# SS&C | blueprism

Products Architecture Reference Guide

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#### SS&C Blue Prism products architecture

This guide provides suggested network architecture and associated component diagrams for SS&C Blue Prism Enterprise, Blue Prism Capture, Blue Prism Decipher IDP, Blue Prism Decision, Blue Prism Hub, Blue Prism Interact, and Blue Prism Authentication Server deployments combined in a single environment for the following configuration options:

- Standard deployment
- Amazon Web Services (AWS) deployment
- Azure deployment
- High availability deployment
- High density deployment

#### Applicable versions

The diagrams included in this guide apply to the following SS&C Blue Prism product versions:

- Blue Prism Enterprise 7.0 onwards
- Hub, Authentication Server, and plugins 4.3 onwards
- **Decision** 4.5 onwards
- Decipher IDP 2.1 onwards
- Capture all versions

#### Standard deployment

The standard deployment pattern is a simple architecture, which deploys a single copy of each component, and co-located where possible, according to their logical role in the system.

Deploying multiple instances of any component is an option either for resiliency and/or performance reasons, and in such scenarios reference should be made to the high availability deployment pattern for additional requirements, such as load balancers.

#### Standard deployment component breakdown



#### Standard deployment network architecture

The following diagram depicts a standard deployment network architecture that includes SS&C Blue Prism Enterprise, Blue Prism Capture, Blue Prism Decipher IDP, Blue Prism Decision, Blue Prism Hub, Blue Prism Interact, and Blue Prism Authentication Server deployments. Click here to view the accompanying legend.





#### Amazon Web Services (AWS) deployment

In the AWS deployment pattern, several SS&C Blue Prism components are replaced with AWS platform services, such as Simple Queue Service (SQS), AWS RDS databases, and AWS Elastic load balancers. Additionally, a logical division of components into AWS subnets is proposed to facilitate network security routing and permissions. All of these adaptations are optional and flexible, so it is possible to vary the subnets and mix and match platform services with native versions to suit business requirements.

It is not possible for SS&C Blue Prism to test and validate every deployment variation for every scale. The deployment patterns used as an example in this guide illustrate how the products are designed to work together to support customer architects and deployment engineers in making informed decisions. It should not be assumed that they can be followed exactly, nor that they will be appropriate for every real-world use case. It is expected that organizations will apply appropriate expertise to adapt and vary these designs to fit their own needs.

#### Network considerations

It is assumed that all components will be in a single virtual private cloud (VPC), and that this can be extended with virtual private network (VPN) connections. Alternatively, it is also possible to use a separate VPC for Decipher IDP, with Decipher components divided into subnets as required, and peered to the main Blue Prism VPC.

No external Remote Desktop Protocol (RDP) connections are included, but again this is flexible to suit business requirements, for example using a jump box, bastion host, or just-in-time (JIT) VM access. Likewise, public subnets, private subnets, or private endpoints can be used for databases, SQS, or other infrastructure. Access can be restricted using security groups or access-control lists (ACL), as required.

#### High availability

Duplicates of all Blue Prism components can be installed to provide redundancy, although the requirement for this will depend on business service-level agreements (SLA) and whether the AWS platform SLAs are sufficient without additional resiliency. When deployed in this manner, all components are in active-active patterns, and load balancers are frequently required for network connections to resolve across multiple instances of the same component (see AWS deployment network architecture on page 9 for the positioning of these). All load balancers can be AWS Elastic load balancers, or software load balancers, except for the Blue Prism application server load balancer, which requires a software load balancer with session affinity setup.

#### Machine types and platform services

All Windows server and Windows desktop machines can be selected from appropriate virtual machine stock-keeping units (SKU), and likewise the container platform for the Decision Model Service is completely flexible, such as virtual machines, Elastic Compute Service (ECS), Elastic Kubernetes Service (EKS), or similar.

It is possible for Hub to use AWS Simple Queue Service (SQS) or any other Advanced Message Queuing Protocol (AMQP) compliant message bus, however, Decipher IDP requires RabbitMQ as its message bus.

#### AWS deployment component breakdown



#### AWS deployment network architecture

The following diagram illustrates an AWS deployment network architecture that includes SS&C Blue Prism Enterprise, Blue Prism Capture, Blue Prism Decipher IDP, Blue Prism Decision, Blue Prism Hub, Blue Prism Interact, and Blue Prism Authentication Server deployments. Click here to view the accompanying legend.





#### Azure deployment

In the Azure deployment pattern, several SS&C Blue Prism components are replaced with Azure platform services, such as Azure Service Bus, Azure SQL databases, and Azure load balancers. Additionally, a logical division of components into Azure subnets is proposed to facilitate network security routing and permissions. All of these adaptations are optional and flexible, in that it is possible to vary the subnets, and mix and match platform services with native versions to suit business requirements.

It is not possible for SS&C Blue Prism to test and validate every deployment variation for every scale. The deployment patterns used as an example in this guide illustrate how the products are designed to work together to support customer architects and deployment engineers in making informed decisions. It should not be assumed that they can be followed exactly, nor that they will be appropriate for every real-world use case. It is expected that organizations will apply appropriate expertise to adapt and vary these designs to fit their own needs.

#### Network considerations

It is assumed that all components will be in a single Azure Vnet, and that this can be extended with VPN connections. Alternatively, it would also be possible to use a separate Vnet for Decipher IDP, with Decipher components divided into subnets as required, and peered to the main Blue Prism Vnet.

No external RDP connections are included, but again this is flexible to suit business requirements, for example using a jump box, bastion host, or just-in-time (JIT) VM access. Likewise, either Service Endpoints or Private Links can be used for databases, Azure Service Bus, or other infrastructure.

#### High availability and load balancers

Duplicates of all Blue Prism components can be installed to provide redundancy, although the requirement for this will depend on business SLAs and whether the Azure platform SLAs are sufficient without additional resiliency. When deployed this way all components are in active-active patterns, and load balancers are frequently required for network connections to resolve across multiple instances of the same component (see AWS deployment network architecture on the previous page for the positioning of these). All load balancers can be Azure load balancers or software load balancers; the Blue Prism application server load balancer requires a session affinity setup.

#### Machine types and platform services

All Windows server and Windows desktop machines can be selected from appropriate virtual machine SKUs, and likewise the container platform for Decision is completely flexible, for example virtual machines, container instances, Azure Kubernetes Service, or similar.

It is possible for Hub to use Azure Service Bus or any other AMQP-compliant message bus, however Decipher IDP requires RabbitMQ as its message bus.

#### Azure deployment component breakdown



#### Azure deployment network architecture

The following diagram illustrates an Azure deployment network architecture that includes SS&C Blue Prism Enterprise, Blue Prism Capture, Blue Prism Decipher IDP, Blue Prism Decision, Blue Prism Hub, Blue Prism Interact, and Blue Prism Authentication Server deployments. Click here to view the accompanying legend.





#### High availability deployment

In the Highly Available (HA) deployment pattern, duplicates of all Blue Prism components can be installed to provide redundancy. All components are in active-active patterns, and load balancers are frequently required for network connections to resolve across multiple instances of the same component (see High availability deployment network architecture on page 15 for the positioning of these).

It is not possible for SS&C Blue Prism to test and validate every deployment variation for every scale. The deployment patterns used as an example in this guide illustrate how the products are designed to work together to support customer architects and deployment engineers in making informed decisions. It should not be assumed that they can be followed exactly, nor that they will be appropriate for every real-world use case. It is expected that organizations will apply appropriate expertise to adapt and vary these designs to fit their own needs.

#### High availability

All components are in active-active patterns, and load balancers are frequently required for network connections to resolve across multiple instances of the same component, see High-density deployment on page 16 for the positioning of these components.

It is also possible to deploy one or more additional environments in an active-passive mode for disaster recovery, including by distributing them across different regions. In such a pattern it is only the SQL Always On Availability Group which is shared between the environments, every other component is simply replicated in the passive environment.

#### Balance of resiliency and cost

Deploying multiple copies of any component is optional. A highly available architecture may not include multiple copies of some components, where there is no business requirement for resiliency of that component.

It is also still possible to co-locate components on the same hardware in the same way as for the standard and high density patterns, and it is assumed that in reality highly available deployments will do so in some cases in order to find an appropriate balance of resiliency and cost.

#### High availability deployment component breakdown



## High availability deployment network architecture

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The following diagram illustrates a high availability deployment network architecture that includes SS&C Blue Prism Enterprise, Blue Prism Capture, Blue Prism Decipher IDP, Blue Prism Decision, Blue Prism Hub, Blue Prism Interact, and Blue Prism Authentication Server deployments. Click here to view the accompanying legend.





#### **High-density deployment**

In the high-density deployment pattern, components and services are co-located as much as logically possible to minimize the infrastructure footprint.

Co-locating so many services on single infrastructure components is likely to place a heavy burden on those components, and is unlikely to be suitable for production workloads in any but the smallest production environments.

It is not possible for SS&C Blue Prism to test and validate every deployment variation for every scale. The deployment patterns used as an example in this guide illustrate how the products are designed to work together to support customer architects and deployment engineers in making informed decisions. It should not be assumed that they can be followed exactly, nor that they will be appropriate for every real-world use case. It is expected that organizations will apply appropriate expertise to adapt and vary these designs to fit their own needs.

#### High-density deployment component breakdown



#### High-density deployment network architecture

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The following diagram illustrates a high-density deployment network architecture that includes SS&C Blue Prism Enterprise, Blue Prism Capture, Blue Prism Decipher IDP, Blue Prism Decision, Blue Prism Hub, Blue Prism Interact, and Blue Prism Authentication Server deployments. Click here to view the accompanying legend.



