



GigaVUE Cloud Suite for AWS–GigaVUE V Series 2 Guide

GigaVUE Cloud Suite

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GigaVUE Cloud Suite for AWS– GigaVUE V Series 2

This guide describes how to configure GigaVUE Cloud Suite for AWS using the GigaVUE-FM interface. This guide also describes the procedure for setting up the traffic monitoring sessions for AWS using the GigaVUE-FM.

Topics:

- [Overview of GigaVUE Cloud Suite for AWS](#)
- [Get Started with GigaVUE Cloud Suite for AWS Deployment](#)
- [Deploy GigaVUE Cloud Suite for AWS](#)
- [Configure Monitoring Session](#)
- [Upgrade GigaVUE fabrics in GigaVUE-FM](#)
- [Administer GigaVUE Cloud Suite for AWS](#)
- [GigaVUE-FM Version Compatibility Matrix](#)
- [Glossary](#)

Overview of GigaVUE Cloud Suite for AWS

GigaVUE® Fabric Manager (GigaVUE-FM) is a web-based fabric management interface that provides a single pane of glass visibility and management of both the physical and virtual traffic that form the GigaVUE Cloud Suite Cloud.

GigaVUE-FM integrates with the Amazon Elastic Cloud Compute (EC2) APIs and deploys the components of the GigaVUE Cloud Suite for AWS in the Virtual Private Cloud (VPC).

The GigaVUE-FM is launched by subscribing to the GigaVUE Cloud Suite for AWS in the Community AMIs. Once the GigaVUE Cloud Suite for AWS instance is launched, the rest of the AMIs residing in the Community AMIs are automatically launched from GigaVUE-FM.

Refer to the following sections for details:

- [Components of GigaVUE Cloud Suite for AWS](#)
- [Architecture of GigaVUE Cloud Suite for AWS](#)

Components of GigaVUE Cloud Suite for AWS

GigaVUE Cloud Suite for AWS includes the following components:

- **GigaVUE® Fabric Manager (GigaVUE-FM)** is a web-based fabric management interface that provides a single pane of glass visibility and management of both the physical and virtual traffic that forms the GigaVUE Cloud Suite Cloud for AWS. GigaVUE-FM can be installed on-premises or launched as an Amazon Machine Image (AMI) in AWS. GigaVUE-FM manages the configuration of the following components in your Amazon Virtual Private Clouds (VPC):
 - G-vTAP Controller (only if you are using G-vTAP Agent as the traffic acquisition method)
 - GigaVUE® V Series Proxy
 - GigaVUE® V Series 2 node

To launch the AMI in AWS, refer to [AMI and Permissions](#) and [Prepare G-vTAP Agent to Monitor Traffic](#)

- **G-vTAP Agent** is an agent that is installed in your VM instance. This agent mirrors the selected traffic from the instances (virtual machines) to the GigaVUE Cloud Suite® V Series node. The G-vTAP Agent is offered as a Debian (.deb) or Redhat Package Manager (.rpm) package. Refer to [Install G-vTAP Agents](#).
- **G-vTAP Controller** manages multiple G-vTAP Agents and orchestrates the flow of mirrored traffic to GigaVUE V Series nodes. GigaVUE-FM uses one or more G-vTAP Controllers to communicate with the G-vTAP Agents. A G-vTAP Controller can only manage G-vTAP Agents that has the same version. For example, the G-vTAP Controller v1.7 can only manage G-vTAP Agents v1.7. So, if you have G-vTAP Agents v1.6 still deployed in the EC2 instances, you must configure both G-vTAP Controller v1.6 and v1.7. While configuring the G-vTAP Controllers, you can also specify the tunnel type to be used for carrying the mirrored traffic from the G-vTAP Agents to the GigaVUE V Series nodes. The tunnel type can be L2GRE or VXLAN.

NOTE: A single G-vTAP Controller can manage up to 1000 G-vTAP Agents.

- **GigaVUE® V Series node** is a visibility node that aggregates mirrored traffic. It applies filters, manipulates the packets using GigaSMART applications, and distributes the optimized traffic to cloud-based tools or backhaul to on premise device or tools. GigaVUE Cloud Suite for AWS uses the standard IP GRE or VXLAN tunnels to deliver traffic to tool endpoints. GigaVUE V Series nodes can be successfully launched only after GigaVUE V Series Proxy is fully initialized and the status is displayed as OK. Refer [Troubleshoot AWS Cloud Issues](#) to troubleshoot the GigaVUE V Series issues.

NOTE: With G-vTAP Agents, IPsec can be used to establish a secure tunnel between G-vTAP Agents and GigaVUE V Series nodes, especially in a centralized controller and GigaVUE V Series node configuration where cross VPC tunneling may be required to be encrypted.

- **GigaVUE V Series Proxy** manages multiple GigaVUE V Series nodes and orchestrates the flow of traffic from GigaVUE V Series nodes to the monitoring tools. GigaVUE-FM uses one or more GigaVUE V Series Proxies to communicate with the GigaVUE V Series nodes.

For GigaVUE V Series configuration, you can configure the GigaVUE fabric components in a Centralized VPC only. In case of a shared VPC, you must select a VPC as your Centralized VPC for fabric configuration.

Following table describes the components that are required for the traffic acquisition methods

Traffic Acquisition Method	GigaVUE Fabric Components
G-VTAP	<ul style="list-style-type: none"> • G-VTAP Agent • G-VTAP Controller • GigaVUE V Series Node • GigaVUE V Series Proxy (optional)
VPC Traffic Mirroring without Load Balancer	<ul style="list-style-type: none"> • GigaVUE V Series Node • GigaVUE V Series Proxy (optional)
VPC Traffic Mirroring with Load Balancer	<ul style="list-style-type: none"> • GigaVUE V Series Node • GigaVUE V Series Proxy (optional)
Tunnel as a Source (TaaS)	<ul style="list-style-type: none"> • GigaVUE V Series Node

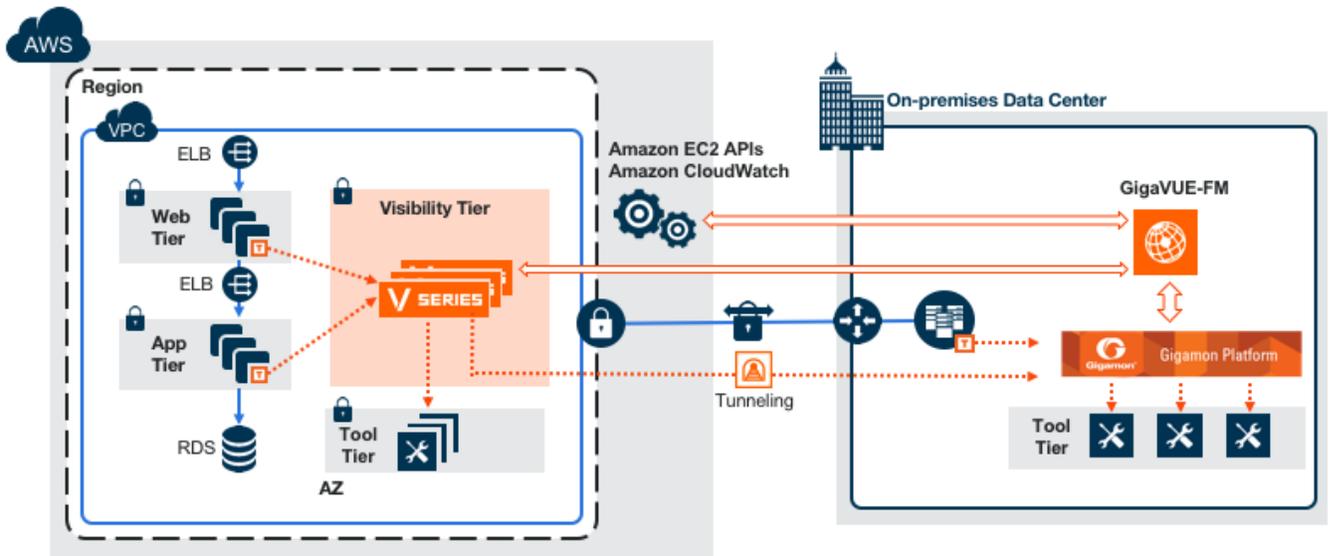
Architecture of GigaVUE Cloud Suite for AWS

GigaVUE Cloud Suite for AWS supports the following cloud deployment models:

- [Hybrid Cloud](#)
- [Multi-VPC Cloud](#)
- [Centralized Fabric Controllers and Node Configuration](#)

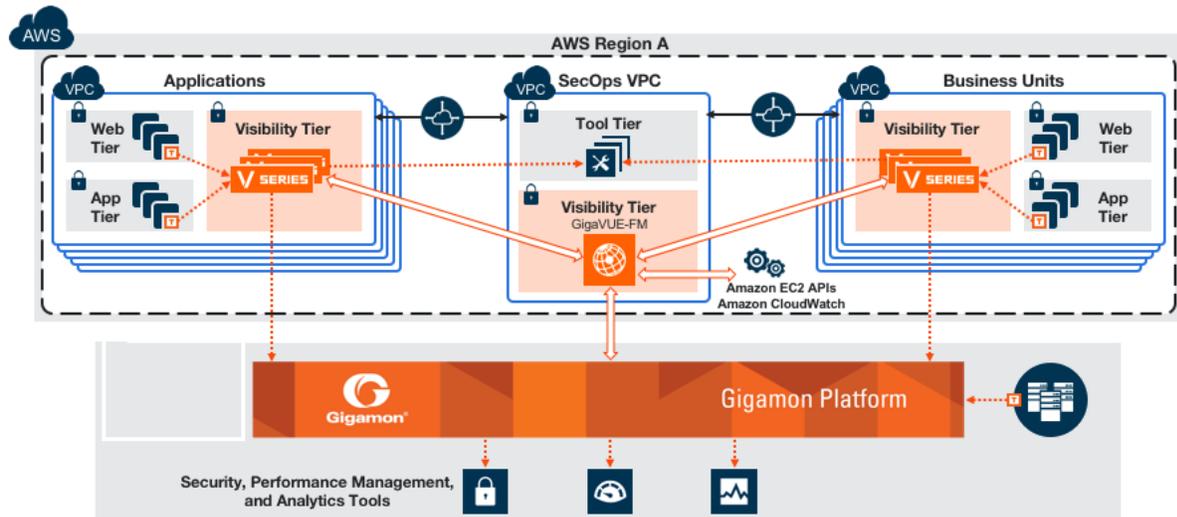
Hybrid Cloud

In the hybrid cloud deployment model, you can send the customized traffic to the tools in AWS as well as the tools in the enterprise data center.



Multi-VPC Cloud

In the public cloud deployment model, you can send the customized traffic from a single VPC to the tools residing in the same VPC or from multiple VPCs to the tools residing in a different VPC.



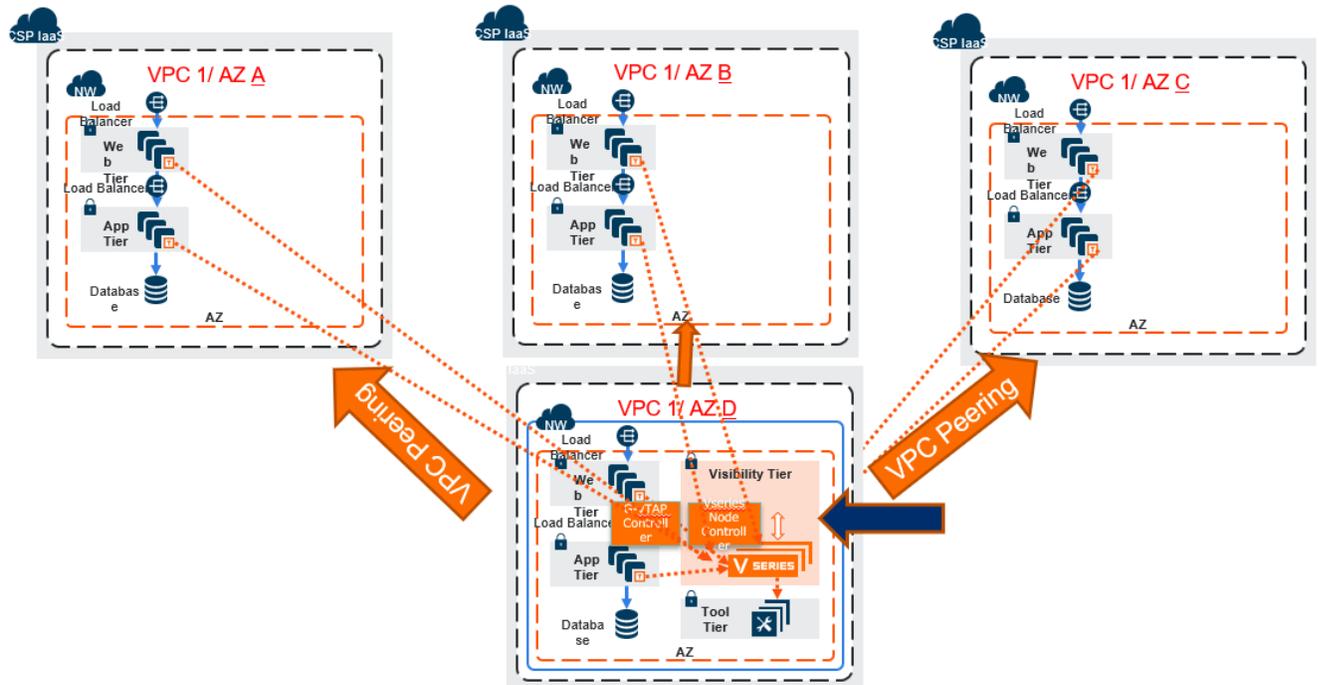
Centralized Fabric Controllers and Node Configuration

In the centralized fabric controllers and node configuration deployment model, the following GigaVUE cloud components are deployed in a VPC:

- G-vTAP Controllers
- GigaVUE V Series Controllers
- GigaVUE V Series Nodes

With this deployment model, the controllers and nodes are easily manageable as they are launched from a VPC. This further reduces the cost involved in the configuration and management of the controllers and nodes in each VPCs.

NOTE: Peering must be active between VPCs within the same monitoring domain if this option is chosen for configuring the components.



Refer [Gaining Pervasive Visibility in to the AWS Instances That may or may not Support VPC Mirroring](#) for more detailed information.

Get Started with GigaVUE Cloud Suite for AWS Deployment

This chapter describes how to plan and start the GigaVUE Cloud Suite for AWS in your AWS cloud.

Refer to the following sections for details:

- [License Information](#)
- [Prerequisites](#)
- [AMI and Permissions](#)
- [Install and Upgrade GigaVUE-FM](#)

License Information

GigaVUE Cloud is available in both the public AWS cloud and in AWS GovCloud, and supports the Volume Based License (VBL) model that you can avail from the [AWS Marketplace](#).

Refer to the following sections for details:

- [Volume Based License \(VBL\)](#)
- [Apply License](#)

Volume Based License (VBL)

All the V Series 2 nodes connected to GigaVUE-FM periodically reports statistics on the amount of traffic that flows through the V Series Nodes. The statistics give information on the actual data volume that flows through the V Series Nodes. All licensed applications, when running on the node, generate usage statistics. In the Volume-Based Licensing (VBL) scheme, a license entitles specific applications on your devices to use a specified amount of total data volume over the term of the license. The distribution of the license to individual nodes or devices becomes irrelevant for Gigamon's accounting purpose. GigaVUE-FM tracks the total amount of data processed by the various licensed applications and provides visibility into the actual amount of data, each licensed application is using on each node, and track the overuse if any. Volume-based licensing has a service period of 1 month. Service period is the period of time for which the total usage or overage is tracked. There is a grace period for each license that is encoded in the license file. The license effectively provides data allowance for this additional time after the official end time of the license.

For purchasing licenses with the Volume-Based License (VBL) option, contact our Sales. Refer to [Contact Sales](#).

Base Bundles

GigaVUE-FM has the following three base bundles:

- SecureVUEPlus (highest)
- NetVUE (intermediate)
- CoreVUE (lowest)

There are two types of base bundle SKUs available:

- Term Based
- Perpetual

The number in the SKU indicates the total volume allowance of the SKU. For example, VBL-250T-BN-CORE-PL has a volume allowance of 250 terabytes.

Bundle Replacement Policy

You can always upgrade to a higher bundle but you cannot move to a lower version. You cannot have two different base bundles at the same time however, you can have multiple base bundles of the same type. Once upgraded to a higher bundle, the existing lower bundles will be automatically deactivated.

Add-on Packages

GigaVUE-FM allows you to add additional packages called add-on packages to the base bundles. These add-on packages allow you to add additional applications to your base bundles. Add-on packages have their own start/end date and volume specifications.

Rules for add-on packages:

- Add-on packages can only to be added when there is an active base bundle available in GigaVUE-FM.
- The base bundle limits the total volume usage of the add-on package.
- If your add-on package has volume allowance less than the base bundle, then your add-on package can only handle volume allocated for add-on package.
- When the life term of an add-on package extends beyond the base bundle, then when the base bundle expires, the volume allowance of the add-on package will be reduced to zero until a new base bundle is added.

There are two types of add-on SKU available:

1. **Term Based:** These add-on SKUs expire after a limited period of time.

The list of the available term based SKUs:

- VBL-50T-ADD-5GC
- VBL-250T-ADD-5GC
- VBL-2500T-ADD-5GC
- VBL-25KT-ADD-5GC

2. **Perpetual:** These add-on SKUs never expires.

The list of the available perpetual SKUs:

- VBL-250T-ADD-5GC-PL
- VBL-2500T-ADD-5GC-PL

How GigaVUE-FM Tracks Volume-Based License Usage

GigaVUE-FM tracks the license usage for each V series node as follows:

- When you create and deploy a monitoring session, GigaVUE-FM allows you to use only those applications that are licensed at that point.
- When a license goes into grace period, you will be notified, along with a list of monitoring sessions that would be affected after the expiry of the grace period.
- When a license expires (and has not been renewed yet), the monitoring sessions using the corresponding license will be undeployed, but not deleted from the database.
- When a license is renewed or newly imported, the undeployed monitoring sessions will be redeployed.

Manage Volume-Based License

To manage active Volume-Based License:

1. On the left navigation pane, click .
2. Go to **System > Licenses**. From the top navigation bar, select the **VBL Active** from the **FM/Cloud** drop-down.

This page lists information like SKUs, Bundles, Start date, End date, Type, and Activation ID of the Volume-Based Licenses that are active. The expired licenses are automatically moved to the **VBL Inactive** page, which can be found under the **FM/Cloud** drop-down in the top navigation bar.

Click on the individual SKU to view the list of applications available for that particular SKU.

Use the following buttons to manage your active VBL.

Button	Description
Activate Licenses	Use this button to activate a Volume-Based License. Refer Activate Licenses for more information.
Email Volume Usage	Use this button to send the volume usage details to the email recipients.
Filter	Use this option to narrow down the list of active Volume-Based Licenses that are displayed on the VBL active page.
Export	Use this button to export the details in the VBL active page to a CSV or XLSX file.

For more detailed information on dashboards and reports generation for Volume-Based Licensing refer the following table:

For details about:	Reference section	Guide
How to generate Volume-Based License reports	Generate VBL Usage Reports	GigaVUE Administration Guide
Volume-Based Licensed report details	Volume Based License Usage Report	GigaVUE Administration Guide
Fabric health analytics dashboards for Volume-Based Licenses usage	Dashboards for Volume Based Licenses Usage	GigaVUE-FM User Guide

Default Trial Licenses

After you install GigaVUE-FM, a default free 1TB of CoreVUE trial volume-based license (VBL) is provided one-time for 30 days (from the date of installation).

SKU	Feature	Type	Description	Start Date	End Date	Activation ID	Seats / Volume	Status
VBL-1T-BN-CORE-TRIAL	erspan	Trial	1T-AdvancedTu...	May 13, 2021	Jun 12, 2021	4e8cb5a4-7eb4...	1024 GB daily	Expired
VBL-1T-BN-CORE-TRIAL	geneve.slicing.m...	Trial	1T-BaseApps	May 13, 2021	Jun 12, 2021	4e8cb5a4-7eb4...	1024 GB daily	Expired
VBL-1T-BN-CORE-TRIAL	header-stripping...	Trial	1T-HeaderStripp...	May 13, 2021	Jun 12, 2021	4e8cb5a4-7eb4...	1024 GB daily	Expired
SMT-HC0-GEN1-DD1-SW-TM	dedup	Internal	HC2-GEN1-Ded...	May 14, 2021	May 14, 2022	a5d70642-95eb...	5 of 8 available	Grace Period
SMT-HC0-GEN1-APF-SW-TM	apf	Internal	HC2-GEN1-APF...	May 21, 2021	Never	ce782018-1b0f...	6 of 8 available	Active
SMT-HC0-GEN1-ASF-SW-TM	asf	Internal	HC2-GEN1-ASF...	May 21, 2021	Never	24618ae4-ddb6...	1 of 2 available	Active
SMT-HC0-GEN1-HS1-SW-TM	header-stripping...	Internal	HC2-GEN1-HS1...	May 21, 2021	Never	8d035388-013...	7 of 8 available	Active
SMT-HC0-GEN1-NF1-SW-TM	netflow	Internal	HC2-GEN1-Net...	May 21, 2021	Never	11d3f4dd-90c6...	7 of 8 available	Active
SMT-HC0-GEN1-SSL-SW-TM	ssl-decrypt	Internal	HC2-GEN1-SSL...	May 21, 2021	Never	30f7e2c0-aea5...	0 of 3 available	Active
SMT-HC3-GEN2-5GC-SW-TM	5G-Correlation n...	Commercial	HC3-GEN2-5GC...	Apr 22, 2021	Apr 22, 2022	760ceb6a-c919...	1 of 4 available	Expired
SMT-HC3-GEN2-GTPMAX-SW-TM	apfflowrule-gtp...	Internal	HC3-GEN2-GTP...	Apr 22, 2021	Apr 22, 2022	7228d9a9-30ac...	4 of 4 available	Expired

This license includes the following applications:

- ERSPAN
- Geneve
- Slicing
- Masking
- Trailer
- Tunneling
- Load Balancing
- Enhanced Load Balancing
- Flowmap
- Header-stripping
- Add header

NOTE: There is no grace period for the trial license. If you do not have any other Volume-based licenses installed, then after 30 days, on expiry of the trial license, any deployed monitoring sessions will be undeployed from the existing V series 2.0 nodes.

To deactivate the trial VBL refer to [Delete Default Trial Licenses](#) section for details.

Apply License

For instructions on how to generate and apply license refer to the *GigaVUE Administration Guide*.

Prerequisites

Refer to the following topics for details:

- [AWS Security Credentials](#)
- [Amazon VPC](#)
- [Connect GigaVUE-FM to AWS](#)

AWS Security Credentials

When you first connect GigaVUE-FM with AWS, you need the security credentials for AWS to verify your identity and check if you have permission to access the resources that you are requesting. AWS uses the security credentials to authenticate and authorize your requests.

You need one of the following security credentials:

- **Identity and Access Management (IAM) role**—If GigaVUE-FM is running inside AWS, it is highly recommended to use an IAM role because it can securely make API requests from the instances. Create an IAM role and ensure that the permissions and policies listed in [Permissions](#) are associated to the role.
- **Access Keys**—If GigaVUE-FM is configured in the enterprise data center, then you need to use the access keys or basic credentials to connect to the VPC. Basic credentials allow full access to all the resources in your AWS account. An access key consists of an access key ID and a secret access key. For detailed instructions on creating access keys, refer to the AWS documentation on [Managing Access Keys for Your AWS Account](#).

NOTE: To obtain the IAM role or access keys, contact your AWS administrator.

You cannot launch the GigaVUE-FM instance from the EC2 dashboard without having one of these security credentials. If you are launching the GigaVUE-FM instance from the AWS Marketplace, you need to have only the IAM roles.

IMPORTANT:

- Always run GigaVUE-FM inside AWS to manage your AWS workloads.
- Always attach an IAM role to the instance running GigaVUE-FM in AWS to connect it to your AWS account.
- Do NOT use access keys and secret keys to connect GigaVUE-FM to AWS. This requires GigaVUE-FM to store these keys and is NOT recommended.
- Well architected guidelines highly recommend the use of IAM roles.

NOTE: Running GigaVUE-FM outside of AWS requires the credentials to be stored internally. Although GigaVUE-FM encrypts access keys and secret access keys within its database, it is not recommended to connect to AWS from a GigaVUE-FM instance outside of AWS.

Amazon VPC

You must have a Amazon Virtual Private Cloud (VPC) to launch GigaVUE components into your virtual network.

NOTE: To create a VPC, refer to [Create a VPC](#) topic in the AWS Documentation.

Your VPC must have the following elements to configure the GigaVUE Cloud Suite for AWS components:

Subnet for VPC

To create a subnet for your VPC, refer to [Create a subnet in your VPC](#) topic in the AWS Documentation.

Internet Gateway

To create and attach an internet gateway to your VPC, refer to [Create and attach an internet gateway](#) topic in the AWS Documentation.

Route Table

To create a route table for your VPC, refer to [Create a custom route table](#) topic in the AWS Documentation.

Security Group

A security group defines the virtual firewall rules for your instance to control inbound and outbound traffic. When you launch GigaVUE-FM, GigaVUE V Series Proxies, GigaVUE V Series nodes, and G-vTAP Controllers in your project, you add rules that control the inbound traffic to instances, and a separate set of rules that control the outbound traffic.

To create a security group, refer to [Create a security group](#) topic in the AWS Documentation.

It is recommended to create a separate security group for each component using the rules and port numbers listed in the following table.

Following is the Network Firewall Requirements for V Series 2 node deployment.

Direction	Type	Protocol	Port	CIDR	Purpose
GigaVUE-FM					
Inbound	<ul style="list-style-type: none"> • HTTPS • SSH 	TCP	<ul style="list-style-type: none"> • 443 • 22 	Administrator Subnet	Management connection to GigaVUE-FM
Outbound	Custom TCP Rule	TCP(6)	9900	GigaVUE-FM IP	Allows G-vTAP Controller to communicate with GigaVUE-FM
Outbound (optional)	Custom TCP Rule	TCP	8890	V Series Proxy IP	Allows GigaVUE-FM to communicate with V Series Proxy
Outbound	Custom TCP Rule	TCP	8889	V Series 2 Node IP	Allows GigaVUE-FM to communicate with V Series node
G-vTAP Controller					
Inbound	Custom TCP Rule	TCP(6)	9900	GigaVUE-FM IP	Allows G-vTAP Controller to communicate with GigaVUE-FM
Outbound	Custom TCP Rule	TCP(6)	9901	G-vTAP Controller IP	Allows G-vTAP Controller to communicate with G-vTAP Agents
G-vTAP Agent					
Inbound	Custom TCP Rule	TCP(6)	9901	G-vTAP Controller IP	Allows G-vTAP Agents to communicate with G-vTAP Controller
Outbound	<ul style="list-style-type: none"> • UDP • IP 	<ul style="list-style-type: none"> • UDP (VXLAN) • IP Protocol (L2GRE) 	VXLAN (default 4789)	G-vTAP Agent or Subnet IP	Allows G-vTAP Agents to (VXLAN/L2GRE) tunnel traffic to V Series nodes
V Series Proxy (optional)					

Direction	Type	Protocol	Port	CIDR	Purpose
Inbound	Custom TCP Rule	TCP	8890	GigaVUE-FM IP	Allows GigaVUE-FM to communicate with V Series Proxy
Outbound	Custom TCP Rule	TCP	8889	V Series 2 node IP	Allows V Series Proxy to communicate with V Series node
V Series 2 node					
Inbound	Custom TCP Rule	TCP	8889	<ul style="list-style-type: none"> GigaVUE-FM IP V Series Proxy IP 	Allows V Series Proxy or GigaVUE-FM to communicate with V Series node
Inbound	<ul style="list-style-type: none"> UDP IP 	<ul style="list-style-type: none"> UDP (VXLAN) IP Protocol (L2GRE) 	<ul style="list-style-type: none"> VXLAN (default 4789) L2GRE 	G-vTAP Agent or Subnet IP	Allows G-vTAP Agents to (VXLAN/L2GRE) tunnel traffic to V Series nodes
Inbound	UDP	UDPGRE	4754	Ingress Tunnel	Allows to UDPGRE Tunnel to communicate and tunnel traffic to V Series nodes
Outbound	Custom UDP Rule	<ul style="list-style-type: none"> UDP (VXLAN) IP Protocol (L2GRE) 	VXLAN (default 4789)	Tool IP	Allows V Series node to communicate and tunnel traffic to the Tool
Outbound (optional)	ICMP	ICMP	<ul style="list-style-type: none"> echo request echo reply 	Tool IP	Allows V Series node to health check tunnel destination traffic

Key Pair

A key pair consists of a public key and a private key. You must create a key pair and specify the name of this key pair when you define the specifications for the G-vTAP Controllers, GigaVUE V Series nodes, and GigaVUE V Series Proxy in your VPC.

To create a key pair, refer to [Create a key pair using Amazon EC2](#) topic in the AWS Documentation.

Connect GigaVUE-FM to AWS

GigaVUE-FM requires Internet access to integrate with the AWS API endpoints and deploy its GigaVUE Cloud Suite for AWS components. For more information about the VPN connectivity options, refer to [Amazon Virtual Private Cloud Connectivity Options](#) topic in the

AWS Whitepapers.

If you already have GigaVUE-FM running outside of your AWS environment, you can connect that existing GigaVUE-FM to your AWS using the Basic Credentials (Access Keys).

You can connect the GigaVUE-FM running inside of your AWS using the IAM role.

If there is no direct connection from GigaVUE-FM to the AWS public end points, a proxy can be used. Please refer to [Configure Proxy Server](#)

AMI and Permissions

The AMI for the GigaVUE Cloud Suite for AWS is available in both the AWS Public Cloud and in AWS GovCloud.

NOTE: Refer [Troubleshoot AWS Cloud Issues](#) to resolve the GigaVUE-FM access issues.

GigaVUE Cloud Suite in AWS Public Cloud

The AMI for the GigaVUE Cloud Suite for AWS is available in the AWS Marketplace for the Bring Your Own License (BYOL) option.

For purchasing licensing with the BYOL option, contact the Gigamon Sales. Refer to [Contact Sales](#).

GigaVUE Cloud Suite in AWS GovCloud

AWS GovCloud is an isolated AWS region that contains specific regulatory and compliance requirements of the US government agencies. The AWS GovCloud (US) Region adheres to U.S. International Traffic in Arms Regulations (ITAR) requirements.

To monitor the instances that contain all categories of Controlled Unclassified Information (CUI) data and sensitive government data in the AWS GovCloud (US) Region, the AWS GovCloud AMI provides the same robust features in the AWS GovCloud as in the AWS public cloud.

Permissions

Before you begin configuring the components, you must enable the following permissions and attach the policies to an IAM role. You must then attach this IAM role to the GigaVUE-FM instance running in AWS:

- Full EC2 Instance access
- Read-only permission for IAM role

- EC2 pass role permission
- GigaVUE-FM Instance Role Policy
- STS AssumeRole Policies
- KMS ListAliases policy

For creating an IAM role, refer to the AWS documentation on [AWS identity and Access Management \(IAM\) service](#).

For more information on access control of EC2 instances in AWS, refer to the AWS documentation on [Controlling Access to Amazon EC2 Resources](#).

NOTE: For VPC Traffic Mirroring, `"ec2:*TrafficMirror*"` is an additional set of permission required for the IAM role.

An example of the above permissions is to associate the following policies to your IAM role before launching the GigaVUE-FM instance (you can attach this IAM at any time the instance exists):

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "ec2:CreateTags",
        "ec2:DescribeAddresses",
        "ec2:DescribeImages",
        "ec2:DescribeInstances",
        "ec2:DescribeKeyPairs",
        "ec2:DescribeSecurityGroups",
        "ec2:DescribeSubnets",
        "ec2:DescribeTrafficMirrorFilters",
        "ec2:DescribeTrafficMirrorSessions",
        "ec2:DescribeTrafficMirrorTargets",
        "ec2:DescribeVpcs"
      ],
      "Resource": "*"
    },
    {
      "Effect": "Allow",
      "Action": [
        "ec2:RunInstances",
        "ec2:TerminateInstances"
      ],
      "Resource": "*"
    },
    {
      "Effect": "Allow",
      "Action": [
        "ec2:CreateTrafficMirrorFilterRule",
        "ec2:CreateTrafficMirrorSession",
        "ec2:CreateTrafficMirrorFilter",
        "ec2>DeleteTrafficMirrorFilter",

```

```

    "ec2:DeleteTrafficMirrorSession",
    "ec2:CreateTrafficMirrorTarget",
    "ec2:DeleteTrafficMirrorTarget"
  ],
  "Resource": "*"
}
]
}
---EC2 Permissions
"ec2:Describe*",
"ec2:RebootInstances",
"ec2:RunInstances",
"ec2:StartInstances",
"ec2:StopInstances",
"ec2:TerminateInstances",
"ec2:ReportInstanceStatus",
"ec2:Disassociate*",
"ec2:CreateTags",
"ec2:AttachVolume",
"ec2:AttachNetworkInterface",
"ec2:Associate*",
"ec2:Allocate*",
"ec2>DeleteTags",
"ec2>DeleteVolume",
"ec2>DeleteNetworkInterface",
"ec2:ModifyInstanceAttribute",
"ec2:ModifyNetworkInterfaceAttribute",
"ec2:ModifyVolumeAttribute",
"ec2:ReleaseAddress",
"elasticloadbalancing:Describe*",
"autoscaling:Describe*"

```

If you choose Amazon CloudWatch integration in GigaVUE-FM, you may also associate the following optional policies to your IAM role:

```

---S3 Permissions
"s3:CreateBucket",
"s3>DeleteBucket",
"s3>DeleteObject",
"s3>DeleteObjectVersion",
"s3:Get*",
"s3:ListAllMyBuckets",
"s3:PutBucketNotification",
"s3:PutBucketTagging",
"s3:PutBucketVersioning",
"s3:PutObject",
"s3:PutObjectTagging",
"s3:ReplicateDelete",
"s3:ReplicateObject",
"s3:RestoreObject",
"cloudwatch:*",
    "logs:*",

"sns:*",
"sqs:*", "events:*"
---IAM Permissions

```

For detailed instruction on creating an IAM policy, refer to the AWS documentation on [Creating Customer Managed Policies](#).

Amazon STS Support and AssumeRole Policies Configuration

GigaVUE-FM supports VPC connections in only one account. You can add additional accounts using *Access and Secret Keys*. From GigaVUE-FM version 5.7.01, GigaVUE-FM connections to AWS can use the Amazons STS (Secure Token Service) and Assume Role policies. Using these policies, you can attach a role to a GigaVUE-FM instance running in AWS, thus enabling GigaVUE-FM to monitor multiple accounts in AWS.

You can still use the *Access and Secret Keys* to create additional accounts. However, using the STS option is the recommended best practice for security reasons.

This section provides guidance on configuring your GigaVUE-FM instance to enable Amazon STS support.

Prerequisites

You must complete the following prerequisites before configuring GigaVUE-FM for Amazon STS support.

- A policy must be created in the account in which GigaVUE-FM is running.
 - Attach the created policy to a Role.
 - Attach the same Role to GigaVUE-FM, as an IAM instance Role.
- A policy must be included in other accounts as well.
 - These policies must allow GigaVUE-FM to assume the role in that account.

Procedure

For the purposes of these instructions, the AWS account that runs the GigaVUE-FM instance is called the source account, and any other AWS account that runs monitored instances is called a target account.

To configure GigaVUE-FM for Amazon STS support:

1. In each target account, create an IAM role with the source account number as a trusted entity and attach policies with permissions allowing GigaVUE-FM to perform its functions. Record the ARN of each role created.

NOTE: This role must exist in all accounts to support the ability to create a single Monitoring Domain in GigaVUE-FM that includes multiple accounts.

- In the source account, create a new IAM policy that allows GigaVUE-FM to retrieve IAM policies.

IMPORTANT: The following example is provided as an illustration only.

```
{
  "Version": "2012-10-17",
  "Statement": {
    "Effect": "Allow",
    "Action": [
      "iam:ListPolicies",
      "iam:GetPolicy",
      "iam:GetPolicyVersion"
    ],
    "Resource": "*"
  }
}
```

- In the source account, create a new IAM policy that allows the “sts:AssumeRole” action on all role ARNs created in Step 1.

IMPORTANT: The following example is provided as an illustration only.

```
{
  "Version": "2012-10-17",
  "Statement": {
    "Effect": "Allow",
    "Action": "sts:AssumeRole",
    "Resource": [
      "arn:aws:iam::123456789012:role/FM-Role-target-account"
    ]
  }
}
```

NOTE: In this example, 123456789012 is a target account and FM-Role-target-account is the role in the target account configured in step 1 with permissions required for GigaVUE-FM.

- In the source account, attach the policies created in steps 2 and 3 to the IAM role that is attached to the GigaVUE-FM instance.

Install and Upgrade GigaVUE-FM

You can install and upgrade the GigaVUE Cloud Suite® Fabric Manager (GigaVUE-FM) on cloud or on-premises.

- Cloud—To install GigaVUE-FM inside your AWS environment, you can deploy GigaVUE-FM using the AWS CloudFormation Templates (CFT) found in the AWS Marketplace or manually deploy the latest GigaVUE-FM instance using the public images (AMI) through the AWS EC2.
For the GigaVUE-FM installation procedures, refer to [Install GigaVUE-FM on AWS](#)
- On-premises—To install and upgrade GigaVUE-FM in your enterprise data center, refer to *GigaVUE-FM Installation and Upgrade Guide* available in the [Gigamon Documentation Library](#).

For GigaVUE-FM upgrade issues, refer to [Troubleshoot AWS Cloud Issues](#).

Deploy GigaVUE Cloud Suite for AWS

This chapter describes how to connect, launch, and deploy fabric components of GigaVUE Cloud Suite for AWS in your AWS environment.

If you already have GigaVUE-FM running outside of your AWS environment, you can connect that existing GigaVUE-FM to your AWS using the Basic Credentials (Access Keys).

Refer to the following sections for details:

- [Prepare G-vTAP Agent to Monitor Traffic](#)
- [Create AWS Credentials](#)
- [Create a Monitoring Domain](#)
- [Configure GigaVUE Fabric Components in GigaVUE-FM](#)
- [Configure GigaVUE Fabric Components in AWS](#)
- [Upgrade GigaVUE fabrics in GigaVUE-FM](#)

Refer [Gaining Application Level Visibility Across Private and Public Cloud Environments](#) for more detailed information.

Install GigaVUE-FM on AWS

You can deploy GigaVUE-FM using the AWS CloudFormation Templates (CFT) found in the AWS Marketplace or deploy the latest GigaVUE-FM instance manually using the public images (AMI) through the AWS EC2.

You can launch GigaVUE-FM in AWS using one of the following methods:

- [Launch GigaVUE-FM using CFT](#)
- [Launch GigaVUE-FM using an Instance in AMI](#)

Launch GigaVUE-FM using CFT

Refer to the following topics for details:

- [Launch GigaVUE-FM from AWS Marketplace](#)
- [Configure an AWS CloudFormation Stack](#)

Launch GigaVUE-FM from AWS Marketplace

To launch the GigaVUE-FM instance from the AWS Marketplace:

1. Login to your AWS account.
2. Go to <https://aws.amazon.com/marketplace/>.
3. In the **Search** field, type Gigamon and click Search.
4. Select the latest GigaVUE Cloud Suite version link from the list for Gigamon products.
5. Click **Continue to Subscribe**. The **Subscribe to this software** page is displayed, where the complete detail about the product is described.
6. Click **Continue to Configuration**. The **Configure this software** page is displayed.
7. In the Configure this software page, select the following:
 - a. From the **Fulfillment option** drop-down list, select **Auto Deploy GigaVUE-FM using AWS CFT**.
 - b. From the **Software version** drop-down list, select the latest version.
 - c. From the **Region** drop-down list, select the appropriate region.
 - d. Click **Continue to Launch**. The **Launch this Software** page is displayed.
8. In the Launch this Software page, from the **Choose Action** drop-down, select **Launch CloudFormation**.
9. Click **Launch**. The **Create Stack** page is displayed.

Configure an AWS CloudFormation Stack

To configure CloudFormation Stack:

1. In the **Create Stack** page, enter or select the following details:
 - a. Specify a Template and Template source for the Stack.
 - b. Click **Next**. The **Specify stack details** page is displayed.
2. In the Specify stack details page, enter or select the following details:
 - a. In the **Stack name** field, enter a name for the stack.
 - b. Enter or select the following details for the Parameters.

Fields	Action
GigaVUE-FM Instance Configuration	
Instance Type	Select m4.xlarge as the minimum instance type for GigaVUE-FM <div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;">NOTE: Do not select the t2 instance types as they are not supported.</div>
Key Pair	Select the name of an existing Amazon EC2 key pair.
Volume Size	The default volume size is 40 GB. You can change the volume size based on your requirement.
GigaVUE-FM Network Configuration	
VPC ID	Select the existing VPC ID.
Subnet	Select the existing public subnet ID.
GigaVUE-FM Security Group Configuration	
SSH Location	Enter the IP address or subnet that requires SSH access to the GigaVUE-FM instance.
CIDR IP	Enter the CIDR block where GigaVUE-FM would be deployed to allow management port access to the other components.

- c. Click **Next**. The **Configure stack options** page is displayed.
3. In the Configure stack options page, enter or select the following details.
 - a. In the **Tags** section, enter the key and value pairs. Click **Add tag** to add new tags and click **Remove** to remove tags.
 - b. In the **Permissions** section, select the IAM roles for the CloudFormation. Refer to the AMI and Permissions topic in the *GigaVUE Cloud Suite for AWS Guide* for detailed information on the required IAM roles.
 - c. In the **Stack failure options** section, select a behavior for stack failures.
 - d. In the **Advanced options** section, select the required stack policy and notification options.
 - e. Click **Next**. The **Review** page is displayed.
4. In the Review page, review the complete details and then select the **I acknowledge that AWS CloudFormation might create IAM resources** check box.
5. Click **Create Stack** to deploy GigaVUE-FM in AWS.

Launch GigaVUE-FM using an Instance in AMI

To launch GigaVUE-FM using a public image:

1. Login to the AWS EC2.
2. From the navigation pane, select **Images > AMIs**. The **Amazon Machine Images (AMIs)** page appears.
3. Select the latest GigaVUE-FM public image and click **Launch instance from image**. The Instance launch wizard is displayed.
4. In the Instance Launch wizard, select or enter the details in the respective tabs. Refer to the following table for details.

Fields	Action
1. Choose AMI	Select the latest GigaVUE-FM public image.
2. Choose Instance Type	Select m4.xlarge as the minimum instance type for GigaVUE-FM <div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;"> NOTE: Do not select the t2 instance types as they are not supported. </div>
3. Configure Instance	Select the instance details by your requirements like VPC, Subnet (management network), IAM Role, and more. Refer to the AMI and Permissions topic in the <i>GigaVUE Cloud Suite for AWS Guide</i> for detailed information on the required IAM roles. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;"> <ul style="list-style-type: none"> • You can also launch your instance into an Auto Scaling Group. • You can launch multiple instances from the same AMI. </div>
4. Add Storage	Select Add New Volume , select a Snapshot, and enter 40 (GiB) as the Size for the new volume in addition to the Root volume 40 (GiB).
5. Add Tags	Enter the key-value pair information for the instances and volumes.
6. Configure Security Group	Select an existing security group or select the protocol type, CIDR IP, and other details for a new security group. For security group values, refer to the Security Group topic in the <i>GigaVUE Cloud Suite for AWS Guide</i> .
7. Review	Review your instance launch details.

5. In the Review tab, click **Launch**.

If the page prompts you to specify key pair, select an existing key pair from the drop-down or create a new key pair.

Initial GigaVUE-FM Configuration

It may take several minutes for the GigaVUE-FM instance to initialize. After the initialization is completed, you can verify the instance through the web interface as follows:

1. In your EC2 Instances page, select the launched GigaVUE-FM instance and expand the page in the **Descriptions** tab to view the instance information.
2. Copy and paste the Public IP address into a new browser window or tab.
3. Copy the Instance ID from the **Descriptions** tab.

If GigaVUE-FM is deployed inside AWS, use **admin** as the username and the **Instance ID** as the default password for the admin user to login to GigaVUE-FM, for example i-079173111e2d73753 (**Instance ID**).



If GigaVUE-FM is deployed outside the AWS, use admin123A!! as the default admin password.

After logging into GigaVUE-FM, you are prompted to change the default password.

Prepare G-vTAP Agent to Monitor Traffic

A G-vTAP Agent is the primary Gigamon monitoring module that is installed in your Virtual Machines (VMs). G-vTAP mirrors the selected traffic from a source interface to a destination mirror interface. The mirrored traffic is encapsulated using GRE or VXLAN tunneling and then sent to the GigaVUE Cloud Suite® V Series node.

NOTE: The G-vTAP Agent installation is applicable only when the G-vTAP is your traffic acquisition method.

A G-vTAP Agent consists of a source interface and a destination interface. The network packets collected from the source interface are sent to the destination interface. From the destination interface, the packets traverse through the L2GRE/VXLAN tunnel interface or IPsec tunnel interface to the GigaVUE V Series node.

A source interface can be configured with one or more ENIs. While configuring a source interface, you can specify the direction of the traffic to be monitored in the instance. The direction of the traffic can be egress or ingress or both.

NOTE: For environments with both Windows and Linux agents or just windows agents, VXLAN tunnels in the G-vTAP controller specification is required.

Refer to the following sections for more information:

- [Linux G-vTAP Agent Installation](#)
- [Windows G-vTAP Agent Installation](#)
- [Install IPsec on G-vTAP Agent](#)
- [Create Images with Agent Installed](#)

Refer [Troubleshoot AWS Cloud Issues](#) to resolve G-vTAP deployment issues.

Refer to the following Gigamon Validated Design for more information on how to gain visibility by integrating AWS and Gigamon ThreatINSIGHT:

- [Gaining Pervasive Visibility into AWS Environment with GigaVUE Cloud Suite Integration with Threat Insight Sensor \(5.14\)](#)

Linux G-vTAP Agent Installation

Refer to the following sections for the Linux agent installation:

- [Single ENI Configuration](#)
- [Dual ENI Configuration](#)
- [Install G-vTAP Agents](#)

Single ENI Configuration

A single ENI acts both as the source and the destination interface. A G-vTAP Agent with a single ENI configuration lets you monitor the ingress or egress traffic from the ENI. The monitored traffic is sent out using the same ENI.

For example, assume that there is only one interface eth0 in the monitoring instance. In the G-vTAP configuration, you can configure eth0 as the source and the destination interface, and specify both egress and ingress traffic to be selected for monitoring purpose. The egress and ingress traffic from eth0 is mirrored and sent out using the same interface.

Using a single ENI as the source and the destination interface can sometimes cause increased latency in sending the traffic out from the instance.

Dual ENI Configuration

A G-vTAP Agent lets you configure two ENIs. One ENI can be configured as the source interface and another ENI can be configured as the destination interface.

For example, assume that there is eth0 and eth1 in the monitoring instance. In the G-vTAP Agent configuration, eth0 can be configured as the source interface and egress traffic can be selected for monitoring purpose. The eth1 interface can be configured as the destination interface. So, the mirrored traffic from eth0 is sent to eth1. From eth1, the traffic is sent to the GigaVUE V Series node.

Install G-vTAP Agents

You must have sudo/root access to edit the G-vTAP Agent configuration file.

For dual or multiple ENI configuration, you may need to modify the network configuration files to make sure that the extra NIC/ENI will initialize at boot time.

NOTE: Before installing G-vTAP Agent **.deb** or **.rpm** packages on your Linux VMs, you must install packages like Python3 and Python modules (netifaces, urllib3, and requests). Package iproute-tc is also required on RHEL and CentOS VMs.

You can install the G-vTAP Agents either from Debian or RPM packages.

Refer to the following topics for details:

- [Install G-vTAP from Ubuntu/Debian Package](#)
- [Install G-vTAP from RPM package](#)
- [Install G-vTAP from Red Hat Enterprise Linux and CentOS with Selinux Enabled](#)

Install G-vTAP from Ubuntu/Debian Package

To install from a Debian package:

1. Download the G-vTAP Agent **1.8-7** Debian (.deb) package from the [Gigamon Customer Portal](#). For assistance contact [Contact Technical Support](#).
2. Copy this package to your instance. Install the package with root privileges, for example:

```
$ ls gvtap-agent_1.8-7_amd64.deb
$ sudo dpkg -i gvtap-agent_1.8-7_amd64.deb
```

- Once the G-vTAP package is installed, modify the file `/etc/gvtap-agent/gvtap-agent.conf` to configure and register the source and destination interfaces. The following examples registers eth0 as the mirror source for both ingress and egress traffic and eth1 as the destination for this traffic:

NOTE: Any changes to the GvTAP agent config file made after the initial setup require an agent restart and an inventory refresh or sync from GigaVUE-FM to pick up the new changes and re-initiate the traffic mirroring. When you have an active, successful monitoring session deployed, modifying the GvTAP config file results in traffic loss until GigaVUE-FM does a periodic sync on its own every 15 minutes.

Example 1—Configuration example to monitor ingress and egress traffic at interface eth0 and use the same interface to send out the mirrored packets

```
# eth0 mirror-src-ingress mirror-src-egress mirror-dst
```

Example 2—Configuration example to monitor ingress and egress traffic at interface eth0 and use the interface eth1 to send out the mirrored packets

```
# eth0 mirror-src-ingress mirror-src-egress
# eth1 mirror-dst
```

Example 3—Configuration example to monitor ingress and egress traffic at interface eth0 and eth 1; use the interface eth1 to send out the mirrored packets

```
# eth0 mirror-src-ingress mirror-src-egress
# eth1 mirror-src-ingress mirror-src-egress mirror-dst
```

- Save the file.
- To enable the third-party orchestration, a configuration file `/etc/gigamon-cloud.conf` needs to be created with the following contents:

```
Registration:
  groupName: <Monitoring Domain Name>
  subGroupName: <Connection Name>
  user: orchestration
  password: orchestration123A!
  remoteIP: <controller list IP addresses separated by comma>
  remotePort: 8891
```

- Reboot the instance.

The G-vTAP Agent status will be displayed as running. Check the status using the following command:

```
$ sudo /etc/init.d/gvtap-agent status
G-vTAP Agent is running
```

Install G-vTAP from RPM package

To install from an RPM (.rpm) package on a Redhat, CentOS, or other RPM-based system:

1. Download the G-vTAP Agent 1.8-7 RPM (.rpm) package from the [Gigamon Customer Portal](#). For assistance contact [Contact Technical Support](#).
2. Copy this package to your instance. Install the package with root privileges, for example:


```
$ ls gvtap-agent_1.8-7_x86_64.rpm
$ sudo rpm -i gvtap-agent_1.8-7_x86_64.rpm
```
3. Modify the **/etc/gvtap-agent/gvtap-agent.conf** file to configure and register the source and destination interfaces. The following example registers the eth0 as the mirror source for both ingress and egress traffic and registers eth1 as the destination for this traffic as follows:

NOTE: Any changes to the GvTAP agent config file made after the initial setup require an agent restart and an inventory refresh or sync from GigaVUE-FM to pick up the new changes and re-initiate the traffic mirroring. When you have an active, successful monitoring session deployed, modifying the GvTAP config file results in traffic loss until GigaVUE-FM does a periodic sync on its own every 15 minutes.

Example 1—Configuration example to monitor ingress and egress traffic at interface eth0 and use the same interface to send out the mirrored packets

```
# eth0    mirror-src-ingress mirror-src-egress mirror-dst
```

Example 2—Configuration example to monitor ingress and egress traffic at interface eth0 and use the interface eth1 to send out the mirrored packets

```
# eth0    mirror-src-ingress mirror-src-egress# eth1    mirror-dst
```

Example 3—Configuration example to monitor ingress and egress traffic at interface eth0 and eth 1; use the interface eth1 to send out the mirrored packets

```
# eth0    mirror-src-ingress mirror-src-egress# eth1    mirror-src-
ingress mirror-src-egress mirror-dst
```

4. Save the file.

- To enable the third-party orchestration, a configuration file `/etc/gigamon-cloud.conf` needs to be created with the following contents:

```
Registration:
  groupName: <Monitoring Domain Name>
  subGroupName: <Connection Name>
  user: orchestration
  password: orchestration123A!
  remoteIP: <controller list IP addresses separated by comma>
  remotePort: 8891
```

- Reboot the instance.

Check the status with the following command:

```
$ sudo service gvtap-agent status
G-vTAP Agent is running
```

Install G-vTAP from Red Hat Enterprise Linux and CentOS with Selinux Enabled

- Launch the RHEL/CentOS agent AMI image.
- Download the following packages from the [Gigamon Customer Portal](#). For assistance contact [Contact Technical Support](#).
 - strongSwan TAR files
 - gvtap-agent_1.8-7_x86_64.rpm
 - gvtap.te files (type enforcement files)
- Copy the downloaded G-vTAP package files and strongSwan TAR file to G-vTAP Agent.
- Checkmodule -M -m -o gvtap.mod gvtap.te


```
semodule_package -o gvtap.pp -m gvtap.mod
sudo semodule -i gvtap.pp
```
- Install G-vTAP Agent package:


```
sudo rpm -ivh gvtap-agent_1.8-7_x86_64.rpm
```
- Edit gvtap-agent.conf file to configure the required interface as source/destination for mirror:

NOTE: Any changes to the GvTAP agent config file made after the initial setup require an agent restart and an inventory refresh or sync from GigaVUE-FM to pick up the new changes and re-initiate the traffic mirroring. When you have an active, successful monitoring session deployed, modifying the GvTAP config file results in traffic loss until GigaVUE-FM does a periodic sync on its own every 15 minutes.

```
# eth0 mirror-src-ingress mirror-src-egress mirror-dst
# sudo /etc/init.d/gvtap-agent restart
```

- Install strongSwan:


```
tar -xvf strongswan-5.7.1-1.el7.x86_64.tar.gz
cd strongswan-5.7.1-1.el7.x86_64
sudo sh ./swan-install.sh
```

8. Reboot the instance.

Windows G-vTAP Agent Installation

Windows G-vTAP Agent allows you to select the network interfaces by subnet/CIDR and modify the corresponding monitoring permissions in the configuration file. This gives you more granular control over what traffic is monitored and mirrored.

VXLAN is the only supported tunnel type for Windows G-vTAP Agent.

Windows G-vTAP Agent Installation Using MSI Package

To install the Windows G-vTAP Agent using the MSI file:

1. Download the Windows G-vTAP Agent **1.8-7** MSI package from the [Gigamon Customer Portal](#). For assistance contact [Contact Technical Support](#).
2. Install the downloaded MSI package as **Administrator** and the G-vTAP Agent service starts automatically.

- Once the G-vTAP package is installed, modify the file **C:\ProgramData\Gvtap-agent\gvtap-agent.conf** to configure and register the source and destination interfaces.

NOTE: Any changes to the GvTAP agent config file made after the initial setup require an agent restart and an inventory refresh or sync from GigaVUE-FM to pick up the new changes and re-initiate the traffic mirroring. When you have an active, successful monitoring session deployed, modifying the GvTAP config file results in traffic loss until GigaVUE-FM does a periodic sync on its own every 15 minutes.



Following are the rules to modify the G-vTAP configuration file:

- Interface is selected by matching its CIDR address with config entries.
- For the VMs with single interface (*conf file modification is optional*):
 - if neither mirror-src permissions is granted to the interface, both mirror-src-ingress and mirror-src-egress are granted to it.
 - mirror-dst is always granted implicitly to the interface.
- For the VMs with multiple interfaces:
 - mirror-dst needs to be granted explicitly in the config file. Only the first matched interface is selected for mirror-dst, all other matched interfaces are ignored.
 - if none interfaces is granted any mirror-src permission, all interfaces will be granted mirror-src-ingress and mirror-src-egress.

Example 1—Configuration example to monitor ingress and egress traffic at interface 192.168.1.0/24 and use the same interface to send out the mirrored packets.

```
192.168.1.0/24 mirror-src-ingress mirror-src-egress mirror-dst
```

Example 2—Configuration example to monitor ingress and egress traffic at interface 192.168.1.0/24 and use the interface 192.168.2.0/24 to send out the mirrored packets.

```
192.168.1.0/24 mirror-src-ingress mirror-src-egress
192.168.2.0/24 mirror-dst
```

- Save the file.
- To enable the third-party orchestration, a configuration file **C:\ProgramData\Gvtap-agent\gigamon-cloud.conf** needs to be created with the following contents:

Registration:

```
groupName: <Monitoring Domain Name>
subGroupName: <Connection Name>
user: orchestration
password: orchestration123A!
remoteIP: <controller list IP addresses separated by comma>
remotePort: 8891
```

6. To restart the Windows G-vTAP Agent, perform one of the following actions:
 - Restart the VM.
 - Run 'sc stop gvtap' and 'sc start gvtap' from the command prompt.
 - Restart the G-vTAP Agent from the Windows Task Manager.

You can check the status of the G-vTAP Agent in the Service tab of the Windows Task Manager.

Windows G-vTAP Agent Installation Using ZIP Package

To install the Windows G-vTAP Agent using the ZIP package:

1. Download the Windows G-vTAP Agent **1.8-7** ZIP package from the [Gigamon Customer Portal](#). For assistance contact [Contact Technical Support](#).
2. Extract the contents of the .zip file into a convenient location.
3. Run 'install.bat' as an **Administrator** and the G-vTAP Agent service starts automatically.

- Once the G-vTAP package is installed, modify the file **C:\ProgramData\Gvtap-agent\gvtap-agent.conf** to configure and register the source and destination interfaces.

NOTE: Any changes to the GvTAP agent config file made after the initial setup require an agent restart and an inventory refresh or sync from GigaVUE-FM to pick up the new changes and re-initiate the traffic mirroring. When you have an active, successful monitoring session deployed, modifying the GvTAP config file results in traffic loss until GigaVUE-FM does a periodic sync on its own every 15 minutes.



Following are the rules to modify the G-vTAP configuration file:

- Interface is selected by matching its CIDR address with config entries.
- For the VMs with single interface (*conf file modification is optional*):
 - if neither mirror-src permissions is granted to the interface, both mirror-src-ingress and mirror-src-egress are granted to it.
 - mirror-dst is always granted implicitly to the interface.
- For the VMs with multiple interfaces:
 - mirror-dst needs to be granted explicitly in the config file. Only the first matched interface is selected for mirror-dst, all other matched interfaces are ignored.
 - if none interfaces is granted any mirror-src permission, all interfaces will be granted mirror-src-ingress and mirror-src-egress.

Example 1—Configuration example to monitor ingress and egress traffic at interface 192.168.1.0/24 and use the same interface to send out the mirrored packets.

```
192.168.1.0/24 mirror-src-ingress mirror-src-egress mirror-dst
```

Example 2—Configuration example to monitor ingress and egress traffic at interface 192.168.1.0/24 and use the interface 192.168.2.0/24 to send out the mirrored packets.

```
192.168.1.0/24 mirror-src-ingress mirror-src-egress
192.168.2.0/24 mirror-dst
```

- Save the file.
- To enable the third-party orchestration, a configuration file **C:\ProgramData\Gvtap-agent\gigamon-cloud.conf** needs to be created with the following contents:

Registration:

```
groupName: <Monitoring Domain Name>
subGroupName: <Connection Name>
user: orchestration
password: orchestration123A!
remoteIP: <controller list IP addresses separated by comma>
remotePort: 8891
```

7. To restart the Windows G-vTAP Agent, perform one of the following actions:
 - Restart the VM.
 - Run 'sc stop gvtap' and 'sc start gvtap' from the command prompt.
 - Restart the G-vTAP Agent from the Windows Task Manager.

You can check the status of the G-vTAP Agent in the Service tab of the Windows Task Manager.

NOTE: You must edit the Windows Firewall settings to grant access to the gvtap process. To do this, access the Windows Firewall settings and find “gvtapd” in the list of apps and features. Select it to grant access. Be sure to select both Private and Public check boxes. If “gvtapd” does not appear in the list, click **Add another app...** Browse your program files for the gvtap-agent application (gvtapd.exe) and then click **Add.** (**Disclaimer:** These are general guidelines for changing Windows Firewall settings. See Microsoft Windows help for official instructions on Windows functionality.)

Install IPSec on G-vTAP Agent

If IPSec is used to establish secure connection between G-vTAP Agents and GigaVUE V Series nodes, then you must install IPSec on G-vTAP Agent instances. To install IPSec on G-vTAP Agent you need the following files:

- **StrongSwan binary installer TAR file:** The TAR file contains StrongSwan binary installer for different platforms. Each platform has its own TAR file. Refer to <https://www.strongswan.org/> for more details.
- **IPSec package file:** The package file includes the following:
 - CA Certificate
 - Private Key and Certificate for G-vTAP Agent
 - IPSec configurations

NOTE: IPSec cannot be installed on G-vTAP Agents that are running on Windows OS. Therefore, if a monitoring session has targets with both Windows and Linux OS, only the linux agents will communicate over the secure connection. Windows agent will communicate only through the VXLAN Tunnel.

Refer to the following sections for installing IPSec on G-vTAP Agent:

- [Install G-vTAP from Ubuntu/Debian Package](#)
- [Install G-vTAP from Red Hat Enterprise Linux and CentOS](#)
- [Install G-vTAP from Red Hat Enterprise Linux and CentOS with Selinux Enabled](#)

Install G-vTAP from Ubuntu/Debian Package

1. Launch the Ubuntu/Debian image.
2. Download the following packages from the [Gigamon Customer Portal](#). For assistance contact [Contact Technical Support](#).
 - strongSwan TAR files
 - gvtap-agent_1.8-7_amd64.deb
 - gvtap-ipsec_1.8-7_amd64.deb
3. Copy the downloaded G-vTAP package files and strongSwan TAR file to the G-vTAP Agent.
4. Install the G-vTAP Agent package file:

```
sudo dpkg -i gvtap-agent_1.8-7_amd64.deb
```
5. Modify the **/etc/gvtap-agent/gvtap-agent.conf** file to configure and register the source and destination interfaces:

NOTE: Any changes to the GvTAP agent config file made after the initial setup require an agent restart and an inventory refresh or sync from GigaVUE-FM to pick up the new changes and re-initiate the traffic mirroring. When you have an active, successful monitoring session deployed, modifying the GvTAP config file results in traffic loss until GigaVUE-FM does a periodic sync on its own every 15 minutes.

```
eth0# mirror-src-ingress mirror-src-egress mirror-dst
sudo /etc/init.d/gvtap-agent restart
sudo /etc/init.d/gvtap-agent status
```

NOTE: You can view the G-vTAP log using `cat /var/log/gvtap-agent.log` command.

6. Install strongSwan:

```
tar -xvf strongswan5.3.5-1ubuntu3.8_amd64-deb.tar.gz
cd strongswan-5.3.5-1ubuntu3.8_amd64/
sudo sh ./swan-install.sh
```
7. Install IPsec package:

```
sudo dpkg -i gvtap-ipsec_1.8-7_amd64.deb
```

Install G-vTAP from Red Hat Enterprise Linux and CentOS

1. Launch RHEL/CentOS agent image.
2. Download the following packages from the [Gigamon Customer Portal](#). For assistance contact [Contact Technical Support](#).
 - strongSwan TAR files
 - gvtap-agent_1.8-7_x86_64.rpm
 - gvtap-ipsec_1.8-7_x86_64.rpm
3. Copy the downloaded G-vTAP package files and strongSwan TAR file to the G-vTAP Agent.

4. Install G-vTAP Agent package:

```
sudo rpm -ivh gvtap-agent_1.8-7_x86_64.rpm
```

5. Edit the gvtap-agent.conf file to configure the required interface as source/destination for mirror:

NOTE: Any changes to the GvTAP agent config file made after the initial setup require an agent restart and an inventory refresh or sync from GigaVUE-FM to pick up the new changes and re-initiate the traffic mirroring. When you have an active, successful monitoring session deployed, modifying the GvTAP config file results in traffic loss until GigaVUE-FM does a periodic sync on its own every 15 minutes.

```
# eth0 mirror-src-ingress mirror-src-egress mirror-dst
# sudo /etc/init.d/gvtap-agent restart
```

6. Install strongSwan:

```
tar -xvf strongswan-5.7.1-1.el7.x86_64.tar.gz
cd strongswan-5.7.1-1.el7.x86_64
sudo sh ./swan-install.sh
```

7. Install IPsec package:

```
sudo rpm -i gvtap-ipsec_1.8-7_x86_64.rpm
```

NOTE: You must install IPsec package after installing StrongSwan.

Install G-vTAP from Red Hat Enterprise Linux and CentOS with Selinux Enabled

1. Launch the RHEL/CentOS agent image.
2. Download the following packages from the [Gigamon Customer Portal](#). For assistance contact [Contact Technical Support](#).
 - strongSwan TAR files
 - gvtap-agent_1.8-7_x86_64.rpm
 - gvtap-ipsec_1.8-7_x86_64.rpm
 - gvtap.te and gvtap_ipsec.te files (type enforcement files)
3. Copy the downloaded G-vTAP package files and strongSwan TAR file to G-vTAP Agent.
4. Checkmodule -M -m -o gvtap.mod gvtap.te


```
semodule_package -o gvtap.pp -m gvtap.mod
sudo semodule -i gvtap.pp
```
5. Checkmodule -M -m -o gvtap_ipsec.mod gvtap_ipsec.te


```
semodule_package -o gvtap_ipsec.pp -m gvtap_ipsec.mod
sudo semodule -i gvtap_ipsec.pp
```
6. Install G-vTAP Agent package:


```
sudo rpm -ivh gvtap-agent_1.8-7_x86_64.rpm
```

7. Edit `gvtap-agent.conf` file to configure the required interface as source/destination for mirror:

NOTE: Any changes to the GvTAP agent config file made after the initial setup require an agent restart and an inventory refresh or sync from GigaVUE-FM to pick up the new changes and re-initiate the traffic mirroring. When you have an active, successful monitoring session deployed, modifying the GvTAP config file results in traffic loss until GigaVUE-FM does a periodic sync on its own every 15 minutes.

```
# eth0 mirror-src-ingress mirror-src-egress mirror-dst
# sudo /etc/init.d/gvtap-agent restart
```

8. Install strongSwan:

```
tar -xvf strongswan-5.7.1-1.el7.x86_64.tar.gz
cd strongswan-5.7.1-1.el7.x86_64
sudo sh ./swan-install.sh
```

9. Install IPsec package:

```
sudo rpm -i gvtap-ipsec_1.8-7_x86_64.rpm
```

10. Reboot the instance.

Create Images with Agent Installed

If you want to avoid downloading and installing the G-vTAP Agents every time there is a new instance to be monitored, you can save the G-vTAP Agent running on an instance as a private AMI.

To save the G-vTAP Agent as an AMI from your EC2 console, right click on the instance and navigate to **Image > Create Image**.

Create AWS Credentials

You can monitor workloads across multiple AWS accounts within one monitoring domain. The GigaVUE fabric nodes can be shared among many AWS accounts to reduce the cost since this was possible only with AWS STS and limited to one region.



- After launching GigaVUE-FM in AWS, the **EC2 Instance Role** authentication credential is automatically added to the AWS Credential page as the default credential.
- You can only add the **Basic Credentials** authentication credentials to the AWS Credential page.

To create AWS credentials:

1. From the left navigation pane, click **Inventory > VIRTUAL > AWS > Credential**.
2. On the AWS Credential page, click the **Add** button. The **Configure Credential** page appears.

Configure Credential Save Cancel

Name*	Credential Name
Authentication Type	Basic Credentials
Access Key*	Access Key
Secret Access Key*	Secret Access Key

3. Enter or select the appropriate information as shown in the following table.

Field	Action
Name	An alias used to identify the AWS credential.
Authentication Type	Basic Credentials For more information, refer to AWS Security Credentials .
Access Key	Enter your AWS access key. It is the credential of an IAM user or the AWS account root user.
Secret Access Key	Enter your secret access key. It is the AWS security password or key.

4. Click **Save**. You can view the list of available credentials in the AWS Credential page.

Required Policies and Permissions

To add multiple AWS accounts in a monitoring domain, you must add the access and role name of all the additional accounts to your STS policy. Following is a sample STS policy where the *account2* and *account3* are the accesses added to the existing *account1* policy.

```
{
  "Version": "2012-10-17",
  "Statement": {
    "Effect": "Allow",
    "Action": "sts:*",
    "Resource": [
      "arn:aws:iam::account2:role/ROLE-NAME"
      "arn:aws:iam::account3:role/ROLE-NAME"
    ]
  }
}
```

For detailed information on the policies attached to GigaVUE-FM, refer to [Permissions](#)

Following is the required IAM policy to exist in your remote networks:

```
{
  "Version": "2012-10-17",
  "Statement": [
```

```

    {
      "Action": [
        "ec2:CreateTags",
        "ec2:DeleteTags",
        "ec2:Describe*",
        "ec2:*TrafficMirror*",
        "ram:GetResourceShareInvitations"
      ],
      "Resource": "*"
    }
  ]
}

```

Following is the required trust policy to set in your remote account:

```

{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Principal": {
        "Service": "ec2.amazonaws.com",
        "AWS": "arn:aws:iam::account:role/ROLE-NAME"
      },
      "Action": "sts:AssumeRole"
    }
  ]
}

```

Create a Monitoring Domain

GigaVUE-FM connects to the VPC through the EC2 API endpoint. HTTPS is the default protocol which GigaVUE-FM uses to communicate with the EC2 API. For more information about the endpoint and the protocol used, refer to [AWS service endpoints](#).

GigaVUE-FM provides you the flexibility to connect to multiple VPCs. You can choose the VPC ID and launch the GigaVUE Cloud Suite for AWS components in the desired VPCs.

NOTE: To configure the monitoring domain and launch the fabric components in AWS, you must be a user with **fm_super_admin** role or a user with write access to the **Physical Device Infrastructure Management** category.

To create a Monitoring Domain:

1. From the left navigation pane, click **Inventory > VIRTUAL > AWS > Monitoring Domain**.
2. On the Monitoring Domain page, click the **New** button. The Monitoring Domain Configuration page appears.

Monitoring Domain Configuration Save Cancel

Monitoring Domain*

Use V Series 2 Yes

Traffic Acquisition Method* ▾

Traffic Acquisition Tunnel MTU*

Use FM to Launch Fabric Yes ⓘ

Connections

^

+-

3. Enter or select the appropriate information as shown in the following table.

Field	Action
Monitoring Domain	An alias used to identify the monitoring domain.
Use V Series 2	Select Yes to configure GigaVUE V Series 2 node.
Traffic Acquisition Method	<p>Select a tapping method. The available options are:</p> <ul style="list-style-type: none"> G-vTAP: G-vTAP Agents are deployed on your VMs to acquire the traffic and forward the acquired traffic to the GigaVUE V Series nodes. If you select G-vTAP as the tapping method, you must configure the G-vTAP Controller to communicate to the G-vTAP Agents from GigaVUE-FM. You can also configure the G-vTAP Controller and G-vTAP Agents from your own orchestrator. Refer to Configure GigaVUE Fabric Components using AWS Orchestrator for detailed information. VPC Traffic Mirroring: If you select the VPC Traffic Mirroring option, the mirrored traffic from your workloads is directed directly to the GigaVUE V Series nodes, and you need not configure the G-vTAP Agents and G-vTAP Controllers. For more information on VPC Peering, refer to VPC peering connections in the AWS Documentation. Peering is required to send mirrored traffic from other VPCs into a centralized GigaVUE V Series deployment. You can choose to use an external load balancer for VPC Traffic Mirroring. Select Yes to use load balancer. Refer to Configure an External Load Balancer on GigaVUE Cloud Suite for AWS for detailed information. <div style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <ul style="list-style-type: none">  G-vTAP Controller configuration is not applicable for VPC Traffic Mirroring. For VPC Traffic Mirroring option, additional permissions are required. Refer to the Permissions topic for details. After deploying the Monitoring Session, a traffic mirror session is created in your AWS VPC consisting of a session, a filter, sources, and targets. For more details, refer to Traffic Mirroring in AWS Documentation. </div> <ul style="list-style-type: none"> None: If you use select None as the tapping method, you can use the tunnel as a source option in the monitoring session, where the traffic is directly tunneled to the GigaVUE V Series nodes without deploying G-vTAP Agents and G-vTAP Controllers. The user is responsible for creating this tunnel feed and pointing it to the GigaVUE V Series node(s). <div style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <p>NOTE: When using Observability Gateway (OGW) application, select the Traffic Acquisition Method as None.</p> </div>
Traffic Acquisition Tunnel MTU	<p>The Maximum Transmission Unit (MTU) is the maximum size of each packet that the tunnel endpoint can carry from the G-vTAP Agent to the GigaVUE V Series node. The default value is 8951. The G-vTAP Agent tunnel MTU should be 50 bytes less than the agent's destination interface MTU size.</p>
Use FM to	Select Yes to Configure GigaVUE Fabric Components in GigaVUE-FM or select No to

Field	Action										
Launch Fabric	Configure GigaVUE Fabric Components in AWS.										
Connections Connections <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <div style="text-align: right; margin-bottom: 10px;">▼</div> <p>Name* <input type="text" value="Enter a connection name"/></p> <p>Credential* <input type="text" value="Credential Name..."/> ▼</p> <p>Region* <input type="text" value="Region Name..."/> ▼</p> <p>Accounts* <input type="text" value="Select Accounts..."/> ▼</p> <p>VPCs* <input type="text" value="Select VPCs..."/> ▼</p> </div> <div style="background-color: #e6f2ff; padding: 5px; margin-top: 10px;"> NOTE: You can add multiple connections in a monitoring domain. Refer to Create AWS Credentials for more information on adding multiple AWS Basic Credentials. </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 20%;">Name</td> <td>An alias used to identify the connection.</td> </tr> <tr> <td>Credential</td> <td>Select an AWS credential. For detailed information, refer to Create AWS Credentials.</td> </tr> <tr> <td>Region</td> <td>AWS region for the monitoring domain. For example, US West.</td> </tr> <tr> <td>Accounts</td> <td>Select the AWS accounts</td> </tr> <tr> <td>VPCs</td> <td>Select the VPCs to monitor</td> </tr> </table>		Name	An alias used to identify the connection.	Credential	Select an AWS credential. For detailed information, refer to Create AWS Credentials .	Region	AWS region for the monitoring domain. For example, US West.	Accounts	Select the AWS accounts	VPCs	Select the VPCs to monitor
Name	An alias used to identify the connection.										
Credential	Select an AWS credential. For detailed information, refer to Create AWS Credentials .										
Region	AWS region for the monitoring domain. For example, US West.										
Accounts	Select the AWS accounts										
VPCs	Select the VPCs to monitor										

- Click **Save**. The **AWS Fabric Launch Configuration** page appears.

Configure GigaVUE Fabric Components in GigaVUE-FM

After configuring the Monitoring Domain, you will be navigated to the AWS Fabric Launch Configuration page.

In the same **AWS Fabric Launch Configuration** page, you can configure the following fabric components:

- [Configure G-vTAP Controller](#)
- [Configure GigaVUE V Series Proxy](#)
- [Configure GigaVUE V Series Node](#)

In the **AWS Fabric Launch Configuration** page, enter or select the required information as described in the following table.

AWS Fabric Launch Configuration
Save
Cancel

Centralized VPC	<input type="text" value="vpc-1234567890123456789012345678901234567890"/> v
EBS Volume Type	<input type="text" value="gp2 (General Purpose SSD)"/> v
Enable Encryption	<input checked="" type="checkbox"/> Yes
KMS Key	<input type="text" value="arn:aws:kms:us-east-1:123456789012:key/12345678-9012-3456-7890-123456789012"/> v
SSH Key Pair	<input type="text" value="Functional TestKey"/> v
Management Subnet	<input type="text" value="subnet-1234567890123456789012345678901234567890 (region)"/> v
Security Groups	<input type="text" value="sg-1234567890123456789012345678901234567890"/> v

Fields	Description
Centralized VPC	Alias of the centralized VPC in which the G-VTAP Controllers, V Series Proxies and the GigaVUE V Series Nodes are launched.
EBS Volume Type	The Elastic Block Store (EBS) volume that you can attach to the fabric components. The available options are: <ul style="list-style-type: none"> ▪ gp2 (General Purpose SSD) ▪ io1 (Provisioned IOPS SSD) ▪ Standard (Magnetic)
Enable Encryption	Select Yes to enable encryption or select No to disable encryption. On selecting Yes to enable encryption, a KMS Key field appears. Enter the KMS key for the encryption.
SSH Key Pair	The SSH key pair for the GigaVUE fabric nodes. For more information on Key Pairs, refer to Key Pair .
Management Subnet	The subnet that is used for communication between the controllers and the nodes, as well as to communicate with GigaVUE-FM. This is a required field.
Security Groups	The security group created for the GigaVUE fabric nodes. For more information on security groups, refer to Security Group

Configure G-vTAP Controller

A G-vTAP Controller manages multiple G-vTAP Agents and orchestrates the flow of mirrored traffic to GigaVUE V Series Nodes. While configuring the G-vTAP Controllers, you can also specify the tunnel type to be used for carrying the mirrored traffic from the G-vTAP Agents to the GigaVUE V Series Nodes.



- G-vTAP Controller configuration is not applicable for VPC Traffic Mirroring selected as the traffic acquisition method.
- A G-vTAP Controller can only manage G-vTAP Agents of the same version.

Select **Yes** for the Configure a G-vTAP Controller field.

G-vTAP Controller

Controller Versions

Add

Version

1.8-6

| v

x

Instance Type

t2.micro

| v

Number of Instances

1

Agent Tunnel Type

VXLAN

| v

IP Address Type

Private
 Public
 Elastic

Additional Subnets

Add Subnet

Tags

Add

Enter or select the required information in the G-vTAP Controller section as described in the following table.

Fields	Description
Controller Version	<p>The G-vTAP Controller version. If there are multiple versions of G-vTAP Agents deployed in the EC2 instances, then you must configure multiple versions of G-vTAP Controllers that matches the version numbers of the G-vTAP Agents.</p> <p>NOTE: If there is a version mismatch between G-vTAP controllers and G-vTAP Agents, GigaVUE-FM cannot detect the agents in the instances.</p> <p>Click Add to add multiple versions of G-vTAP Controllers: Under Controller Versions, click Add.</p> <ol style="list-style-type: none"> From the Version drop-down list, select a G-vTAP Controller image that matches with the version number of G-vTAP Agents installed in the instances. From the Instance Type drop-down list, select a size for the G-vTAP Controller. In Number of Instances, specify the number of G-vTAP Controllers to launch. The minimum number you can specify is 1.
Agent Tunnel Type	<p>The type of tunnel used for sending the traffic from G-vTAP Agents to GigaVUE V Series Nodes. The options are GRE or VXLAN tunnels. If any Windows agents co-exist with Linux agents, VXLAN must be selected.</p>
IP Address Type	<p>The IP address type. Select one of the following:</p> <ul style="list-style-type: none"> Select Private if you want to assign an IP address that is not reachable over Internet. You can use private IP address for communication between the G-vTAP Controller and GigaVUE-FM. Select Public if you want the IP address to be assigned from Amazon's pool of public IP address. The public IP address gets changed every time the instance is stopped and restarted. Select Elastic if you want a static public IP address for your instance. Ensure to have the available elastic IP address in your VPC. <p>NOTE: The elastic IP address does not change when you stop or start the instance.</p>
Additional Subnet(s)	<p>(Optional) If there are G-vTAP Agents on subnets that are not IP routable from the management subnet, additional subnets must be specified so that the G-vTAP Controller can communicate with all the G-vTAP Agents.</p> <p>Click Add to specify additional subnets, if needed. Also, make sure that you specify a list of security groups for each additional subnet.</p>
Tag(s)	<p>(Optional) The key name and value that helps to identify the G-vTAP Controller instances in your AWS environment. For example, you might have G-vTAP Controllers deployed in a VPC. To identify the G-vTAP Controllers you can provide a name that is easy to identify such as us-west-2-gvtap-controllers.</p> <p>To add a tag,</p> <ol style="list-style-type: none"> Click Add tag. In the Key field, enter the key. For example, enter Name. In the Value field, enter the key value. For example, us-west-2-gvtap-controllers.

Configure GigaVUE V Series Proxy

Select **Yes** for the Configure a GigaVUE V Series Proxy field. GigaVUE V Series Proxy is optional for the GigaVUE Cloud Suite for AWS.

Enter or select the appropriate information as described in the following table for GigaVUE V Series Proxy Configuration.

Fields	Description
Version	GigaVUE V Series Proxy version.
Instance Type	Instance type for the GigaVUE V Series Proxy. The recommended minimum instance type is t2.micro. You can review and modify the number of instances for the nitro-based instance types in the Configure AWS Settings page.
Number of Instances	Number of GigaVUE V Series Proxy to deploy in the monitoring domain.
Set Management Subnet	Use the toggle button to select a management subnet. <ul style="list-style-type: none"> • Yes to use the management subnet that you selected previously. • No to use another management subnet.
Set Security Groups	Toggle option to Yes to set the security group that is created for the GigaVUE V Series Proxy. Refer to Security Group for more details.
IP Address Type	Select one of the following IP address types: <ul style="list-style-type: none"> ▪ Select Private if you want to assign an IP address that is not reachable over Internet. You can use private IP address for communication between the GigaVUE V Series Proxy and GigaVUE-FM instances in the same network. ▪ Select Public if you want the IP address to be assigned from Amazon's pool of public IP address. The public IP address gets changed every time the instance is stopped and restarted. ▪ Select Elastic if you want a static IP address for your instance. Ensure to have the available elastic IP address in your VPC. <p>The elastic IP address does not change when you stop or start the instance.</p>
Additional Subnets	(Optional) If there are GigaVUE V Series Nodes on subnets that are not IP routable from the management subnet, additional subnets must be specified so that the GigaVUE V Series Proxy can communicate with all the GigaVUE V Series Nodes. Click Add to specify additional subnets, if needed. Also, make sure that you specify a list of security groups for each additional subnet.
Tags	(Optional) The key name and value that helps to identify the GigaVUE V Series Proxy instances in your AWS environment.

Configure GigaVUE V Series Node

V Series Node

Version	gigamon-gigavue-vseries-node-2.7.0-342361
Instance Type	t3a.xlarge
Volume Size (GB)	8
IP Address Type	<input checked="" type="radio"/> Private <input type="radio"/> Elastic
Min Number of Instances	1
Max Number of Instances	1
Data Subnets	<div style="border: 1px solid #ccc; padding: 5px;"> <p style="text-align: center;">Add Subnet</p> <p>Tool Subnet <input checked="" type="checkbox"/> Tool Subnet ⓘ</p> <p>Subnet 1 dataout</p> <p>Security Groups test_sg x</p> </div>
Tags	Add

Enter or select appropriate information as described in the following table for GigaVUE V Series Node Configuration.

Fields	Description
Version	GigaVUE V Series Node version.
Instance Type	<p>The instance type for the GigaVUE V Series Node. The default instance type is nitro-based t3a.xlarge. The recommended instance type is c5n.xlarge for 4 vCPU and c5n.2xlarge for 8vcpu.</p> <p>You can review and modify the number of instances for the nitro-based instance types in the Configure AWS Settings page.</p>
Volume Size	<p>The size of the storage disk. The default volume size is 8. The recommended volume size is 80.</p> <div style="border: 1px solid #ccc; padding: 5px; background-color: #e6f2ff;"> <p>NOTE: When using Observability Gateway application, the minimum recommended Volume Size is 80GB.</p> </div>
IP Address Type	<p>Select one of the following IP address types:</p> <ul style="list-style-type: none"> Select Private if you want to assign an IP address that is not reachable over Internet. You can use private IP address for communication between the GigaVUE V Series Controller and GigaVUE-FM instances in the same network. Select Elastic if you want a static IP address for your instance. Ensure to have the available elastic IP address in your VPC. <p>The elastic IP address does not change when you stop or start the instance.</p>

Fields	Description
Min Number of Instances	<p>The minimum number of GigaVUE V Series Nodes that must be deployed in the monitoring domain.</p> <p>The minimum number of instances must be 1. When 0 is entered, no GigaVUE V Series Node is launched.</p> <p>NOTE: If the minimum number of instances is set as '0', then the nodes will be launched when a monitoring session is deployed if GigaVUE-FM discovers some targets to monitor.</p>
Max Number of Instances	The maximum number of GigaVUE V Series Nodes that can be deployed in the monitoring domain.
Data Subnets	<p>The subnet that receives the mirrored GRE or VXLAN tunnel traffic from the G-vTAP Agents.</p> <p>NOTE: Using the Tool Subnet checkbox you can indicate the subnets to be used by the GigaVUE V Series to egress the aggregated/manipulated traffic to the tools.</p>
Tags	<p>(Optional) The key name and value that helps to identify the GigaVUE V Series Node instances in your AWS environment. For example, you might have GigaVUE V Series Node deployed in many regions. To distinguish these GigaVUE V Series Node based on the regions, you can provide a name that is easy to identify such as us-west-2-vseries. To add a tag:</p> <ol style="list-style-type: none"> Click Add tag. In the Key field, enter the key. For example, enter Name. In the Value field, enter the key value. For example, us-west-2-vseries.

Click **Save** to save the AWS Fabric Launch Configuration.

To view the fabric launch configuration specification of a fabric node, click on a fabric node or proxy, and a quick view of the Fabric Launch Configuration appears on the Monitoring Domain page.

To view the G-vTAP Agents of the selected monitoring domain, click on the **G-vTAP Agents** button. The G-vTAP Agents page appears. The IP address, Registration time, and Status of the G-vTAP Agents are displayed on this page.

Monitoring Domain	Connection	Name	Management IP	Type	Version	Status
<input checked="" type="checkbox"/> md1	conn1					Connected
		Gigamon-G-vTapControll...	10.210.221.131	G-vTap Controller	1.8	Ok
		Gigamon-VSeriesNode-1	10.210.221.77	V Series Node	2.3.0	Ok

Configure GigaVUE Fabric Components in AWS

You can use your own AWS orchestration system to deploy GigaVUE fabric nodes and use GigaVUE-FM to configure the advanced features supported by these nodes. These nodes register themselves with GigaVUE-FM using the information provided by your AWS orchestration system. Once the nodes are registered with GigaVUE-FM, you can configure monitoring sessions and related services in GigaVUE-FM. Health status of the registered nodes are determined by the heartbeat messages sent from the respective nodes.

NOTE: Deployment of GigaVUE fabric components through a third-party orchestrator is supported on Linux and Windows platforms. Refer to [Linux G-vTAP Agent Installation](#) and [Windows G-vTAP Agent Installation](#) for detailed information.

In your AWS EC2, you can configure the following GigaVUE fabric components:

- [Configure GigaVUE V Series Nodes and V Series Proxy in AWS](#)
- [Configure G-vTAP Controller in AWS](#)
- [Configure G-vTAP Agent in AWS](#)

Configure GigaVUE V Series Nodes and V Series Proxy in AWS

To configure GigaVUE V Series Nodes and V Series Proxy in AWS platform:

1. Before configuring GigaVUE fabric components through AWS, you must create a monitoring domain in GigaVUE-FM. Refer to [Create a Monitoring Domain](#) for detailed instructions.

NOTE: You can use AWS Orchestrator for GigaVUE fabric node configuration only using V Series 2 nodes.

- In the **Monitoring Domain Configuration** page, select **No** for the **Use FM to Launch Fabric** field as you are going to configure the fabric components in AWS Orchestrator.

The screenshot shows the 'Monitoring Domain Configuration' page in the AWS console. The page title is 'AWS > Monitoring Domain'. The configuration options are as follows:

- Use V Series 2: Yes
- Configure HTTP Proxy: No
- Monitoring Domain: Enter a monitoring domain name
- Authentication Type: EC2 Instance Role
- Region Name: Region Name...
- Account: Select Accounts...
- VPC: Select VPCs...
- Traffic Acquisition Method: G-vTAP
- Traffic Acquisition Tunnel MTU: 8951
- Use FM to Launch Fabric: No

At the bottom of the page, it says 'FM Instance: GigaVUE-FM'.

- In your AWS environment, you can deploy GigaVUE V Series Nodes or V Series proxy using the following methods:
 - Register GigaVUE V Series Nodes or Proxy using User Data
 - RegisterGigaVUE V SeriesProxy using a configuration file

NOTE: When using VPC mirroring as the traffic acquisition method, add a tag with key **GigamonNode** and value **VSeriesNode** to the V Series Node or Proxy created on the platform.

Register GigaVUE V Series Nodes or Proxy using User Data

To register GigaVUE V Series Nodes or proxy using the user data in AWS GUI:

1. On the Instances page of AWS EC2, click **Launch instances**. The Launch Instance wizard appears. For detailed information, refer to [Launch an instance using the Launch Instance Wizard](#) topic in Amazon EC2 Documentation.

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 1: Choose an Amazon Machine Image (AMI) Cancel and Exit

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.

Search for an AMI by entering a search term e.g. "Windows" X

Search by Systems Manager parameter

Quick Start 1 to 43 of 43 AMIs >>

My AMIs	Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-009f4069d04c0c5e (64-bit x86) / ami-01bcadccb2161d4aa (64-bit Arm)	Select
AWS Marketplace	<p>Amazon Linux 2 <small>Free tier eligible</small></p> <p>Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.26, Binutils 2.29.1, and the latest software packages through extras. This AMI is the successor of the Amazon Linux AMI that is approaching end of life on December 31, 2020 and has been removed from this wizard.</p> <p>Root device type: sbs Virtualization type: hvm ENA Enabled: Yes</p>	<p>64-bit (x86)</p> <p>64-bit (Arm)</p>
Community AMIs	<p>macOS Big Sur 11.2.1 - ami-08288dbd3de17f400</p> <p>The macOS Big Sur AMI is an EBS-backed, AWS-supported image. This AMI includes the AWS Command Line Interface, Command Line Tools for Xcode, Amazon SSM Agent, and Homebrew. The AWS Homebrew Tap includes the latest versions of multiple AWS packages included in the AMI.</p> <p>Root device type: sbs Virtualization type: hvm ENA Enabled: Yes</p>	Select
<input type="checkbox"/> Free tier only ⓘ	<p>macOS Catalina 10.15.7 - ami-04146445794a14a34</p> <p>The macOS Catalina AMI is an EBS-backed, AWS-supported image. This AMI includes the AWS Command Line Interface, Command Line Tools for Xcode, Amazon SSM Agent, and Homebrew. The AWS Homebrew Tap includes the latest versions of multiple AWS packages included in the AMI.</p> <p>Root device type: sbs Virtualization type: hvm ENA Enabled: Yes</p>	Select
	<p>macOS Mojave 10.14.6 - ami-08dc8cd7e42fb0b4f</p> <p>The macOS Mojave AMI is an EBS-backed, AWS-supported image. This AMI includes the AWS Command Line Interface, Command Line Tools for Xcode, Amazon SSM Agent, and Homebrew. The AWS Homebrew Tap includes the latest versions of multiple AWS packages included in the AMI.</p>	Select

2. On the **Step 3: Configure Instance Details** tab, enter the User data as text in the following format and deploy the instance. The GigaVUE V Series Nodes or V Series proxy uses this user data to generate config file (**/etc/gigamon-cloud.conf**) used to register with GigaVUE-FM.

```
#cloud-config
write_files:
- path: /etc/gigamon-cloud.conf
  owner: root:root
  permissions: '0644'
  content:
    Registration:
      groupName: <Monitoring Domain Name>
      subGroupName: <VPC Name>
      user: orchestration
      password: orchestration123A!
      remoteIP: <IP address of the GigaVUE-FM>
      remotePort: 443
```



- You can register your GigaVUE V Series directly with GigaVUE-FM or you can use V Series proxy to register your GigaVUE V Series with GigaVUE-FM. If you wish to register GigaVUE V Series directly, enter the `remotePort` value as 443 or if you wish to deploy GigaVUE V Series using V Series proxy then, enter the `remotePort` value as 8891.
- Use only the default `user` and `password` details given in the user data.
- If there is no monitoring domain in GigaVUE-FM with the same monitoring domain name and connection name as given in your user data, then GigaVUE-FM automatically creates a monitoring domain under AnyCloud and your V Series nodes or proxys gets deployed under that monitoring domain.
- In the above mentioned case, the Traffic Acquisition Tunnel MTU is set to the default value 1500. To edit the Traffic Acquisition Tunnel MTU, select the monitoring domain and click on the **Edit Monitoring Domain** option. Enter the **Traffic Acquisition Tunnel MTU** and click Save.

You can navigate to **Instances > Actions > Instance Settings > Edit user data** and edit the user data.

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances [Launch into Auto Scaling Group](#)

Purchasing option Request Spot instances

Network [Create new VPC](#)

Subnet [Create new subnet](#)

Auto-assign Public IP

Placement group Add instance to placement group

Capacity Reservation

Domain join directory [Create new directory](#)

IAM role [Create new IAM role](#)

CPU options Specify CPU options

Shutdown behavior

Stop - Hibernate behavior Enable hibernation as an additional stop behavior

Enable termination protection Protect against accidental termination

Monitoring Enable CloudWatch detailed monitoring
Additional charges apply.

Tenancy *Additional charges will apply for dedicated tenancy.*

Elastic Inference Add an Elastic Inference accelerator
Additional charges apply.

Credit specification Unlimited
Additional charges may apply

File systems [Create new file system](#)

▼ **Advanced Details**

Enclave Enable

Metadata accessible

Metadata version

Metadata token response hop limit

User data As text As file Input is already base64 encoded

```
#cloud-config
write_files:
- path: /etc/gigamon-cloud.conf
  owner: root:root
  permissions: '0644'
  content: |
```

RegisterGigaVUE V SeriesProxy using a configuration file

To registerGigaVUE V SeriesProxy using a configuration file:

1. Log in to theGigaVUE V SeriesProxy.
2. Edit the local configuration file (**/etc/gigamon-cloud.conf**) and enter the following user data.

Registration:

```
groupName: <Monitoring Domain Name>
subGroupName: <VPC Name>
user: orchestration
password: orchestration123A!
remoteIP: <IP address of the GigaVUE-FM>
remotePort: 443
```

NOTE: If you wish to registerGigaVUE V Series using V Series proxy then, enter the `remotePort` value as 8891.

3. Restart the GigaVUE V Series proxy service.
 - V Series node:
`$ sudo service vseries-node restart`
 - V Series proxy:
`$ sudo service vps stop`

The deployed GigaVUE V Series proxy registers with the GigaVUE-FM. After successful registration the GigaVUE V Series proxy sends heartbeat messages to GigaVUE-FM every 30 seconds. If one heartbeat is missing, the fabric node status appears as 'Unhealthy'. If more than five heartbeats fail to reach GigaVUE-FM, GigaVUE-FM tries to reach the GigaVUE V Series proxy and if that fails as well then GigaVUE-FM unregisters the GigaVUE V Series proxy and it will be removed from GigaVUE-FM.

Configure G-vTAP Controller in AWS

You can configure more than one G-vTAP Controller in a monitoring domain.

To configure G-vTAP Controller in AWS platform:

1. Before configuring GigaVUE fabric components through AWS, you must create a monitoring domain in GigaVUE-FM. While creating the monitoring domain, select **G-vTAP** as the Traffic Acquisition Method. Refer to [Create a Monitoring Domain](#) for detailed instructions.

NOTE: You can use AWS Orchestrator for GigaVUE fabric node configuration only using V Series 2 nodes.

2. In the **Monitoring Domain Configuration** page, select **No** for the **Use FM to Launch Fabric** field as you are going to configure the fabric components in AWS Orchestrator.

The screenshot displays the 'Monitoring Domain Configuration' interface. The configuration includes the following fields and values:

- Use V Series 2:** Yes (toggle)
- Configure HTTP Proxy:** No (toggle)
- Monitoring Domain:** Enter a monitoring domain name (text input)
- Authentication Type:** EC2 Instance Role (dropdown)
- Region Name:** Region Name... (dropdown)
- Account:** Select Accounts... (dropdown)
- VPC:** Select VPCs... (dropdown)
- Traffic Acquisition Method:** G-vTAP (dropdown)
- Traffic Acquisition Tunnel MTU:** 8951 (text input)
- Use FM to Launch Fabric:** No (toggle)

Buttons for 'Save' and 'Cancel' are located in the top right corner. The footer indicates 'FM Instance: GigaVUE-FM'.

- In your AWS environment, launch the G-vTAP Controller AMI instance using any of the following methods:
 - Register G-vTAP Controller using User Data
 - Register G-vTAP Controller using a configuration file

Register G-vTAP Controller using User Data

To register G-vTAP Controller using the user data in AWS GUI:

- On the Instances page of AWS EC2, click **Launch instances**. The Launch Instance wizard appears. For detailed information, refer to [Launch an instance using the Launch Instance Wizard](#) topic in Amazon EC2 Documentation.

The screenshot shows the 'Step 1: Choose an Amazon Machine Image (AMI)' wizard in the AWS Management Console. The breadcrumb trail at the top indicates the steps: 1. Choose AMI, 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage, 5. Add Tags, 6. Configure Security Group, 7. Review. The main heading is 'Step 1: Choose an Amazon Machine Image (AMI)'. Below the heading is a search bar and a list of AMIs. The 'Amazon Linux 2 AMI (HVM, SSD Volume Type)' is selected, and a 'Free tier eligible' badge is visible. The 'macOS Big Sur 11.2.1', 'macOS Catalina 10.15.7', and 'macOS Mojave 10.14.6' are also listed. The 'Select' button is highlighted for the Amazon Linux 2 AMI.

- b. On the **Step 3: Configure Instance Details** tab, enter the User data as text in the following format and deploy the instance. The G-vTAP Controller uses this user data to generate config file (`/etc/gigamon-cloud.conf`) used to register with GigaVUE-FM.

```
#cloud-config
write_files:
- path: /etc/gigamon-cloud.conf
  owner: root:root
  permissions: '0644'
  content:
    Registration:
      groupName: <Monitoring Domain Name>
      subGroupName: <VPC Name>
      user: orchestration
      password: orchestration123A!
      remoteIP: <IP address of the GigaVUE-FM>
      remotePort: 443
```



- Use only the default `user` and `password` details given in the user data.
- If there is no monitoring domain in GigaVUE-FM with the same monitoring domain name and connection name as given in your user data, then GigaVUE-FM automatically creates a monitoring domain under AnyCloud and your V Series nodes or proxys gets deployed under that monitoring domain.
- In the above mentioned case, the Traffic Acquisition Tunnel MTU is set to the default value 1500. To edit the Traffic Acquisition Tunnel MTU, select the monitoring domain and click on the **Edit Monitoring Domain** option. Enter the **Traffic Acquisition Tunnel MTU** and click Save.

You can navigate to **Instances > Actions > Instance Settings > Edit user data** and edit the user data.

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances [Launch into Auto Scaling Group](#)

Purchasing option Request Spot instances

Network [Create new VPC](#)

Subnet [Create new subnet](#)

Auto-assign Public IP

Placement group Add instance to placement group

Capacity Reservation

Domain join directory [Create new directory](#)

IAM role [Create new IAM role](#)

CPU options Specify CPU options

Shutdown behavior

Stop - Hibernate behavior Enable hibernation as an additional stop behavior

Enable termination protection Protect against accidental termination

Monitoring Enable CloudWatch detailed monitoring
[Additional charges apply.](#)

Tenancy [Additional charges will apply for dedicated tenancy.](#)

Elastic Inference Add an Elastic Inference accelerator
[Additional charges apply.](#)

Credit specification Unlimited
[Additional charges may apply](#)

File systems [Create new file system](#)

▼ **Advanced Details**

Enclave Enable

Metadata accessible

Metadata version

Metadata token response hop limit

User data As text As file Input is already base64 encoded

```
#cloud-config
write_files:
- path: /etc/gigamon/cloud.conf
  owner: root:root
  permissions: '0644'
  content: |
```

The G-vTAP Controller deployed in AWS EC2 appears on the Monitoring Domain page of GigaVUE-FM.

Monitoring Domain	Connection	Fabric	Management IP	Fabric Version	Status
MD1					
	pubtraj-vpc				Connected
		G-vTapController	34.219.250.141	1.7-304	Ok
		Gigamon-VSeriesProxy-1	34.211.211.49	2.1.0	Ok
		Gigamon-VSeriesNode-1	172.30.24.188	2.2.0	Ok

Register G-vTAP Controller using a configuration file

To register G-vTAP Controller using a configuration file:

- a. Log in to the G-vTAP Controller.
- b. Edit the local configuration file (**/etc/gigamon-cloud.conf**) and enter the following user data.

Registration:

```
groupName: <Monitoring Domain Name>
subGroupName: <VPC Name>
user: orchestration
password: orchestration123A!
remoteIP: <IP address of the GigaVUE-FM>
remotePort: 443
```

- c. Restart the G-vTAP Controller service.

```
$ sudo service gvtap-cntlr restart
```

The deployed G-vTAP Controller registers with the GigaVUE-FM. After successful registration the G-vTAP Controller sends heartbeat messages to GigaVUE-FM every 30 seconds. If one heartbeat is missing, the fabric node status appears as 'Unhealthy'. If more than five heartbeats fail to reach GigaVUE-FM, GigaVUE-FM tries to reach the G-vTAP Controller and if that fails as well then GigaVUE-FM unregisters the G-vTAP Controller and it will be removed from GigaVUE-FM.

NOTE: When you deploy GigaVUE V Series Nodes or G-vTAP Controllers using 3rd party orchestration, you cannot delete the monitoring domain without unregistering the GigaVUE V Series Nodes or G-vTAP Controllers.

Configure G-vTAP Agent in AWS

G-vTAP Agent should be registered via the registered G-vTAP Controller and communicates through PORT 8891.

Deployment of G-vTAP Agents through third-party orchestrator is supported on Linux and Windows platforms.

To register G-vTAP Agent using a configuration file:

1. Install the G-vTAP Agent in the Linux or Windows platform. For detailed instructions, refer to [Linux G-vTAP Agent Installation](#) and [Windows G-vTAP Agent Installation](#).
2. Log in to the G-vTAP Agent.

3. Edit the local configuration file and enter the following user data.



- **/etc/gigamon-cloud.conf** is the local configuration file in Linux platform.
- **C:\ProgramData\gvtap-agent\gigamon-cloud.conf** is the local configuration file in Windows platform.

Registration:

```

groupName: <Monitoring Domain Name>
subGroupName: <Connection Name>
user: orchestration
password: orchestration123A!
remoteIP: <IP address of the G-vTAP Controller 1>,
          <IP address of the G-vTAP Controller 2>
remotePort: 8891

```

NOTE: Use only the default `user` and `password` details given in the user data.

4. Restart the G-vTAP Agent service.
 - Linux platform:


```
$ sudo service gvtap-agent restart
```
 - Windows platform: Restart from the Task Manager.

NOTE: You can configure more than one G-vTAP Controller for a G-vTAP Agent, so that if one G-vTAP Controller goes down, the G-vTAP Agent registration will happen through another Controller that is active.

The deployed G-vTAP Agent registers with the GigaVUE-FM through the G-vTAP Controller. After successful registration the G-vTAP Agent sends heartbeat messages to GigaVUE-FM every 30 seconds. If one heartbeat is missing, G-vTAP Agent status appears as 'Unhealthy'. If more than five heartbeats fail to reach GigaVUE-FM, GigaVUE-FM tries to reach the G-vTAP Agent and if that fails as well then GigaVUE-FM unregisters the G-vTAP Agent and it will be removed from GigaVUE-FM.

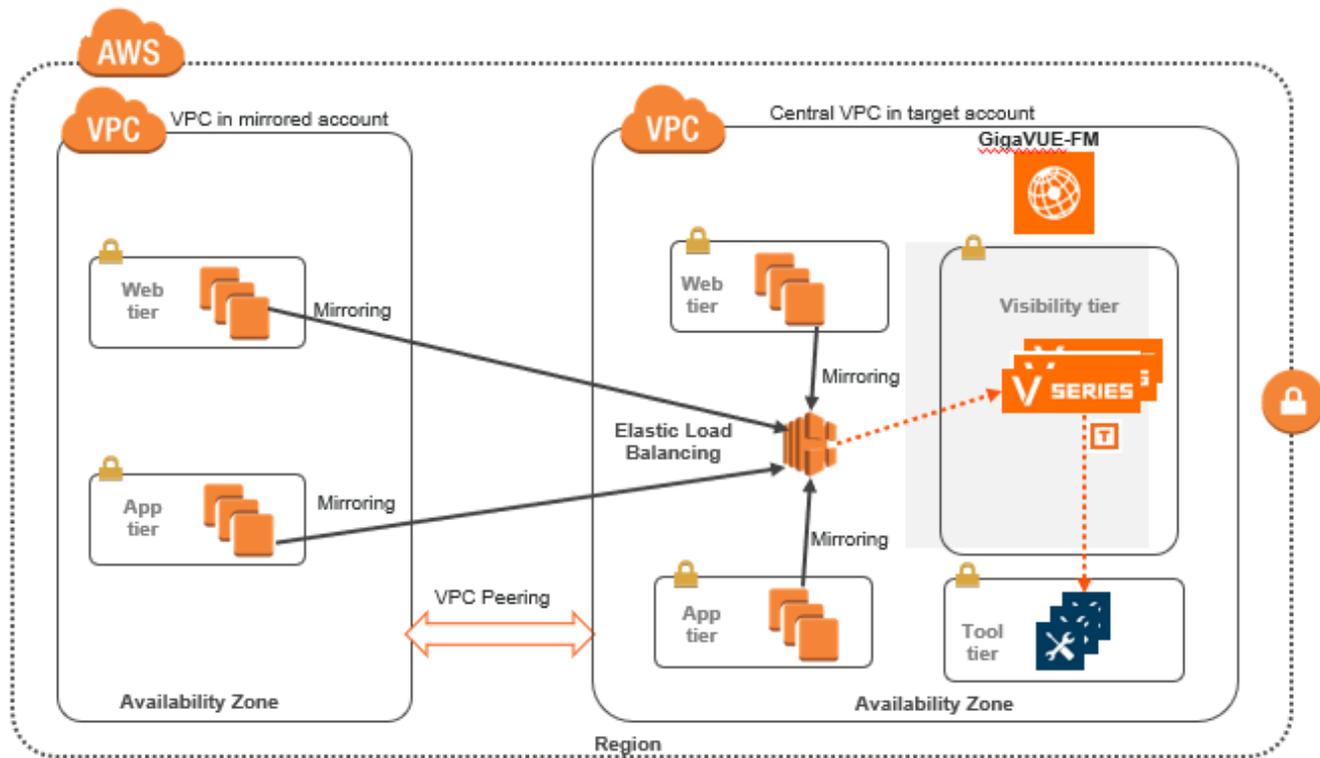
Configure an External Load Balancer on GigaVUE Cloud Suite for AWS

You can use your own load balancer to uniformly distribute the traffic from AWS target VMs to GigaVUE V Series 2 nodes. The load balancer distributes the traffic to the GigaVUE V Series 2 nodes and the GigaVUE-FM auto-scales the GigaVUE V Series Nodes based on the traffic. GigaVUE-FM creates a traffic mirror from the target VMs to the load balancer that all the targets must have the same traffic load balancer destination. Load balancer forwards the traffic to the GigaVUE V Series 2 nodes and the AWS Auto Scaling group monitors the load of all GigaVUE V Series nodes. AWS Auto Scaling group can add or remove nodes if the traffic load is heavy or low.

Refer to the following topics for detailed information.

- [Architecture](#)
- [Prerequisites](#)
- [Configure an External Load Balancer in AWS](#)
- [Deploy GigaVUE V Series Solution with Elastic Load Balancing](#)

Architecture



The design depicts deploying GigaVUE Cloud Suite fabric components in a centralized VPC where the target VMs of multiple AWS accounts are deployed behind an external AWS network load balancer. GigaVUE-FM creates VPC mirroring on the target VMs to mirror and forward the traffic to the load balancer. The load balancer deploys or deletes additional GigaVUE V Series 2 nodes and distributes the traffic among them to aggregate, filter, and forward the traffic to the tools over the tunnel endpoint. In AWS, the Auto Scaling group monitors the load among all the GigaVUE V Series 2 nodes and adds or removes them via RESTful API integration with the GigaVUE-FM when the traffic load crosses or drops below a pre-defined threshold.

A typical AWS deployment to support the external load balancer requires the following components:

- GigaVUE-FM (Fabric Manager)
- GigaVUE V Series 2 node
- AWS Network Load Balancer (uniformly distributes traffic from AWS target VMs to GigaVUE V Series nodes)

Prerequisites

- Create or update Security Group policies of GigaVUE Cloud Suite components. Refer to [Security Group](#) topic for detailed information.
- Create or update routes in various VPCs across participating mirrored AWS accounts so that all mirrored account VPCs can connect to the target account VPC where the AWS Network Load Balancer is deployed. Refer to [Amazon VPC](#) for more information.

NOTE: The target account VPC is considered as the centralized VPC by GigaVUE-FM and the connections towards all other mirrored account VPCs either through 1 : 1 VPC peering or via 1 : M transit gateway (that connects all participating VPCs across mirrored AWS accounts). VPC peering has no bandwidth limitation and no additional cost within the same region (recommended). Transit gateway costs more and it also has a limitation of 50 Gbps burst per VPC.

- Create or update existing IAM role for GigaVUE-FM in the centralized VPC. Additionally trust relationship needs to be created between the mirrored and the target account for GigaVUE-FM to execute the above permissions at the IAM role level. Refer to [AMI and Permissions](#) section for detailed information.

Configure an External Load Balancer in AWS

To configure an external load balancer in AWS:

1. In the **Target Groups** page, click **Create target group** and the Create target group wizard appears. Enter or select the following values and create the target group.
 - a. Select **IP addresses** as the target type.
 - b. Enter a name for the target group.
 - c. Select the **UDP** as the Protocol and **4789** as the port number.
 - d. Select the VPC of your target group where the targets are registered.
 - e. Select **TCP** as the Health check protocol in port number **8889** with **10 seconds** health check interval.

NOTE: For detailed instructions, refer to [Create a target group for your Network Load Balancer](#) topic in the AWS Elastic Load Balancing document.

2. Navigate to the **Load Balancer** page and click **Create Load Balancer** the Create elastic load balancer wizard appears. Enter or select the following values and create the load balancer.
 - a. Select **Network Load Balancer** as the load balancer type and click **Create**.
 - b. Enter a name for the Network Load Balancer.
 - c. Select **Internal** load balancer as the Scheme.
 - d. Select the **VPC** for your targets (GigaVUE V Series Nodes).
 - e. Select the regions/zones and the corresponding subnets.
 - f. Select **UDP** as the Listener Protocol with Port number **4789**.

NOTE: For detailed instructions, refer to [Create a Network Load Balancer](#) topic in the AWS Elastic Load Balancing document.

3. Navigate to the **Launch Templates** page and click **Create launch template** the Create launch template wizard appears. Enter or select the following values and create the launch template.
 - a. Enter a name for the launch template.
 - b. Select the AMI of the GigaVUE V Series node.
 - c. Select **t3a.xlarge** as the instance type.
 - d. Select a Key pair for the instance.
 - e. Select **VPC** as the Networking platform and don't specify the security group.
 - f. Add 2 Network Interfaces for the GigaVUE V Series node with device index as **0** and **1** (mgmt and data interface respectively) and for the interfaces, select the appropriate security group.

NOTE: For detailed instructions, refer to [Creating a launch template for an Auto Scaling group](#) topic in the AWS EC2 Auto Scaling document.

4. Navigate to the **Auto Scaling groups** page, and click **Create an Auto Scaling group** the Create Auto Scaling group wizard appears. Enter or select the following values and create the Auto Scaling group.
 - a. Enter a name for the Auto Scaling group.
 - b. Select an existing launch template.
 - c. Select the VPC and subnet.
 - d. In the Group size section, enter the value for minimum and maximum capacity.
 - e. In the Scaling policies section, select **Target tracking scaling policy** and choose Average network in (bytes) for the Metric type with **1000000000 (bytes)** as target value and **300** seconds warm up value.
 - f. (optional) Add **Tags** to the instances.

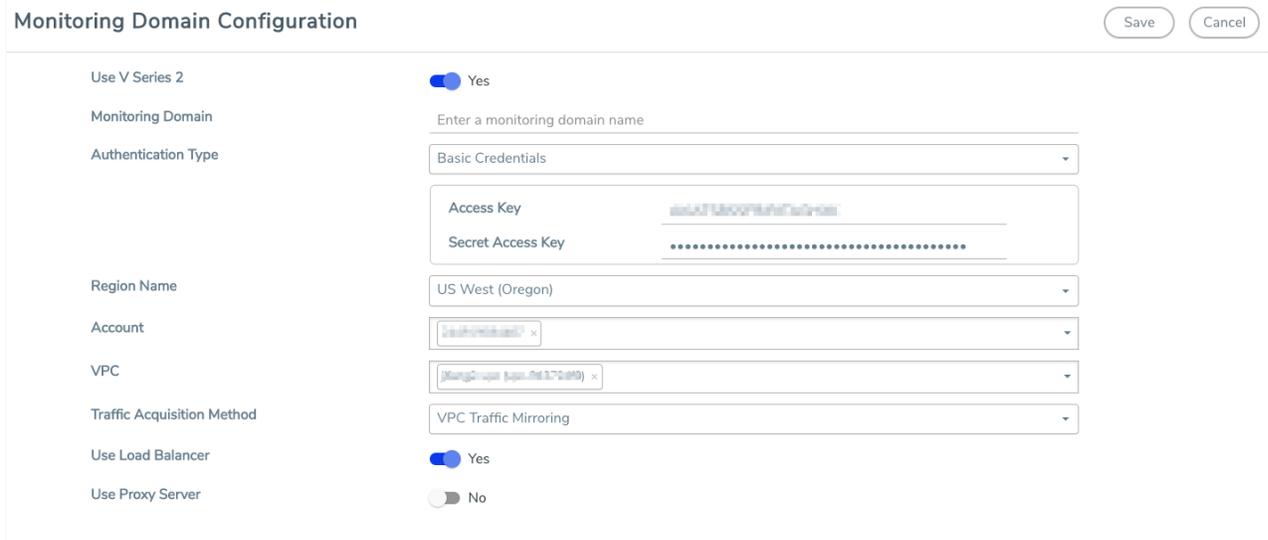
NOTE: For detailed instructions, refer to [Creating an Auto Scaling group using a launch template](#) topic in the AWS EC2 Auto Scaling document.

In the Instances page, you can view the GigaVUE V Series 2 node instance deployed by the load balancer and use the same

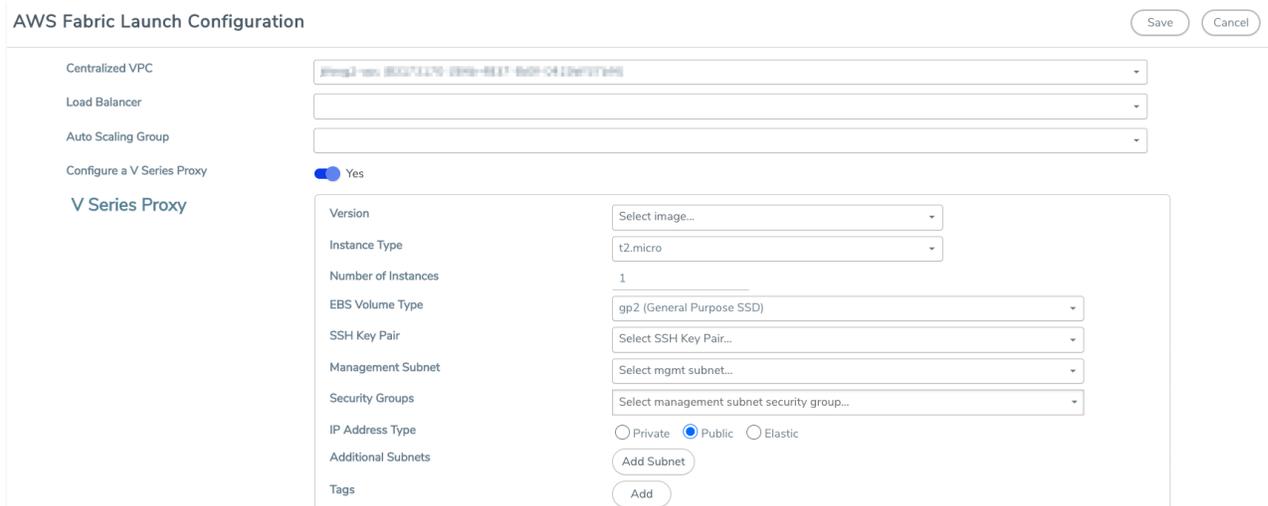
Deploy GigaVUE V Series Solution with Elastic Load Balancing

To deploy GigaVUE V Series solution across the AWS accounts with Elastic Load Balancing in GigaVUE-FM:

1. In the **Monitoring Domain Configuration** page, select **VPC Traffic Mirroring** as the Traffic Acquisition method. Refer to [Create a Monitoring Domain](#) for detailed information.



2. For the **Use Load Balancer** field, select **Yes**.
3. Click **Save** and the AWS Fabric Launch Configuration page appears.



4. In the AWS Fabric Launch Configuration page, select the following for the load balancer.
 - Select the Load Balancer configured in AWS
 - Select the Auto Scaling Group configured in AWS

For the remaining field description, refer to [Configure GigaVUE Fabric Components in GigaVUE-FM](#).

5. Click **Save** to save the configuration.

Upgrade GigaVUE fabrics in GigaVUE-FM

This chapter describes how to upgrade GigaVUE V Series Proxy and GigaVUE V Series Nodes. For more detailed information about G-vTAP Controller, GigaVUE V Series Proxy and Node Version refer [GigaVUE-FM Version Compatibility Matrix](#).

Refer to the following topic for more information:

- [Prerequisite](#)
- [Upgrade G-vTAP Controller](#)
- [Upgrade GigaVUE V Series Nodes and GigaVUE V Series Proxy](#)

Prerequisite

Before you upgrade the GigaVUE V Series Proxy and GigaVUE V Series Nodes, you must upgrade GigaVUE-FM to software version 5.13 or above.

Upgrade G-vTAP Controller

NOTE: G-vTAP Controllers cannot be upgraded. Only a new version that is compatible with the G-vTAP Agent's version can be added or removed in the **AWS Fabric Launch Configuration** page.

To change the G-vTAP Controller version follow the steps given below:

To change G-vTAP Controller version between different major versions

NOTE: You can only add G-vTAP Controllers which has different major versions. For example, you can only add G-vTAP Controller version 1.8-x if your existing version is 1.7-x.

- a. Under **Controller Versions**, click **Add**.
- b. From the **Version** drop-down list, select a G-vTAP Controller image that matches with the version number of G-vTAP Agents installed in the instances.
- c. From the **Instance Type** drop-down list, select a size for the G-vTAP Controller.

- d. In **Number of Instances**, specify the number of G-vTAP Controllers to launch. The minimum number you can specify is 1.

You cannot change the IP Address Type and the Additional Subnets details, provided at the time of G-vTAP Controller configuration.

After installing the new version of G-vTAP Controller, follow the steps given below:

1. Install G-vTAP Agent with the version same as the G-vTAP Controller.
2. Delete the G-vTAP Controller with older version.

To change G-vTAP Controller version with in the same major version

This is only applicable if you wish to change your G-vTAP Controller version from one minor version to another within the same major version. For example, from 1.8-2 to 1.8-3.

- a. From the **Version** drop-down list, select a G-vTAP Controller image with in the same major version.
- b. Specify the **Number of Instances**. The minimum number you can specify is 1.
- c. Select the **Subnet** from the drop-down.



- You cannot modify the rest of the fields.
- After installing the new version of G-vTAP Controller, install the G-vTAP Agent with the same version.

Upgrade GigaVUE V Series Nodes and GigaVUE V Series Proxy

GigaVUE-FM lets you upgrade GigaVUE V Series Proxy and GigaVUE V Series Nodes at a time.

There are two ways to upgrade the GigaVUE V Series Proxy and Nodes. You can:

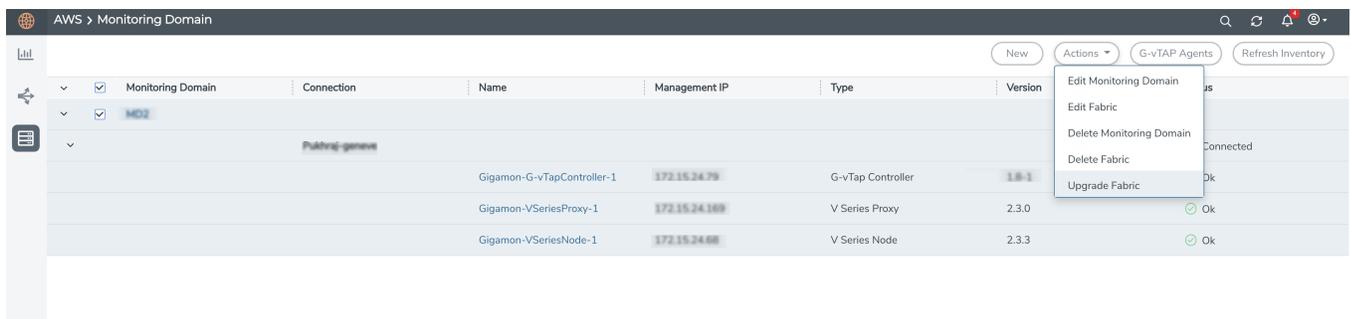
- Launch and replace the complete set of nodes and proxy at a time.
For example, if you have 1 GigaVUE V Series Proxy and 10 GigaVUE V Series Nodes in your VPC, you can upgrade all of them at once. First, the new version of GigaVUE V Series Proxy is launched. Next, the new version of GigaVUE V Series Nodes are launched. Then, the old version of V Series Proxy and Nodes are deleted from the VPC.

NOTES:

- When the new version of nodes and proxy are launched, the old version is not deleted by GigaVUE-FM until the new version of node and proxy is launched and the status is changed to **Ok**. Make sure that the instance type of the node and proxy selected during the configuration can accommodate the total number of new and old fabric nodes present in the VPC. If the instance type cannot support so many Virtual Machines, you can choose to upgrade the fabric nodes in multiple batches.
- If there is an error while upgrading the complete set of proxy and nodes present in the VPC, the new version of the fabric is immediately deleted and the old version of the fabric is retained as before.
- Prior to upgrading the GigaVUE V Series Proxy and Nodes, you must ensure that the required number of free addresses are available in the respective subnets. Otherwise, the upgrade will fail.
- Launch and replace the nodes and proxy in multiple batches.
For example, if there are 18 GigaVUE V Series Nodes to be upgraded, you can specify how many you want to upgrade per batch.

To upgrade the GigaVUE V Series Proxy and GigaVUE V Series Nodes:

1. From the left navigation pane, select **Inventory > VIRTUAL > AWS > Monitoring Domain**. The Monitoring Domain page appears.
2. On the Monitoring Domain page, select the connection name check box and click **Actions**



3. Select **Upgrade Fabric** from the drop-down list. The Fabric Nodes Upgrade page is displayed.

Fabric Nodes Upgrade

V Series Proxy

Upgrade	<input checked="" type="checkbox"/>
Current Version	2.3.0
Image	<div style="border: 1px solid #ccc; border-radius: 5px; padding: 2px; display: inline-block;">Select an image... ▾</div>
Change Instance Type	<input type="checkbox"/>
Batch Size	<input style="width: 50px;" type="text" value="1"/>

V Series Node

Upgrade	<input checked="" type="checkbox"/>
Current Version	2.3.3
Image	<div style="border: 1px solid #ccc; border-radius: 5px; padding: 2px; display: inline-block;">Select an image... ▾</div>
Change Instance Type	<input type="checkbox"/>
Batch Size	<input style="width: 50px;" type="text" value="1"/>

4. To upgrade the GigaVUE V Series Nodes/Proxy, select the **Upgrade** checkbox.
5. From the **Image** drop-down list, select the latest version of the GigaVUE V Series Proxy/Nodes.
6. Select the **Change Instance Type** checkbox to change the instance type of the nodes/proxy, only if required.
7. To upgrade the GigaVUE V Series Nodes/Proxy, specify the batch size in the **Batch Size** box.

For example, if there are 7 GigaVUE V Series Nodes, you can specify 7 as the batch size and upgrade all of them at once. Alternatively, you can specify 3 as the batch size, and launch and replace 3 V Series Nodes in each batch. In the last batch, the remaining 1 V Series Node is launched.

8. Click **Upgrade**.

The upgrade process takes a while depending on the number of GigaVUE V Series Proxy and Nodes upgrading in your AWS environment. First, the new version of the GigaVUE V Series Proxy is launched. Next, the new version of GigaVUE V Series Nodes is launched. Then, the older version of both is deleted from the project. In the V Series Proxy page, click the link under Progress to view the upgrade status.

Once the nodes are upgraded successfully, the monitoring session is re-deployed automatically.

Configure Monitoring Session

This chapter describes how to setup ingress and egress tunnel, maps, applications in a monitoring session to receive and send traffic to the GigaVUE Cloud Suite V Series node. It also describes how to filter, manipulate, and send the traffic from the V Series node to monitoring tools.

Refer to the following sections for details:

- [Create a Monitoring Session](#)
- [Create a New Map](#)
- [Create Ingress and Egress Tunnels](#)
- [Add Applications to Monitoring Session](#)
- [Deploy Monitoring Session](#)
- [View Monitoring Session Statistics](#)
- [Visualize the Network Topology](#)

Create a Monitoring Session

Create Ingress and Egress Tunnels

Traffic from the GigaVUE V Series is distributed to tunnel endpoints in a monitoring session. A tunnel endpoint can be created using a standard L2GRE, VXLAN, or ERSPAN tunnel.

NOTE: ERSPAN is not supported for AWS solution.

To create a new tunnel endpoint:

1. After creating a new monitoring session, or click **Edit** on an existing monitoring session, the GigaVUE-FM canvas appears.
2. In the canvas, select **New > New Tunnel**, drag and drop a new tunnel template to the workspace. The **Add Tunnel Spec** quick view appears.

X **Add Tunnel Spec** Save Add To Library

Alias	Alias *
Description	Description (optional)
Type	<div style="border: 1px solid #ccc; padding: 2px;"><div style="background-color: #f0f0f0; padding: 2px;">Select a type... ▾</div><div style="padding: 2px;">Select a type...</div><div style="padding: 2px; background-color: #007bff; color: white;">L2GRE</div><div style="padding: 2px;">VXLAN</div></div>

3. On the New Tunnel quick view, enter or select the required information as described in the following table.

Field	Description
Alias	The name of the tunnel endpoint. NOTE: Do not enter spaces in the alias name.
Description	The description of the tunnel endpoint.
Type	The type of the tunnel. Select ERSPAN, or L2GRE, or VXLAN to create a tunnel.
Traffic Direction	The direction of the traffic flowing through the V Series node. <ul style="list-style-type: none"> Choose In (Decapsulation) for creating an Ingress tunnel, traffic from the source to the V Series node. Enter values for the Key. Choose Out (Encapsulation) for creating an Egress tunnel from the V Series node to the destination endpoint. Select or enter values for MTU, Time to Live, DSCP, PREC, Flow Label, and Key. <ul style="list-style-type: none"> ERSPAN, L2GRE, and VXLAN are the supported Ingress tunnel types. You can configure Tunnel Endpoint as your first level entity in Monitoring Session. L2GRE and VXLAN are the supported Egress tunnel types.
IP Version	The version of the Internet Protocol. Select IPv4 or IPv6.
Remote Tunnel IP	For Ingress tunnel, Remote Tunnel IP is the IP address of the tunnel source. For Egress tunnel, Remote Tunnel IP is the IP address of the tunnel destination endpoint.

4. Click **Save**.

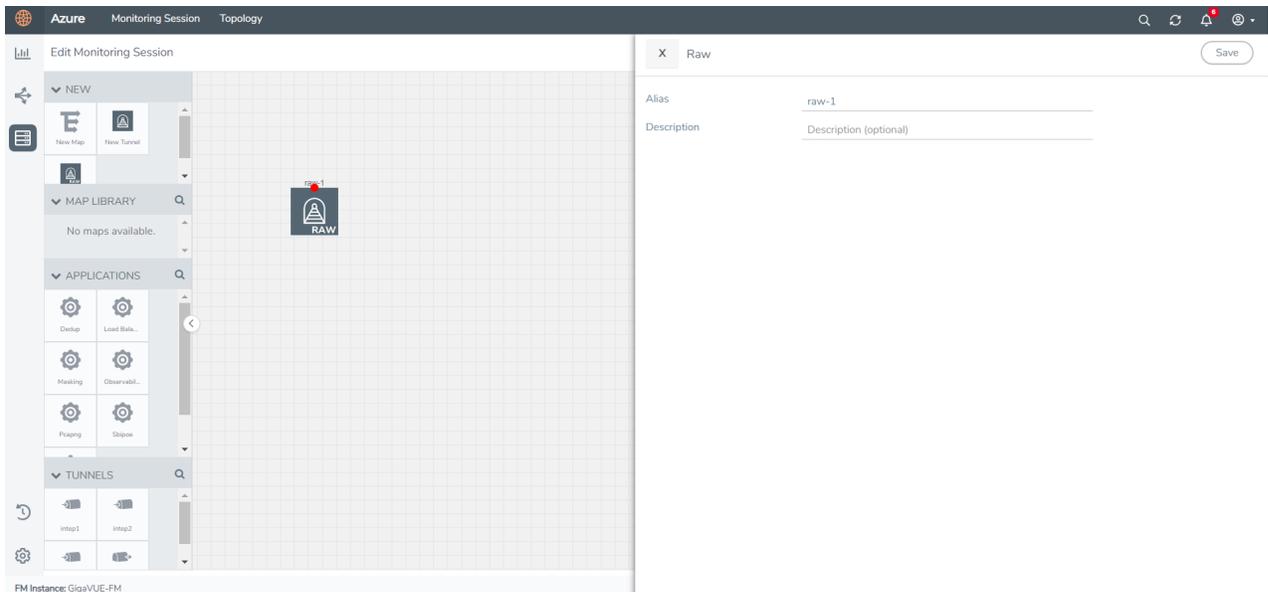
To delete a tunnel, select the required tunnel and click **Delete**.

Create Raw Endpoint

Raw End Point (REP) is used to pass traffic from an interface. You can optionally use this endpoint to send traffic to the applications deployed in the monitoring session.

To add Raw Endpoint to the monitoring session:

1. Drag and drop **New RAW** from **NEW** to the graphical workspace.
2. Click the **New RAW** icon and select **Details**. The **RAW** quick view page appears.
3. Enter the alias and description. In the **Alias** field, enter a name for the Raw End Point and click **Save**.



4. To deploy the monitoring session after adding the Raw Endpoint click the **Deploy** button in the edit monitoring session page.
5. The **Select nodes to deploy the Monitoring Session** dialog box appears. Select the V Series Nodes for which you wish to deploy the monitoring session.
6. After selecting the V Series Node, select the interfaces for each of the REPs and the TEPs deployed in the monitoring session from the drop-down menu for the selected individual V Series Nodes. Then, click **Deploy**.

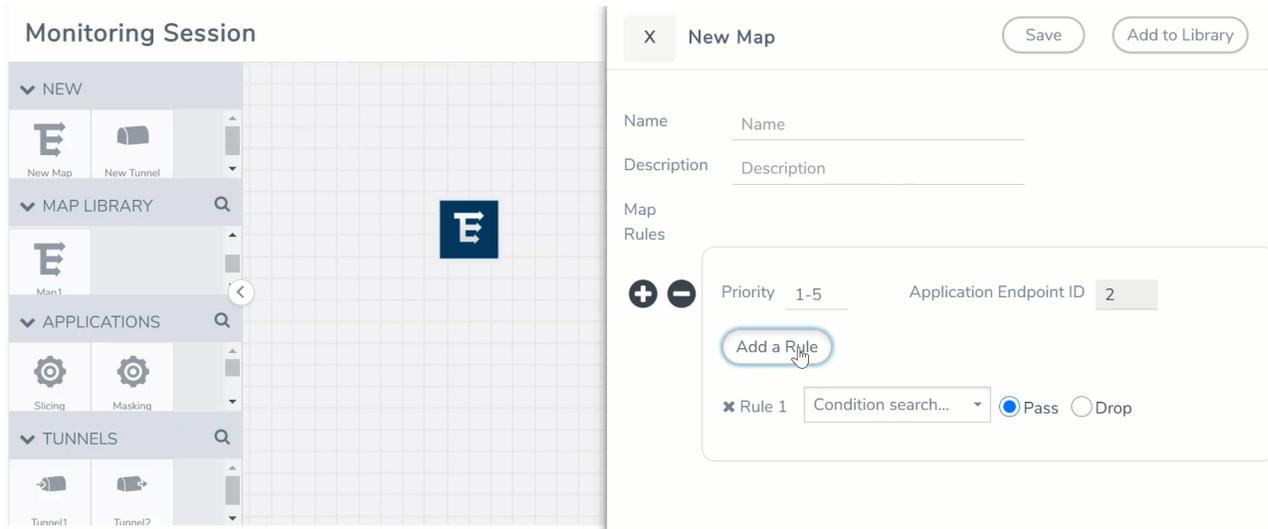
Create a New Map

You must have the flow map license to deploy a map in monitoring session.

For new users, the free trial bundle will expire after 30 days and the GigaVUE-FM prompts you to buy a new license. For detailed information on GigaVUE-FM licenses, refer to "Licenses" section in the *GigaVUE Administration Guide*.

To create a new map:

1. After creating a new monitoring session, or click **Edit** on an existing monitoring session, the GigaVUE-FM canvas appears.
2. In the canvas, select **New > New Map**, drag and drop a new map template to the workspace. The New Map quick view appears.



3. On the New Map quick view, enter or select the required information as described in the following table.

Field	Description
Name	Name of the new map
Description	Description of the map
Map Rules	<p>The rules for filtering the traffic in the map. Through the map, packets can be dropped or passed based on the highest to lowest rule priority. You can add multiple rule sets on a map. Use the + and - buttons to add or remove a rule set in the map. A rule set can have maximum of 25 rules.</p> <p>To add a map rule:</p> <ol style="list-style-type: none"> Enter a Priority value from 1 to 5 for the rule with 1 being the highest and 5 is the lowest priority. Click Add a Rule. The new rule field appear for the Application Endpoint. Select a required condition from the drop-down list. Select the rule to Pass or Drop through the map. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p> If two rules with same condition are configured as pass and drop,</p> <ul style="list-style-type: none"> on a same tunnel endpoint, the traffic filtering precedence will be based on the priority value. on two different tunnel endpoints, the traffic will be passed or dropped to the respective tunnel endpoints. <p>For detailed information on filtering fragmented and unfragmented packets, refer to "GigaSMART Adaptive Packet Filtering (APF)" section on the <i>GigaVUE Fabric Management Guide</i>.</p> </div>

-  Pass and Drop rule selection with Automatic Target Selection (ATS) differ with the Map type as follows:

 - Traffic Map—Only Pass rules for ATS
 - Inclusion Map—Only Pass rules for ATS
 - Exclusion Map—Only Drop rules for ATS

4. To reuse the map, click **Add to Library**. Save the map using one of the following ways:
- Select an existing group from the **Select Group** list or create a **New Group** with a name.
 - Enter a description in the **Description** field, and click **Save**.
5. Click **Save**.

NOTE: If a packet is fragmented then all the fragments will be destined to the same application end point. You can find the stats of mapped fragmented traffic in GigaVUE-FM. Refer to "Map Statistics" section in *GigaVUE Fabric Management Guide* for detailed information.

To edit a map, select the map and click **Details**, or click **Delete** to delete the map.

Add Applications to Monitoring Session

GigaVUE Cloud Suite with GigaVUE V Series 2 node supports the following GigaSMART applications in the GigaVUE-FM canvas:

- [Slicing](#)
- [Masking](#)
- [Dedup](#)
- [Load Balancing](#)
- [PCAPng](#)
- [GENEVE De-encapsulation](#)
- [Observability Gateway Application](#)

You can also configure the following GigaSMART operations from the **Traffic > Solutions > Application Intelligence**:

- Application Metadata Intelligence
- Application Filtering Intelligence

For more information, refer to these GigaSMART Operations in the *GigaVUE Fabric Management Guide*.

For the detailed list of GigaSMART Operation supported for V Series 2 nodes, refer to "Supported GigaSMART Operation" topic in the *GigaVUE Fabric Management Guide*.

You can optionally use these applications to optimize the traffic sent from your instances to the monitoring tools. Refer to the [Volume Based License \(VBL\)](#) section for more information on Licenses for using V Series 2 Nodes.

To add a GigaSMART application:

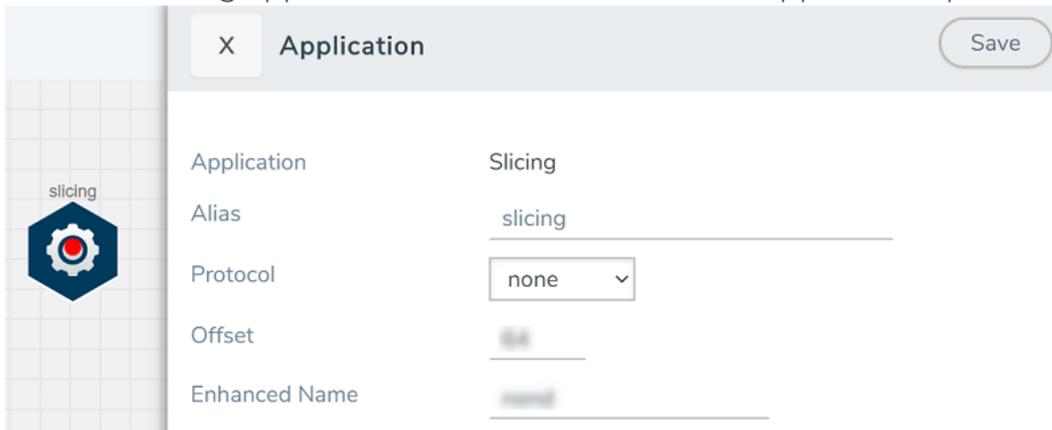
1. Drag and drop an application from **APPLICATIONS** to the canvas.
2. In the canvas, click the application and select **Details**.
3. Enter or select the required values for the selected application and click **Save**.

Slicing

Packet slicing lets you truncate packets after a specified header and slice length, preserving the portion of the packet required for monitoring purposes. For detailed information on Slicing, refer to [GigaSMART Packet Slicing](#)"GigaSMART Packet Slicing" topic in the *GigaVUE Fabric Management Guide*.

To add a slicing application:

1. Drag and drop **Slicing** from **APPLICATIONS** to the graphical workspace.
2. Click the Slicing application and select **Details**. The Application quick view appears.



Application	Slicing
Alias	slicing
Protocol	none
Offset	64
Enhanced Name	none

3. In the Application quick view, enter the information as follows:
 - In the **Alias** field, enter a name for the slicing.
 - From the **Protocol** drop-down list, specify an optional parameter for slicing the specified length of the protocol.
 - In the **Offset** field, specify the length of the packet that must be sliced.
 - In the **Enhanced Name** field, enter the Enhanced Slicing profile name.
4. Click **Save**.

Masking

Masking lets you overwrite specific packet fields with a specified pattern so that sensitive information is protected during network analysis. For detailed information on masking, refer to [GigaSMART Masking](#)"GigaSMART Masking" topic in the *GigaVUE Fabric Management Guide*.

To add a masking application:

1. Drag and drop **Masking** from **APPLICATIONS** to the graphical workspace.
2. Click the Masking application and select **Details**. The Application quick view appears.

Application	Masking
Alias	masking
Protocol	none
Offset	0
Pattern	00
Length	8

3. In the Application quick view, enter the information as follows:
 - In the **Alias** field, enter a name for the masking.
 - From the **Protocol** drop-down list, specify an optional parameter for masking the specified length of the protocol.
 - In the **Offset** field, specify the length of the packet that must be masked.
 - In the **Pattern** field, enter the pattern for masking the packet.
 - In the **Length** field, enter the length of the packet that must be masked.
4. Click **Save**.

Dedup

De-duplication lets you detect and choose the duplicate packets to count or drop in a network analysis environment. For detailed information on de-duplication, refer to [GigaSMART De-Duplication](#) "GigaSMART De-Duplication" topic in the *GigaVUE Fabric Management Guide*.

To add a de-duplication application:

1. Drag and drop **Dedup** from **APPLICATIONS** to the graphical workspace.
2. Click the Dedup application and select **Details**. The Application quick view appears.

Application	Dedup ⓘ	
Alias	dedup	
Action	<input type="radio"/> Count	<input checked="" type="radio"/> Drop
IP Tclass	<input checked="" type="radio"/> Include	<input type="radio"/> Ignore
IP TOS	<input checked="" type="radio"/> Include	<input type="radio"/> Ignore
TCP Sequence	<input checked="" type="radio"/> Include	<input type="radio"/> Ignore
VLAN	<input type="radio"/> Include	<input checked="" type="radio"/> Ignore
Timer	50000	

3. In the Application quick view, enter the information as follows:
 - In the **Alias** field, enter a name for the de-duplication.
 - In the Action field, select **Count** or **Drop** the detected duplicate packets.
 - For **IP Tclass**, **IP TOS**, **TCP Sequence**, and **VLAN** fields, select **Include** or **Exclude** the packets for de-duplication.
 - In the **Timer** field, enter the time interval (in seconds) for de-duplicating the packet.
4. Click **Save**.

Load Balancing

Load balancing app performs stateless distribution of the packets between different endpoints. For detailed information on load balancing, refer to [GigaSMART Load Balancing](#)"GigaSMART Load Balancing" topic in the *GigaVUE Fabric Management Guide*.

To add a load balancing application:

1. Drag and drop **Load Balancing** from **APPLICATIONS** to the graphical workspace.
2. Click the load balancing application and select **Details**. The Application quick view appears.

The screenshot shows the 'Application' quick view for a 'Load Balancing' application. The interface includes a grid workspace on the left with a 'lb' application icon. The main panel displays the following details:

- Application:** Load Balancing
- Alias:** lb
- Hash Fields:** ipOnly (dropdown menu)
- Field Location:** outer (dropdown menu)
- Load balancing groups:** A group is shown with Application Endpoint ID 2 and Weight 1-100.

A 'Save' button is located in the top right corner of the quick view.

3. In the Application quick view, enter the information as follows:
 - In the **Alias** field, enter a name for the load balancing app.
 - For **Hash Fields** field, select a hash field from the list.
 - **ipOnly**—includes Source IP, and Destination IP.
 - **ipAndPort**—includes Source IP, Destination IP, Source Port , and Destination Ports.
 - **fiveTuple**—includes Source IP, Destination IP, Source Port, Destination Port, and Protocol fields.
 - **gtpuTeid**—includes GTP-U.
 - For **Field location** field, select **Inner** or **Outer** location.
- NOTE:** Field location is not supported for **gtpuTeid**.
- In the **load balancing groups**, add or remove an application with the Endpoint ID and Weight value (1-100). A load balancing group can have minimum of two endpoints.
4. Click **Save**.

PCAPng

The PCAPng application is a GigaSMART parser application that reads the various blocks in the received PCAPng files and validates the blocks to be sent to the destination application or to the tools.

NOTE: The PCAPng application is only applicable for the Ericsson 5G Core vTAP architecture. Refer to "PCAPng Application" topic in the *GigaVUE Fabric Management Guide* for detailed information.

Create Link Between UDP-in-GRE Tunnel and PCAPng Application

To create a link with source as UDP-in-GRE tunnel and destination as PCAPng application:

1. In the GigaVUE-FM canvas, select **New > New Tunnel**, drag and drop a new tunnel template to the workspace. The **Add Tunnel Spec** quick view appears.
2. On the New Tunnel quick view, enter or select the required information as described in the following table.

Field	Description
Alias	The name of the tunnel endpoint <div style="border: 1px solid #ccc; padding: 2px; margin-top: 5px;">NOTE: Do not enter spaces in the alias name.</div>
Description	The description of the tunnel endpoint
Type	Select UDPGRE as the tunnel type
Traffic Direction	The direction of the traffic flowing through the V Series node <ul style="list-style-type: none"> • Choose In (Decapsulation) for creating an Ingress tunnel, traffic from the source to the V Series node
IP Version	The version of the Internet Protocol. Select IPv4 or IPv6
Remote Tunnel IP	The IP address of the tunnel source
Key	GRE key value
Source L4 Port	Layer 4 source port number
Destination L4 Port	Layer 4 destination port number. You can configure only 4754 or 4755 as the destination UDP ports

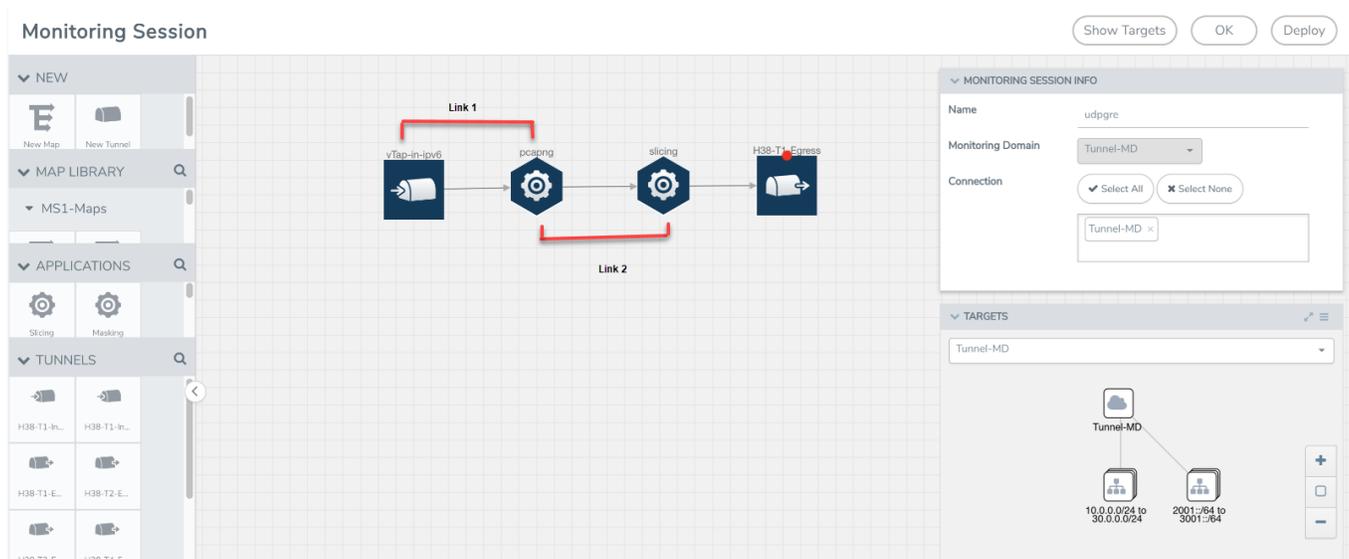
3. Click **Save**.
4. Click and drag the PCAPng application into the canvas. Configure the alias for the application.
5. Establish a link between the UDP-GRE TEP configured above and the PCAPng application.

Create Link Between PCAPng Application and Other Destinations

Create a link with source as PCAPng application and destination as one of the following:

- Other GigaSMART applications such as Slicing, Masking, etc.
- Other encapsulation TEPs.
- REP/MAP

Refer to the following image for a sample configuration.

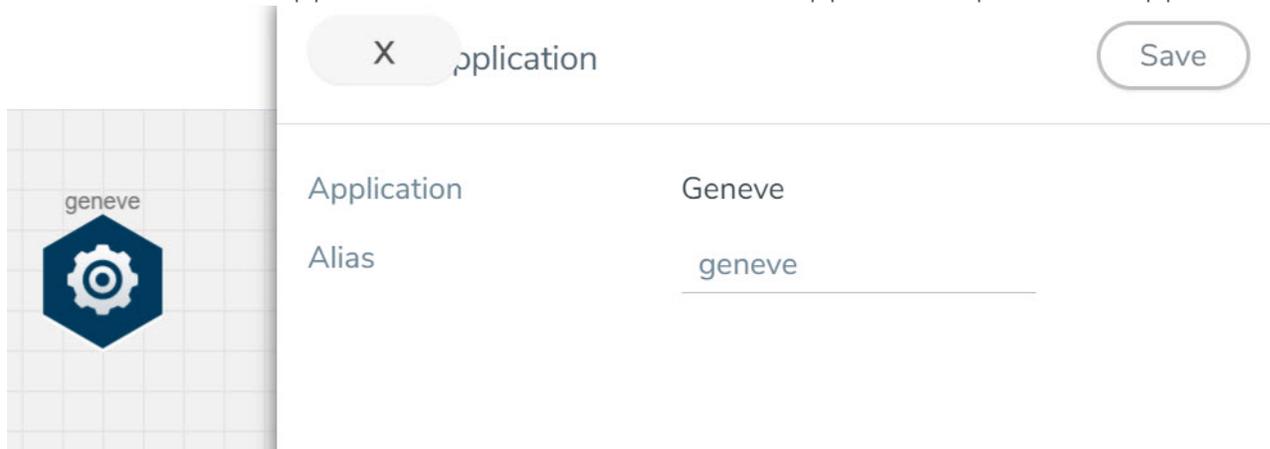


GENEVE De-encapsulation

The GENEVE De-encapsulation application is used to acquire and strip GENEVE headers. To route the traffic through the third-party network appliances seamlessly, the AWS gateway load balancer with a VPC adds GENEVE header to packets as they are forwarded to a third-party network appliance. Each appliance is expected to terminate the GENEVE tunnel and process the GENEVE encapsulated traffic. When the GigaVUE-FM directs the acquisition of the customer traffic, the packets are encapsulated and forwarded as GENEVE tunnels that are terminated in GigaVUE V Series nodes.

To add a GENEVE application:

1. Drag and drop **GENEVE** from **APPLICATIONS** to the graphical workspace.
2. Click the GENEVE application and select **Details**. The Application quick view appears.



3. Enter an alias for the GENEVE application.
4. Click **Save**.

Observability Gateway Application

Observability Gateway (OGW) application is used to convert Application Metadata Intelligence (AMI) output (CEF) into JSON format that can be exported to other tools. Refer Application Intelligence—Observability Gateway Application topic in *GigaVUE Fabric Management Guide* for more conceptual information and the entire workflow.

Rules and Pre-requisites:

Prerequisites to follow when creating a monitoring domain and deploying V Series node:

- Select **Traffic Acquisition Method** as None. Refer [Create a Monitoring Domain](#) for more detailed information on how to create a monitoring domain.
- Select **Instance type** with three or more NICs. Refer [Configure GigaVUE Fabric Components in GigaVUE-FM](#) for more detailed information on how to deploy a GigaVUE V Series.
- When the **Traffic Acquisition Method** is selected as None, the Volume Size field appears on the **AWS Fabric Launch Configuration** page. Enter the Volume Size as 80GB.

NOTE: Check on the disk space run every 30 minutes and when the disk space reaches 50%, purge starts.

- In the monitoring domain, click on the GigaVUE V Series's Name, and the GigaVUE V Series quick view opens. Choose a data IP to which you wish to send CEF packets, then use the IP address of this data IP as the **Tool IP Address** when creating the Application Metadata Intelligence solution. Refer to Create Metadata Intelligence by Editing Monitoring Session from Dashboard topic in *the GigaVUE Fabric Management Guide* on how to configure AMI for OGW application.

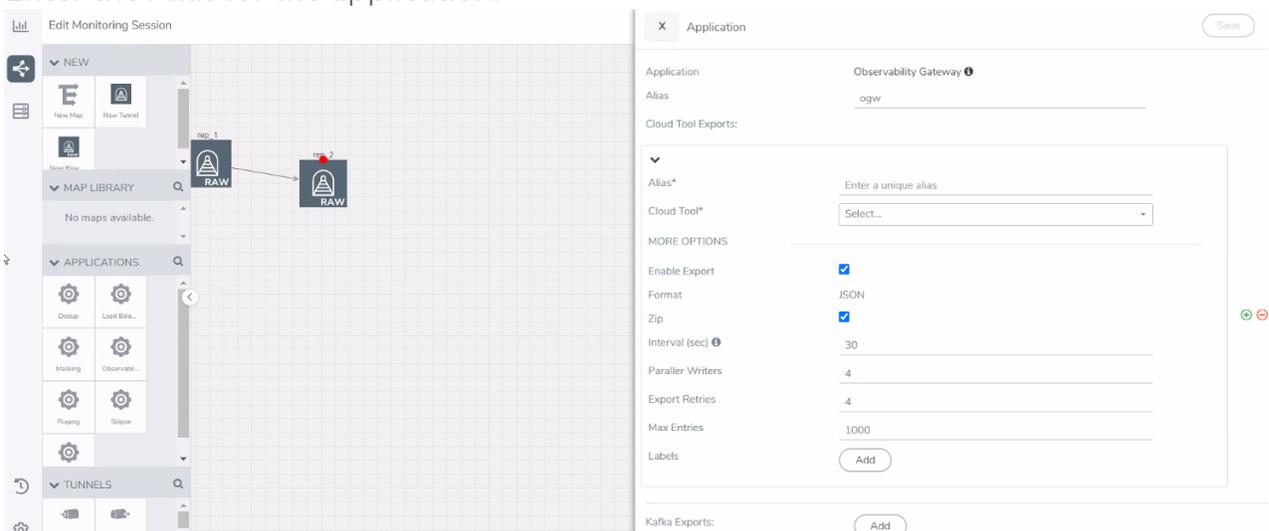
- The GigaVUE V Series deployed must be entirely dedicated to the OGW application, it cannot have other applications with it.

Rules to follow when using the OGW application:

- The monitoring session can only have Raw End Point (REP), it cannot have other applications, maps, or tunnels when using the OGW application. Refer [Create Raw Endpoint](#) for more detailed information on how to add a REP to the monitoring session and how to configure it.

To add OGW application:

1. Drag and drop **Observability Gateway** from **APPLICATIONS** to the graphical workspace. The Application quick view appears.
2. Enter the Alias for the application.



3. Enter the following details for the Cloud tool export in the Application quick view:

Fields	Description
Alias	Enter the alias name for the cloud tool.
Cloud Tool	Select the Cloud tool from the drop-down menu.
Account ID	Enter the account ID number of the selected Cloud Tool.
API Key	Enter the API key of the Cloud Tool.
Enable Export	Enable the box to export the Application Metadata Intelligence output in JSON format.
Zip	Enable the box to compress the output file. NOTE: Enable this field when using New Relic as the cloud tool.
Interval	The time interval (in seconds) in which the data should be uploaded periodically. The recommended minimum time interval is 10 seconds and the maximum time interval is 30 minutes.
Parallel Writer	Specifies the number of simultaneous JSON exports done.
Export Retries	The number of times the application tries to export the entries to Cloud Tool. The recommended minimum value is 4 and the maximum is 10.
Maximum Entries	The number of JSON entries in a file. The maximum number of allowed entries is 5000 and the minimum is 10, however 1000 is the default value.
Labels	Click Add . Enter the following details: <ul style="list-style-type: none"> o Enter the Key . o Enter the Value. NOTE: When New Relic is selected as the cloud tool, ensure that the key is eventType and the Value can only have alphanumeric characters, colons (:), periods (.), and underscores (_).

4. Click **Deploy** to deploy the monitoring session. The **Select nodes to deploy the Monitoring Session** dialog box appears. Select the GigaVUE V Series for which you wish to deploy the monitoring session.
5. After selecting the V Series Node, select the interfaces for the REPs deployed in the monitoring session from the drop-down menu. Then, click **Deploy**.

The monitoring session configuration health can be viewed on the Monitoring Session page. Refer [Cloud Health Monitoring](#) for more detailed information on how to view cloud configuration health.

To view the application statistics on the Monitoring Session Statistics page, click **View Monitoring Session Diagram** and click on the OGW application. The Statistics appears as a quick view page. To view the exporter related statistics, select **Exporter** from the top navigation button on the quick view page.

Deploy Monitoring Session

To deploy the monitoring session:

1. Drag and drop the following items to the canvas as required:
 - Ingress tunnel (as a source) from the **NEW** section
 - Maps from the **MAP LIBRARY** section
 - Inclusion and Exclusion maps from the Map Library to their respective section at the bottom of the workspace.
 - GigaSMART apps from the **APPLICATIONS** section
 - Egress tunnels from the **TUNNELS** section
2. After placing the required items in the canvas, hover your mouse on the map, click the red dot, and drag the arrow over to another item (map, application, or tunnel).

NOTE: You can drag multiple arrows from a single map and connect them to different maps.

The screenshot shows the 'Monitoring Session' configuration interface. On the left, there are four main sections: 'NEW' (containing 'New Map' and 'New Tunnel'), 'MAP LIBRARY' (containing 'Map1'), 'APPLICATIONS' (containing 'Slicing' and 'Masking'), and 'TUNNELS' (containing 'Tunnel1' and 'Tunnel2'). The central canvas shows a workflow: 'Tunnel1' (Ingress) connects to 'Map1' (Inclusion/Exclusion), which then connects to 'Tunnel2' (Egress). A 'Show Targets' panel is open on the right, displaying a network diagram with highlighted subnets: 10.10.30.0/24, 10.110.50.0/24, and 10.110.40.0/24. The top bar contains 'Show Targets', 'Deploy', and 'OK' buttons. An 'Expand' button is visible at the bottom of the canvas.

3. (Not applicable for Tunnel traffic acquisition method) Click **Show Targets** to view details about the subnets and monitored instances. The instances and the subnets that are being monitored are highlighted in orange.

4. Click **Deploy** to deploy the monitoring session. The status is displayed as **Success** in the Monitoring Sessions page. The session is successfully deployed on all the V Series nodes. Click on the status link in the Status column on the Monitoring Session page to view the Monitoring Session Deployment Report. When you click on the Status link, the Deployment Report is displayed. If the monitoring session is not deployed properly, then one of the following errors is displayed in the Status column.
 - Partial Success—The session is not deployed on one or more instances due to V Series node failure.
 - Failure—The session is not deployed on any of the V Series nodes.
 The **Monitoring Session Deployment Report** displays the errors that appeared during deployment.

The Monitoring Session page also has the following buttons:

Button	Description
Undeploy	Undeploys the selected monitoring session.
Clone	Duplicates the selected monitoring session.
Edit	Opens the Edit page for the selected monitoring session. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p>NOTE: In case of an error while editing a monitoring session, undeploy and deploy the monitoring session again..</p> </div>
Delete	Deletes the selected monitoring session.

View Monitoring Session Statistics

The Monitoring Session Statistics page lets you analyze the incoming and outgoing traffic on an hourly, daily, weekly, and monthly basis. The traffic can be viewed based on kilobits/second, megabits/second or gigabits/second.

On the Monitoring Sessions page, click **View** in the Statistics column to view the Monitoring Session Statistics page. The **Monitoring Session Statistics** page appears where you can analyze incoming and outgoing traffic.

NOTE: If there are multiple monitoring sessions with different target selection, then the incoming maps will not show true statistics and it shows the aggregate traffic from all the targets.



You can also perform the following actions on the Monitoring Session Statistics page:

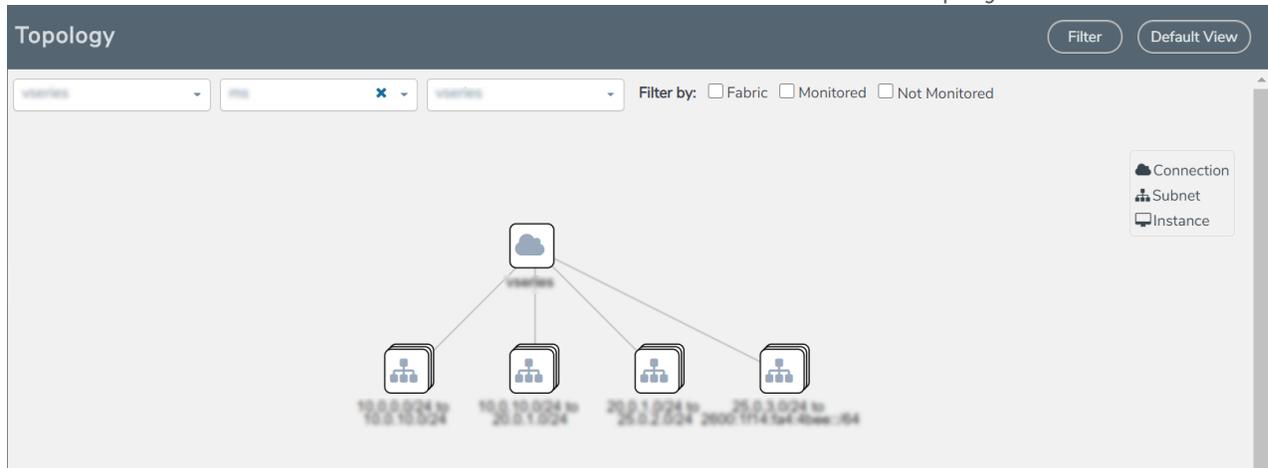
- Directly below the graph, you can click on **IncomingMbps**, **Outgoing Mbps**, or **Ratio (Out/In) (Mbps)** to view the statistics individually.
- At the bottom of the Monitoring Session Statistics page, you can click on **View Monitoring Session Diagram**. The Monitoring Session Diagram quick view appears.
- On the **Monitoring Session Diagram** page, you can expand any map, or tunnel to open a **Details** quick view of that item to see more details about the incoming and outgoing traffic for that item.
- You can also scroll down the Map **Details** quick view to view the Map Rules, Action Sets, and Map Info for this map. You can select Map Rules or Action Sets to view the traffic matching the selected rule on the graph in the quick view.

Visualize the Network Topology

You can have multiple connections in GigaVUE-FM. Each connection can have multiple monitoring sessions configured within them. You can select the connection and the monitoring session to view the selected subnets and instances in the topology view.

To view the topology diagram in GigaVUE-FM:

1. On the Monitoring Session page, select **Topology** tab. The Topology page appears.
2. Select a monitoring domain from the **Select monitoring domain...** list.
3. Select a connection from the **Select monitoring session...**list.
4. Select a monitoring session from the **Select connection...** list. The topology view of the monitored subnets and instances in the selected session are displayed.



5. (Optional) Hover over or click the subnet or VM Group icons to view the subnets or instances present within the group.

In the topology page, you can also do the following:

- Use the **Filter** button to filter the instances based on the VM name, VM IP, Subnet ID, or Subnet IP, and view the topology based on the search results.
- Use the **Default View** button to view the topology diagram based on the source interfaces of the monitoring instances.
- Use the arrows at the right-bottom corner to move the topology page up, down, left, or right. Click the **Fit-to-Width** icon to fit the topology diagram according to the width of the page.
- Use **+** or **-** icons to zoom in and zoom out the topology view.

Configure Application Intelligence Solutions on GigaVUE V Series Nodes for AWS

To configure the Application Intelligence solution on the GigaVUE V Series Nodes, create a virtual environment with the required connections. After creating the connections, configure the sources and the required destinations for the traffic flow. Refer the following topics for step by step instructions on how to configure Application Intelligence solution for GigaVUE V Series Nodes:

- [Configure Environment](#)
- [Connect to AWS](#)
- [Create Source Selectors](#)
- [Create Tunnel Specifications](#)
- [Configure Application Intelligence Session](#)



Important Notes:

- You can deploy multiple GigaVUE V Series Nodes in a connection.
- You can use **V Series Node API Proxy Server** (VPS) to scale and manage multiple V Series Nodes. Refer to the GigaVUE-FM REST API Reference in GigaVUE-FM User's Guide for detailed information.
- You can use tool templates while creating an Application Metadata Intelligence session. To create a custom tool template for GigaVUE V Series Node, signature is required from the node. Refer to the Tool Templates section in the *GigaVUE Fabric Management Guide* for more detailed information.
- Prior to configuring the Application Intelligence solution, refer to the [Prerequisites](#) topic for the minimum requirements.
- To delete a GigaVUE V Series Node deployed in a Application Intelligence solution, you must delete the resources in the following order:
 1. Delete the Application Intelligence solution.
 2. Delete the GigaVUE V series Node and Connection.
 3. Delete the Environment.

Configure Environment

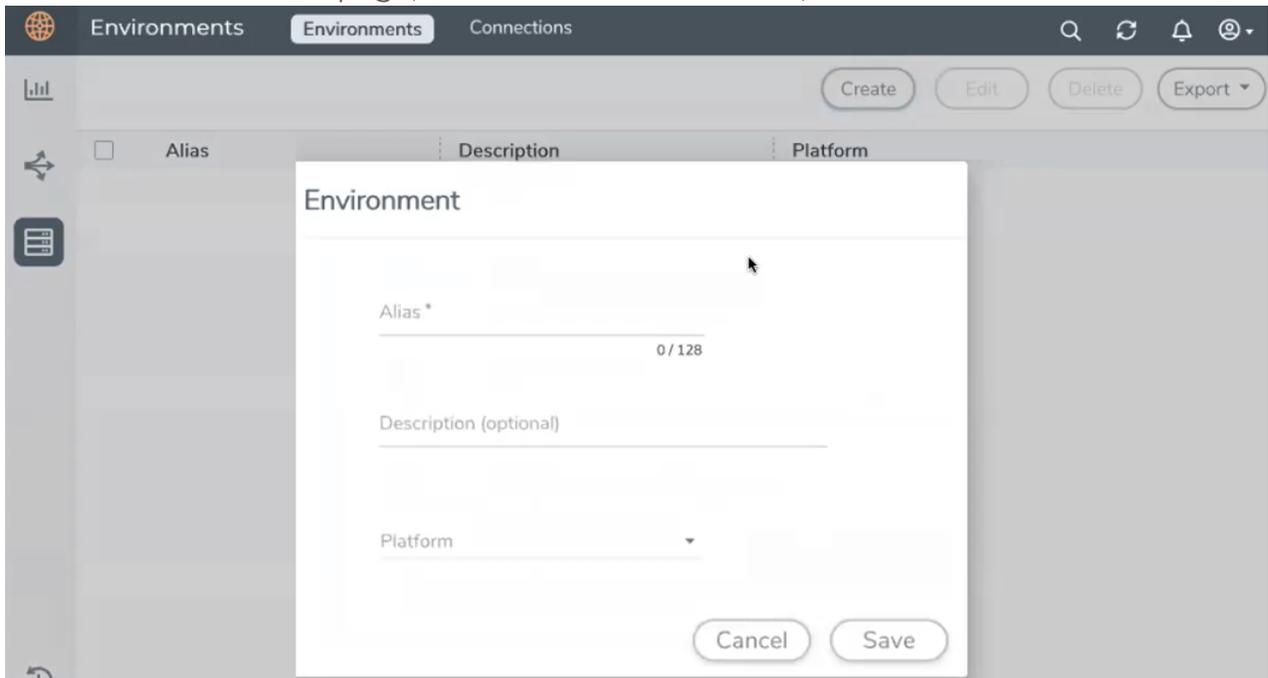
The Environments page allows you to create the following:

- **Environments:** The physical or the virtual environment in which the Application Intelligence solution is to be deployed.
- **Connections:** Connection between GigaVUE-FM and the cloud platform.

Create Environment

To configure the Environment:

1. Select **Inventory > Resources > Environments**.
2. On the **Environments** page, on the **Environments** tab, click **Create**.



3. Select or enter the following details:

Field	Description
Alias	Alias name used to identify the Environment.
Description	Brief description about the Environment.
Platform	Select the cloud platform.

4. Click **Save**. The environment is added to the list view.

Use the following buttons to manage your environment:

Button	Description
Delete	Use to delete an Environment.
Edit	Use to edit the details in an Environment.
Export	Export the details from the Environment page in an XLS or CSV file.

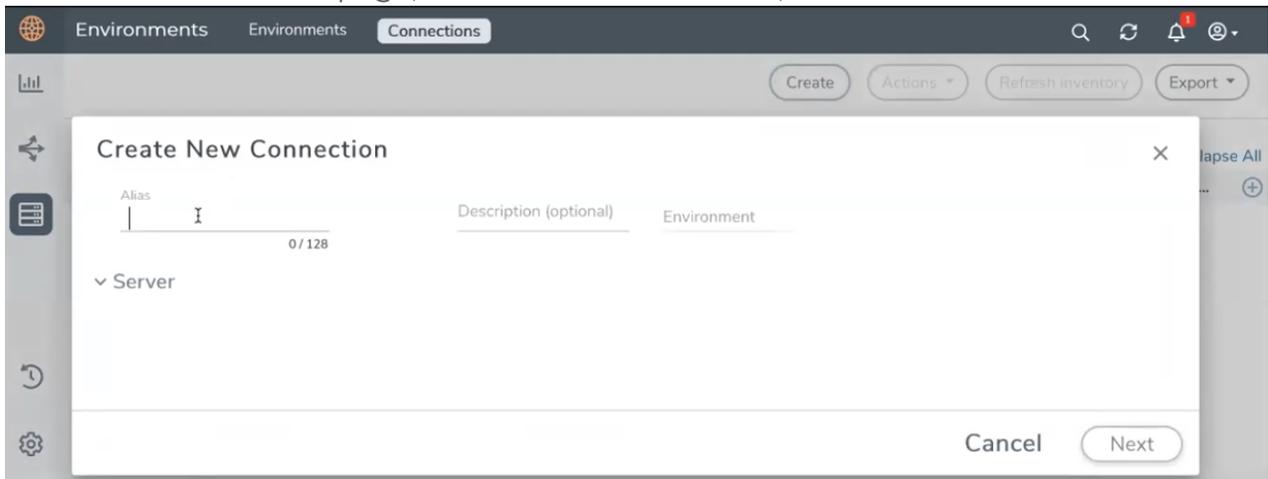
Connect to AWS

After creating a environment create a connection between the AWS and GigaVUE-FM. Refer to the following step given below for detailed information on how to create a new connection.

Create Connection

To create a new Connection:

1. Select **Inventory > Resources > Environment**.
2. On the **Environments** page, on the **Connections** tab, click **Create**.



3. The **Create New Connection** dialog box opens. Enter the details as mentioned in the below section.

NOTE: When creating a connection in the connections page, the corresponding monitoring domain created for internal use in GigaVUE-FM will not be displayed in the Monitoring Domain list page.

NOTE: For Application Intelligence solution, you must add the UDP port 2056 for GigaVUE-FM in your AWS security group.

To connect to AWS, select or enter the following details:

Field	Description
Alias	Alias name used to identify the connection.
Description	Brief description about the connection.
Environment	Select the environment. Refer to Connect to AWS
Server	
Authentication Type	Authentication type for the connection. You can select one of the following: <ul style="list-style-type: none"> ▪ Basic Credentials ▪ EC2 Instance Role If Basic Credentials is selected, you must enter the Access Key and Secret Access keys.
Access Key/Secret Access Key	The access key and secret access key that are used to establish AWS connection. These keys are required when the authentication type is Basic

Field	Description
	Credentials.
Region Name	<p>The AWS region for the connection. For example, EU (London).</p> <p>NOTE: If the region you want to choose is not available in the Region Name list, you can add a custom region.</p> <p>Adding a Custom Region</p> <p>To add a custom region:</p> <ol style="list-style-type: none"> In the Region Name drop-down list, select Custom Region. In the Custom Region Name field, enter the name of the region that is not available in the list.
Select Account Name/Id	Select the AWS account name/id.
Select network name/Id	Select the AWS network name/id
Traffic Acquisition Method	<p>Select a Tapping method. The available options are:</p> <ul style="list-style-type: none"> G-vTAP: If you select G-vTAP as the tapping method, you must configure the G-vTAP Controller to monitor the G-vTAP Agents. You can also configure the G-vTAP Controller and G-vTAP Agents using your own orchestrator. Refer to Configure GigaVUE Fabric Components using AWS Orchestrator for detailed information. VPC Traffic Mirroring: If you select VPC Traffic Mirroring option as tapping method, only nitro-based agent is support. If you wish to use an external load balancer (optional). Select Yes to use a load balancer. Refer to Configure an External Load Balancer on GigaVUE Cloud Suite for AWS for detailed information. G-vTAP Controller configuration is not required for VPC Traffic Mirroring. Tunnel: If you use select Tunnel as the tapping method, you can select the tunnel as a source where the traffic is directly tunneled to GigaVUE V Series Nodes without deploying G-vTAP Agents or G-vTAP controllers.. <p>NOTE: For VPC Traffic Mirroring option, additional permissions are required. Refer to the Permissions for details.</p>
MTU	The Maximum Transmission Unit (MTU) is the maximum size of each packet that the tunnel endpoint can carry.

In the AWS Virtual Node Deployment page, select or enter the following details and click **Next**:

Fields	Description
Centralized VPC	Alias of the centralized VPC in which the G-vTAP Controllers, V Series Proxies and the GigaVUE V Series nodes are launched.
EBS Volume Type	The Elastic Block Store (EBS) volume that you can attach to the fabric components. The available options are:

Fields	Description
	<ul style="list-style-type: none"> gp2 (General Purpose SSD) io1 (Provisioned IOPS SSD) Standard (Magnetic).
SSH Key Pair	The SSH key pair for the GigaVUE fabric nodes.
Management Subnet	The subnet that is used for communication between the controllers and the nodes, as well as to communicate with GigaVUE-FM. This is a required field.
Security Groups	The security group created for the GigaVUE fabric nodes.

Enable the **Configure a V Series Proxy** toggle button if you wish to deploy V Series nodes using a proxy. In the V Series Proxy section, select or enter the values for the fields as described in the below table.

Fields	Description
Version	GigaVUE V Series Proxy version.
Instance Type	Instance type for the GigaVUE V Series Proxy. The recommended minimum instance type is t2.micro. You can review and modify the number of instances for the nitro-based instance types in the Configure AWS Settings page.
Number of Instances	Number of GigaVUE V Series Proxy to deploy in the monitoring domain.
Set Management Subnet	Use the toggle button to select a management subnet. <ul style="list-style-type: none"> Yes to use the management subnet that you selected previously. No to use another management subnet.
Set Security Groups	Toggle option to Yes to set the security group that is created for the GigaVUE V Series Proxy. Refer to Security Group for more details.

Fields	Description
IP Address Type	<p>Select one of the following IP address types:</p> <ul style="list-style-type: none"> Select Private if you want to assign an IP address that is not reachable over Internet. You can use private IP address for communication between the GigaVUE V Series Proxy and GigaVUE-FM instances in the same network. Select Public if you want the IP address to be assigned from Amazon's pool of public IP address. The public IP address gets changed every time the instance is stopped and restarted. Select Elastic if you want a static IP address for your instance. Ensure to have the available elastic IP address in your VPC. <p>The elastic IP address does not change when you stop or start the instance.</p>
Additional Subnets	<p>(Optional) If there are GigaVUE V Series Nodes on subnets that are not IP routable from the management subnet, additional subnets must be specified so that the GigaVUE V Series Proxy can communicate with all the GigaVUE V Series Nodes.</p> <p>Click Add to specify additional subnets, if needed. Also, make sure that you specify a list of security groups for each additional subnet.</p>
Tags	<p>(Optional) The key name and value that helps to identify the GigaVUE V Series Proxy instances in your AWS environment.</p>

In the G-vTAP Configuration section, select or enter the following details:

Fields	Description
Controller Version	<p>The G-vTAP Controller version. If there are multiple versions of G-vTAP Agents deployed in the EC2 instances, then you must configure multiple versions of G-vTAP Controllers that matches the version numbers of the G-vTAP Agents.</p> <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> <p>NOTE: If there is a version mismatch between G-vTAP controllers and G-vTAP Agents, GigaVUE-FM cannot detect the agents in the instances.</p> </div> <p>Click Add to add multiple versions of G-vTAP Controllers:</p> <p>An older version of G-vTAP Controller can be deleted once all the G-vTAP Agents are upgraded to the latest version.</p>
Instance Type	<p>The instance type for the G-vTAP controller. The recommended minimum instance type is nitro-based starting from t2.micro.</p> <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> <p>NOTE: V Series 2 solution does not support non-nitro-based instance types.</p> </div>
Number of Instances	<p>The number of G-vTAP Controllers to deploy in the monitoring domain.</p>
Agent Tunnel Type	<p>The type of tunnel used for sending the traffic from G-vTAP Agents to GigaVUE V Series nodes. The options are GRE or VXLAN tunnels. If any Windows agents co-exist with Linux agents, VXLAN must be selected.</p>
G-vTAP Agent MTU (Maximum Transmission Unit)	<p>The Maximum Transmission Unit (MTU) is the maximum size of each packet that the tunnel endpoint can carry from the G-vTAP Agent to the GigaVUE V Series node.</p> <ul style="list-style-type: none"> In AWS, the default value is 9000.

Fields	Description
	<ul style="list-style-type: none"> For VXLAN, the default value is 8951. The G-vTAP Agent tunnel MTU must be at least 50 bytes less than the agent's destination interface MTU size. For GRE, the default MTU setting must be at least 42 bytes less than the default MTU. <p>AWS Platform MTU is 9000</p> <ul style="list-style-type: none"> With agent tunnel type L2GRE and 'Secure Mirror Traffic' option enabled, G-vTAP Agent Tunnel MTU should be set as (9000-42-53) = 8905. With agent tunnel type L2GRE and 'Secure Mirror Traffic' option disabled, G-vTAP Agent Tunnel MTU should be configured as (9000-42) = 8958. With agent tunnel type VXLAN and 'Secure Mirror Traffic' option enabled, G-vTAP Agent Tunnel MTU should be (9000-50-53) = 8897. With agent tunnel type VXLAN and 'Secure Mirror Traffic' option disabled, G-vTAP Agent Tunnel MTU should be 8951.
IP Address Type	<p>The IP address type. Select one of the following:</p> <ul style="list-style-type: none"> Select Private if you want to assign an IP address that is not reachable over Internet. You can use private IP address for communication between the G-vTAP Controller and GigaVUE-FM. Select Public if you want the IP address to be assigned from Amazon's pool of public IP address. The public IP address gets changed every time the instance is stopped and restarted. Select Elastic if you want a static public IP address for your instance. Ensure to have the available elastic IP address in your VPC. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p>NOTE: The elastic IP address does not change when you stop or start the instance.</p> </div>
Additional Subnet(s)	<p>(Optional) If there are G-vTAP Agents on subnets that are not IP routable from the management subnet, additional subnets must be specified so that the G-vTAP Controller can communicate with all the G-vTAP Agents.</p> <p>Click Add to specify additional subnets, if needed. Also, make sure that you specify a list of security groups for each additional subnet.</p>
Tag(s)	<p>(Optional) The key name and value that helps to identify the G-vTAP Controller instances in your AWS environment. For example, you might have G-vTAP Controllers deployed in a VPC. To identify the G-vTAP Controllers you can provide a name that is easy to identify such as us-west-2-gvtap-controllers.</p> <p>To add a tag,</p> <ol style="list-style-type: none"> Click Add tag. In the Key field, enter the key. For example, enter Name. In the Value field, enter the key value. For example, us-west-2-gvtap-controllers.

In the V Series Node configuration section, select or enter the following:

Fields	Description
Version	GigaVUE V Series Node version.
Instance Type	The instance type for the GigaVUE V Series Node. The default instance type is nitro-based t3a.xlarge. You can review and modify the number of instances for the nitro-based instance types in the Configure AWS Settings page.
IP Address Type	Select one of the following IP address types: <ul style="list-style-type: none"> Select Private if you want to assign an IP address that is not reachable over Internet. You can use private IP address for communication between the GigaVUE V Series Controller and GigaVUE-FM instances in the same network. Select Elastic if you want a static IP address for your instance. Ensure to have the available elastic IP address in your VPC. <p>The elastic IP address does not change when you stop or start the instance.</p>
Min Number of Instances	The minimum number of GigaVUE V Series Nodes that must be deployed in the monitoring domain. The minimum number of instances must be 1. When 0 is entered, no GigaVUE V Series Node is launched. NOTE: If the minimum number of instances is set as '0', then the nodes will be launched when a monitoring session is deployed if GigaVUE-FM discovers some targets to monitor.
Max Number of Instances	The maximum number of GigaVUE V Series Nodes that can be deployed in the monitoring domain.
Tunnel MTU	The Maximum Transmission Unit (MTU) on the outgoing tunnel endpoints of the GigaVUE V Series Node when a monitoring session is deployed. The G-vTAP Agent and controller tunnel MTU should be 50 bytes less than the agent's destination interface MTU size. The default value is 9001.
Data Subnets	The subnet that receives the mirrored GRE or VXLAN tunnel traffic from the G-vTAP Agents. NOTE: Using the Tool Subnet checkbox you can indicate the subnets to be used by the GigaVUE V Series to egress the aggregated/manipulated traffic to the tools.

Use the following buttons to manage your AWS connections :

Button	Description
Create	Use to create new connection.
Actions	Provides the following options: <ul style="list-style-type: none"> Edit Connection - Use to edit a connection. You can also use this option to deploy your node after creating the connection.

Button	Description
	<ul style="list-style-type: none"> • Edit Node - If you have already deployed your node, then use this option to edit your node. You can also use this option to add more nodes into your existing connection. • Delete Connection - Use to delete a connection. • Delete Node - Use to delete a node. • Force Delete - This option is enabled when an upgrade fails due to infrastructure issues. Use this option to force delete the connection. • Upgrade Fabric - Use to upgrade your fabric components.
Refresh Inventory	Use to refresh the entire connections page.
Export	Use to export the details from the Connections page into an XLS or a CSV file.

Create Source Selectors

When setting up a traffic flow, it is important to define the selection criteria for the source of traffic. Use the Source Selectors page for configuring the source of traffic to the GigaVUE V Series nodes.

To configure the Source Selectors:

1. Select **Inventory > Resources > Source Selectors**.
2. On the **Source Selectors** page, on the **VM** tab, click **Create**. The **Create Source Selector** wizard appears.

Create Source Selector



Alias Description

0 / 128 0 / 128

Filters

Criteria 1 -

Filter Operator + -

[+ New Criteria](#)

Cancel Save

3. Enter or select the required information:

Field	Description
Alias	Name of the source
Description	Description of the source
Filters	You can create a filter template from the Filters option
Criteria 1	Criteria to filter the traffic source. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;">NOTE: You can create multiple criteria.</div>
Filter	The criteria based on which the traffic is filtered. Select from the list of available filters.
Operator	Select the required operator based on the filter selected. Options are: <ul style="list-style-type: none"> • Starts with • Ends with • excludes • equals • between
Values	The values for the filter.

4. Click Save to save the source selector.



Note: You can create multiple filter criteria. Within each criterion, you can configure multiple filters.

- If you have configured multiple filters in a criterion, then the traffic will be filtered only if all the filter rules are true.



- If you have configured multiple criteria, then the traffic will be filtered even if one of the criteria is true.

Create Tunnel Specifications

A tunnel endpoint can be created using a standard L2GRE, VXLAN, or ERSPAN tunnel. The tunnel can be an ingress tunnel or an egress tunnel.

NOTE: VXLAN is the only supported tunnel type for Azure.

To configure the tunnels:

1. Select **Inventory > Resources > Tunnel Specifications**.
2. On the **Tunnel Specifications** page, navigate to **VM** tab and click **Create**. The Create Tunnel Specification wizard appears.

Create tunnel specification



Alias	Description	
Alias *	Description (optional)	Tunnel type

Cancel

Save

3. Enter or select the following information:

Field	Description
Alias	<p>The name of the tunnel endpoint.</p> <p>NOTE: Do not enter spaces in the alias name.</p>
Description	The description of the tunnel endpoint.
Tunnel Type	<p>The type of the tunnel.</p> <p>Select ERSPAN, or L2GRE, or VXLAN to create a tunnel.</p> <p>Do not select UDPGRE tunnel type.</p> <p>NOTE: VXLAN is the only supported tunnel type for Azure.</p>
Traffic Direction	<p>The direction of the traffic flowing through the V Series node.</p> <ul style="list-style-type: none"> Choose In (Decapsulation) for creating an Ingress tunnel, Tunnel Spec for the Source should always have the Traffic Direction as IN, signifying an ingress tunnel. Enter values for the Key. Choose Out (Encapsulation) for creating an Egress tunnel from the V Series node to the destination endpoint. Select or enter values for MTU, Time to Live, DSCP, PREC, Flow Label, and Key. <p> ERSPAN, L2GRE, and VXLAN are the supported Ingress tunnel types. You can configure Tunnel Endpoint as your first level entity in Monitoring Session.</p> <ul style="list-style-type: none"> L2GRE and VXLAN are the supported Egress tunnel types. For Azure connection, VXLAN is the supported Ingress and Egress tunnel type.
IP Version	The version of the Internet Protocol. Select IPv4 or IPv6.
Remote Tunnel IP	<p>For Ingress tunnel, Remote Tunnel IP is the IP address of the tunnel source.</p> <p>For Egress tunnel, Remote Tunnel IP is the IP address of the tunnel destination endpoint.</p>

4. Click **Save** to save the configuration.

Configure Application Intelligence Session

Application Visualization (earlier known as Application Monitoring) gathers the application statistics, and sends this information to GigaVUE-FM, which acts as an application monitor. The monitoring reports are sent to GigaVUE-FM through the destination port 2056. The application statistics appear as an array of monitoring reports that provide application-usage data in an easy-to-read graphical interface. This provides you with greater insight and control over how your network is being used and what applications are utilizing the most resources. To perform Application Monitoring, you must create the required application intelligence sessions on the nodes managed by GigaVUE-FM.

Prerequisites

- The environment on which the Application Intelligence solution is to be deployed must already be created and the nodes must be deployed on it.
- In virtual environment, the destination tunnels for the Application Filtering Intelligence Map must already be created.

NOTE: For Application Visualization and Application Metadata Intelligence, the destination(s) are defined internally by the solution.

Create an Application Intelligence Session in Virtual Environment

Complete the following prerequisites before creating an Application Intelligence solution in the virtual environment:

To create an Application Intelligence Session:

1. On the left navigation pane, select **Traffic > Solutions > Application Intelligence**.
2. Click **Create New**. The **Create Application Intelligence Session** page appears.

Create Application Intelligence Session ×

Name	Description (optional)	Virtual

0/128

Environment Info

Environment name	Connection
env1	con1

Configurations

Export Interval		<input checked="" type="checkbox"/> Management Interface	Scale Unit i
60	secs		
Must be between 60-900			

Cancel Save

3. In the **Basic Info** section, enter the name and description, and in the Environment select **Virtual** for the session to be created:
 - Virtual- connects to the specific environment.
4. In the Environment section, select the **Environment Name**, and the **Connection Name**. To create an Environment and connection, refer to [Configure Environment](#).
5. In the **Configurations** section, complete the following:
 - a. Select an **Export Interval** during which you want the Application Intelligence session to generate the reports for application visualization. The valid range is 60–900 seconds.
 - b. Select the required interface. By default, **Management Interface** is enabled. To export the data through tunnel interface, uncheck the Management Interface check box.
 - c. Enter a value for the **Scale Unit**. The scale unit represents the number of flows supported by the application. If the scale unit value is 1, the maximum active flow limit will be 100k.
Refer to the following table for the maximum scale unit supported for VMware, AWS, and Azure platforms.

NOTE: Scale Unit is not applicable for the OpenStack platform.

Cloud Platform	Instance Size	Maximum Scale Unit
VMware	Large (8 vCPU and 16 GB RAM)	3
	Medium (4 vCPU and 8 GB RAM)	1
AWS	Large (c5n.2xlarge)	4
	Medium (t3a.xlarge)	3
Azure	Large (Standard_D8s_V4)	9
	Medium (Standard_D4s_v4)	3

6. In the **Source Traffic** section, select anyone of the following:
 - **Source Selector**- Select the source from the drop-down list box. To create new source, select **New Source Selector** and add the filters. For more information on creating a New Source Selector, refer to [Create Source Selectors](#).
 - **Tunnel Specification**- Select the tunnel from the drop-down list box. To create new tunnel, select **New Source Tunnel Spec** and add the details for the tunnel. For more information on creating a new tunnel, refer to [Create Tunnel Specifications](#).



- Tunnel Specification for the source must always be configured with Traffic Direction as IN, to indicate that it is an ingress tunnel.
- For Azure Connection, VXLAN is the only supported Tunnel Type.

7. Click **Save**. The session created is added in the list view.

The total applications participating in the network traffic are displayed in the Application Intelligence Dashboard. For more information about the dashboard, refer to the [View the Application Intelligence Dashboard](#).

If the session configuration is unsuccessful, troubleshoot the error notified (refer to [View the Health Status of a Solution](#)). Click the **Reapply all pending solutions** button  in the dashboard to redeploy the configuration.

NOTE: GigaVUE-FM takes few minutes to display the application statistics.

You can also filter the traffic based on the applications. For more information, see [Create Application Filtering Intelligence](#).

Cloud Health Monitoring

GigaVUE-FM allows you to monitor the configuration health status of the entire monitoring session and also the individual fabric components for which monitoring session is configured. This feature provides detailed information about the configuration and deployment status of the deployed monitoring session.

This feature is supported for the following fabric components and features on the respective cloud platforms:

For V Series Nodes:

- AWS
- Azure
- OpenStack
- VMware

For G-vTAP Agents:

- AWS
- Azure
- OpenStack

For VPC Mirroring:

- AWS

For OVS Mirroring and VLAN Trunk Port:

- OpenStack

View Monitoring Session Configuration Health

You can view the configuration status of the monitoring session and the components deployed, in the monitoring session page. This section provides information about the configuration health status of the various fabric components deployed in the monitoring session.

The following columns in the monitoring session page are used to convey the configuration health status:

Health

This column displays the configuration health status of the entire monitoring session.

The error message associated with monitoring session configuration appears when you hover over the health column. You can use the error message to help you troubleshoot and identify the components that are in conflict or mis-configured.

V Series Node Health

This column displays the configuration health status of the monitoring session deployed in V Series Nodes. This column provides information on the number of monitoring sessions successfully deployed on a particular V Series Node to the total number of monitoring session deployed on that particular V Series Node.

You can view the health status of the individual V Series Nodes and also the error message associated with them, by clicking on the V Series Node Health column.

NOTE: V Series node health only displays the configuration health status therefore even if the V Series Node is down it will not be reflected in the monitoring session page.

The screenshot shows the AWS Cloud Health Monitoring Session page. The top navigation bar includes 'AWS', 'Monitoring Session', and 'Topology'. Below the navigation bar, there are several tabs: 'Monitoring Domain', 'Monitoring Session', 'Statistics', 'Health', 'V Series Nodes Health', 'VPCs', 'Deployment Status', 'Number of Targets', and 'Targets Source...'. The main content area displays a table with columns for 'Monitoring Domain', 'Monitoring Session', 'View', 'Health', 'V Series Nodes Health', 'VPCs', 'Deployment Status', 'Number of Targets', and 'Targets Source...'. The table shows two rows of data. The first row is for 'MD_1' with a health status of 'Ok' and '1 of 1 are healthy'. The second row is for 'MS1' with a health status of 'Success' and '2 of 2 are healthy'. Below the table, there is a pagination control showing 'Go to page: 1 of 1' and 'Total Records: 3'. A modal window titled 'V Series Nodes Health' is open, showing a table with columns for 'V Series Node', 'Management IP', 'Version', and 'Health'. The table contains one row for 'Gigamon-VSeriesNode-1' with a management IP of '10.81.208.115', a version of '2.6.0', and a health status of 'Ok'.

Monitoring Domain	Monitoring Session	View	Health	V Series Nodes Health	VPCs	Deployment Status	Number of Targets	Targets Source...
MD_1			Ok				1 of 1 are healthy	
	MS1		Success				2 of 2 are healthy	system-vpc-1

V Series Node	Management IP	Version	Health
Gigamon-VSeriesNode-1	10.81.208.115	2.6.0	Ok

Target Source Health

This column displays the configuration health status of the monitoring session deployed in targets. This column provides information on the number of monitoring sessions successfully deployed on a particular target to the total number of monitoring session deployed on that particular target.

You can view the health status of the individual targets and also the error message associated with them, by clicking on the Target Source Health column.

View Monitoring Session Statistics

You can now view the statistics of the monitoring session deployed in the individual V Series Nodes. To view the statistics of the individual V Series Node, select the name of the V Series Node for which you want to view the statistics from the V Series Node drop-down menu on the top left-corner of the Monitoring Session Statistics page.

Hover over the V Series Node drop-down to view the number of the applications, end points, and other application environments configured for a particular V Series Node. It also displays the error message related to configuration for the particular V Series Node.

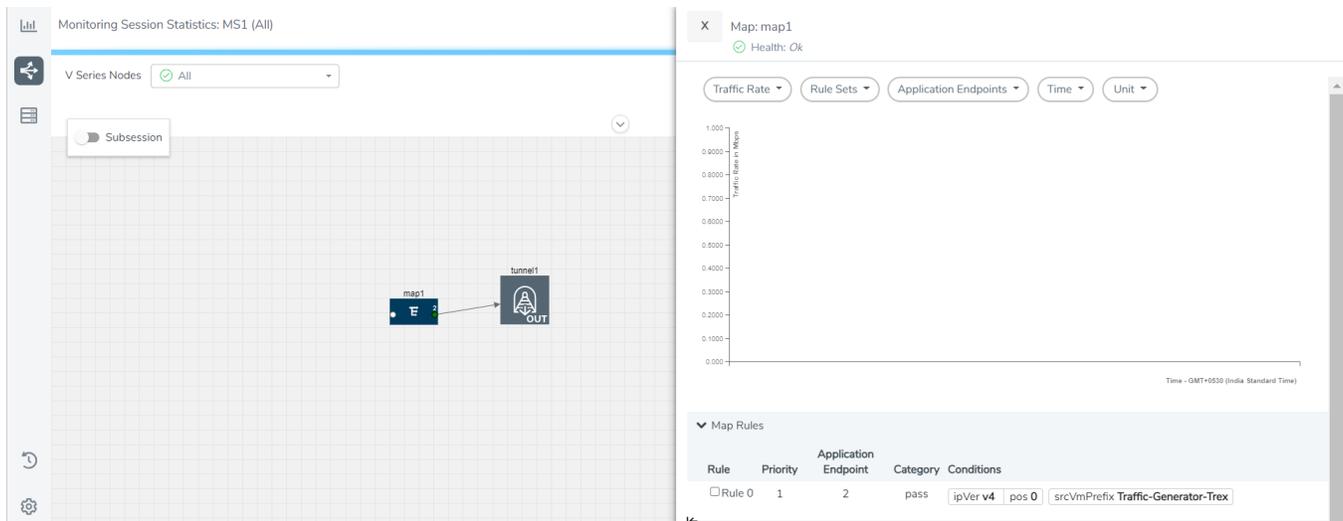
View Monitoring Session Diagram

The Monitoring Session diagram page displays the applications and end points deployed in a particular monitoring session in pictorial form. To view the statistics of a particular application or an endpoint, click on the application icon for which you want to view the statistics. You can also view the statistics of a particular application for an individual V Series

Node by selecting the name of the V Series Node for which you want to view the statistics from the V Series Node drop-down menu on the top left-corner of the Monitoring Session page.

When you select a V Series Node from the V Series Node drop-down, the application icon displays the name of that particular application as configured in the V Series Node.

The subsession toggle button available in the top-left corner of the canvas allows you to view the statistics of individual paths in the monitoring session.



Fabric Health Analytics for Virtual Resources (BETA)

Fabric Health Analytics is delivered as BETA in software version 5.16.00 and is subject to change in the upcoming release(s).

Fabric Health Analytics (FHA) in GigaVUE-FM is a standalone service that provides data visualization capabilities. Using FHA¹ you can create visual elements such as charts that are embedded as visualizations. The visualizations are grouped together in dashboards. You can also create search objects using FHA. Dashboards, Visualizations and Search Objects are called FHA objects. Refer to [Fabric Health Analytics BETA](#) topic in *GigaVUE Fabric Management Guide* for more detailed information on Fabric Health Analytics.

Rules and Notes:

¹FHA uses the Kibana front-end application to visualize and analyze the data in the Elasticsearch database of GigaVUE-FM. Kibana is an open source data visualization plugin for Elasticsearch.

- You cannot edit or delete these default dashboards. However, you can clone the dashboards and visualizations. Refer to the [Clone Dashboard](#) section for more details.
- Use the Time Filter option to select the required time interval for which you need to view the visualization.

Virtual Inventory Statistics and Cloud Applications Dashboard

Fabric Health Analytics dashboards allow users to monitor the physical and virtual environment and detect anomalous behavior and plan accordingly. Refer to the [Fabric Health Analytics](#) section in *GigaVUE Fabric Management Guide* for details on how to create a new dashboard, clone a dashboard, create a new visualization, and other information about the Discover page and Reports page.

To access the dashboards:

1. Go to  -> **Analytics -> Dashboards**.
2. Click on the required dashboard to view the visualizations.

The following table lists the various virtual dashboards:

Dashboard	Displays	Visualizations	Displays
Inventory Status (Virtual)	Statistical details of the virtual inventory based on the platform and the health status. You can view the following metric details at the top of the dashboard: <ul style="list-style-type: none"> • Number of Monitoring Sessions • Number of V Series Nodes • Number of Connections • Number of GCB Nodes You can filter the visualizations based on the following control filters: <ul style="list-style-type: none"> • Platform • Health Status 	<i>V Series Node Status by Platform</i>	Number of healthy and unhealthy V Series Nodes for each of the supported cloud platforms.
		<i>Monitoring Session Status by Platform</i>	Number of healthy and unhealthy monitoring sessions for each of the supported cloud platforms
		<i>Connection Status by Platform</i>	Number of healthy and unhealthy connections for each of the supported cloud platforms
		<i>GCB Node Status by Platform</i>	Number of healthy and unhealthy GCB nodes for

Dashboard	Displays	Visualizations	Displays
			each of the supported cloud platforms
V Series Node Statistics	<p>Displays the Statistics of the V Series node such as the CPU usage, trend of the receiving and transmitting packets of the V Series node.</p> <p>You can filter the visualizations based on the following control filters:</p> <ul style="list-style-type: none"> • Platform • Connection • V Series Node 	<i>V Series Node Maximum CPU Usage Trend</i>	<p>Line chart that displays maximum CPU usage trend of the V Series node in 5 minutes interval, for the past one hour.</p> <p>NOTE: The maximum CPU Usage trend refers to the CPU usage for service cores only. Small form factor V-series nodes do not have service cores, therefore the CPU usage is reported as 0.</p>
		<i>V Series Node with Most CPU Usage For Past 5 minutes</i>	<p>Line chart that displays Maximum CPU usage of the V Series node for the past 5 minutes.</p> <p>NOTE: You cannot use the time based filter options to filter and visualize the data.</p>
		<i>V Series Node Rx Trend</i>	<p>Receiving trend of the V Series node in 5 minutes interval, for the past one hour.</p>
		<i>V Series Network Interfaces with Most Rx for Past 5 mins</i>	<p>Total packets received by each of the V Series network interface for the past 5 minutes.</p> <p>NOTE: You cannot use the time based filter options to filter and</p>

Dashboard	Displays	Visualizations	Displays
			visualize the data.
		<i>V Series Node Tunnel Rx Packets/Errors</i>	Displays the reception of packet at the Tunnel RX. This is the input to V Series Node, Grouping by tunnel identifier comprising {monDomain, conn, VSN, tunnelName}, before aggregation.
		<i>V Series Node Tunnel Tx Packets/Errors</i>	TX is for output tunnels from VSN. V Series Node Tunnel Tx Packets/Errors
Dedup	<p>Displays visualizations related to Dedup application.</p> <p>You can filter the visualizations based on the following control filters:</p> <ul style="list-style-type: none"> • Platform • Connection • VSeries Node 	<i>Dedup Packets Detected/Dedup Packets Overload</i>	Statistics of the total dedup packets received (ipV4Dup, ipV6Dup and nonIPDup) against the dedup application overload.
		<i>Dedup Packets Detected/Dedup Packets Overload Percentage</i>	Percentage of the dedup packets received against the dedup application overload.
		<i>Total Traffic In/Out Dedup</i>	Total incoming traffic against total outgoing traffic
Tunnel (Virtual)	<p>Displays visualizations related to the tunneled traffic in both bytes as well as the number of packets.</p> <p>You can select the following control filters, based on which the visualizations will get updated:</p>	<i>Tunnel Bytes</i>	<p>Displays received tunnel traffic vs transmitted tunnel traffic, in bytes.</p> <ul style="list-style-type: none"> • For input tunnel, transmitted traffic is displayed as zero. • For output tunnel, received traffic is displayed as zero.

Dashboard	Displays	Visualizations	Displays
	<ul style="list-style-type: none"> • Monitoring session: Select the required monitoring session. The cloud platform, monitoring domain and connection within the monitoring domain that is used by the V-series node are shown in square brackets, comma-separated, after the name, to distinguish the whole path to it. • V series node: Management IP of the V Series node. Choose the required V-series node from the drop-down. • Tunnel: Select any of the tunnels shown in the Tunnel drop-down. The direction for each tunnel is shown with the prefix in or out. <p>The following statistics are displayed for the tunnel:</p> <ul style="list-style-type: none"> • Received Bytes • Transmitted Bytes • Received Packets • Transmitted Packets • Received Errored Packets • Received Dropped Packets • Transmitted Errored Packets • Transmitted Dropped Packets 	<p><i>Tunnel Packets</i></p>	<p>Displays packet-level statistics for input and output tunnels that are part of a monitoring session.</p>
<p>App (Virtual)</p>	<p>Displays Byte and packet level statistics for the applications for the chosen monitoring session on the selected V series node.</p> <p>You can select the following control filters, based on which the visualizations will get updated:</p> <ul style="list-style-type: none"> • Monitoring session • V series node • Application: Select the required application. By default, the visualizations displayed includes all the applications. 	<p><i>App Bytes</i></p>	<p>Displays received traffic vs transmitted traffic, in Bytes.</p>

Dashboard	Displays	Visualizations	Displays
	<p>By default, the following statistics are displayed:</p> <ul style="list-style-type: none"> • Received Bytes • Transmitted Bytes • Received Packets • Transmitted Packets • Errored Packets • Dropped Packets 		
		<i>App Packets</i>	Displays received traffic vs transmitted traffic, as the number of packets.
End Point (Virtual)	<p>Displays Byte and packet level statistics for the un-tunneled traffic deployed on the V-series nodes.</p> <p>The following statistics that are shown for Endpoint (Virtual):</p> <ul style="list-style-type: none"> • Received Bytes • Transmitted Bytes • Received Packets • Transmitted Packets • Received Errored Packets • Received Dropped Packets • Transmitted Errored Packets • Transmitted Dropped Packets <p>The endpoint drop-down shows <i><V-series Node Management IP address : Network Interface></i> for each endpoint.</p> <p>You can select the following control filters, based on which the visualizations will get updated:</p> <ul style="list-style-type: none"> • Monitoring session • V Series node • Endpoint: Management IP of the V Series node followed by the Network Interface (NIC) 	<i>Endpoint Bytes</i>	Displays received traffic vs transmitted traffic, in Bytes.
		<i>Endpoint Packets</i>	Displays received traffic vs transmitted traffic, as the number of packets.

NOTE: The Tunnel (Virtual), App (Virtual) and Endpoint (Virtual) dashboards do not show data from the previous releases if the *Monitoring Session [Platform : Domain : Connection]* dashboard filter is applied. This is because, this filter relies on the new attributes in the Elasticsearch database, which are available only from software version 5.14.00 and beyond.

Administer GigaVUE Cloud Suite for AWS

You can perform the following administrative tasks in GigaVUE-FM for GigaVUE Cloud Suite for AWS:

- [Configure AWS Settings](#)
- [Configure Proxy Server](#)
- [Role Based Access Control](#)
- [About Audit Logs](#)
- [About Events](#)

Configure AWS Settings

This section provides information on how to configure the maximum number of connections, refresh intervals for instance and non-instance inventory, and maximum batch size for monitoring session updates.

Navigate to **Inventory > VIRTUAL > AWS > Settings**.

Edit

Refresh interval for instance target selection inventory (secs)	120
Refresh interval for fabric deployment inventory (secs)	900
Number of G-vTap Agents per V Series Node	100
Refresh interval for G-vTAP agent inventory (secs)	900

In the Settings page, select **Advanced** tab to edit these AWS settings.

Settings	Description
Refresh interval for instance target selection inventory (secs)	Specifies the frequency for updating the state of EC2 instances in AWS.
Refresh interval for fabric deployment inventory (secs)	Specifies the frequency for deploying the fabric nodes
Number of G-vTAP Agents per V Series Node	Specifies the maximum number of instances that can be assigned to the GigaVUE V Series node. You can modify the number of instances for the nitro-based instance types
Refresh interval for G-vTAP Agent inventory (secs)	Specifies the frequency for discovering the G-vTAP Agents available in the VPC.

Refer [Troubleshoot AWS Cloud Issues](#) to troubleshoot the AWS Settings issues.

Configure Proxy Server

Sometimes, the VPC in which the GigaVUE-FM is launched may not have access to the Internet. Without Internet access, GigaVUE-FM cannot connect to the AWS API endpoints. For GigaVUE-FM to connect to AWS, a proxy server must be configured.

NOTE: To configure the proxy server, you must be a user with **fm_super_admin** role or a user with write access to the **Physical Device Infrastructure Management** category.

To create a proxy server:

1. Navigate to **Inventory > VIRTUAL > AWS > Settings**. In the Settings page, select **Proxy Server Configuration** tab to edit these AWS settings.
2. Click **Add**. The Add Proxy Server page is displayed.

Configure Proxy Server

Save

Cancel

Alias	Alias
Host	IP Address
Port	0 - 65535
Username	Username
Password	Password
<input type="checkbox"/> NTLM	

3. Select or enter the appropriate information as shown in the following table.

Field	Description
Alias	The name of the proxy server.
Host	The host name or the IP address of the proxy server.
Port	The port number used by the proxy server for connecting to the Internet.
Username	(Optional) The username of the proxy server.
Password	The password of the proxy server.
NTLM	(Optional) The type of the proxy server used to connect to the VPC. On enabling NTLM, enter the following information: <ul style="list-style-type: none"> • Domain—domain name of the client accessing the proxy server. • Workstation—name of the workstation or the computer accessing the proxy server.

4. Click **Save**. The new proxy server configuration is added to the Proxy Server Configuration page. The proxy server is also listed in the AWS Connection page.

Role Based Access Control

The Role Based Access Control (RBAC) feature controls the access privileges of users and restricts users from either modifying or viewing unauthorized data. Access privileges in GigaVUE Cloud Suite works on the same principles of access privileges in GigaVUE-FM in which the access rights of a user depends on the following:

- **User role:** A user role defines permission for users to perform any task or operation
- **User group:** A user group consists of a set of roles and set of tags associated with that group. When a user is created they can be associated with one or more groups.

To access the resources and to perform a specific operation in GigaVUE Cloud Suite you must be a user with **fm_super_admin** role or a user with write access to the following resource category depending on the task you need to perform.

Resource Category	Cloud Configuration Task
<p>Physical Device Infrastructure Management: This includes the following cloud infrastructure resources:</p> <ul style="list-style-type: none"> • Cloud Connections • Cloud Proxy Server • Cloud Fabric Deployment • Cloud Configurations • Sys Dump • Syslog • Cloud licenses • Cloud Inventory 	<ul style="list-style-type: none"> • Configure GigaVUE Cloud Components • Create Monitoring Domain and Launch Visibility Fabric • Configure Proxy Server
<p>Traffic Control Management: This includes the following traffic control resources:</p> <ul style="list-style-type: none"> • Monitoring session • Stats • Map library • Tunnel library • Tools library • Inclusion/exclusion Maps 	<ul style="list-style-type: none"> • Create, Clone, and Deploy Monitoring Session • Add Applications to Monitoring Session • Create Maps • View Statistics • Create Tunnel End Points

NOTE: Cloud APIs are also RBAC enabled.

Refer to the *GigaVUE Administration Guide* for detailed information about Roles, Tags, User Groups.

About Events

The Events page displays all the events occurring in the virtual fabric node, VM Domain, and VM manager. An event is an incident that occur at a specific point in time. Examples of events include:

- Cloud provider License Expiry
- G-vTAP Agent Inventory Update Completed
- Cloud provider Connection Status Changed

An Alarm is a response to one or more related events. If an event is considered of high severity, then GigaVUE-FM raises an alarm. An example of alarm could be your cloud provider license expiry.

The alarms and events broadly fall into the following categories: Critical, Major, Minor, or info.

Navigate to **Dashboard > SYSTEM > Events**. The Event page appears.

Events: 60 | Filter: none

Source	Time	Scope	Event Type	Severity	Affected Entity Type	Affected Entity	Description	Device IP	Host Name	Tags
VMM	202...	vNode	NodeUp	Info	Fabric Node Spec		Node Up ...			
VMM	202...	vNode	NodeReb...	Info	Fabric Node Spec		Reboot fo...			
VMM	202...	vNode	NodeUnr...	Info	Fabric Node Spec		Node Unr...			

Go to page: 1 of 9 Total Records: 60

The following table describes the parameters recording for each alarm or event. You can also use filters to narrow down the results.

Controls/ Parameters	Description
Source	The source from where the alarms and events are generated.
Time	The timestamp when the event occurred. <div style="border: 1px solid orange; padding: 5px;"> <p>IMPORTANT: Timestamps are shown in the time zone of the client browser's computer and not the timezone of the node reporting the event. The timestamp is based on the correctly configured clock on the GigaVUE-FM server and converted from UTC to the client computer's configured timezone.</p> </div>
Scope	The category to which the alarms or events belong. Alarms and events can belong to the following category: Virtual Fabric Node, VM Domain, VM Manager.

Controls/ Parameters	Description
Event Type	The type of event that generated the alarms and events.
Severity	The severity is one of Critical, Major, Minor, or Info. Info is informational messages. For example, when GigaVUE V Series nodes are installed, such a message is displayed as Info.
Affected Entity Type	The resource type associated with the alarm or event.
Affected Entity	The resource ID of the affected entity type.
Description	The description of the event, which includes any of the possible notifications with additional identifying information where appropriate.
Device IP	The IP address of the device.
Host Name	The host name of the device.

To filter the alarms and event:

1. Click **Filter**. The Filter quick view is displayed.
2. Select the filtering criteria, then click **Apply Filter**. The results are displayed in the Events page.

About Audit Logs

Audit logs track the changes and activities that occur in the virtual nodes due to user actions. The logs can be filtered to view specific information.

Navigate to **Dashboard > SYSTEM > Audit Logs**. The **All Audit Logs** page appears.

All Audit Logs									
Filter Manage									
Filter : none									
Time	User	Operation Type	Entity Type	Source	Device IP	Hostname	Status	Description	Tags
2020-1...	admin	login fmUser ad...	User	fm			SUCCESS		
2020-1...	admin	logout fmUser a...	User	fm			SUCCESS		
2020-1...	admin	login fmUser ad...	User	fm			SUCCESS		
2020-1...	admin	update monitori...	Monitoring				SUCCESS		
< < Go to page: 1 of 16 > > Total Records: 106									

The Audit Logs have the following parameters:

Parameters	Description
Time	Provides the timestamp on the log entries.

Parameters	Description
User	Provides the logged user information.
Operation Type	Provides specific entries that are logged by the system such as: <ul style="list-style-type: none"> Log in and Log out based on users. Create/Delete/Edit tasks, GS operations, maps, virtual ports, and so on.
Source	Provides details on whether the user was in FM or on the node when the event occurred.
Status	Success or Failure of the event.
Description	In the case of a failure, provides a brief update on the reason for the failure.

NOTE: Ensure that the GigaVUE-FM time is set correctly to ensure accuracy of the trending data that is captured.

Filtering the audit logs allows you to display specific type of logs. You can filter based on any of the following:

- **When:** display logs that occurred within a specified time range.
- **Who:** display logs related a specific user or users.
- **What:** display logs for one or more operations, such as Create, Read, Update, and so on.
- **Where:** display logs for GigaVUE-FM or devices.
- **Result:** display logs for success or failure.

To filter the audit logs, do the following:

1. Click **Filter**. The quick view for Audit Log Filters displays.
2. Specify any or all of the following:
 - **Start Date** and **End Date** to display logs within a specific time range.
 - **Who** limits the scope of what displays on the Audit Logs page to a specific user or users.
 - **What** narrows the logs to the types of operation that the log is related to. You can select multiple operations. Select **All Operations** to apply all operation types as part of the filter criteria.
 - **Where** narrows the logs to particular of system that the log is related to, either FM or device. Select **All Systems** apply both FM and device to the filter criteria.
 - **Result** narrows the logs related to failures or successes. Select All Results to apply both success and failure to the filter criteria.
3. Click **OK** to apply the selected filters to the Audit Logs page.

GigaVUE-FM Version Compatibility Matrix

The following tables list the different versions of GigaVUE Cloud Suite Cloud Suite fabric components available for the different versions of GigaVUE-FM.

GigaVUE-FM Version Compatibility for V Series 2 Configuration

GigaVUE-FM	G-vTAP Agent Version	G-vTAP Controller Version	GigaVUE V Series Proxy	GigaVUE V Series 2 Nodes
6.0.00	v1.8-7	v1.8-7	v2.7.0	v2.7.0
5.16.00	v1.8-5	v1.8-5	v2.6.0	v2.6.0
5.15.00	v1.8-5	v1.8-5	v2.5.0	v2.5.0
5.14.00	v1.8-4	v1.8-4	v2.4.0	v2.4.0
5.13.01	v1.8-3	v1.8-3	v2.3.3	v2.3.3
5.13.00	v1.8-2	v1.8-2	v2.3.0	v2.3.0
5.12.01	v1.8-1	v1.8-1	v2.2.0	v2.2.0
5.12.00	v1.7-1	v1.7-1	v2.1.0	v2.1.0

Glossary

This appendix lists the AWS terminologies used in this document. To find a brief definition of these terms, refer to [AWS Glossary](#).

- Access Key
- Access key ID
- Amazon API Gateway
- Amazon Elastic Compute Cloud (Amazon EC2)
- Amazon VPC
- AMI
- AWS
- AWS Identity and Access Management (IAM)
- CIDR block
- EC2 Instances
- Elastic IP address
- Endpoint
- Instance
- Instance type
- Internet gateway
- Key pair
- Secret access key
- Subnet
- Tag
- Target Instance
- Tunnel

Additional Sources of Information

This appendix provides additional sources of information. Refer to the following sections for details:

- [Documentation](#)
- [Documentation Feedback](#)
- [Contact Technical Support](#)
- [Contact Sales](#)
- [The Gigamon Community](#)

Documentation

This table lists all the guides provided for GigaVUE Cloud Suite software and hardware. The first row provides an All-Documents Zip file that contains all the guides in the set for the release.

NOTE: In the online documentation, view [What's New](#) to access quick links to topics for each of the new features in this Release; view [Documentation Downloads](#) to download all PDFs.

Table 1: Documentation Set for Gigamon Products

GigaVUE Cloud Suite 6.0 Hardware and Software Guides
DID YOU KNOW? If you keep all PDFs for a release in common folder, you can easily search across the doc set by opening one of the files in Acrobat and choosing Edit > Advanced Search from the menu. This opens an interface that allows you to select a directory and search across all PDFs in a folder.
Hardware how to unpack, assemble, rack-mount, connect, and initially configure ports the respective GigaVUE Cloud Suite devices; reference information and specifications for the respective GigaVUE Cloud Suite devices
*G-TAP A Series 2 Installation Guide
GigaVUE-HC1 Hardware Installation Guide
GigaVUE-HC2 Hardware Installation Guide
GigaVUE-HC3 Hardware Installation Guide
GigaVUE-HC1-PLUS Hardware Installation Guide
GigaVUE M Series Hardware Installation Guide
GigaVUE-TA25 Hardware Installation Guide

GigaVUE Cloud Suite 6.0 Hardware and Software Guides

GigaVUE-TA200 Hardware Installation Guide

GigaVUE-TA400 Hardware Installation Guide

GigaVUE-TA10 Hardware Installation Guide

GigaVUE-TA40 Hardware Installation Guide

GigaVUE-TA100 Hardware Installation Guide

GigaVUE-TA100-CXP Hardware Installation Guide

***GigaVUE-OS Installation Guide for DELL S4112F-ON**

GigaVUE-FM Hardware Appliance Guide for GFM-HW1-FM010 and and GFM-HW1-FM001-HW

Software Installation and Upgrade Guides

GigaVUE-FM Installation, Migration, and Upgrade Guide

GigaVUE-OS Upgrade Guide

Fabric Management and Administration Guides

GigaVUE Administration Guide

covers both GigaVUE-OS and GigaVUE-FM

GigaVUE Fabric Management Guide

how to install, deploy, and operate GigaVUE-FM; how to configure GigaSMART operations; covers both GigaVUE-FM and GigaVUE-OS features

Cloud Guides

how to configure the GigaVUE Cloud Suite components and set up traffic monitoring sessions for the cloud platforms

GigaVUE V Series Quick Start Guide

GigaVUE Cloud Suite for AWS—GigaVUE V Series 2 Guide

GigaVUE Cloud Suite for Azure—GigaVUE V Series 2 Guide

GigaVUE Cloud Suite for OpenStack—GigaVUE V Series 2 Guide

GigaVUE Cloud Suite for VMware—GigaVUE V Series Guide

GigaVUE Cloud Suite for AnyCloud Guide

Universal Container Tap Guide

Gigamon Containerized Broker Guide

GigaVUE Cloud Suite for Kubernetes Guide

GigaVUE Cloud Suite for AWS—GigaVUE V Series 1 Guide

GigaVUE Cloud Suite 6.0 Hardware and Software Guides	
GigaVUE Cloud Suite for OpenStack–GigaVUE V Series 1 Guide	
GigaVUE Cloud Suite for Nutanix Guide	
GigaVUE Cloud Suite for VMware—GigaVUE-VM Guide	
Reference Guides	
GigaVUE-OS CLI Reference Guide	library of GigaVUE-OS CLI (Command Line Interface) commands used to configure and operate GigaVUE HC Series and TA Series devices
GigaVUE-OS Cabling Quick Reference Guide	guidelines for the different types of cables used to connect Gigamon devices
GigaVUE-OS Compatibility and Interoperability Matrix	compatibility information and interoperability requirements for Gigamon devices
GigaVUE-FM REST API Reference in GigaVUE-FM User's Guide	samples uses of the GigaVUE-FM Application Program Interfaces (APIs)
Release Notes	
GigaVUE-OS, GigaVUE-FM, GigaVUE-VM, G-TAP A Series, and GigaVUE Cloud Suite Release Notes	new features, resolved issues, and known issues in this release ; important notes regarding installing and upgrading to this release
NOTE: Release Notes are not included in the online documentation.	
NOTE: Registered Customers can log in to My Gigamon to download the Software and Release Notes from the Software & Docs page on to My Gigamon . Refer to How to Download Software and Release Notes from My Gigamon .	
In-Product Help	
GigaVUE-FM Online Help	how to install, deploy, and operate GigaVUE-FM.

How to Download Software and Release Notes from My Gigamon

Registered Customers can download software and corresponding Release Notes documents from the **Software & Release Notes** page on to [My Gigamon](#). Use the My Gigamon Software & Docs page to download:

- Gigamon Software installation and upgrade images,
- Release Notes for Gigamon Software, or
- Older versions of PDFs (pre-v5.7).

To download release-specific software, release notes, or older PDFs:

1. Log in to [My Gigamon](#)
2. Click on the **Software & Release Notes** link.
3. Use the **Product** and **Release** filters to find documentation for the current release. For example, select Product: "GigaVUE-FM" and Release: "5.6," enter "pdf" in the search box, and then click **GO** to view all PDF documentation for GigaVUE-FM 5.6.xx.

NOTE: My Gigamon is available to registered customers only. Newer documentation PDFs, with the exception of release notes, are all available through the publicly available online documentation.

Documentation Feedback

We are continuously improving our documentation to make it more accessible while maintaining accuracy and ease of use. Your feedback helps us to improve. To provide feedback and report issues in our documentation, send an email to:

documentationfeedback@gigamon.com

Please provide the following information in the email to help us identify and resolve the issue. Copy and paste this form into your email, complete it as able, and send. We will respond as soon as possible.

Documentation Feedback Form		
About You	Your Name	
	Your Role	
	Your Company	
For Online Topics	Online doc link	<i>(URL for where the issue is)</i>
	Topic Heading	<i>(if it's a long topic, please provide the heading of the section where the issue is)</i>

For PDF Topics	Document Title	<i>(shown on the cover page or in page header)</i>
	Product Version	<i>(shown on the cover page)</i>
	Document Version	<i>(shown on the cover page)</i>
	Chapter Heading	<i>(shown in footer)</i>
	PDF page #	<i>(shown in footer)</i>
How can we improve?	Describe the issue	<i>Describe the error or issue in the documentation. (If it helps, attach an image to show the issue.)</i>
	How can we improve the content? Be as specific as possible.	
	Any other comments?	

Contact Technical Support

For information about Technical Support: Go to **Settings**  > **Support** > **Contact Support** in GigaVUE-FM.

You can also refer to <https://www.gigamon.com/support-and-services/contact-support> for Technical Support hours and contact information.

Email Technical Support at support@gigamon.com.

Contact Sales

Use the following information to Gigamon channel partner or Gigamon sales representatives.

Telephone: +1.408.831.4025

Sales: inside.sales@gigamon.com

Partners: www.gigamon.com/partners.html

Premium Support

Email Gigamon at inside.sales@gigamon.com for information on purchasing 24x7 Premium Support. Premium Support entitles you to round-the-clock phone support with a dedicated Support Engineer every day of the week.

The Gigamon Community

The **Gigamon Community** is a technical site where Gigamon users, partners, security and network professionals and Gigamon employees come together to share knowledge and expertise, ask questions, build their network and learn about best practices for Gigamon products.

Visit the Gigamon Community site to:

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- Ask and answer questions and learn best practices from other members.
- Join special-interest groups to have focused collaboration around a technology, use-case, vertical market or beta release
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- Submit and vote on feature enhancements and share product feedback. (Customers only)
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The Gigamon Community is a great way to get answers fast, learn from experts and collaborate directly with other members around your areas of interest.

Register today at community.gigamon.com

Questions? Contact our Community team at community@gigamon.com.

Glossary

D

decrypt list

need to decrypt (formerly blacklist)

decryptlist

need to decrypt - CLI Command (formerly blacklist)

drop list

selective forwarding - drop (formerly blacklist)

F

forward list

selective forwarding - forward (formerly whitelist)

L

leader

leader in clustering node relationship (formerly master)

M

member node

follower in clustering node relationship (formerly slave or non-master)

N

no-decrypt list

no need to decrypt (formerly whitelist)

nodecryptlist

no need to decrypt- CLI Command (formerly whitelist)

P

primary source

root timing; transmits sync info to clocks in its network segment (formerly grandmaster)

R

receiver

follower in a bidirectional clock relationship (formerly slave)

S

source

leader in a bidirectional clock relationship (formerly master)