output device for output request.	4
*PJPRIO	Output request priority (1= high, 9 = low).	1
*PJRECEIVER	Output request recipient.	12
*PJTITLE	Title of the output request.	86
*PJUSER	User who created the output request.	12

Data records

Data records contain the actual user data in the following structure:

- Command ID (2 characters)
- Command parameters (variable length)
- ASCII control character NEWLINE (1 character).

Command ID

The command ID consists of two characters which identify the content and function of the data line. The following command IDs are available:

ID	Name	Description
OP	Open Page	First command on page. Specifies page properties, such as format and orientation.
EP	End Page	Close - last command on page.
MT	Move To	Sets the cursor (the current output position) to a position on the output page. The reference point is the top-left page corner.

ID	Name	Description
ST	String	Character string
FC	Font Call	Font properties including family and size.
BC (BS)	Bar Code	Bar code output
UL	Underline	Underline
SW	Space Width	Space character width
SU	Superscript/Subscript	Superscript /subscript
CP	Code Page	Switch code page
CH	Character	SAP Character
MK	Marked	Selected text for display
RD	Raw Data	Printer-specific data
MC	Microfiche Cold	Microfiche cold identification
PC	Print Control	Print control from T022D
BX	Box	Box character
IN	Information	Form information (including the name of the SAPscript Form).
BM	Bitmap	Bitmap information
CB	Color Box	Color box
CT	Color Text	Color text
LI	Line	Line
LB	Link Begin	Link Begin
LE	Link End	Link End
LK	Link	Link
RT	Raw Text	Raw text

Command Parameters

For some commands, such as MT, the parameters are of fixed length, while for other commands, such as ST, can be of variable length. If the parameter area is of variable length, the length is defined by a parameter.

For more information on SAPGOF command parameters, see your SAP reference material.

End of line

The structure of SAPGOF data is line-oriented, with each line concluding with a special identifier. This can vary according to the variant of the SAPGOF data flow (ASCII, EBCDIC). In the ASCII version of the SAPGOF format, which StreamServe uses, it is the ASCII-NEWLINE (hex \$0A).

StreamServe and ABAP List data

SAPGOF (SAP Generic Output Format) is an internal SAP format created using the SAPGOF printer driver. SAPGOF data is written in ASCII format and contains a descriptive header and header variables.

ABAP List data is generated by the ABAP/4 language directly from the SAP system.

Example 1 SAPGOF data from an ABAP List report

Header records	<pre> *MAJOR=2 *MINOR=1 *FORMAT=LIST *RQID=16602 *RQOWNER=DEV *RQCLIENT=800 *RQCREATIME=06.03.2001 23:25:29 *RQNAME=LIST1S *RQSUFFIX1=STSG *RQSUFFIX2=RMCFO100_DEV *RQORIGDEST=STSG *DVCODEPAGE=4010 *DVDEVTYPE=SAPGOF *DVORIGDEVTYPE=SAPGOF *PJAMOUNT=1 *PJCLIENT=800 *PJDEPARTMENT= *PJFORM=X_65_132 *PJJOBNO=2 *PJLAUNCHED=06.03.2001 23:32:00 *PJENDPAGE=0 *PJSTRTPAGE=0 *PJTELENUM= *PJPRINTER=STSG *PJPRIO=5 *PJRECEIVER=DEV *PJTITLE= *PJUSER=DEV </pre>
Data records	<pre> SP LD PCCOLON LD PCCOLON LD EL LD EL LDSelected by PCCOLON LD DEV </pre>

Production Order Analysis: Lead Tin

Note: This graphic has been cropped and does not display all records.

ABAP List data variables

You can use the following types of variables with ABAP List data:

- [SAPGOF header variables](#) on page 54
- variables defined in script functions (see *Scripting Reference*).

SAPGOF header variables

All values in the header of a SAPGOF data can be used as variables in StreamServer. You reference SAPGOF header variables in script functions as \$<varname>. For example:

```
$pj_printmode
```

Note: Variables which refer to SAPGOF header data are read-only - you cannot change their value using a script function.

For a list of header records in ABAP List data, see [Header records](#) on page 55.

Example 2

SAPGOF header for ABAP List data

The *FORMAT variable indicates whether the data is OTF data or ABAP List data. The following is a sample SAPGOF header for ABAP List data:

```
*MAJOR=2
*MINOR=1
*FORMAT=LIST
*RQID=24909
*RQOWNER=IMJSC
*RQCLIENT=800
*RQCREATIME=17.08.1999 17:58:57
*RQNAME=SD_009
*RQSUFFIX1=RD00
*RQSUFFIX2=INVOICE
*RQORIGDEST=KUB0
*DVCODEPAGE=4010
*DVDEVTYPE=SAPGOF
*DVORIGDEVTYPE=SAPGOF
*PJAMOUNT=1
*PJCLIENT=800
*PJDEPARTMENT=
*PJFORM=DINA4
*PJJOBNO=1
*PJLAUNCHED=17.08.1999 17:58:58
*PJENDPAGE=0
*PJSTRTPAGE=0
*PJTELENUM=
*PJPRINTER=XYZ123
*PJPRIO=3
*PJRECEIVER=D000195
*PJUSER=IMJSC
```

ABAP List data records

SAPGOF data is divided into two sections or 'records'. These records are:

- Header records (identified with an initial * character)
- Data records.

Header records

Header records contain information about the SAP spool request and output request. The information is specified in variables (identified with *) using the format 'variable=value'.

For information on using variables, see *SAPGOF header variables* on page 54.

The following variables are currently used (SAP 4.6c):

Variable Name	Description	Fixed Length
*MAJOR	Main version number.	1
*MINOR	Sub-version number.	1
*FORMAT	Data format: For Form data, the variable is set to OTF, for ABAP List data the variable is set to LIST.	-
*RQID	Spool request number.	-
*RQOWNER	User who created the spool request.	12
*RQCLIENT	Client in which the spool request was created.	3
*RQCREATIME	Creation time of the spool request.	16
*RQNAME	First part of the three-part spool request name.	6
*RQSUFFIX1	Second part of the three-part spool request name.	4
*RQSUFFIX2	Third part of the three-part spool request name.	12
*RQORIGDEST	Original output device for spool request.	4
*DVCODEPAGE	Character set number of the device type for the output request.	4
*DVDEVTYPE	Device type of output device *PJPRINTER.	8
*DVORIGDEVTYPE	Device type of the original output device *RQORIGDEST.	4
*PJAMOUNT	Number of copies.	3
*PJCLIENT	Client in which the output request was created.	3

Variable Name	Description	Fixed Length
*PJDEPARTMENT	Department of output request recipient.	12
*PJFORM	Formatting type for the output request.	16
*PJJOBNO	Output request number.	-
*PJLAUNCHED	Creation time of the spool request.	16
*PJENDPAGE	Number of the last page of the spool request to be printed.	-
*PJSTRTPAGE	Number of the first page of the spool request to be printed.	-
*PJTELENUM	Fax number for fax requests.	30
*PJPRINTER	Output device for output request.	4
*PJPRIO	Output request priority (1= high, 9 = low).	1
*PJRECEIVER	Output request recipient.	12
*PJTITLE	Title of the output request.	86
*PJUSER	User who created the output request.	12

Data records

Data records contain the actual user data in the following structure:

- Command ID (2 characters)
- Command parameters (optional and variable length)

The command ID consists of two characters that identify the content and function of the data line. The following command IDs are available:

ID	Name	Description
SP	Start Page	Start a new page
LD	Line Data	Characters to be output (variable length)
PC	Print Control	Name of print control (length is 5)
EL	End of Line	End of line
EP	End of Page	End of page

For information on SAPGOF command parameters, see your SAP reference material.

Print controls for color control in ABAP List data

Data records in ABAP List data can include a range of print controls which control the foreground (font) color and background color.

These print controls are named as:

`COLnx`

Where:

- `COL` is a fixed prefix to identify the print control as a color control
- `n` specifies the color number (0-7)
- `x` specifies the control type (N = normal, H = highlighted, V = inverted).

The following color print controls are available:

Print control	Foreground color	Background color
COL0N	Black	Gray
COL0H	Blue	Gray
COL0V	Gray	Blue
COL1N	Black	Pale blue
COL1H	Black	Blue
COL1V	Blue	Gray
COL2N	Black	White
COL2H	Black	Pale Gray
COL2V	Dark gray	Gray
COL3N	Black	Pale yellow
COL3H	Black	Yellow
COL3V	Yellow	Gray
COL4N	Black	Pale turquoise
COL4H	Black	Turquoise
COL4V	Turquoise	Gray
COL5N	Black	Pale green
COL5H	Black	Green
COL5V	Green	Gray
COL6N	Black	Pale red
COL6H	Black	Red

Print control	Foreground color	Background color
COL6V	Red	Gray
COL7N	Black	Pale purple
COL7H	Black	Purple
COL7V	Purple	Gray

Print controls in the SAPGOFIN configuration file

The default foreground and background colors are preconfigured in the SAPGOFIN configuration file (`sapgof21xf.gofcfg`). The file contains default report information that StreamServe uses to process ABAP List data.

If you require additional colors, you add the print control settings directly to the SAPGOFIN configuration file. See *The SAPGOFIN configuration file* on page 35.

Frame characters

ABAP List data produced by SAP can contain frame characters. Frame characters are special characters used to output pseudo-graphics.

Frame characters in ABAP List data are represented by the character combination #XXX, where XXX represents the three-digit SAP number for the characters.

For frame characters #460-#474, the SAPGOFIN filter uses the font character to produce the correct output. For example:

Character combination in data	SAP character name
#460	box_drawings_light_horizontal

For frame characters #474 and #475, the SAPGOFIN filter reference these bitmaps.

- checkbox_off.bmp
- checkbox_on.bmp

If you want to use any of these bitmap files, add them to the Design Center resource set.

Symbols and icons

SAPGOF data can contain references to SAPGOF characters. SAPGOF characters are written with a hash symbol “#” and a 3-digit code, (for example #251), or with an ‘at’ symbol “@” and a 4-digit code (for example @1024).

For example:

```
MT0100809360
ST0475233Terms of delivery #251 EXW Broadview
```

If the ABAP list data contains references to SAPGOF special characters, the SAPGOFIN filter will map the character to either a font or a bitmap. The setup will install these bitmaps to the following directory:

```
<StreamServe installation>
\Applications\StreamServer\<version>\Common\data\output+
```

To use any of these bitmaps, import them to the resource set.

Replacing a SAP character with another bitmap

If you want to replace a SAP character identified with a hash symbol “#” and a 3-digit code, with another bitmap, you have to identify the bitmap for the SAP character that you want to replace.

For example, if you want to replace the #673 SAP character, you will have to identify the bitmap name for the character, `sapding21.bmp` and replace the bitmap with the replacement bitmap, for example, `newbmp.bmp`.

These bitmaps are located in the following directory:

```
<StreamServe installation>
\Applications\StreamServer\<version>\Common\data\output+
```

For a list of SAP characters and corresponding bitmaps, see [SAP characters and icons](#) on page 61.

SAP characters and icons

SAPGOF data can contain references to SAPGOF characters. SAPGOF characters are written with a hash symbol “#” and a 3-digit code, (eg. #251), or with an ‘at’ symbol “@” and a 4-digit code (eg. @1024).

For example:

```
MT0100809360
ST0475233Terms of delivery #251 EXW Broadview
```

If the ABAP list data contains references to SAPGOF special characters, the SAPGOFIN filter will map the character to either a font or a bitmap. The setup installs these bitmaps to the following directory:

```
<StreamServe installation>
\Applications\StreamServer\<version>\Common\Data\Output+
```

To use any of these bitmaps, import them to the resource set as images.

Note: If you do not import the bitmaps to the resource set, then the sapgof filter will search for the pre-installed default bitmaps and icons from the location above. This means that you only need to import the bitmaps if you want to override the default.

Replacing a SAP character with another bitmap

If you want to replace a SAP character identified with a hash symbol “#” and a 3-digit code, with another bitmap, you have to identify the bitmap for the SAP character that you want to replace.

For example, if you want to replace the #673 SAP character, you will have to identify the bitmap name for the character, `sapding21.bmp` and replace the bitmap with the replacement bitmap, for example, `newbmp.bmp`.

SAPding bitmaps

These SAPding bitmaps are located in the following directory:

<StreamServe installation>

\Applications\StreamServer\<version>\Common\Data\Output+\sapdings

SAP character	SAPding bitmap	SAP character	SAPding bitmap
673	sapding21.bmp	706	sapding42.bmp
674	sapding22.bmp	707	sapding43.bmp
675	sapding23.bmp	708	sapding44.bmp
676	sapding24.bmp	709	sapding45.bmp
677	sapding25.bmp	710	sapding46.bmp
678	sapding26.bmp	711	sapding47.bmp
679	sapding27.bmp	712	sapding48.bmp
680	sapding28.bmp	713	sapding49.bmp
681	sapding29.bmp	714	sapding4A.bmp
682	sapding2A.bmp	715	sapding4B.bmp
683	sapding2B.bmp	716	sapding4C.bmp
684	sapding2C.bmp	717	sapding4D.bmp
686	sapding2E.bmp	718	sapding4E.bmp
687	sapding2F.bmp	719	sapding4F.bmp
688	sapding30.bmp	720	sapding50.bmp
689	sapding31.bmp	721	sapding51.bmp
690	sapding32.bmp	722	sapding52.bmp
691	sapding33.bmp	723	sapding53.bmp
692	sapding34.bmp	724	sapding54.bmp
693	sapding35.bmp	725	sapding55.bmp
694	sapding36.bmp	726	sapding56.bmp
695	sapding37.bmp	727	sapding57.bmp
696	sapding38.bmp	728	sapding58.bmp
697	sapding39.bmp		
698	sapding3A.bmp		
699	sapding3B.bmp		
700	sapding3C.bmp		
701	sapding3D.bmp		
702	sapding3E.bmp		
703	sapding3F.bmp		

SAP character	SAPding bitmap	SAP character	SAPding bitmap
705	sapding41.bmp		

SAP icon bitmaps

These icon bitmaps are located in the following directory:

<StreamServe installation>

\Applications\StreamServer*<version>*\Common\Data\Output+\sapicons

SAP character	Icon bitmap	SAP character	Icon bitmap
768	s_b_dumy.bmp	799	s_b_okay.bmp
769	s_s_okay.bmp	800	s_b_canc.bmp
770	s_s_nono.bmp	801	s_b_prnt.bmp
771	s_s_erro.bmp	802	s_b_crea.bmp
772	s_s_posi.bmp	803	s_b_chng.bmp
773	s_s_nega.bmp	804	s_b_disp.bmp
774	s_s_locl.bmp	805	s_b_dele.bmp
775	s_s_loop.bmp	806	s_b_test.bmp
776	s_s_tl_g.bmp	807	s_b_srch.bmp
777	s_s_tl_y.bmp	808	s_b_copy.bmp
778	s_s_tl_r.bmp	809	s_b_exec.bmp
779	s_b_totl.bmp	810	s_b_detl.bmp
780	s_b_totr.bmp	811	s_b_insr.bmp
781	s_b_coll.bmp	812	s_b_delr.bmp
782	s_b_colr.bmp	813	s_m_info.bmp
783	s_b_pagr.bmp	814	s_m_warn.bmp
784	s_b_pagl.bmp	815	s_m_erro.bmp
785	s_b_prvi.bmp	816	s_m_ques.bmp
786	s_b_nxti.bmp	817	s_m_crit.bmp
787	s_b_anno.bmp	818	s_bgmore.bmp
788	s_b_nocr.bmp	819	s_b_more.bmp
789	s_b_nodp.bmp	820	s_b_equa.bmp
790	s_b_calc.bmp	821	s_b_nequ.bmp
791	s_b_graf.bmp	822	s_b_grea.bmp
792	s_b_txcr.bmp	823	s_b_less.bmp
793	s_b_txdp.bmp	824	s_b_greq.bmp
794	s_b_text.bmp	825	s_b_leeq.bmp
795	s_b_vari.bmp	826	s_b_ivin.bmp
796	s_b_info.bmp	827	s_b_ivex.bmp
797	s_b_addr.bmp	828	s_b_patt.bmp

SAP character	Icon bitmap	SAP character	Icon bitmap
798	s_b_opta.bmp	829	s_b_npat.bmp
830	s_t_phon.bmp	865	s_f_prnt.bmp
831	s_t_tfax.bmp	866	s_f_oobj.bmp
832	s_t_mail.bmp	867	s_f_prvo.bmp
833	s_t_time.bmp	868	s_f_nxto.bmp
834	s_t_date.bmp	869	s_f_cuto.bmp
835	s_t_alar.bmp	870	s_f_copy.bmp
836	s_t_pros.bmp	871	s_f_past.bmp
837	s_t_vide.bmp	872	s_f_undo.bmp
838	s_t_voic.bmp	873	s_f_mark.bmp
839	s_t_soun.bmp	874	s_f_fstp.bmp
840	s_bgequa.bmp	875	s_f_prvp.bmp
841	s_bgnequ.bmp	876	s_f_nxtp.bmp
842	s_bggrea.bmp	877	s_f_lstp.bmp
843	s_bgless.bmp	878	s_f_mocr.bmp
844	s_bggreq.bmp	879	s_f_mode.bmp
845	s_bgleeq.bmp	880	s_f_user.bmp
846	s_bgivin.bmp	881	s_f_help.bmp
847	s_bgivex.bmp	882	s_b_tvar.bmp
848	s_bgpatt.bmp	883	s_b_repl.bmp
849	s_bgnpat.bmp	884	s_b_chck.bmp
850	s_brequa.bmp	885	s_b_genr.bmp
851	s_brnequ.bmp	886	s_b_book.bmp
852	s_brgrea.bmp	887	s_b_chip.bmp
853	s_brless.bmp	888	s_b_acti.bmp
854	s_brgreq.bmp	889	s_b_icon.bmp
855	s_brleeq.bmp	890	s_b_srtu.bmp
856	s_brivin.bmp	891	s_b_srt d.bmp
857	s_brivex.bmp	892	s_b_layt.bmp
858	s_brpatt.bmp	893	s_b_conv.bmp
859	s_brnpat.bmp	894	s_b_dpch.bmp
860	s_f_okay.bmp	895	s_b_stat.bmp
861	s_f_save.bmp	940	s_b_prvn.bmp
862	s_f_back.bmp	941	s_b_nxtn.bmp
863	s_f_endt.bmp	942	s_b_tree.bmp

SAP character	Icon bitmap	SAP character	Icon bitmap
864	s_f_canc.bmp	943	s_b_insn.bmp
944	s_b_fdat.bmp	979	s_f_cutl.bmp
945	s_b_head.bmp	980	s_f_copl.bmp
946	s_b_oviw.bmp	981	s_f_pasl.bmp
947	s_b_dail.bmp	982	s_f_mrkl.bmp
948	s_b_expa.bmp	983	s_f_redo.bmp
949	s_b_cols.bmp	984	s_b_bnpr.bmp
950	s_s_brkp.bmp	985	s_b_bnpa.bmp
951	s_b_fkey.bmp	986	s_b_bnso.bmp
952	s_b_list.bmp	987	s_b_bnsz.bmp
953	s_b_clos.bmp	988	s_b_bnbo.bmp
954	s_b_posn.bmp	989	s_b_bnid.bmp
955	s_b_summ.bmp	990	s_b_bnet.bmp
956	s_b_move.bmp	991	s_b_bnpv.bmp
957	s_b_retr.bmp	992	s_b_bncd.bmp
958	s_b_refr.bmp	993	s_b_bndm.bmp
959	s_b_skip.bmp	994	s_b_alig.bmp
960	s_f_sett.bmp	995	s_b_cutn.bmp
961	s_b_tool.bmp	996	s_b_fixc.bmp
962	s_b_comp.bmp	997	s_b_relc.bmp
963	s_b_sndn.bmp	998	s_b_netg.bmp
964	s_b_uplo.bmp	999	s_b_plan.bmp
965	s_b_down.bmp	1000	s_b_peri.bmp
966	s_b_trns.bmp	1001	s_b_zoin.bmp
967	s_b_mrka.bmp	1002	s_b_zout.bmp
968	s_b_mrkb.bmp	1003	s_s_ledg.bmp
969	s_b_mrkd.bmp	1004	s_s_ledr.bmp
970	s_b_srcc.bmp	1005	s_s_ledy.bmp
971	s_b_renm.bmp	1006	s_f_ehlp.bmp
972	s_b_filt.bmp	1007	s_b_spce.bmp
973	s_b_nlev.bmp	1008	s_b_bnwk.bmp
974	s_b_plev.bmp	1009	s_b_akti.bmp
975	s_f_inpv.bmp	1010	s_b_bedi.bmp
976	s_b_inte.bmp	1011	s_b_bent.bmp
977	s_b_prsh.bmp	1012	s_b_cont.bmp

SAP character	Icon bitmap	SAP character	Icon bitmap
978	s_b_varb.bmp	1013	s_b_erei.bmp
1014	s_b_erin.bmp	1049	s_b_bwse.bmp
1015	s_b_mbed.bmp	1050	s_b_bwsf.bmp
1016	s_b_pabs.bmp	1051	s_b_bwic.bmp
1017	s_b_sere.bmp	1052	s_b_bwio.bmp
1018	s_b_steu.bmp	1053	s_b_bwmo.bmp
1019	s_b_unbe.bmp	1054	s_b_bwsd.bmp
1020	s_b_unti.bmp	1055	s_b_bwfo.bmp
1021	s_b_were.bmp	1056	s_b_bwrs.bmp
1022	s_b_whil.bmp	1057	s_b_bwrp.bmp
1023	s_b_sump.bmp	1058	s_b_bwrv.bmp
1024	s_b_empl.bmp	1059	s_s_mdac.bmp
1025	s_b_timz.bmp	1060	s_s_mdin.bmp
1026	s_b_robj.bmp	1061	s_s_txac.bmp
1027	s_s_qual.bmp	1062	s_s_txin.bmp
1028	s_s_isoc.bmp	1063	s_s_hiac.bmp
1029	s_b_cexi.bmp	1257	s_s_hiin.bmp
1030	s_b_area.bmp	1258	s_s_moac.bmp
1031	s_b_intf.bmp	1259	s_s_moin.bmp
1032	s_b_evnt.bmp	1260	s_b_stin.bmp
1033	s_b_refe.bmp	1261	s_b_stov.bmp
1034	s_b_task.bmp	1262	s_b_stou.bmp
1035	s_b_todo.bmp	1263	s_b_stco.bmp
1036	s_b_aexp.bmp	1264	s_b_para.bmp
1037	s_b_acom.bmp	1265	s_b_pari.bmp
1038	s_f_sapm.bmp	1266	s_b_pare.bmp
1039	s_f_comm.bmp	1267	s_b_parc.bmp
1040	s_f_usrm.bmp	1268	s_b_parr.bmp
1041	s_f_favo.bmp	1269	s_b_clas.bmp
1042	s_b_bwis.bmp	1270	s_b_intc.bmp
1043	s_b_bwap.bmp	1271	s_b_attr.bmp
1044	s_b_bwia.bmp	1272	s_b_klat.bmp
1045	s_b_bwiu.bmp	1273	s_b_inat.bmp
1046	s_b_bwru.bmp	1274	s_b_meth.bmp
1047	s_b_bwsg.bmp	1275	s_b_klme.bmp

SAP character	Icon bitmap	SAP character	Icon bitmap
1048	s_b_bwsr.bmp	1276	s_b_inme.bmp
1277	s_b_even.bmp	1312	s_b_dmrk.bmp
1278	s_b_kons.bmp	1313	s_b_invs.bmp
1279	s_b_uede.bmp	1314	s_b_invz.bmp
1280	s_b_conn.bmp	1315	s_b_fort.bmp
1281	s_b_verb.bmp	1316	s_n_crit.bmp
1282	s_b_inik.bmp	1317	s_n_erro.bmp
1283	s_s_wstr.bmp	1318	s_n_info.bmp
1284	s_s_wsra.bmp	1319	s_n_ques.bmp
1285	s_s_wssh.bmp	1320	s_n_warn.bmp
1286	s_s_wspl.bmp	1321	s_b_urls.bmp
1287	s_s_wspo.bmp	1322	s_f_mosh.bmp
1288	s_s_wstf.bmp	1323	s_b_pein.bmp
1289	s_s_wsdo.bmp	1324	s_b_paus.bmp
1290	s_b_selc.bmp	1325	s_b_sumi.bmp
1291	s_b_strc.bmp	1326	s_b_okye.bmp
1292	s_b_fenc.bmp	1327	s_b_okno.bmp
1293	s_b_bwra.bmp	1328	s_b_rksi.bmp
1294	s_s_chaa.bmp	1329	s_b_rkqi.bmp
1295	s_s_chai.bmp	1330	s_b_rkzz.bmp
1296	s_s_keya.bmp	1331	s_b_rkkm.bmp
1297	s_s_keyi.bmp	1332	s_b_rkmo.bmp
1298	s_b_bwiw.bmp	1333	s_b_rkab.bmp
1299	s_b_bwwi.bmp	1334	s_b_rkmz.bmp
1300	s_b_erte.bmp	1335	s_b_rkhi.bmp
1301	s_s_grck.bmp	1336	s_b_mmak.bmp
1302	s_b_aboa.bmp	1337	s_b_movr.bmp
1303	s_b_abob.bmp	1338	s_b_msho.bmp
1304	s_b_abpl.bmp	1339	s_b_mbac.bmp
1305	s_b_absc.bmp	1340	s_b_noac.bmp
1306	s_b_abmb.bmp	1341	s_b_offe.bmp
1307	s_b_abma.bmp	1342	s_b_ofde.bmp
1308	s_b_abca.bmp	1343	s_b_ofev.bmp
1309	s_b_abcb.bmp	1344	s_b_ofoo.bmp
1310	s_b_bomb.bmp	1345	s_b_ofwc.bmp

SAP character	Icon bitmap	SAP character	Icon bitmap
1311	s_b_dact.bmp	1346	s_b_ofpd.bmp
1347	s_b_ofcb.bmp	1382	s_b_warg.bmp
1348	s_b_ofte.bmp	1383	s_b_hint.bmp
1349	s_b_wsab.bmp	1384	s_b_plaa.bmp
1350	s_b_odsa.bmp	1385	s_b_plaw.bmp
1351	s_b_odsi.bmp	1386	s_b_repo.bmp
1352	s_b_inpa.bmp	1387	s_b_wopa.bmp
1353	s_b_acfa.bmp	1388	s_b_equi.bmp
1354	s_b_acsu.bmp	1389	s_b_tepl.bmp
1355	s_b_dims.bmp	1390	s_b_slis.bmp
1356	s_b_tina.bmp	1391	s_b_slip.bmp
1357	s_b_arle.bmp	1392	s_b_docu.bmp
1358	s_b_arri.bmp	1393	s_b_docr.bmp
1359	s_b_abap.bmp	1394	s_b_matr.bmp
1360	s_b_abal.bmp	1395	s_b_chno.bmp
1361	s_b_trst.bmp	1396	s_b_tfly.bmp
1362	s_b_oper.bmp	1397	s_b_tcar.bmp
1363	s_b_acty.bmp	1398	s_b_hotl.bmp
1364	s_b_orda.bmp	1399	s_b_trai.bmp
1365	s_b_cust.bmp	1400	s_b_mony.bmp
1366	s_b_cewa.bmp	1401	s_b_ques.bmp
1367	s_b_dilo.bmp	1402	s_b_boye.bmp
1368	s_b_dice.bmp	1403	s_b_bono.bmp
1369	s_b_cuwa.bmp	1404	s_b_open.bmp
1370	s_b_trap.bmp	1405	s_b_bokd.bmp
1371	s_b_matl.bmp	1406	s_b_pbkd.bmp
1372	s_b_modl.bmp	1407	s_b_ston.bmp
1373	s_b_plnt.bmp	1408	s_b_pref.bmp
1374	s_b_prog.bmp	1409	s_b_sten.bmp
1375	s_b_resh.bmp	1410	s_b_step.bmp
1376	s_b_resu.bmp	1411	s_b_reve.bmp
1377	s_b_stol.bmp	1412	s_b_exch.bmp
1378	s_b_supp.bmp	1413	s_b_cass.bmp
1379	s_b_tram.bmp	1414	s_b_wloa.bmp
1380	s_b_loca.bmp	1415	s_b_prop.bmp

SAP character	Icon bitmap	SAP character	Icon bitmap
1381	s_b_alet.bmp	1416	s_b_anwe.bmp
1417	s_b_abwe.bmp	1452	s_b_pruc.bmp
1418	s_b_ticl.bmp	1453	s_b_pvor.bmp
1419	s_b_post.bmp	1454	s_b_pvou.bmp
1420	s_b_part.bmp	1455	s_b_pfik.bmp
1421	s_b_tsak.bmp	1456	s_b_pnar.bmp
1422	s_b_cost.bmp	1457	s_b_pfka.bmp
1423	s_b_mngr.bmp	1458	s_b_pvef.bmp
1424	s_b_ogun.bmp	1459	s_b_pver.bmp
1425	s_b_quer.bmp	1460	s_b_pvre.bmp
1426	s_b_ibox.bmp	1461	s_dagoch.bmp
1427	s_b_fast.bmp	1462	s_wfdoku.bmp
1428	s_b_life.bmp	1463	s_wflink.bmp
1429	s_b_work.bmp	1464	s_wfulnk.bmp
1430	s_b_grad.bmp	1465	s_wfwire.bmp
1431	s_b_xtra.bmp	1466	s_wfwirs.bmp
1432	s_b_cnvt.bmp	1467	s_wfwist.bmp
1433	s_b_rela.bmp	1468	s_wfwico.bmp
1434	s_b_conf.bmp	1469	s_wfwiwa.bmp
1435	s_b_wiza.bmp	1470	s_wfwicp.bmp
1436	s_s_ledi.bmp	1471	s_wfwier.bmp
1437	s_b_stor.bmp	1472	s_wfwica.bmp
1438	s_b_link.bmp	1473	s_wfrewi.bmp
1439	s_b_alla.bmp	1474	s_wfrpwi.bmp
1440	s_b_alll.bmp	1475	s_procen.bmp
1441	s_b_alea.bmp	1476	s_wfrusy.bmp
1442	s_b_alel.bmp	1477	s_wfpara.bmp
1443	s_b_clev.bmp	1478	s_xjapan.bmp
1444	s_b_inev.bmp	1479	s_sapals.bmp
1445	s_b_alia.bmp	1480	s_douane.bmp
1446	s_b_objc.bmp	1481	s_leglrg.bmp
1447	s_b_jobs.bmp	1482	s_comcod.bmp
1448	s_b_elie.bmp	1483	s_einska.bmp
1449	s_b_klie.bmp	1484	s_bautel.bmp
1450	s_b_vlie.bmp	1485	s_leiart.bmp

SAP character	Icon bitmap	SAP character	Icon bitmap
1451	s_b_pruu.bmp	1486	s_mietvt.bmp
1487	s_immoob.bmp	1525	s_psacel.bmp
1488	s_comple.bmp	1526	s_psrela.bmp
1489	s_partne.bmp	1528	s_xbatch.bmp
1490	s_protok.bmp	1529	s_addata.bmp
1491	s_objlis.bmp	1530	s_xstock.bmp
1492	s_lisvie.bmp	1531	s_accass.bmp
1493	s_textva.bmp	1532	s_lotori.bmp
1494	s_abcana.bmp	1533	s_inslot.bmp
1495	s_varcho.bmp	1534	s_shexjo.bmp
1496	s_varsav.bmp	1535	s_sporeq.bmp
1497	s_korout.bmp	1536	s_outreq.bmp
1498	s_incdec.bmp	1537	s_delfav.bmp
1499	s_decdec.bmp	1538	s_shoeve.bmp
1500	s_fehler.bmp	1539	s_sposta.bmp
1501	s_kontak.bmp	1540	s_insfav.bmp
1502	s_xtelin.bmp	1541	s_printp.bmp
1503	s_xnafta.bmp	1542	s_userel.bmp
1504	s_x__eu.bmp	1543	s_maprel.bmp
1505	s_telout.bmp	1544	s_crecoo.bmp
1506	s_conare.bmp	1600	s_xflush.bmp
1507	s_distli.bmp	1601	s_defect.bmp
1508	s_mailsu.bmp	1602	s_gistab.bmp
1509	s_mailsr.bmp	1603	s_bwincs.bmp
1510	s_envope.bmp	1604	s_bwinci.bmp
1511	s_envclo.bmp	1605	s_bwiocs.bmp
1512	s_offdoc.bmp	1606	s_bwsuva.bmp
1513	s_colgre.bmp	1607	s_dopopr.bmp
1517	s_packin.bmp	1608	s_cumada.bmp
1518	s_unpack.bmp	1609	s_statov.bmp
1519	s_emhaun.bmp	1610	s_dohede.bmp
1520	s_outlig.bmp	1611	s_doitde.bmp
1521	s_psprde.bmp	1612	s_avache.bmp
1522	s_pswbel.bmp	1613	s_xprice.bmp
1523	s_psnehe.bmp	1614	s_scline.bmp

SAP character	Icon bitmap	SAP character	Icon bitmap
1524	s_psneac.bmp	1615	s_avasho.bmp
1616	s_statis.bmp	1653	s_datama.bmp
1617	s_xclaim.bmp	1654	s_colred.bmp
1618	s_lokpkt.bmp	1655	s_bwchsa.bmp
1619	s_auftrg.bmp	1656	s_bwkesa.bmp
1620	s_besuch.bmp	1657	s_bwious.bmp
1621	s_zusuch.bmp	1658	s_bwtisa.bmp
1622	s_attach.bmp	1659	s_bwruasa.bmp
1623	s_clofol.bmp	1660	s_bwresa.bmp
1624	s_opfold.bmp	1661	s_bwvasa.bmp
1625	s_objfol.bmp	1662	s_bwress.bmp
1626	s_outbox.bmp	1663	s_bwsesa.bmp
1627	s_resubm.bmp	1664	s_insmet.bmp
1628	s_prifil.bmp	1665	s_catalg.bmp
1629	s_pubfil.bmp	1666	s_inmali.bmp
1630	s_subscr.bmp	1667	s_inscha.bmp
1631	s_averag.bmp	1668	s_physam.bmp
1632	s_x_bold.bmp	1669	s_bwfoasa.bmp
1633	s_italic.bmp	1670	s_bwincp.bmp
1634	s_underl.bmp	1671	s_bustel.bmp
1635	s_aligle.bmp	1672	s_financ.bmp
1636	s_aligri.bmp	1673	s_recrul.bmp
1637	s_aligce.bmp	1674	s_reclas.bmp
1638	s_justif.bmp	1675	s_remove.bmp
1639	s_xcolor.bmp	1676	s_earmar.bmp
1640	s_delatt.bmp	1677	s_deputy.bmp
1641	s_xidocs.bmp	1678	s_budupd.bmp
1642	s_x_host.bmp	1679	s_budtra.bmp
1643	s_symspo.bmp	1680	s_bwseac.bmp
1644	s_syrese.bmp	1681	s_bwsein.bmp
1645	s_sylose.bmp	1682	s_bwsesp.bmp
1646	s_syalse.bmp	1683	s_massch.bmp
1647	s_connec.bmp	1684	s_intcri.bmp
1648	s_discon.bmp	1685	s_intunc.bmp
1649	s_filtun.bmp	1686	s_chocol.bmp

SAP character	Icon bitmap	SAP character	Icon bitmap
1651	s_intund.bmp	1687	s_tot_up.bmp
1688	s_tot_do.bmp	1723	s_conobj.bmp
1689	s_pageup.bmp	1724	s_objeli.bmp
1690	s_pagedo.bmp	1725	s_folder.bmp
1691	s_readfi.bmp	1726	s_differ.bmp
1692	s_writfi.bmp	1727	s_difbac.bmp
1693	s_editfi.bmp	1728	s_sysdem.bmp
1694	s_psmile.bmp	1729	s_takove.bmp
1695	s_psrptx.bmp	1730	s_termin.bmp
1696	s_elemen.bmp	1731	s_trirel.bmp
1697	s_struct.bmp	1732	s_projec.bmp
1698	s_lagerb.bmp	1733	s_sickne.bmp
1699	s_routin.bmp	1734	s_holida.bmp
1700	s_maroa1.bmp	1735	s_x_role.bmp
1701	s_rosuop.bmp	1736	s_peradm.bmp
1702	s_roreso.bmp	1737	s_x__pdf.bmp
1703	s_rouseq.bmp	1738	s_x__bmp.bmp
1704	s_bosuit.bmp	1739	s_x__fax.bmp
1705	s_effper.bmp	1740	s_x__gif.bmp
1706	s_keydat.bmp	1741	s_x__hlp.bmp
1707	s_selper.bmp	1742	s_x__htt.bmp
1708	s_x__eff.bmp	1743	s_x__its.bmp
1709	s_supare.bmp	1744	s_x__jpg.bmp
1710	s_repcal.bmp	1745	s_x__msg.bmp
1711	s_assign.bmp	1746	s_x__xls.bmp
1712	s_unassi.bmp	1747	s_x__xlv.bmp
1713	s_systre.bmp	1748	s_x__htm.bmp
1714	s_systpl.bmp	1749	s_x__ppt.bmp
1715	s_transl.bmp	1750	s_x__dot.bmp
1716	s_trasho.bmp	1751	s_x__doc.bmp
1717	s_chapas.bmp	1752	s_x__eml.bmp
1718	s_distri.bmp	1753	s_x__rtf.bmp
1719	s_system.bmp	1754	s_x__tif.bmp
1720	s_actgro.bmp	1755	s_x__wri.bmp
1721	s_usegro.bmp	1756	s_x__lwp.bmp

SAP character	Icon bitmap	SAP character	Icon bitmap
1722	s_dislin.bmp	1757	s_xlotus.bmp
1758	s_x_vsd.bmp	1797	s_liofad.bmp
1759	s_defwin.bmp	1798	s_appbal.bmp
1760	s_distre.bmp	1799	s_bpmada.bmp
1761	s_extsea.bmp	1800	s_inclog.bmp
1762	s_cloobj.bmp	1801	s_messag.bmp
1763	s_x_open.bmp	1802	s_telcal.bmp
1764	s_policy.bmp	1803	s_xvisit.bmp
1765	s_paymen.bmp	1804	s_letter.bmp
1766	s_catast.bmp	1805	s_operat.bmp
1767	s_aggreg.bmp	1806	s_sysadm.bmp
1768	s_supein.bmp	1807	s_x__sap.bmp
1769	s_suinpr.bmp	1808	s_pubobj.bmp
1770	s_subveh.bmp	1809	s_summar.bmp
1771	s_supepr.bmp	1810	s_sumund.bmp
1772	s_subbui.bmp	1811	s_sumneg.bmp
1773	s_suboit.bmp	1812	s_nospca.bmp
1774	s_suboin.bmp	1813	s_nospcb.bmp
1775	s_suensi.bmp	1814	s_nospcc.bmp
1776	s_sufiim.bmp	1815	s_nospcd.bmp
1781	s_daarex.bmp	1816	s_nospce.bmp
1782	s_daarso.bmp	1817	s_manage.bmp
1783	s_xscrap.bmp	1818	s_x__tbh.bmp
1784	s_imalre.bmp	1819	s_tbhhol.bmp
1785	s_imtrre.bmp	1820	s_newemp.bmp
1786	s_togdis.bmp	1821	s_incemp.bmp
1787	s_togfun.bmp	1822	s_outemp.bmp
1788	s_perset.bmp	1823	s_obspos.bmp
1789	s_projct.bmp	1824	s_terpos.bmp
1790	s_incobj.bmp	1825	s_shapos.bmp
1791	s_transf.bmp	1826	s_obshpo.bmp
1792	s_distco.bmp	1827	s_teshpo.bmp
1793	s_adjcon.bmp	1828	s_positi.bmp
1794	s_stacon.bmp	1829	s_crepos.bmp
1795	s_modobj.bmp	1830	s_orguni.bmp

SAP character	Icon bitmap	SAP character	Icon bitmap
1796	s_sewico.bmp	1831	s_teorun.bmp
1832	s_neorun.bmp	1867	s_stabst.bmp
1833	s_ouorun.bmp	1868	s_sta_no.bmp
1834	s_inorun.bmp	1869	s_drwsel.bmp
1835	s_newtas.bmp	1870	s_drwfre.bmp
1836	s_tertas.bmp	1871	s_drwarr.bmp
1837	s_outtas.bmp	1872	s_drwlin.bmp
1838	s_inctas.bmp	1873	s_drwpll.bmp
1839	s_outjob.bmp	1874	s_drwell.bmp
1840	s_incjob.bmp	1875	s_drwplg.bmp
1841	s_newjob.bmp	1876	s_drwrec.bmp
1842	s_terjob.bmp	1877	s_drwang.bmp
1843	s_incoob.bmp	1878	s_drwlir.bmp
1844	s_outobj.bmp	1879	s_drwrad.bmp
1845	s_laanhi.bmp	1880	s_bwexmo.bmp
1846	s_laanvo.bmp	1881	s_bookma.bmp
1847	s_laquhi.bmp	1882	s_trstin.bmp
1848	s_laquvo.bmp	1883	s_bwexce.bmp
1849	s_x_hold.bmp	1884	s_rankin.bmp
1850	s_holund.bmp	1885	s_bhnode.bmp
1851	s_varian.bmp	1886	s_aenode.bmp
1852	s_flarat.bmp	1887	s_xanode.bmp
1853	s_bwssow.bmp	1888	s_cvnode.bmp
1854	s_wfjoin.bmp	1889	s_xsnode.bmp
1855	s_wfproc.bmp	1890	s_xenode.bmp
1856	s_xbgjob.bmp	1891	s_apnode.bmp
1857	s_jobdet.bmp	1892	s_xvnode.bmp
1858	s_systyp.bmp	1893	s_mdnode.bmp
1859	s_comact.bmp	1894	s_aanode.bmp
1860	s_tredwn.bmp	1895	s_axnode.bmp
1861	s_tredcr.bmp	1896	s_opnode.bmp
1862	s_treunc.bmp	1897	s_acnode.bmp
1863	s_treris.bmp	1898	s_vtnode.bmp
1864	s_tre_up.bmp	1899	s_vanode.bmp
1865	s_staale.bmp	1900	s_x_lseg.bmp

SAP character	Icon bitmap	SAP character	Icon bitmap
1866	s_sta_ok.bmp	1901	s_xpline.bmp
1902	s_bpnode.bmp	1937	s_simfld.bmp
1903	s_gisbar.bmp	1938	s_trapro.bmp
1904	s_giscol.bmp	1939	s_helpon.bmp
1905	s_gisdem.bmp	1940	s_helpff.bmp
1906	s_gisdot.bmp	1941	s_dihelp.bmp
1907	s_gislay.bmp	1942	s_dihlac.bmp
1908	s_gispan.bmp	1943	s_stacri.bmp
1909	s_gispie.bmp	1944	s_f_sefi.bmp
1910	s_gispro.bmp	1945	s_f_seof.bmp
1911	s_gisspa.bmp	1946	s_f_seem.bmp
1912	s_gissym.bmp	1947	s_conalt.bmp
1913	s_clansw.bmp	1948	s_proalt.bmp
1914	s_clalte.bmp	1949	s_propro.bmp
1915	s_clhold.bmp	1950	s_wrkflo.bmp
1916	s_cldefl.bmp	1951	s_domosp.bmp
1917	s_clcons.bmp	1952	s_relcla.bmp
1918	s_clconf.bmp	1953	s_ioattr.bmp
1919	s_clbltr.bmp	1954	s_virecl.bmp
1920	s_clreco.bmp	1955	s_clcosp.bmp
1921	s_clretr.bmp	1956	s_ioprev.bmp
1922	s_clwatr.bmp	1957	s_concla.bmp
1923	s_crback.bmp	1958	s_loiocl.bmp
1924	s_prback.bmp	1959	s_viloio.bmp
1925	s_bwrasa.bmp	1960	s_phiocl.bmp
1926	s_bwrasi.bmp	1961	s_viphcl.bmp
1927	s_sncinf.bmp	1962	s_paragr.bmp
1928	s_delive.bmp	1963	s_conten.bmp
1929	s_ppeasp.bmp	1964	s_bsccon.bmp
1930	s_ppeash.bmp		
1931	s_ppepaa.bmp		
1932	s_bindoc.bmp		
1933	s_anydoc.bmp		
1934	s_otfdoc.bmp		
1935	s_txtfld.bmp		

SAP character	Icon bitmap	SAP character	Icon bitmap
1936	s_fldtxt.bmp		

SAPGOF using PCL font metrics

In standard SAP installations, the SAPGOF device type uses the same font configuration as the POST2 device type (POSTSCPT in SAP releases prior to 4.5A). This means that the character and line spacing in OTF data is based on PostScript font metrics, which in turn means the OTF data StreamServe processes is formatted in the same way as PostScript output from the SAP system. Therefore, if an organization designs the layout of their documents to print on Hewlett Packard LaserJet printers using PCL-5, output from StreamServe will be different from their standard SAP system output.

In order to ensure that StreamServe output is formatted in the same way as existing PCL-5 output, you need to modify the SAPGOF device type to use PCL font metrics instead of PostScript font metrics.

StreamServe device types

StreamServe provides device types that use PCL font metrics instead of PostScript font metrics for HP LaserJet printers.

These device types are available on the StreamServe *Connect for SAP - Output+* CD, in the following directory:

```
\User Documentation\Devices\Unsupported
```

Note: StreamServe does not support these device types – they are merely intended as a guideline for customers who want to perform the required modifications themselves.

Maintaining Messages created using the FormOUT tool

Using Design Center, you can upgrade and maintain Messages created using the PageIN and FormOUT tools.

Included activities

- *Verifying files for maintaining Messages* on page 82
- *Maintaining Form Messages* on page 82
- *Maintaining Report Messages* on page 83

Verifying files for maintaining Messages

Before you maintain Messages created using the FormOUT tool, you must verify that folders and files required for using the FormOUT tool are available.

See the Output+ part of the *StreamServe Connect for SAP Installation Guide*.

Maintaining Form Messages

Using Design Center, you can not create new Form Messages using the FormOUT tool. However, you can maintain Form Messages that were previously created in the FormOUT tool using earlier versions of StreamServe.

To create new Messages for Forms using Design Center, see [Creating Messages for SAPGOF data](#) on page 26.

Prerequisites

Before you can use Design Center to maintain Messages from an existing Project created in an earlier version of StreamServe, you must upgrade the Project to a Design Center Project. For more information, see the *Upgrading* documentation.

Note: When you upgrade Projects containing Form Messages, ensure you upgrade any included Resources.

To maintain Form Messages using Design Center

- 1 In Design Center, open the Project containing the Form Message.
Note: To open a Project in Design Center, the Project must have been upgraded to a 4.0 Design Center Project.
- 2 Open the FormOUT process for the Form.
- 3 Make the necessary modifications to the FormOUT Process. See [Defining a Form in the FormOUT tool](#) on page 94.
- 4 Save the FormOUT Process.

Maintaining Report Messages

Using Design Center, you can maintain Report Messages that were previously created in the Project tool using earlier versions of StreamServe.

To create new Messages for Reports using Design Center, see [Creating Messages for SAPGOF data](#) on page 26.

Prerequisites

Before you can use Design Center to maintain Messages from an existing Project created in an earlier version of StreamServe, you must upgrade the Project to a Design Center Project. For more information, see the *Upgrading* documentation.

Note: When you upgrade Projects containing Report Messages, ensure you upgrade any included Resources.

To maintain Report Messages using Design Center

- 1 In Design Center, open the Project containing the Report Message.
Note: To open a Project in Design Center, the Project must have been upgraded to a 4.0 Design Center Project.
- 2 Open the PageIN Event for the Report.
- 3 Make the necessary modifications to the PageIN Event. See [Configuring a PageIN Event for ABAP List data](#) on page 113.
- 4 Save the PageIN Event.
- 5 Open the PageOUT Process for the Report.
- 6 Make the necessary modifications to the PageOUT Process. See [Configuring a formatted ABAP List Process](#) on page 114.
- 7 Save the PageOUT Process.

Maintaining Platforms

Projects containing Messages created using the FormOUT tool do not require specific Platform settings. However, you do need to verify that the path to the default directory for the map files is correctly specified in the Platform.

Note: The bitmaps you will map must be imported as image resources in the resource set. In earlier versions they were stored in subfolders to a `\Formfiles` folder. For available bitmaps, see [SAP characters and icons](#) on page 61.

Verifying the default map file directory

The Output+ Connect solution includes a number of map files, which enable StreamServer to process SAPGOF data.

The map files are `default.map`, `font.map`, `symbol.map` and `barcode.map`.

You must verify that the path to the default directory for the map files is correctly specified in the Platform.

To verify the default map file directory

- 1 In Design Center, select **Edit > Custom Settings**. The Edit Custom fields dialog opens.
- 2 In the Access points tree, browse to the logical layer of the platform.
- 3 In the Custom field, verify that the correct path is specified to the directory of the SAPGOF map files. For example.
`PathOTFMap "C:\SAP\Formfiles"`
- 4 If necessary, specify the path to the new directory.
- 5 Click **OK**.

Maintaining Runtime

For StreamServe 3.0.1 and earlier, the Output+ agent was configured for the input connector in the Platform. From StreamServe 4.0, the Output+ agent is configured on the Event in the Runtime.

When an earlier StreamServe Project is upgraded, the Output+ agent is automatically set for Form Messages. For Report Messages, you need to set the Output+ agent manually.

The Output+ agent is the only specific setting required in Runtime configurations for existing Messages created using the FormOUT tool.

To configure the Output+ agent for Report Messages

- 1 In the Runtime configuration, right-click the PageIN Event, and select **Settings**. The Runtime Event Settings dialog box opens.
- 2 In the Input type box, select **StreamServe Connect for SAP - Output+**.
- 3 Click **OK**.

Useful SAP transaction codes

This section lists SAP transaction codes which are commonly used in the SAP system to activate transactions.

Note: To enter a transaction code from any screen within the SAP system other than the initial screen, prefix the code with /n. For example, the /nVF03 transaction code would display the Display Billing Document screen from any screen in the SAP system.

Configuration

SPRO	Customizing
OMFE	Processing Program/Layout Set for Purchase Order (MM)
V/30	Processing Program/Layout Set for Order Confirmation (SD)
V/34	Processing Program/Layout Set for Delivery Note (SD)
V/40	Processing Program/Layout Set for Invoice (SD)

Spool functions

SPAD	Spool Administration
SP01	Spool Requests

Form processing

SE71	SAPscript
SE73	Font Maintenance
SE78	Graphics Management
SMARTFORMS	Smart Forms
SO10	Standard Texts

Programs and reports

SE38	ABAP Editor
RSTXSCR	Import/Export SAPscript objects
RSTXSYMB	List SAP symbols
RSTXICON	List SAP icons
RSPO0049	Activate Access Method Z (Spool Exit)

Generating application output

ME90	Print Purchase Order (MM)
VA02	Change Sales Order (Order Confirmation, SD)
VA03	Display Sales Order (Order Confirmation, SD)
VF02	Change Billing Document (Invoice, SD)
VF03	Display Billing Document (Invoice, SD)
VL02	Change Outbound Delivery (Delivery Note, SD)
VL03	Display Outbound Delivery (Delivery Note, SD)
SM69	List of external commands (for box drawing characters)
SM04	List of users currently logged on (short list)

Data and metadata

SE11	Data Dictionary
SE16	Data Browser
WE63	IDoc Types