



PPM Cloud Infrastructure

Process Performance Manager
Version 9.9

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This document applies to PPM Version 9.9 and to all subsequent releases. Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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Content

1	General.....	2
2	Cloud infrastructure.....	3
2.1	Overview	3
2.2	Public cloud	4
2.2.1	Network infrastructure	4
2.2.2	PPM characteristics.....	5
2.2.2.1	Installation requirements	6
2.2.2.2	Usage restrictions	7

1 General

This document provides a quick overview of the installation of Process Performance Manager software products in an Amazon EC2 (Elastic Cloud Version 2) image. It represents a guide on how to configure and operate both applications in a cloud environment or cloud instance.

2 Cloud infrastructure

2.1 Overview

Cloud computing is computing in the form of a service rather than a product. Shared resources, software, and data are provided to computers and other devices via a network (typically the Internet) that basically acts like a utility (like the electricity grid). The cloud provides computation, software, data access, and storage services that do not require end-user knowledge of the physical location and configuration of the system that delivers the services. This concept fills a perpetual need of IT: a way to increase capacity or add capabilities on the fly without investing in new infrastructure, training new personnel, or licensing new software. Cloud computing encompasses any subscription-based or pay-per-use service that extends IT's existing capabilities in real time using the Internet. The services provided by cloud computing can be categorized in three different models:

1. IaaS – Infrastructure as a Service: The user can access and use virtual hardware resources such as desktop, server, network or memory. Choosing IaaS, users create their own cloud-based computer cluster and thereby account for the selection, installation, and operation of the software on their own.
2. PaaS – Platform as a Service: Cloud instances provide net access for programming or runtime environments using flexible and customizable computing and data capacities. PaaS can be used to develop your own software applications or execute them in a predefined environment provided and maintained by your service provider.
3. SaaS – Software as a Service – cloud instances provide net access to software applications offered by your service provider. These applications are operated in predefined and ready-to-use environments or infrastructures. SaaS is sometimes also described as "software on demand".

This document only relates to SaaS, i.e., providing ARIS Services in a cloud instance with access to these services via the Internet from from anywhere. For this solution, we distinguish between two provisioning models:

- Public cloud - Offers access to abstract IT infrastructures for the public Internet. Public-cloud service providers allow their customers to use or rent these infrastructures on a monetary basis with users only having to pay for actual usage (pay-as-you-go), without investing money in computing or data center infrastructures.
- Private cloud - Offers access to abstract IT infrastructures within your own organization. The connection between the cloud instance and your home office network can be established via VPN (VPC at Amazon).

The following sections provide more details on the two different concepts and all necessary configurations for PPM.

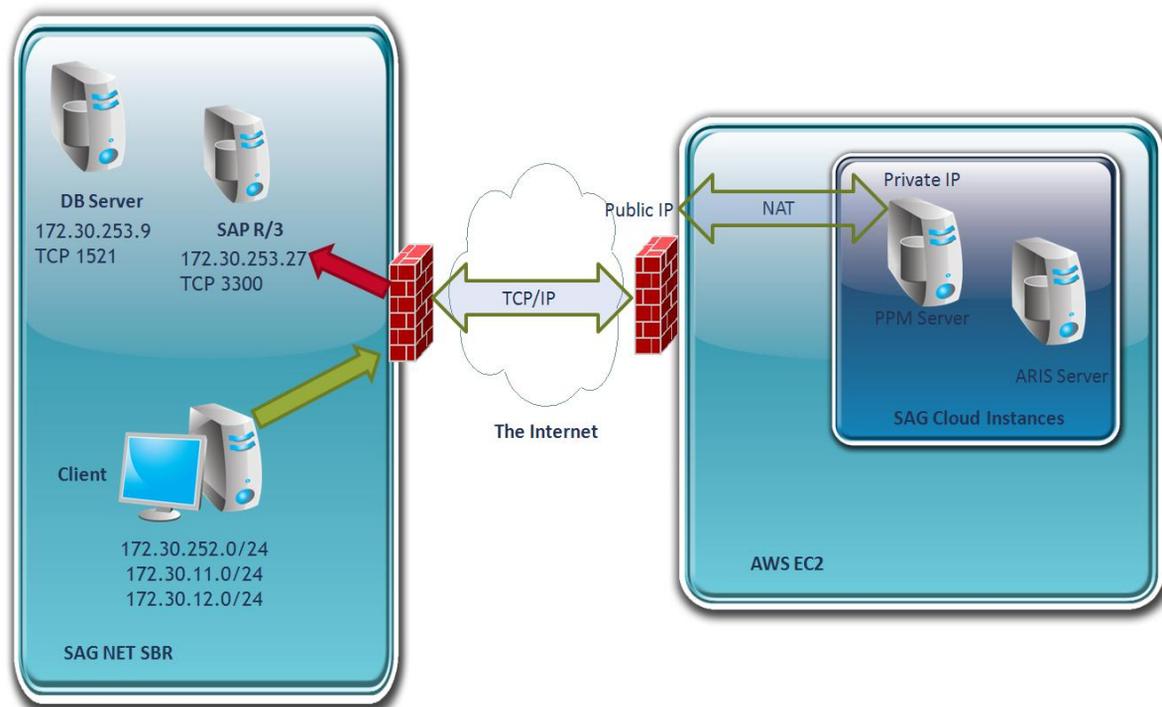
2.2 Public cloud

This chapter deals with the SaaS service model using a public-cloud infrastructure. It describes the network infrastructure and configurations required to operate the mentioned applications in that environment.

2.2.1 Network infrastructure

The following figure illustrates a rough overview of the network structure of a public-cloud instance. Usually, the client is hidden behind a firewall and proxy, which can be established by a company or at home within the private network. All cloud instances have two IP addresses: a private one, which is only visible in the cloud network itself and a public IP, which is visible on the Internet. The latter is normally not published in the runtime environment of the cloud instance itself, which is commonly called **Network Address Translation (NAT)**. Moreover, the public IP address is not fixed, it changes every time the instance is started or rebooted.

Figure 1:



The changing public IP address of the cloud instance may cause trouble during the configuration of software applications. There are two options to avoid this:

1. Provide an easy-to-use script or software automatically configuring the application correctly using the new IP address. Depending on the application, this approach may not be necessary at all. However, it is always associated with the need to reconfigure the client's user access to that system because the URL for the applications changes with the IP address.
2. Use another service provided by Amazon called "elastic IP". This is a kind of static IP address provided by Amazon. You can choose from a bundle of IP addresses associated with your Amazon account and then assign the IP address you selected to your cloud instance every time you have to start or reboot it. However, this service is not for free as the IP addresses have to be reserved for your account. It is payable in addition to any other service costs your instance incurs. For the installation of PPM you will need an "elastic IP".

2.2.2 PPM characteristics

The PPM network properties that you need to know to be able to operate the system in a cloud environment are described in detail in the document "PPM System Architecture", chapter 4. The most important configurations to be checked in a cloud instance are:

- Web server port and URL
- RMI registry port
- RMI server port for each client installation

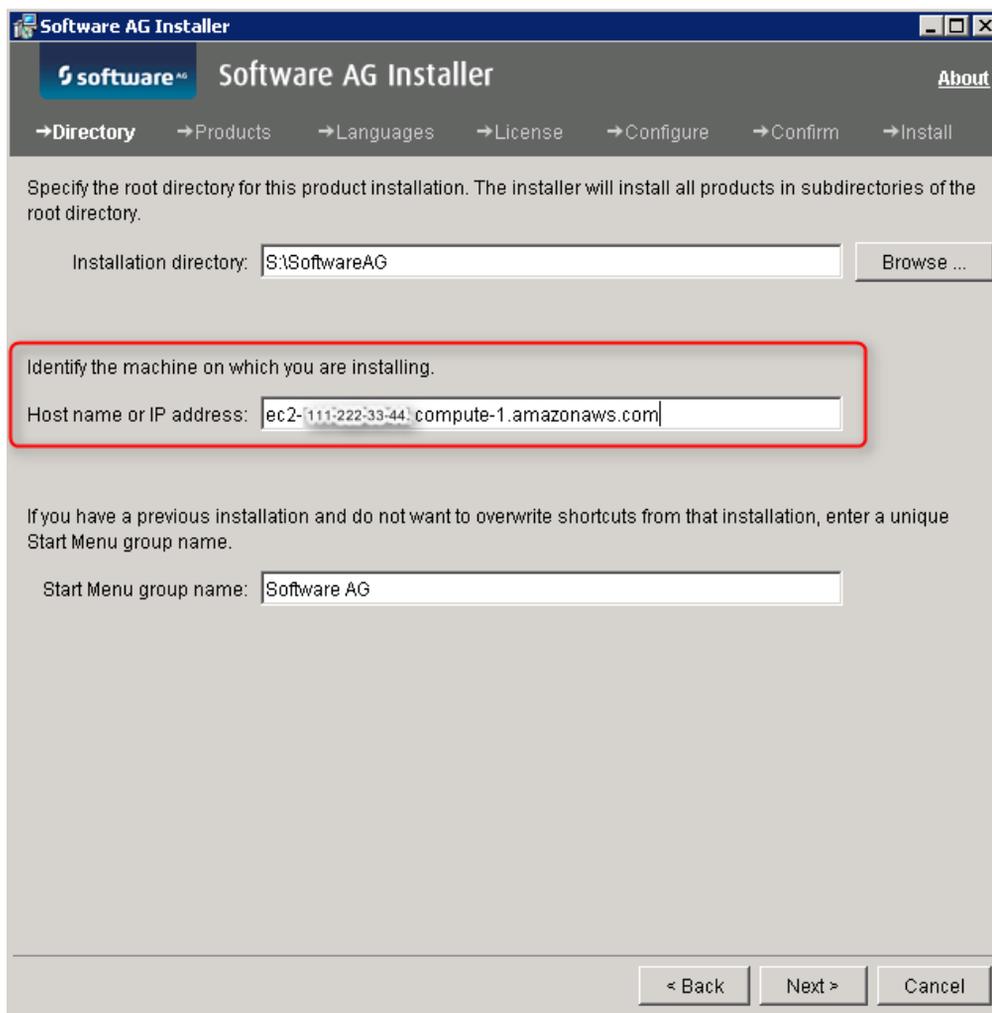
These ports, including the corresponding IP address of the server, must be accessible through any firewall in the network as described in the figure above. This implies that the customer using such a cloud instance has to take care of the following parameters before using the application:

- URL: Usually, the URL contains the public IP or FQDN (Fully Qualified Domain Name) of the cloud instance. Normally, the IP changes during reboot. However, because of the usage of an elastic IP, external IP and URL remain the same.
- Firewall configuration for outbound traffic: Access to a client behind a firewall is usually restricted to the default ports (4080 and 4443) and to the ports used by the PPM clients (typically 17000, 17001, etc.). Other ports need to be assigned to the requested IP in order to grant access to the client.

When all these requirements regarding ports and IP are fulfilled, you can install PPM directly in the Amazon Cloud EC2 image using the external elastic IP address or the external FQDN and, without any additional configuration steps, Process Performance Manager is available via the browser URL called from any location on the Internet. The steps required are described in the following sections.

2.2.2.1 Installation requirements

- Configure external access to the Amazon EC2 image with the ports 4443 and 4080 and the ports used by the clients, e.g., 17000-17999.
- Determine the external FQDN. The external default FQDN is "ec2-`<elastic-ip>`.compute-1.amazonaws.com" with "-" instead of the dots in the IP address, e.g., "ec2-111-222-33-44.compute-1.amazonaws.com" if the elastic IP address is 111.222.33.44.
- Copy the SAG Installer to the cloud image and, depending on the kind of installation the installation image and the fix-in-hand image, as well.
- Start the SAG Installer and install PPM (and the Update Manager) using the external FQDN:



Software AG Installer

software^{AG} Software AG Installer [About](#)

→Directory →Products →Languages →License →Configure →Confirm →Install

Specify the root directory for this product installation. The installer will install all products in subdirectories of the root directory.

Installation directory:

Identify the machine on which you are installing.

Host name or IP address:

If you have a previous installation and do not want to overwrite shortcuts from that installation, enter a unique Start Menu group name.

Start Menu group name:

< Back Next > Cancel

- Install the currently available fix in hand via the update manager.
- Use the FQDN during any further PPM usage (client creation, etc.).
Never use the internal or external IP address.

2.2.2.2 Usage restrictions

Assuming a system set up and operated as described above, all client features of Process Performance Manager are available. However, there are several server features that may cause problems concerning the underlying source systems:

- LDAP: If you consider using an LDAP system for user authentication purposes in PPM, the LDAP system needs to be available via the Internet and directly accessible by your cloud instance. As this configuration is basically impossible in a public-cloud scenario due to security issues, we recommend using the default PPM user administration. LDAP is not available in this scenario.
- SAP-2-PPM extraction: For this data extraction, an SAP system needs to be available either in the cloud or via a direct IP connection outside the cloud in your local network. Both scenarios are basically unable to handle cloud instances.
- CSV-2-PPM extraction: All CSV files need to be available locally in the cloud instance, which only leaves you with the option to copy the source data into the cloud by using FTP, sFTP, SCP, or any other transfer protocol.
- JDBC-2-PPM extraction: For this data extraction, any of the supported database systems needs to be available and accessible through the JDBC standard protocol. If located in the cloud itself or on the same instance, this does not represent a problem. But accessing a database located in your secured local area network is basically impossible because you have to access the database directly via the Internet.
- PPM data import: All data either in plain XML or compressed ZIP format needs to be available locally on the PPM server for the import process. If you do not extract data from source systems also hosted in the cloud or another instance, you are left with the option to transfer the extracted data files to the cloud instance by using FTP, sFTP, or SCP (assuming you run an SSH server in the cloud instance).