

Questionnaire: Deploying in a Customer-Controlled Cluster with On-Premises Kubernetes

This questionnaire is specific to deployments of Solace Cloud in Customer-Controlled Clusters using On-Premises Kubernetes. For questions related to deployments for Dedicated Clusters, see [Questionnaire: Deploying in a Dedicated Cluster](#).

Deploying Solace Cloud can require planning and coordination across different teams. It's important that you plan and design your deployment to ensure the long-term success of your system. The following questions are designed to uncover the configuration information needed to create your event broker services properly. To help make your deployment go quickly and smoothly, carefully research and plan your decisions around these questions.

To begin your planning, we have produced a questionnaire to help identify critical information required for a successful deployment, including:

- questions common to deployments in all Kubernetes implementations, including queries about your cluster, Operational Connectivity, Messaging Connectivity, and feature requirements.
- questions specific to the implementation of Kubernetes you have chosen for your Customer-Controlled Cluster, including queries about your cluster, Messaging Connectivity, and storage.

The answers to these questions help Solace determine how to configure the Mission Control Agent to create event broker services in your cluster.

Once you have chosen a Kubernetes implementation, you must answer the questions common to all Kubernetes implementations.

- [Common Deployment Questions](#)

After you have finished the common questions, you must answer the questions that are specific to your Kubernetes implementation. If you intend to use multiple implementations, you must complete a questionnaire for each Kubernetes implementation:

- [Amazon Elastic Kubernetes Service Questions](#)
- [Azure Kubernetes Service Questions](#)
- [Google Kubernetes Engine Questions](#)
- [Oracle Kubernetes Engine Questions](#)
- [Alibaba Cloud Container Service for Kubernetes Questions](#)
- [Huawei Cloud Container Engine Questions](#)
- [On-Premises Questions](#)

Common Deployment Questions

This section contains questions about the following common deployment factors:

- [Cluster](#)
- [Operational Connectivity](#)
- [Messaging Connectivity](#)
- [Features](#)
- [Contact Information](#)

Cluster

You must answer the following questions about your cluster.

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
Do you have an existing cluster (or a	I have an existing cluster (or clusters) or	The Solace best practices documentation provides descriptions of how best to label and taint worker nodes with the correct resource requirements for the service classes	Support for nodeSelector, Taints, and Tolerations

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
<p>defined specification for a new cluster), or do you require an architecture example to start from?</p>	<p>intend to create new clusters based on existing specification.</p> <p>or</p> <p>I would like a best practice architecture example to start from.</p>	<p>that are supported in Solace Cloud.</p> <p>If you have an existing cluster, you can use our best practices documentation to understand how to modify your cluster, and how to provide Solace with the node selectors and tolerations we need to deploy event broker services in your cluster.</p> <p>Solace provides reference Terraform projects for deploying a Kubernetes cluster to AKS, EKS, and GKE. These Terraform projects have the recommended configuration settings, such as worker node sizes, resource configurations, taints, and labels optimized to install Solace Cloud. For other cloud providers or on-premises deployments, we can provide documentation that describes our best practices.</p> <p>You can download the reference Terraform projects from our GitHub repository: https://github.com/SolaceLabs/customer-controlled-region-reference</p>	<p>Resource Requirements for Kubernetes</p>

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
		<p>architectures</p> <p>Beware that all sample scripts, Terraform modules, and examples are provided as-is. You can modify the files as required and are responsible for maintaining the modified files for your Kubernetes cluster.</p>	
Will the cluster be used exclusively for Solace Cloud or will it be shared with other applications or workloads?	Exclusive or Shared	Providing this information allows Solace to understand the architecture of your cluster so we can better suggest changes that may help the operation of Solace Cloud in your cluster.	<p>Deployment Architecture for Kubernetes</p> <p>Resource Requirements for Kubernetes</p>
Is the Kubernetes version of your cluster supported by Solace Cloud?	Yes or No	<p>Only supported Kubernetes versions are tested and guaranteed to work with Solace Cloud.</p> <p>If you use a different implementation of Kubernetes, contact Solace to find out how we can support your deployment.</p>	<p>Supported Kubernetes Versions</p>
What is the		This is typically <code>cluster.local</code> ,	<p>DNS for Ser-</p>

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
cluster domain for your Kubernetes cluster?		but your Kubernetes administrator can configure it to be something else. Solace requires this information to properly configure the Mission Control Agent.	vices and Pods in the Kubernetes documentation
Are there any custom node selectors or tolerations required to successfully schedule the Mission Control Agent or event broker service pods? If so, what are they?		If it varies from our best practices, Solace requires this information to ensure that the event broker service pods are scheduled successfully.	Support for nodeSelector, Taints, and Tolerations
Are there any custom labels that must be applied to the Mission Control		Solace supports only fixed labels that can be applied to the Mission Control Agent or event broker services. We don't support dynamic labels.	Support for nodeSelector, Taints, and Tolerations

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
<p>Agent or event broker service pods? If so, what are they?</p>			
<p>What geographic locations will the clusters reside in?</p> <p>For clusters in the cloud, provide a list of regions.</p> <p>For on-premises clusters provide a list of countries or regions.</p>		<p>Solace Cloud produces diagnostic logs that are pushed to an AWS S3 bucket for use by Solace. We use S3 buckets that are geographically close to the deployment to optimize retrieval.</p>	<p>S3 Bucket Names for Gathered Diagnostics</p>
<p>Does your cluster have any Pod</p>		<p>Policy controllers like Gatekeeper can enforce security policies in a cluster, such as required labels, a restricted set of container registry</p>	<p>Support for nodeSelector, Taints, and Tolerations</p>

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
<p>Security Policies? Do you use a Policy Controller (for example, Gate-keeper) to enforce security in your cluster? If so, do any of these policies affect the operation of Solace Cloud in your cluster?</p>		<p>images, and so on.</p> <p>In most cases, Solace Cloud can be configured to meet these requirements.</p>	<p>Connectivity Model for Kubernetes Deployments</p>
<p>Does your cluster enforce resource quotas? Have these</p>		<p>Your cluster must have sufficient resource to successfully create event broker service.</p>	<p>Resource Requirements for Kubernetes</p>

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
<p>quotas been updated to support the number of event broker services you expect to create in your cluster?</p>			
<p>Will your cluster use dedicated nodes for your event broker services? If so, will you size those nodes for only a single event broker service?</p>		<p>The resource requirements outlined by Solace assume you are deploying a single event broker service per node in your cluster. If you intend to deploy more than one event broker service, or other applications in the same node you must work with Solace to ensure your nodes provide sufficient resources to your event broker service.</p>	<p>Resource Requirements for Kubernetes</p>
<p>Will the same cluster be</p>	<p>Yes or No</p>	<p>Your Kubernetes cluster must be at least a 1k-prod size for Micro-Integrations. In addition, there are</p>	<p>Micro-Integration Pod Requirements</p>

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
used for Micro-Integrations?		memory and RAM requirements for each pod used by a Micro-Integration that differ from those for event broker services.	

Operational Connectivity

You must answer the following questions about your Operational Connectivity.

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
Will you use access the Solace Container Registry directly or will you use a mirror?	Direct or Mirror	Solace Cloud container images are provided in a private registry that can either be accessed directly or a using a registry mirror. For registry mirroring, Solace only supports <i>pull-through cache</i> mirrors, such as using Nexus,	Connectivity Model for Kubernetes Deployments

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
		<p>Artifactory, or Artifact cache In Azure Container Registry.</p> <p>Solace Cloud cannot push images to a private registry due to the frequency with which we publish and perform upgrades with new container images for our Mission Control Agent.</p>	
<p>If you are using a mirror container registry, what is its path?</p>	<p>For example, for container image <code>quay.io/example/nginx</code> the container registry portion is <code>quay.io/example</code>.</p>	<p>Solace requires this information to configure the Mission Control Agent to create event broker services using the correct container image name.</p>	<p>Connectivity Model for Kubernetes Deployments</p>

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
<p>If you are using a mirror container registry, what is the name of the image pull secret used to authenticate with it?</p>		<p>The Mission Control Agent and event broker service may require a secret in the namespace they're deployed in so they can pull images from the registry.</p>	<p>Downloading the Registry Credentials for the Solace Container Registry</p>
<p>Do you restrict outbound internet access? Is your environment configured to allow all outbound communication required for proper operation of Solace Cloud?</p>	<p>Restricted or Not restricted</p>	<p>If you restrict outbound access then you must read the documentation for details about how to allow access for Solace Cloud.</p>	<p>Connectivity Model for Kubernetes Deployments</p>
<p>If you have an HTTP/HTTPS proxy that is required for out-</p>	<p>For example: https://proxy-host or http://proxy-host</p>	<p>Solace needs this information to configure the Mission Control</p>	<p>Using HTTP/HTTPS Proxies</p>

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
bound communication, what is its URL? Does it require credentials? If yes, we will contact you to securely provide them.		Agent to use your proxy.	

Messaging Connectivity

You must answer the following questions about your Messaging Connectivity.

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
Do you intend to create event broker services that are accessed via the public internet, private networking, or both?	Public or Private or Both	Solace needs this information to configure the Mission Control Agent to create event broker services that match your requirements.	Exposing Event Broker Services to External Traffic

Feature Requirements

You must answer the following questions about your plans to use certain features that require special configuration.

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
<p>Do you intend to use MQTT Retain on any of your event broker services?</p>	<p>Yes or No</p>	<p>Solace may need to allocate more memory to the event broker service's pod for it to support MQTT Retain.</p>	
<p>Do you intend to provide a custom server certificate for your event broker services?</p>	<p>Yes or No</p>	<p>Solace needs this information to configure the Mission Control Agent to use your custom server certificates.</p>	
<p>Will you be using more than one environment? If so, which environment do you want your initial datacenter created in?</p>	<p>Yes, and the environment name or No</p>	<p>Solace uses this information to put your datacenter in the environment you specify. If you won't be using more than one environment, or don't specify the environment, the datacenter will be placed in your organization's default environment.</p> <p>You can create environments, change your default environment, and move datacenters to different environments at a later time.</p>	<p>Creating and Managing Environments</p>

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
Will you be using distributed tracing? If so, will you require proxy exclusions?	Yes or No	Solace needs to know if you require proxy exclusions so we can properly configure the Mission Control Agent with your proxy exclusion list so your distributed tracing deployment works correctly.	Configuring Distributed Tracing to Use a Proxy

Contact Information

You must provide a point of contact for each entry in the table below. Solace prefers a distribution list as the point of contact, though you can choose to provide individual contact details.

Contact Type	Distribution List or Contact Details
Event broker service incidents or issues.	
Event broker service upgrade notifications and scheduling.	
Release and maintenance notifications.	

On-Premises Deployment Questions

After answering the common questions, you must answer the following questions related to your on-premises deployment.

- [Cluster Questions](#)
- [Messaging Questions](#)
- [Storage Questions](#)

On-Premises Cluster

You must answer the following questions about your on-premises cluster.

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
Which Kubernetes distribution do you use?	Rancher (RKE1) or Red Hat OpenShift (OCP)	The Kubernetes implementation and version you are using help Solace determine how to configure the Mission Control Agent.	On-Premises Kubernetes Distributions in Supported Kubernetes Versions
How many availability zones does your cluster have?	1 or 2 or 3	Availability zones in on-premises clusters can be achieved by having labels on worker nodes, separating them by dif-	Availability Zones

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
		<p>ferent racks, power sources, or physical hosts. Any amount of physical separation between the primary, backup, and monitor nodes in a high availability event broker service increases the resiliency of that event broker service.</p>	
<p>If your cluster has zones, what labels are used to identify which zone a worker node is in? What pos-</p>	<p><code>topology.kubernetes.io/zone</code> or <code>failure-domain.beta.kubernetes.io/zone</code> or other</p>	<p>Solace requires the name to properly configure the Mission Control Agent so it can create event broker services.</p>	

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
sible values are there for the zone label?			

On- Premises Messaging Connectivity

You must answer the following questions about your on-premises Messaging Connectivity.

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
What service will you use to access your event broker service?	<ul style="list-style-type: none"> • LoadBalancer • NodePort 	Solace requires the service type to properly configure the Mission Control Agent so it can create event broker services.	Exposing Event Broker Services to External Traffic
If you are using an integrated load balancer (with the service type set to	Yes or No	Solace requires the service annotations to properly con-	Using an Integrated Load Balancer Solution

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
LoadBalancer) are there any annotations required to configure the service to use the load balancer provider?		figure the Mission Control Agent so it can create event broker services.	

On-Premises Storage

You must answer the following questions about your on-premises storage.

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
What storage back-end do you intend to use?	<ul style="list-style-type: none"> • Portworx • Ceph • Cinder (Openstack) • vSphere storage for Kubernetes 	<p>The storage back-end must provide Solace Cloud with volumes dynamically created with Persistent Volume Claims.</p> <p>Solace Cloud supports the listed storage providers.</p> <p>If you are using</p>	<p>Dynamic Volume Provisioning</p> <p>Kubernetes Persistent Volumes</p>

Question	Possible Answers	How Solace Uses This Information	Links to Related Documentation
		<p>a different storage provider, contact Solace to find out how we can support your deployment.</p>	
<p>Have you created a storage class based on our best practices?</p>	<p>Yes</p>	<p>Some storage class parameters need to be set to properly support the creation of event broker services as well as other features.</p>	<p>Resource Requirements for Kubernetes</p>
<p>Have you created a single storage class for the cluster, or are there separate ones for each zone? What are the names of your storage classes?</p>		<p>Solace requires the name to properly configure the Mission Control Agent so it can create event broker services.</p>	