



SAP Migration to Cloud Guidance for Non-SAP Applications Updating RFC Connections for Cloud



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Document Overview

The purpose of this document is to provide a guidance for non-SAP applications for how to update existing RFC connections into SAP to work after the SAP system migrates to Azure Cloud. The key need and reason for this guidance is a change to the SAP architecture with Azure cloud. The primary application server and message server will no longer be hosted on the same server. This means that all RFC connections into SAP should be using a message server or “load balanced” connection post cloud migration.



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What's Changing with the Cloud Migration and What You Need to Know

In the Non-SAP RFC connection when defining how to connect to the SAP backend there are two different ways.

- Directly logging onto an application server
- Using a message server and load balanced connection.

Best practice is to use a message server/load balanced connection. For larger SAP systems with multiple application servers this reduces the risk of a single server becoming overloaded and users or applications not being able to connect. The load balancer distributes the load and connections across all available servers. With a direct connection, it will always try to connect to the server specified.

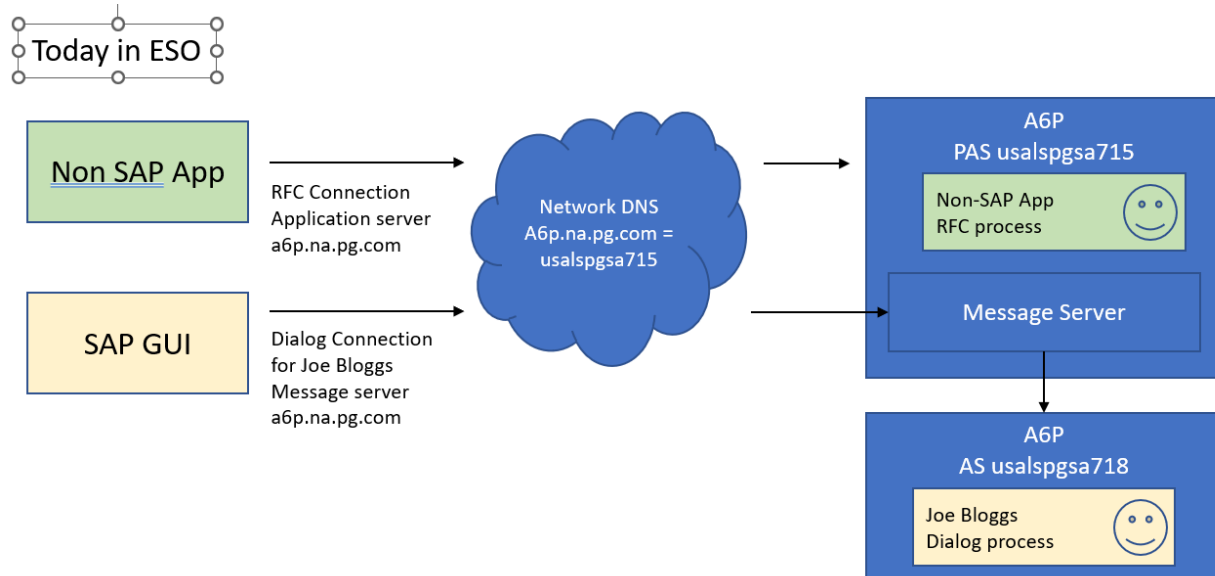
When specifying the name of the SAP target, its typical and best practice to use a **vanity name**, for example for A6P it is a6p.na.pg.com. An alternative which is not so common (or advised) is to use the specific servers technical name, e.g., usalspgsa715.na.pg.com.

If we look at A6P you will see even though its one SAP system, it actually has multiple application servers.

AS Instances of SAP System A6P			
Release Notes			
13 AS instance(s) started			
Application Server Instance	Host	Instance Services	State
a6p_A6P_00	a6p	Dialog Batch Update Upd2 Spool ICM	Active
usalspgsa715_A6P_00	usalspgsa715	Dialog Batch Update Upd2 ICM	Active
usalspgsa715_A6P_01	usalspgsa715	Dialog Batch Update Upd2 ICM	Active
usalspgsa716_A6P_00	usalspgsa716	Dialog Batch Update Upd2 ICM	Active
usalspgsa716_A6P_01	usalspgsa716	Dialog Batch Update Upd2 ICM	Active
usalspgsa717_A6P_00	usalspgsa717	Dialog Batch Update Upd2 ICM	Active
usalspgsa717_A6P_01	usalspgsa717	Dialog Batch Update Upd2 ICM	Active

When the vanity name a6p.na.pg.com is used it resolves to the IP address of the first server in the list above, usalspgsa715. This is called the primary application server or PAS. The key point is that this server is not only an application server, **but it also hosts the message server**.

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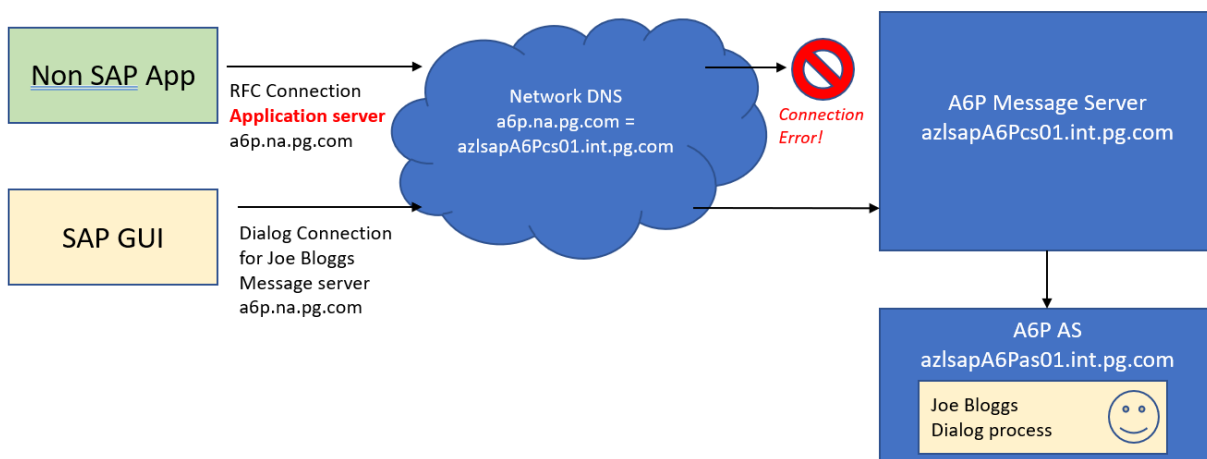


As the P&G SAP systems migrate to Azure Cloud **the new cloud server hosting the message server will no longer be an SAP application server** and the **vanity name will resolve to the message server only**.

What this means is after the migration, if you use a **direct RFC connection** (none load balanced), the connection will no longer work. You will no longer be able to use a ESO host name either (usalspgsaXXX style reference) as these will change with cloud.

After Migration to Cloud

With no update to Non-SAP RFC settings



SAP Migration to Cloud

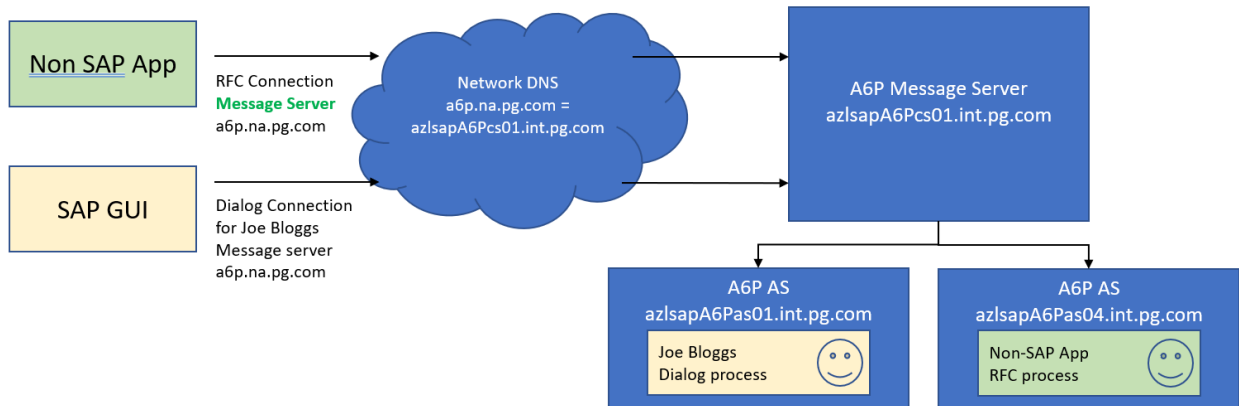
Guidance for Non-SAP Applications

Updating RFC Connections for Cloud

The RFC connection must be updated to use a message server. The following sections talk through the steps needed to update the RFC connection configuration.

After Migration to Cloud

Non-SAP RFC settings Updated



Note: Other types of connection used by non-SAP apps such as HTTPS and Type T RFC (via the SAP Gateway) **should not need configuration changes**. The message server machine will also host a web dispatcher (HTTPS) and Gateway Service (Type T RFC). These are discussed in more detail below.

Understanding RFC settings

Each Non-SAP application will differ in how the RFC configurations look and are setup so it is not possible to write a detailed technical guide for all non-SAP apps. Instead, the focus is on the common connection types and fields described below.

How these fields are defined will differ from application to application. Some apps will have a GUI style settings screen, some will have a flat text configuration file, some apps have the settings in the program code! Each non-SAP application must consult their own technical documentation or reach out to their software's supporting vendor for detailed information specific to their individual application.

Type T RFC connection via the SAP Gateway: No Change Needed

Non-SAP application connections that use a Type T RFC and connect via the SAP gateway do not require change on the non-SAP side. These applications should still be tested as the SAP side will require gateway configurations (the cloud project ERP teams do this). If connectivity issues do occur a defect should be raised. Some examples of applications that use Type T RFCs are:

- Code Profiler
- OMP
- Ortec
- Vertex

This type of connection can be distinguished from a direct RFC connection to an SAP App Server by looking at the connection configuration settings. This configuration will show the SAP gateway fields like the example below.



Setup Control for Code ABAP	
SAP Servers	
Name:	CPGTP
ASHost:	STP.NA.PG.COM
Client:	400
GWHost:	STP.NA.PG.COM
GWService:	3301
System Number:	01
Language:	EN



SAP Migration to Cloud Guidance for Non-SAP Applications Updating RFC Connections for Cloud



HTTPS Web Connections: Likely No Change Needed

Non-SAP applications that connect using a web HTTPS connector should not require any changes as long as the URL in the configuration is using the vanity name. As part of the cloud migration the machine hosting the message server will also host a web dispatcher so inbound HTTPS connections will be captured without changes.

If the URL on the Non-SAP end is not using a vanity name and is referencing an ESO host then it will need changes. The current ESO host names begin “usalspgsa” For example for a web connection to A6P...

Beginning <https://a6p.na.pg.com/> vanity name, no change needed.

Beginning <https://usalspgsa715/...> ESO host, will need to be changed to use the vanity name.

Direct Application Server RFC Connection: Should be changed

This is a commonly used type of connection for non-SAP applications.

When connecting directly to a specific SAP Application Server the following fields should be visible and populated in the connection settings.

Field Setting	Example value
Application server host	a6a.na.pg.com
Instance Number or System Number	00
Client	430
System ID (SID)	A6P

Example non-SAP application using a direct application server connection.

SAP Migration to Cloud

Guidance for Non-SAP Applications

Updating RFC Connections for Cloud

Logon type

☒ Application server ☐ Group

Server name *

kap.na.pg.com

System number *

00

Client ID *

400

Language

EN

This type of connection will need to be updated to use load balanced/message server connection as described below.

Load Balanced Message Server Connection: No Change Needed

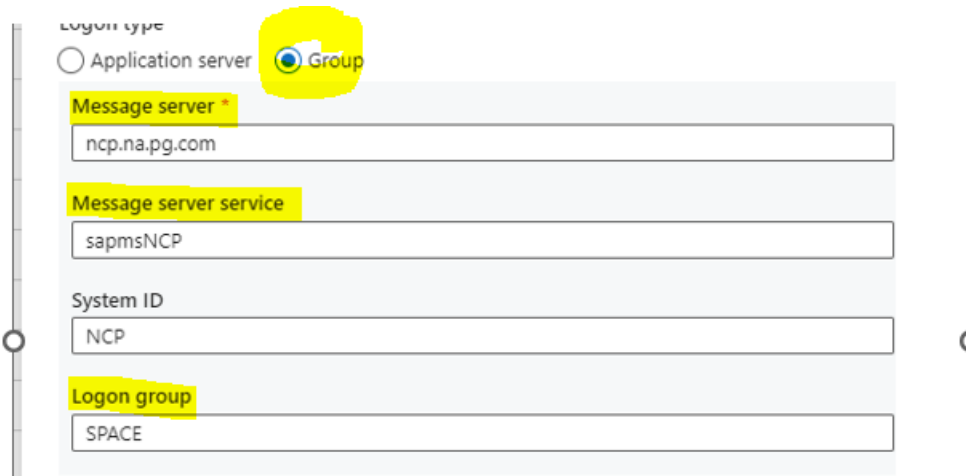
Load balanced connections are common for SAP GUI (Dialog user connections) but less so for non-SAP apps. This is the type of RFC connection that should be used instead of a direct connection to a SAP Application Server.

When connecting via a load balanced/message server the following fields should be visible and populated in the connection settings.

Field Setting	Example value
Message Server or Group Server	a6a.na.pg.com
Port or Service	3603 or sapmsA6A
Group	A6AGROUPA
System ID (SID)	A6P
Client	430

Example non-SAP application using a message server type of connection.

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The screenshot shows the SAP RFC connection configuration interface. The 'Login type' is set to 'Group', which is highlighted with a yellow circle. Below this, several fields are visible, each with a yellow highlight on its label:

- Message server ***: The value is 'ncp.na.pg.com'.
- Message server service**: The value is 'sapmsNCP'.
- System ID**: The value is 'NCP'.
- Logon group**: The value is 'SPACE'.

Other connections setting (SNC)

Any other connection related settings, for example settings related to SNC, do not need to be changed, they remain the same regardless of which type of connection (direct or load balanced) is being used

Configuring a Load Balanced RFC connection – Explanation of the Connection Fields

System ID (SID) and Client

These are the common 3 letter SAP system name, eg A6P, A6A, GTA ... and client number, eg 400, 430.

Message Server (group server)

This is the target host of the SAP system that hosts the message server. Pre migration the vanity name **SID**.na.pg.com is both a message server and an application server, post migration it will only be a message server. Use the vanity name in this field.

Port or Service (Message Server Service)

This field is used to directly or indirectly specify the port of the message server. A List of the message server ports for each SAP system is in Appendix I. The easiest way to configure this is to **put the port number directly in the field** (even if its labelled service). Most applications will accept this method, see example below.

The screenshot shows the 'NEW DISCOVERY' configuration interface. It is divided into two main sections: '01 SYSTEM' and '02 CREDENTIALS'.
 In the '01 SYSTEM' section, the following fields are visible:
 - * SYSTEM TYPE: A dropdown menu with 'ABAP' selected.
 - * NAME/IP: A text field containing 'fca.na.pg.com'.
 - * SENSOR: A dropdown menu with 'Onapsis-Sensor-07' selected.
 In the '02 CREDENTIALS' section, the following fields are visible:
 - COMMUNICATION: A checkbox labeled 'Use Message Server' is checked.
 - * MESSAGE SERVER PORT: A text field containing '3601', which is highlighted with a red rectangular box.
 - * SID: A text field containing 'FCA'.
 - * LOGON GROUP: A text field containing 'FCAGROUPA'.
 - * CLIENT: A text field containing '400'.
 Small instructional text is present next to the SID and CLIENT fields: 'SID must consist of 3 alphanumeric characters starting with a letter' and 'Enter a 3 digit number' respectively.

Using a message server service and “services” file

An alternative method if the port cannot be directly configured in the port/service field is to enter the message server service value and maintain this value with the port in the services file at OS level.

The service value will be sapms~~SID~~ for example sapmsNCP for NCP system.



The screenshot shows a configuration form with the following fields:

- Message server ***: ncp.na.pg.com
- Message server service**: sapmsNCP (This field is highlighted with a red box)
- System ID**: NCP
- Logon group**: SPACE

You **must** also maintain the port in the services file on the OS.

- For linux this file is typically found in the /etc/ directory
- For windows look in C:\windows\system32\drivers\etc\

It is a flat text file, the SAP entries should look like the example below. Be careful not to duplicate entries in this file, there must be one entry only per SAP system message server service.

sapmsA6A	3603/tcp
sapmsA6P	3600/tcp
sapmsA6Q	3600/tcp
sapmsA7A	3604/tcp

If the service file entry is missing, then on testing the connection you will see an error similar to below.

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Error details

Error code [SapRfcDestinationAddFailed](#)

Details

Get or create destination
'LANG=EN;CLIENT=400;MSHOST=nca.na.pg.com;SYSID=00;GROUP=RFC_LOGON_NCA;MSSERV=sapmsNCA66
48 failed.

ERROR service 'sapmsNCA' unknown

TIME Fri Apr 21 10:12:07 2023

RELEASE 721

COMPONENT NI (network interface)

VERSION 40

RC -3

MODULE ninti.c

LINE 022

Refer to Appendix I for the full list of service entries for all SAP systems

Group (logon group)

The message server group is used to by the SAP system to load balance. For example, there maybe a group for RFC connections that uses certain application servers and a different group defined for dialog connections that has application servers with more dialog processes.

Common group names are **SID**GROUPA for example A6AGROUPA. Or the default group called SPACE should be present on all SAP systems.

Each SAP system will have several valid logon group values. The application should pick the most relevant group value for its use. For example, if the application is only doing RFC calls and there is a group called RFC then this would be better than a group for Dialog User log ins.

The valid group values for any SAP systems can be seen from the P&G Pick list/SAP GUI installed on your PC. You can look at the groups for the SAP system in the connection settings, by using the group drop down, see example below. Appendix I details the default group values from the P&G SAP Picklist but you do not have to use these group values.

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System Entry Properties

Connection

Network

Code Page

Choose the connection type and change the system parameters as required. Delete the old description if you want the system to propose a description. The 'OK' button is activated once you have entered all required input data.

Connection Type: Group/Server Selection

System Connection Parameters

Description:

A6A New SSO A6A SC mySAP BAT

System ID:

A6A

Message Server:

a6a.na.pg.com

SAProuter:

Group/Server:

A6AGROUPA

Instance Number:

A6A Asia SC

A6A HK/TW

A6A Sim Chinese

A6AGROUP

A6AGROUPA

A6ARFC

AMHRFC

EXTRANET_WEBDISP

OMP_LOGON

SOLMAN

SPACE

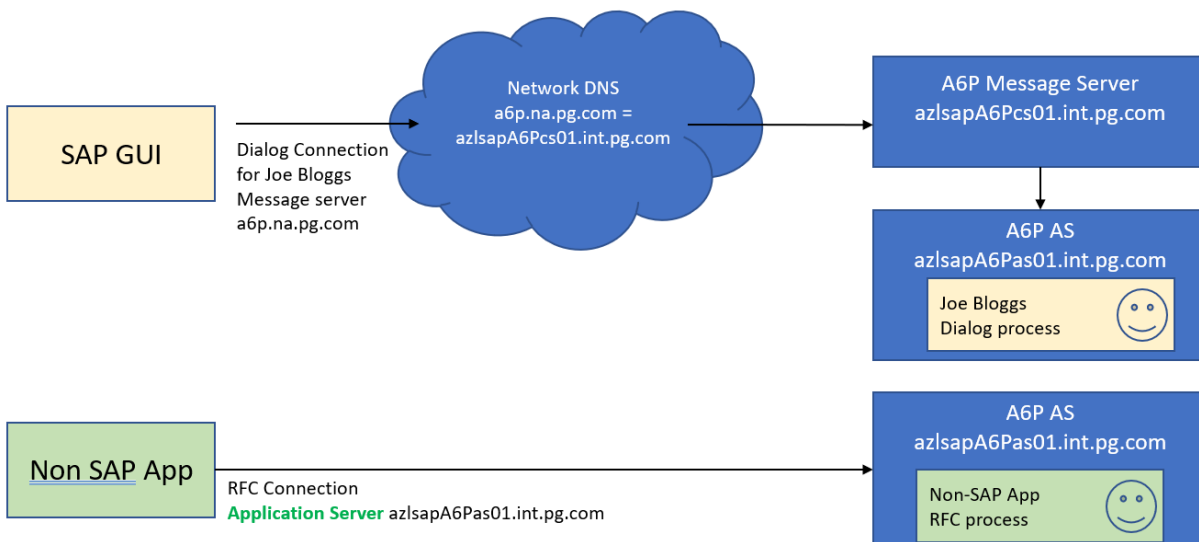
Applications that cannot support a Load Balanced connection

Most applications will support a load balanced connection, but where the non-SAP application cannot, it is possible to connect to SAP, post cloud migration and still use a direct application server connection.

This is not an ideal solution and should be avoided where possible as it requires changing the applications server name from the “safer” vanity name to a new technical name of the Azure Primary Application Server (PAS). This means there will be no benefit of load balancing and the connection may need to be edited in the future if the application servers technical name changes.

After Migration to Cloud

Workaround: Non-SAP RFC settings Updated but still using a direct Application Server connection



Note unlike setting up a load balanced connection, **this change cannot be made ahead of the cloud migration of the SAP system.** It must happen during the SAP system’s cutover or immediately after as the new Azure SAP host will not exist beforehand.

SAP Migration to Cloud

Guidance for Non-SAP Applications

Updating RFC Connections for Cloud

Below is an example of a non-SAP application (Ortec) that uses a direct connection to the application server. This particular RFC is a type T connection via the gateway, but due to technical limitations with Ortec, the gateway of the application server needed to be used.

RFC Destination LEO_VSO_RFC_ECC

Connection Test
Unicode Test

RFC Destination

T

TCP/IP Connection

Description

Description 1

Description 2

Description 3

Administration

Technical Settings

Logon & Security

Unicode

Special Options

Activation Type

☐ Start on Application Server
☐ Start on Explicit Host
☐ Start on Front-End Work Station

☒ Registered Server Program

Registered Server Program

Program ID

Start Type of External Program

☒ Default Gateway Value
☐ Remote Execution
☐ Remote Shell
☐ Secure Shell

CPI-C Timeout

☒ Default Gateway Value
☐ Specify Timeout

60

 Defined Value in Seconds

Gateway Options

Gateway Host

Gateway service

Delete

Written by D.Lewis, Sept 2023.

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Version 1.3



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Frequently Asked Questions (FAQ)

How do I know if my Application's RFC connection is load balanced or not?

Some non-SAP applications will not be using load balanced connections. The way to tell is to look for the message server related fields in the RFC connection settings in the non-SAP apps configuration. These fields will be called Message Server, Service (or port) and Logon Group. If you do not see these fields and instead have fields for application server and instance number, then the connection is not load balanced, it is a direct applications server connection and needs to be updated.

Can I update my non-SAP application RFC connection to load balanced now or do I need to wait?

Yes, application owners/teams can and should be able to make changes to their application to allow it to use a load balanced RFC connection ahead of the target SAP systems cloud migration date. Ideally try the setting on the non-production instance of the non-SAP application with a non-production SAP system first.

What is a vanity name and why is it important my connection uses one?

A vanity name is the "friendly" way to refer to an SAP target system.

For example, G4P.na.pg.com or A6R.na.pg.com

This type of reference will work with a **load balanced connection** before and after the SAP system migrates to cloud. However if the vanity name is used with a non-load balanced/Application server connection, it will not work after cloud migration.

A non-vanity name is the technical host name of the SAP application server. For example, A6P's primary app server is usalspgsa715. These current technical names will change when the system migrates to cloud, they can no longer be used. Post migration the application server technical names will be called azlsap**SID**as**0n**.int.pg.com, where SID is the system ID and n is the server number, for example azlsap**A6P**as**01**.int.pg.com.



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[What if my application cannot use a load balanced connection?](#)

In this scenario use the work around as described in this document to keep using a Direct Application server connection after the migration.

- The RFC connection(s) in the non-SAP application will still need changes
- This workaround method should be avoided where possible

[I don't know how to configure the RFC connection on my non-SAP application](#)

Every non-SAP application will be different, they is no set standard for the RFC connection settings. The cloud migration project team can provide limited consulting but the first thing to do will be locate and consult the technical documentation for your application and reach out to your application software's vendor for help.

[Why is this change to message server happening/required?](#)

As the SAP systems migrate to Azure cloud the new architecture will follow best practice and design as stipulated by SAP and MS Azure. This best practice includes having the message server in a separate and dedicated virtual machine to the applications servers (where SAP is actually running). This is important for several reasons but high availability is the main one.

Unfortunately, this design is different from what is in ESO today where the message server and primary application server are hosted on the same machine and this is what is driving the need for change on the RFC connections.



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Appendix I – SAP Connection Settings for Load Balanced RFC

(from P&G Picklist)						Services file		Workaround: After Cloud Only
SID	Client	Vanity Host	Sys No	MS Port	MS Group	Service in config	file entry	Direct AS Host (Primary)
A7A	410	a7a.na.pg.com	02	3602	QIN_SMQR	sapmsA7A	sapmsA7A 3602/tcp	azlsapa7aas01.int.pg.com
A7P	410	a7p.na.pg.com	00	3600	A7PGROUP	sapmsA7P	sapmsA7P 3600/tcp	azlsapa7pas01.int.pg.com
A7R	410	a7r.na.pg.com	04	3604	A7RGROUP	sapmsA7R	sapmsA7R 3604/tcp	azlsapa7ras01.int.pg.com
A6R	430	a6r.na.pg.com	07	3607	A6RGROUP	sapmsA6R	sapmsA6R 3607/tcp	azlsapa6ras01.int.pg.com
A6A	430	a6a.na.pg.com	00	3603	A6AGROUPA	sapmsA6A	sapmsA6A 3603/tcp	azlsapa6aas01.int.pg.com
A6P	430	a6p.na.pg.com	01	3600	A6PGROUP	sapmsA6P	sapmsA6P 3600/tcp	azlsapa6pas01.int.pg.com
ANA	410/430	ana.na.pg.com	05	3605	ANA_GROUP	sapmsANA	sapmsANA 3605/tcp	azlsapanaas01.int.pg.com
ANP	410/430	anp.na.pg.com	00	3600	AMHRFC	sapmsANP	sapmsANP 3600/tcp	azlsapanpas01.int.pg.com
ANR	410/430	anr.na.pg.com	01	3601	OMP_LOGON	sapmsANR	sapmsANR 3601/tcp	azlsapanras01.int.pg.com
F7A	410	f7a.na.pg.com	01	3601	F7AGROUPA	sapmsF7A	sapmsF7A 3601/tcp	azlsapf7aas01.int.pg.com
F7P	410	f7p.na.pg.com	00	3600	F7PGROUPA	sapmsF7P	sapmsF7P 3600/tcp	azlsapf7pas01.int.pg.com
F7R	410	f7r.na.pg.com	05	3605	SPACE	sapmsF7R	sapmsF7R 3605/tcp	azlsapf7ras01.int.pg.com
L7A	410	l7a.na.pg.com	00	3600	L7AGROUP	sapmsL7A	sapmsL7A 3600/tcp	azlsapl7aas01.int.pg.com
L7P	410	l7p.na.pg.com	00	3600	SPACE	sapmsL7P	sapmsL7P 3600/tcp	azlsapl7pas01.int.pg.com
L7R	410	l7r.na.pg.com	01	3601	L7PGROUP	sapmsL7R	sapmsL7R 3601/tcp	azlsapl7ras01.int.pg.com
N6A	420	n6a.na.pg.com	10	3604	N6AGROUP	sapmsN6A	sapmsN6A 3604/tcp	azlsapn6aas01.int.pg.com
N6P	420	n6p.na.pg.com	00	3600	N6PGROUP	sapmsN6P	sapmsN6P 3600/tcp	azlsapn6pas01.int.pg.com
N6R	420	n6r.na.pg.com	01	3601	GATP_GVR	sapmsN6R	sapmsN6R 3601/tcp	azlsapn6ras01.int.pg.com
KAD	400	kad.na.pg.com	00	3600	GUI_LOGON_KAD	sapmsKAD	sapmsKAD 3600/tcp	azlsapkadas01.int.pg.com
KAQ	400	kaq.na.pg.com	00	3610	GUI_LOGON_KAQ	sapmsKAQ	sapmsKAQ 3610/tcp	azlsapkaqas01.int.pg.com



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KAP	400	kap.na.pg.com	00	3610	GUI_LOGON_KAP	sapmsKAP	sapmsKAP	3610/tcp	azlsapkapas01.int.pg.com
KDD	001	kdd.na.pg.com	00	3601	PUBLIC	sapmsKDD	sapmsKDD	3601/tcp	azlsapkddas01.int.pg.com
KDA	001	kda.na.pg.com	02	3603	PUBLIC	sapmsKDA	sapmsKDA	3603/tcp	azlsapkdaas01.int.pg.com
KDP	001	kdp.na.pg.com	04	3600	PUBLIC	sapmsKDP	sapmsKDP	3600/tcp	azlsapkdpas01.int.pg.com
NP1	200/400	np1.na.pg.com	01	3600	HR/Payroll	sapmsNP1	sapmsNP1	3600/tcp	azlsapnp1as01.int.pg.com
NP2	200/400	np2.na.pg.com	00	3600	HR/Payroll	sapmsNP2	sapmsNP2	3600/tcp	azlsapnp2as01.int.pg.com
NP3	200/400	np3.na.pg.com	00	3600	HR/Payroll	sapmsNP3	sapmsNP3	3600/tcp	azlsapnp3as01.int.pg.com
NP5	200/400	np5.na.pg.com	01	3601	HR/Payroll	sapmsNP5	sapmsNP5	3601/tcp	azlsapnp5as01.int.pg.com
NP6	200/400	np6.na.pg.com	40	3610	HR/Payroll	sapmsNP6	sapmsNP6	3610/tcp	azlsapnp6as01.int.pg.com
NP7	200/400	np7.na.pg.com	02	3601	HR/Payroll	sapmsNP7	sapmsNP7	3601/tcp	azlsapnp7as01.int.pg.com