Prerequisites

This module provides the prerequisites for deploying Cisco IOS XRd on Amazon EKS.

Prerequisites

Before you begin to deploy the XRd on AWS EKS, ensure that you have the following:

- Basic knowledge of Kubernetes and Helm
- Familiarity with AWS Services, such as:
  - IAM
  - EC2
  - VPC
  - ECR
  - EKS
- Familiarity and availability of tools, such as:
  - AWS CLI tool

    You must configure the AWS CLI tool with an account with administrator permissions. Admin permissions are required to create IAM roles.
  - Standard CLI tools, for example, **tar** and **SSH**
  - Helm
  - kubectl
  - skopeo, or, docker, or podman
- Availability of an EC2 key-pair to access the worker nodes. If you have not created a key-pair already in the region that you are deploying the cluster, create a key-pair using these instructions.

Note Most commands that run on the AWS CLI tool do not require the AWS region to be specified. These commands use the default region from the CLI tool configuration. Commands that require the region to be specified explicitly are indicated as `<region>` in the command example.

Cisco IOS XRd Deployment Requirements

The following table provides the Cisco IOS XRd deployment requirements:

Use Case		**SR-PCE**	**Cloud Router**
Platform		**XRd Control Plane**	**XRd vRouter**
Worker Node	Validated Instance Type	m5.2xlarge	m5[n].12xlarge, m5[n].24xlarge, and m6in.16xlarge instances.
	Hyper Threading	No	No
	CPU Isolation	None	To ensure proper operation, isolate all CPUs used by the IOS XRd dataplane. For example: • On m5[n].12xlarge and m5[n].24xlarge instances, isolate cores 11 to 23. • On m6in.16xlarge instances, isolate cores 19 to 31.
	OS	Amazon Linux 2023 with EKS Optimizations	
	AMI	Base Amazon Linux 2023 with EKS AMI	Modified Amazon Linux 2023 with EKS AMI*
	Sysctl Settings	inotify settings, kernel core pattern**	
	Robust core handling to avoid disk exhaustion	A pipe script, rather than a path pattern, can be used to ensure that cores are handled on the host. `systemd-coredump` service can be used to collect core files safely.	
	Hugepages	None	6 x 1 GiB
	Storage	56 GiB	56 GiB
	Extra Kernel Modules	None	UIO (in AL2023 but not loaded) igb_uio from the dpdk-mods package.
Cluster	Kubernetes Version	Versions 1.27 and above.	
	AWS-Node Settings	MAX_ENI=1	

Use Case		**SR-PCE**	**Cloud Router**
Platform		**XRd Control Plane**	**XRd vRouter**
Multus	Version	v4.0.2-eksbuild.1	NA
	Attachment Types	AWS-CNI (default CNI interface only) Host-device	
XRd	RAM (excluding hugetlb) - Deployment requirements	4 GiB	16 GiB
	Hugepages - Deployment Requirements	None	6 GiB
	CPU - Deployment Requirements	4 physical CPUs (shared with OS)	17 physical CPUs
	CPU Split	NA	4xCP, 1xDPA main, 12xDP
	CPU Settings		When configuring queues for vRouters, use the following values based on the AWS instance: • m5[n].12xlarge and m5[n].24xlarge: 7 to 23 • m6in.16xlarge: 15 to 31
	CPU Requirements		Number of CP cores > 1 must be non-isolated, DP must be isolated always, and full physical CPUs always
	DPA Tuning		Off
	Interface Driver	NA	igb_uio with Write Combine support
	Security Context	Privileged	
	Persistent Volume	6 GiB, "gp2" class, dynamically allocated	
	Scheduling	Pinned to specific worker node	
	Node Exclusivity	No other workloads running on the node	
	Initial Configuration	In workload definition, dependent on worker node (and interface) settings	
	Redundancy Model	Pair of separate, redundant, instances each in a separate StatefulSet	

* For Amazon Linux 2023 modification details, see Create an AMI section.

**For inotify settings, and kernel core pattern details, see Kernel Parameters section.