

**Technical White Paper** 

# Dell EMC PowerProtect Data Manager: Deployment and configuration on Amazon Web Services

Next generation software platform for proven and modern cloud data protection

#### Abstract

This white paper explains on how to deploy and configure Dell EMC<sup>™</sup> PowerProtect Data Manager on Amazon Web Services (AWS) for seamless protection of workloads on AWS cloud.

June 2021

## Revisions

Date	Description
June 2021	Initial release

### Acknowledgments

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### **Executive summary**

As more enterprises adopt a multi-cloud strategy, leveraging a common data protection solution across the onpremises infrastructure and the public cloud will enable enterprises to achieve operational efficiencies and save costs.

For organizations that have workloads running in AWS cloud and need self-service backup and restores from enterprise application tools, Dell EMC PowerProtect Data Manager provides data protection of workloads in AWS and AWS GovCloud.

Data owners and administrators can deploy Data Manager with automation from the AWS Marketplace to protect business-critical workloads in the cloud. Data Manager enables the protection of traditional workloads including Oracle, SQL, SAP HANA, and file systems as well as cloud native applications running in Kubernetes containers. Data Manager along with Dell EMC PowerProtect DD Virtual Edition (DDVE) provide high level of performance and deduplication.

### Audience

This white paper is intended for Dell Technologies customers, partners and employees looking for options to protect the workloads hosted on AWS using Data Manager and DDVE.

## 1 Introduction

## 1.1 Dell EMC PowerProtect Data Manager for AWS

Data Manager is a software-defined data protection software that can be installed in minutes on AWS cloud. Data Manager enables the transformation from traditional centralized protection to an IT-as-a-service model based on a self-service design.

Data Manager on AWS enables protection of traditional workloads including Oracle, SQL, SAP HANA, and file systems as well as cloud native applications running in Kubernetes containers or VMs running in VMware Cloud.

Data Manager and DDVE can be deployed as one package from AWS Marketplace. DDVE on AWS can also be deployed outside of the Data Manager deployment process. DDVE runs up to 256TB per instance in-cloud and supports AWS Government Cloud. Data Manager includes a 90-day trial license by default.



Using the AWS CloudFormation template, Data Manager can be deployed to an Elastic Compute Cloud (EC2) instance in a Virtual Private Cloud (VPC). Data Manager is deployed with a private IP address. A VPN gateway configuration is required to access Data Manager from an external site.

Data Manager deployed on AWS cloud requires DDVE as the protection storage appliance. DDVE is a software-only protection storage appliance that provides data protection for entry, enterprise, and service-provider environments. With Data Manager and DDVE on AWS, the business-critical workloads deployed on AWS cloud can be protected.

#### 1.2 Basic architecture overview

The following diagram represents the basic architecture of Data Manager on AWS. The diagram shows a possible distribution of Data Manager and DDVE in one private subnet, and application hosts in another.



The Data Manager lockbox is in a secure Elastic Block Store (EBS) volume, where sensitive data, such as passwords, is encrypted and stored. Backup data is stored in a Simple Storage Services (S3) bucket, and the backup metadata is stored on a DDVE EBS volume.

Please see <u>Dell EMC PowerProtect Data Manager Amazon Web Services Deployment Guide</u> for more details on the different architecture models.

### 1.3 AWS data-transfer costs

Amazon charges the monthly fee based on the amount and types of data transferred by Data Manager and DDVE in AWS cloud.

- Most of the data that is transferred in an AWS cloud occurs between the hosts being protected and DDVE
- If Kubernetes is being used, data is also transferred between the protection engine hosts and DDVE
- Amazon does not have data-transfer fees for hosts that are in the same availability zone (AZ)

For pricing of Amazon monthly hosting in general, see the <u>Amazon Pricing Calculator</u>. For details on Amazon data-transfer fees, see <u>Amazon EC2 Pricing</u>

<u>Note</u> - To minimize data-transfer costs, minimize the path that data transfers take by using as few availability zones and regions as possible.

## 2 Deploying Data Manager and DDVE on AWS

### 2.1 Preparing for deployment

- 1. For a secure login to Data Manager, create an EC2 key access pair. See Amazon EC2 Key Pairs for instructions.
- 2. Set up the network environment. For secure access to the Data Manager on AWS, it is recommended to use the VPC architecture provided by AWS.

Set up and configure the following components:

- VPC
- subnet
- Route tables
- Security groups
- A network access control list
- VPC Gateway endpoint for connectivity to S3

### 2.2 Deployment requirements

- 1. Create an AWS account. To set up an account, navigate to https://aws.amazon.com/getting-started/
- As per AWS recommendation, create an identity and access management (IAM) user or role for authenticating with AWS and The IAM user must be allowed to perform AWS CloudFormation actions.
- 3. As a Security and operational best practices, Enable AWS CloudTrail logs to enable governance, compliance, and operational and risk auditing of AWS account.
- 4. IAM role that enables DDVE access to S3.
- 5. Empty S3 bucket name for automatic configuration.
- 6. Data Manager NTP server for Data Manager automatic configuration.
- 7. VPC DNS requirements DNS resolution is critical for the deployment and configuration of the Data Manager external proxy and the Data Manager and DDVE appliances. Every infrastructure component should be resolvable through a fully qualified domain name (FQDN). Both forward (A) and reverse (PTR) lookups are required. When configuring VPC DNS, enable the following:
  - DNS resolution
  - DNS hostnames

Note: DNS hostnames are disabled by default when a VPC is created.

See <u>Dell EMC PowerProtect Data Manager Amazon Web Services Deployment Guide</u> and <u>Dell EMC</u> <u>PowerProtect DDVE on Amazon Web Services Installation and Administration Guide</u> for more details on prerequisites for deploying Data Manager and DDVE on Azure.

### 2.3 Network interoperability

- 1. VMware Cloud interoperability Data Manager for AWS supports all the features that are supported by VMC on AWS.
- DNS configuration If using a custom DNS server, a DNS server must be configured to be used for name resolution of hosts in the VMC-on-AWS and Data Manager-on-AWS networks. This server can be in either the VMC-on-AWS network or the Data Manager-on-AWS network.

Forward and reverse lookups are required for the following hosts:

- the Data Manager instance
- all DDVE instances
- the VM Direct protection engines
- vCenter and ESXi

Set this DNS server as the primary DNS server for the Data Manager instance once it has been deployed.

3. **Network traffic rules** - Network traffic rules must be configured for hosts in the Data Manager-on-AWS network to communicate with hosts in the VMC-on-AWS network.

Data Manager requires inbound and outbound traffic between it and the following hosts in the VMC-on-AWS network:

- the VM Direct protection engines
- the primary DNS server
- vCenter and ESXi

DDVE instance requires inbound and outbound traffic between them and the VM Direct protection engines in the VMC-on-AWS network. To configure DDVE traffic rules, see the <u>PowerProtect Data Manager</u> <u>Administration and User Guide.</u>

### 2.4 Steps to deploy Data Manager and DDVE on AWS

- 1. In a browser, navigate to https://aws.amazon.com/marketplace
- 2. Search for PowerProtect Data Manager and PowerProtect DD Virtual Edition in the search field.

🐙 aws marketplace Categories 👻 Delivery Methods 👻 Solutions 👻 AWS 1Q 🛩	Resources - Your Sever Elat Manager and PowerProtect DD Virtual Edition	Hello, vinod.kumar * tners Sell in AWS Marketplace Amazon Web Services Home Help
	Accelerate your Migration be an all of the migration process increasing your competitive edge. NUM MIGRATION TOOLS My Marketplace is a digital catalog with thousands of software listings from independent Software vendors that make it easy to find, test, buy, and deploy software that runs on ARS. My Marketplace is a digital catalog with thousands of software listings from independent Software vendors that make it easy to find, test, buy, and deploy software that runs on ARS.	See resources and available in AWS M to help with COVID
	Find AWS Marketplace products that meet your needs.       Categories     Vendors       All categories     All vendors       Over 10,000 results     Clear selection	
	Popular Categories	

3. Select Dell EMC PowerProtect Data Manager and PowerProtect DD Virtual Edition.



4. Select Continue to Subscribe.



5. Select Continue to Configuration.



- 6. Select the following configuration and choose Continue to Launch.
  - Delivery Method Select the Cloud Formation Template
  - Software Version Select the correct version
  - Region Select where to deploy Data Manager and DDVE

😋 aws marketplace	Q	Hello, vinod.kumar 👻
Categories   Delivery Methods  Solutions  AWS IQ  Resources  Your Saved List	Partners Sell in AWS Marketplace	Amazon Web Services Home Help
DELLEMC Dell EMC PowerProtect Data Manager and PowerProtect DD Virtual Edition	Continue to Launch	]
Product Detail Subscribe Configure          Configure this software         Choose a fulfillment option below to select how you wish to deploy the software, then enter the information required to configure the deployment.	Pricing information This is an estimate of typical software and infrastructure costs based on your configuration. Your actual charges for each statement period may differ from	
Delivery Method Dell EMC PowerProtect Data Manager and PowerP v Software Version PowerProtect Data Manager 19.8 and PowerProtec v Whats in This Version Dell EMC PowerProtect Data Manager running on m5.2 darage Dell EMC PowerProtect DD Virtual Edition	this estimate. Software Pricing Dell EMC \$0/hr PowerProtect Data Manager BYOL Crunning on m5.2xlorge Dell EMC \$0/hr PowerProtect DD Virtual Edition BYOL	
Learn more Region US East (N. Virginia) V Use of Local Zones or Wavel enoth infrastructure deployment may alter your final pricing	Infrastructure Pricing EC2: 1 * m5.2xlarge Monthly Estimate: \$281.00/month	

7. Review the configuration details, Choose Launch Cloud Formation from Choose Action option and select Launch.

🐥 aws marketplace			Q. Hello, vinodkumar v
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	Configuration Details Fulfillment Option Software Version Region Usage Instructions	Dell EMC PowerProtect Data Manager and PowerProtect DD Virtual Edition Dell EMC PowerProtect Data Manager noming on m5 Jalarge Dell EMC PowerProtect DD Virtual Edition noming m m5 Jalarge PowerProtect Data Manager 19.8 and PowerProtect DD Virtual Edition 6.0 with DDDS 7.6.0.5 US East (N. Virginia)	
	Choose Action	Choose this action to launch your configuration through the AWS CloudFormation console.	

8. From the CloudFormation > Stacks > Create stack pane, click Next.

aws	Services	<b>Q</b> Search for services, features, marketplace products, and docs	[Alt+S] D 🕹	vinod.kuma 🔹 🗸 N. Virginia 🔻
≡	CloudFormation > Stacks > Create	stack		
	Step 1 Specify template	Create stack		
	Step 2 Specify stack details	Prerequisite - Prepare template		
	Step 3	Prepare template Every stack is based on a template. A template is a JSON or YAML file that contains configuration in	nformation about the AWS resources you want to include in the stac	ck.
	Configure stack options	• Template is ready Use a sample template	<ul> <li>Create template in Designer</li> </ul>	
	Step 4 Review			
		Specify template A template is a JSON or YAML file that describes your stack's resources and properties.		
		Template source Selecting a template generates an Amazon S3 URL where it will be stored.		
		Amazon S3 URL	Jpload a template file	
		Amazon S3 URL		
		https://awsmp-fulfillment-cf-templates-prod.s3-external-1.amazonaws.com/3418 Amazon S3 template URL	4f38-a15f-4c24-b351-6cfbe87e58dd/4f73bd39c9074aa7	787d69€
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			Cancel	Next

9. From the **CloudFormation > Stacks > Create stack > Specify stack details** pane, enter a name for the Data Manager in the Stack name text box and specify additional stack details and select **Next**.

aws	Services 🔻	Q Search for services, features, marketplace pro	ducts, and docs	[Alt+S]
=				
	CloudFormation > Stacks > Create:	stack		
	Step 1 Specify template	Specify stack details		
	Step 2 Specify stack details	Stack name		
		Stack name		
	Configure stack options	PPDM		
		Stack name can include letters (A-Z and a-z), numbers (0-9), and dashes (-).		
	Step 4 Review			
		Parameters Parameters are defined in your template and allow you to input custom values when you create or update a stack.		
		PowerProtect Data Manager Instance Configuration IAM Role (Optional) The IAM Role that grants the access of the resources for Data Manager EC2 instance. For example, the access to S3 bucket. This field can be empty.	_	
		VPC ID VPC ID of your existing Virtual Private Cloud (VPC).		
		vpc-86c3f8e0 (172.31.0.0/16)	•	
		Subnet ID Subnet ID in your Virtual Private Cloud (VPC).		
		subnet-53b6e236 (172.31.0.0/20)	•	
		Private IP Address (Optional) Assign Data Manager EC2 instance a private IP address in your Virtual Private Cloud (VPC). Will automatically generate one for you if this field is empty.		
		Enable Public IP Address Associates a public IP-4 address for Data Manager.		
		No	•	
		Security Group ID (Optional) Security group that can be used to access the Data Manager EC2 instances. Will automatically generate one for you if this field is empty.		
		IP Range Permitted for Inbound Communication The IP address range allowed to connect to Data Manager and DOVE instance. This range will apply to the new security groups automatically generated for Data Manager and DOVE. Specify a single IP address, or an IP address range in CIDR notation (for example, 192.168.0.0/16). 0.0.0.0/0	d	
		Key Pair Key Pair that can be used to access the EC2 instances.		
		PPDM	•	
		PowerProtect Data Manager DNS Configuration (Optional) Enable DNS Configuration If using your own DNS server (Select 'Yes'), specify the IP addresses of the DNS servers below and the static IP address for Data Manager instance in the 'Private IP Address (Optional)' field above. If using AWS DNS (Select 'No'), the feilds can be left empty to have AWS assign a private IP address in your Virtual Private Cloud (VPC) and a corresponding hostname.		
		No	·	
		DNS Server Specify the IP address(es) of up to three DNS servers, delimited by commas.		
		FQDN Specify the FQDN (Fully Qualified Domain Name) for your Data Manager EC2 Instance.		

**DDVE instance configuration (Optional)** - Select **Yes** to deploy and launch a DDVE instance in the same subnet as Data Manager. Enter the configuration settings that will be applied to the DDVE instance.

DD Virtual Edition Instance Configuration (Optional) Launch DDVE Instance Launch a DDVE Instance in the same subnet with the Data Manager instance. The selection for IP Range Permitted for Inbound Communication and Key Pair will be applied to the DDVE instance as well.	
Yes 🔻	
DDVE Model	
16TB-Modelm5.xlarge	
Override default Metadata disks Recommended metadata disk storage is 10% of the total capacity. The default number of metadata disks attached for each model : 16 TB Model - 2 * 1 TiB disks, 32 TB Model - 4 * 1 TiB disks, 96 TB Model - 10 * 1 TiB disks, 256 TB Model - 13 * 2 TiB disks. Override the default number of metadata disks below:	
Default 🔻	
IAM Role for \$3 access The IAM Role that grants \$3 access to the DDVE instance. If it is not already created, you can click this URL: https://console.aws.amazon.com/iam/home#/roles to create the IAM role. Alternatively, you can leave this field blank to create and attach the IAM role later to the DDVE instance.	
Security Group ID (Optional) Security group that can be used to access the DOVE EC2 instances. Will automatically generate one for you if this field is empty.	

**Data Manager automatic configuration (Optional)** - Select **Yes** to enable **Automatic Configuration Settings** and to **Accept Product End User License Agreement (EULA)**. Enter the configuration settings that will be automatically applied to the Data Manager and DDVE instances when the stack is deployed.

Automatic Configuration Settings (Optional)	
Enable Automatic Configuration and Access Product End User License Agreement (EULA)	
Ensure networks, compared to terms and noticiple Product End Osci Eletted agreentent (EUCA) By selection "Vec" was any end terms and conditions outlined in the product End User Lineage Antenenat (EULA)	
by assecting the you agree to term and commercial+Terms in the product one activities and the green and DVE (if Jaunched within the same stack) will be automatically configured with the	
properties below after the deployment. By selecting "No", automatic configuration is disabled. The properties below can be left empty. You can configure Data Manager or start	
ServerDR recovery from Data Manager installer UI after the deployment.	
No	
NO	
Allow Stack Optimization	
Selecting "Yes" will allow Data Manager to notify the CloudFormation stack when configuration has either completed or failed. As a prerequisite for this optional optimization,	
an S3 endpoint must be setup for the selected VPC and subnet. Refer to the "PowerProtect Data Manager AWS Deployment Guide" for more details.	
No	
NO Y	
Data Manager Common Password	
Data Manager common password. Hint: Password must contain at least 9 characters, one digit, one special character, one lowercase character, one uppercase character and no	
more than 128 characters.	
Data Manager Common Password Confirmation	
Confirmation of Data Manager common password.	
Data Manager Timezone	
Select a time zone for Data Manager.	
UTC - Coordinated Universal Time	
Data Manager NTP Server (Optional)	
Data Manager NTP servers, deumited by commas.	
DDVF Common Password	
DIVIC common reserved. Only reactify the persuand when DIVIC is Jaurehed within the same stark. Lint-Descured must contain at last 0 characters and disk are contained.	
characters, one lowerse characters one uppersue characters in spaces and no more than 100 characters.	
DDVE Common Password Confirmation	
Confirmation of DDVE common password.	
DDVE S3 Bucket Name	
The S3 bucket must be created prior to the stack creation and it must be an empty bucket. Only specify the bucket name when DDVE is launched within the same stack.	
Cancel Previous Next	

- 10. From the CloudFormation > Stacks > Create stack > Configure stack options page:
  - a. Either enable or disable Rollback on failure.

Note - Selecting Disabled is recommended.

- If Enabled, stack optimization was enabled, and automatic configuration was enabled but fails, then the deployment of Data Manager will be aborted
- If Disabled and automatic configuration was enabled but fails, then the instances must be manually configured after deployment
- b. Click Next.

aws	Services 🔻	Q Search for services, features, marketplace products, and docs [Alt+S]
≡	CloudFormation > Stacks > Creat	e stack
	Step 1 Specify template	Configure stack options
	Step 2 Specify stack details	Tags You can specify tags (key-value pairs) to apply to resources in your stack. You can add up to 50 unique tags for each stack. Learn more 🗹
	Step 3 Configure stack options	Key Value Remove
	Step 4 Review	Add tag
		Permissions Choose an IAM role to explicitly define how CloudFormation can create, modify, or delete resources in the stack. If you don't choose a role, CloudFormation uses permissions based on your user credentials. Learn more 🖸
		IAM role - optional Choose the IAM role for CloudFormation to use for all operations performed on the stack.
		IAM role name  Sample-role-name Remove
		Advanced options You can set additional options for your stack, like notification options and a stack policy. Learn more 🔀
		Stack policy     Defines the resources that you want to protect from unintentional updates during a stack update.
		Rollback configuration Specify alarms for CloudFormation to monitor when creating and updating the stack. If the operation breaches an alarm threshold, CloudFormation rolls it back. Learn more
		Notification options
		Stack creation options
		Cancel Previous Next

11. From the **CloudFormation > Stacks > Create stack > Review Stack Name** pane, review the information provided and Click **Create Stack** to create the Data Manager and DDVE instance.

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Proof intergraphic of the stack options		PPDMW inservers				
		PPDMSecurityGroup				
reversubments     aubent-31586236       PPDMTimeZone     U5/Central - Central Standard Time       PPDMTimeZone     upc-86c3f8x0   Step 3: Configure stack options       Tags (0)     Configure stack options         Rey     Value         No tags   There are no tags defined for this stack       Permissions		Promotecurity Group		-		
Protein imezone US/central - Central Standard Time PPDMVpcid vpc-d6c/f8x0  Step 3: Configure stack options  Tags (0)  C Search tags  Key Value  No tags There are no tags defined for this stack  Permissions There is no IAM role associated with this stack		PPD/mounetia		subnet-55b5e236	ter de al Time	
Interview of the stack options         Tags (0)       Q. Search tags       Key     Value       No tags       There are no tags defined for this stack.         Permissions       No permissions		PPDM (IMEZONE		us/central - Central S	tandard Time	
Step 3: Configure stack options          Tags (0)         Q. Search tags:         Key       Value         No tags         There are no tags defined for this stack:		PPUMVpcId		vpc-86c318e0		
Tags (0)         Q. Search tags         Key       Value         No tags         There are no tags defined for this stack.         Permissions         No permissions         There in no UMY role associated with this stack.		itep 3: Configure stack options				Edit
		<b>Tags</b> (0)				
Key     Value       No tags       There are no tags defined for this stack:         Permissions       No permissions   There is no UMY role associated with this stack:		Q Search tags				
Key     Value       No tags     No tags       There are no tags defined for this stack     Image: Comparison of the stack of						
No tags There are no tags defined for this stack		Key	•	Value		$\nabla$
Permissions No permissions There is no UAP role associated with this stack			No There are no tags	defined for this stack		
No permissions There is no IAM role associated with this stack		Permissions				
			No pe There is no IAM role a	rmissions associated with this stac	k	
Stack policy		Stack policy				
No stack policy There is no stack policy defined			No sta There is no sta	rck policy		

Rollback configuration         Mexintering time         -         CloudWatch alarm ARM         -         Notification options         Notification options         Stack creation options         Rollback on falure         Enabled         Timeout         -         -         Timeout         -         Timeout         -         Timeout         -         -         Timeout         -         -         Timeout         -         -         Timeout         -         -         Timeout
Monitoring time         CloudWatch alarm ARN         -         CloudWatch alarm ARN         -         Rollback on falure         Enabled         Timeout         -
CloudWatch alarm ARM         -         Notification options         No notification options         There are no notification options defined         Stack creation options         Rollback on falure         Enabled         Timeout         -         Temeout         -         Timeout         -         Temeout         -         Tempo         Tempo
Notification options         No notification options         There are no notification options defined         Stack creation options         Roliback on failure         Enabled         Timeout         -         Termination protection         Diabled
Notification options         No notification options         There are no notification options defined         Stack creation options         Rollback on falure         Enabled         Timeout         -         Termination protection         Termination protection
Stack creation options         Rollback on failure         Enabled         Timeout         -         Temotot         Diabled
Stack creation options         Bolback on failure         Enabled         Timeout         -         Termination protection         Diabled
Stack creation options         Rollback on failure         Enabled         Timeout         -         Termination protection         Disabled
Rollback on failure Enabled Timeout - Termination protection Disabled
Rolback on fallure Enabled Timeout - Termination protection Disabled
Timeout - Termination protection Disabled
- Termination protection Disabled
Termination protection Disabled
Quick-create link
Capabilities
The following resource(s) require capabilities: [AWS::CloudFormation::Stack]
This template contains identity and Access Management (IAM) resources. Check that you want to create each of these resources and that they have the minimum required permissions. In addition, they have custom names. Check that the custom names are unique within your AWS account. Learn more [2]
For this template, MSS CloudFormation might require an unrecognized capability: CAPABILITY_AUTO_EXPAND. Check the capabilities of these resources. Learn more 🖸
I acknowledge that AWS Cloud Formation might create IAM resources with custom names.
I acknowledge that AWS CloudFormation might require the following capability:     CAPABILITY_AUTO_EXPAND
Cancel Previous Create change set

12. Monitor the stack creation in progress and wait until **CREATE\_COMPLETE** is displayed.

a	MS Services ▼		Q Search for services, features, marketplace products, and docs	(Alt+S)		🔻 N.Virginia 🔻
=	Cloudformation > Stacks > PPDM					
	🗉 Stacks (1) 🛛 📿	PPDM				Delete Update Stack actions v Create
	Q. Filter by stock name	Stack info Events Resources Outputs	Parameters Template Change sets			
	Active View nested	· · · · · · · · · · · · · · · · · · ·				
	< 1 >	Events (20)				
	PPDM O	O. South events				
	CREATE_IN_PROGRESS					
		Timestamp	v Logical ID	Status	Status reason	
		2021-05-26 17:20:52 UTC+0550	PPDMEc2Instance	CREATE_IN_PROGRESS	Resource creation Initiated	
		2021-05-26 17:20:30 UTC+0530	PPDMEc2Instance	CREATE_IN_PROGRESS		
		2021-05-26 17:20:26 UTC+0530	PPDMSecurityGroupNew	⊘ CREATE_COMPLETE	· ·	
		2021-05-26 17:20:23 UTC+0550	DDVEStackWRhParams	CREATE_IN_PROGRESS	Resource creation Initiated	
		2021-05-26 17:20:22 UTC+0530	DDVEStackWRhParams	CREATE_IN_PROGRESS		
		2021-05-26 17:20:18 UTC+0530	DDVESecurityGroupNew	⊘ CREATE_COMPLETE	+	
		2021-05-26 17:20:16 UTC+05:50	DDVESecurityGroupNew	CREATE_IN_PROGRESS	Resource creation Initiated	
		2021-05-26 17:20:16 UTC+0530	PPDMSecurityGroupNew	CREATE_IN_PROGRESS	Resource creation Initiated	
		2021-05-26 17:20:12 UTC+0530	DDVESecurityGroupNew	CREATE_IN_PROGRESS		
		2021-05-26 17:20:11 UTC+0530	PPDMSecurityGroupNew	CREATE_IN_PROGRESS	÷	
		2021-05-26 17:20:10 UTC+0530	PPDMConfigurationHandle	CREATE_COMPLETE		
		2021-05-26 17:20:10 UTC+0530	DDVEConfigurationHandle	⊘ CREATE_COMPLETE		
		2021-05-26 17:20:10 UTC+05:50	PPDMConfigurationHandle	CREATE_IN_PROGRESS	Resource creation Initiated	
		2021-05-26 17:20:10 UTC+0530	DDVEConfigurationHandle	CREATE_IN_PROGRESS	Resource creation initiated	
		2021-05-26 17:20:10 UTC+0530	DDVEIntegrationHandle	⊘ CREATE_COMPLETE		
		2021-05-26 17:20:10 UTC+0530	DDVEIntegrationHandle	CREATE_IN_PROGRESS	Resource creation Initiated	
		2021-05-26 17:20:10 UTC+0530	DDVEConfigurationHandle	CREATE_IN_PROGRESS		
		2021-05-26 17:20:10 UTC+0530	PPDMConfigurationHandle	CREATE_IN_PROGRESS		
		2021-05-26 17:20:10 UTC+0530	DDVEIntegrationHandle	CREATE_IN_PROGRESS	-	
		2021-05-26 17:20:01 UTC+0530	PPDM	CREATE_IN_PROGRESS	User Initiated	

13. The Data Manager and DDVE instance has been successfully created using the Cloud Formation template.

aw	§ Services ♥	Q. Searce	ch for services, features, marketplace products, and docs [Alt+S]	]		I. Virginia 🔻
=	CloudFormation > Stacks > PPDM					
	🖻 Stacks (1) 🛛 📿	PPDM				Delete Update Stack actions 🔻 Create s
	Q. Filter by stock name	Stack info Events Resources Outputs Parameters	Template Change sets			
	Active View nested					
L CT		Events (23)				
	PPDM 2021-05-26 17:20:01 UTC+0530	Q. Search events				
	@ CREATE_COMPLETE					
		Timestamp v	Logical ID	Status	Status reason	
		2021-05-26 17:22:00 UTC+0530	PPDM	⊘ CREATE_COMPLETE		
		2021-05-26 17:21:58 UTC+0530	DDVEStackWithParams	CREATE_COMPLETE		
		2021-05-26 17:20:48 UTC+0530	PPDMEc2Instance	⊘ CREATE_COMPLETE	•	
		2021-05-26 17:20:32 UTC+0530	PPDMEc2Instance	CREATE_IN_PROCRESS	Resource creation initiated	
		2021-05-26 17:20:30 UTC+0530	PPDMEc2Instance	CREATE_IN_PROGRESS		
		2021-05-26 17:20:26 UTC+0530	PPDMSecurityGroupNew	⊘ CREATE_COMPLETE		
		2021-05-26 17:20:23 UTC+0530	DDVEStackWithParams	CREATE_IN_PROGRESS	Resource creation initiated	
		2021-05-26 17:20:22 UTC+0530	DDVEStackWithParams	CREATE_IN_PROGRESS	•	
		2021-05-26 17:20:18 UTC+0530	DDVESecurityGroupNew	CREATE_COMPLETE		
		2021-05-26 17:20:16 UTC+0530	DDVESecurityGroupNew	CREATE_IN_PROGRESS	Resource creation initiated	
		2021-05-26 17:20:16 UTC+0530	PPDMSecurityGroupNew	CREATE_IN_PROGRESS	Resource creation initiated	
		2021-05-26 17:20:12 UTC+0530	DDVESecurityGroupNew	CREATE_IN_PROGRESS		
		2021-05-26 17:20:11 UTC+0530	PPDMSecurityGroupNew	CREATE_IN_PROGRESS		
		2021-05-26 17:20:10 UTC+0530	PPDMConfigurationHandle	CREATE_COMPLETE		
		2021-05-26 17:20:10 UTC+0530	DDVEConfigurationHandle	CREATE_COMPLETE		
		2021-05-26 17:20:10 UTC+0530	PPDMConfigurationHandle	CREATE_IN_PROGRESS	Resource creation initiated	
		2021-05-26 17:20:10 UTC+0530	DDVEConfigurationHandle	CREATE_IN_PROGRESS	Resource creation initiated	
		2021-05-26 17:20:10 UTC+0530	DDVEIntegrationHandle	CREATE_COMPLETE	+	
		2021-05-26 17:20:10 UTC+0530	DDVEIntegrationHandle	CREATE_IN_PROGRESS	Resource creation initiated	
		2021+05+26 17:20:10 UTC+0530	DDVEConfigurationHandle	CREATE_IN_PROGRESS		
		2021-05-26 17:20:10 UTC+0530	PPDMConfigurationHandle	CREATE_IN_PROGRESS		
		2021-05-26 17:20:10 UTC+0530	DDVEIntegrationHandle	CREATE_IN_PROGRESS	+	
		2021-05-26 17:20:01 UTC+0530	PPDM	CREATE_IN_PROGRESS	User Initiated	

14. From the EC2 Instance Management Console, wait until the Data Manager and DDVE instance are initialized and running.

aws Services 🔻		Q Search for services, features, marketple	ce products, and docs	[Alt+S]			⊠ 4	-	🔹 N. Virginia 🕈	Support 🔻
New EC2	Instances (2) Info					C	Connect Instance stat	te 🔻 Actions 🖲	Launch inst	inces 🔻
Tell us what you think	Q Filter instances								<	1 > ©
EC2 Dashboard New	Instance state: running X Clear filter	s								
Events	Name 🔻 I	Instance ID Instance state v	Instance type v	Status check	Alarm status	Availability Zone 🛛 🗢	Public IPv4 DNS 🛛 🗸	Public IPv4 v	Elastic IP 🛛 🗸	IPv6 IPs
Limits	PPDM-DDVE	i-Obad6969a92dda64a ⊘ Running @Q	m5.xlarge	<ul> <li>Initializing</li> </ul>	No alarms 🕂	us-east-1c	ec2-3-231-222-199.co	3.231.222.199	-	-
Linits	PPDM-PPDM	-0417aa56c088b999b ⊘ Running @Q	m5.2xlarge	<ul> <li>Initializing</li> </ul>	No alarms 🕂	us-east-1c	-	-	-	-
<ul> <li>Instances</li> </ul>	1									
Instances New										
Instance Types										

15. Data Manager and DDVE instance state are running and ready for configuration.

aws Services ▼			Q Search for	services, features, marketplace	products, and docs	[Alt+S]			<b>D</b> 4		🔹 N. Virginia 🔻
New EC2 Experience	×	Instances (2) Info						C Co	nnect Instance sta	e 🔻 🛛 Actions 🔻	Launch instance
Tell us what you think	- 1	Q Filter instances									< 1
EC2 Dashboard New	- 1	Instance state: running X	Clear filters								
Events	- 1		and the test of the			Chattan also also		And the Market and the Party of		Public ID 4	riada in an i
Tags	- 1	Name		Instance state $\forall$	Instance type 🛛 🗸	Status check	Alarm status	Availability Zone V Pl	ILIICIPV4 DNS 🗸	PUDUC IPV4 V	Elastic IP 🛛 🗸
Limite	- 1	PPDM-DDVE	i-0bad6969a92dda64a	⊘ Running ⊕ Q	m5.xlarge	2/2 checks passed	No alarms 🕂	us-east-1c ec	2 3-231-222-199.co	3.231.222.199	-
Linits	- 1	PPDM-PPDM	i-0417aa56c088b999b	⊘ Running @Q	m5.2xlarge	⊘ 2/2 checks passed	No alarms 🕂	us-east-1c –		-	-
<ul> <li>Instances</li> </ul>	- 1	•									
Instances New	- 1								1		
Instance Types											

<u>Note</u>: The Data Manager virtual appliance and DDVE instance deployment takes few minutes to start and initialize.

#### Data Manager instance is ready for configuration

aws Services 🔻	Q. Search for services, features, m	arketplace products, and docs [Alt+S]	N. Virginia 🔻 Support
New EC2 Experience Tell us what you think	EC2 > Instances > I-0417aa56c088b999b		
EC2 Dashboard	Instance summary for i-0417aa56c088b999b (PPDM-PPDM) info		C Connect Instance state V
Events	updated tess than a minute ago		
Tags	Instance ID	Public IPv4 address	Private IPv4 addresses
Limits	i-0417aa56c088b999b (PPDM-PPDM)	-	D 172.31.8.102
▼ Instances			
Instances New	Instance state	Public IPv4 DNS	Private IPv4 DNS
Instance Types	<b>U</b> rolling		p ip-172-51-8-102.ec2.internal
Launch Templates	Instance type	Elastic IP adu	VPC ID
Spot Requests	m5.2xlarge		🗇 vpc-86c3f8e0 🔀
Savings Plans	AMS Compute Optimizer finding	IAM Dole	Subpat ID
Reserved Instances	Opt-in to AWS Compute Optimizer for recommendations.   Learn more	-	G subnet-53b5e236 12
Dedicated Hosts			P source success P
Scheduled Instances			
Capacity Reservations	Details Security Networking Storage Status checks Monit	oring Usage instructions Tags	
▼ Images			
AMIs	▼ Instance details Info		
Elastic Block Store	Platform	AMI ID	Monitoring
Volumes	Linux/UNIX (Inferred)	ami-06414dca92ecbc02a	disabled
Snapshots	Platform details	AMI name	Termination protection
Lifecycle Manager	🗇 Linux/UNIX	ppdm-ami-19.8.0-5-12-2021-04-21T22-59-04Z-2ce64396-75ab-4f1f-81d1-	Disabled
Network & Security		51655d08fe2a	
Security Groups New	Launch time	AMI location	Lifecycle
Elastic IPs New	Wed May 26 2021 17:20:32 GMT+0530 (India Standard Time) (10 minutes)	aws-marketplace/ppdm-ami-19.8.0-5-12-2021-04-21T22-59-04Z-2ce64396-75ab-	normal
Placement Groups		4f1f-81d1-51655d08fe2a	
Key Pairs	Stop-hibernate behavior	AMI Launch index	Key pair name
Network Interfaces New	disabled	0	O PPDM

Refer <u>Dell EMC PowerProtect Data Manager Amazon Web Services Deployment Guide</u> for more detailed deployment information.

#### **DDVE instance is ready for configuration**

aws Services •	Q. Search for services, features	marketplace products, and docs [Alt+5]	D A N. Virgin	inla 🔻 Support 🔻
New EC2 Experience Tell us what you these	EC2 > Instances > i-Obad6969a92dda64a			1
EC2 Dashboard	Instance summary for i-Obad6969a92dda64a (PPDM-DDVE) Info Updated less than a minute age		C Connect Instance	state 🔻
Tags	Instance ID	Public IPud address	Private IPv4 addresses	
Limits	Lobad6969a92dda64a (PPDM-DDVE)	3 331 222 199 Lonen address 🔽	172 31 6 6	
▼ Instances	En representation ( remearch)	C STRUCTURE (S) ( SHOULD BE	P HESTON	
Instances new	Instance state	Public IPv4 DNS	Private IPv4 DN5	
Instance Types		C ec2-3-231-222-199.compute-1.amazonaws.com   open address C	ip-172-31-6-6.ec2.internal	
Launch Templates	Instance type	Elastic IP addresses	VPC ID	
Spot Requests	m5.xlarge	-	🗇 vpc-86c3f8e0 🖸	
Savings Plans				
Reserved Instances New	AWS Compute Optimizer finding	IAM Role	Subnet ID	
Dedicated Hosts	Gopt-in to aws compute Optimizer for recommendations. I ceam more	-	🗇 subnet-53b6e236 🖸	
Scheduled Instances				
Capacity Reservations	Details Security Networking Storage Status checks Mo	nitoring Usage instructions Tags		
T Images				
AMIs	▼ Instance details Info			
	Platform	AMI ID	Monitoring	
▼ Elastic Block Store	Linux/UNIX (inferred)	ami-0c73d5b4760d7dd4f	disabled	
Votumes				
Snapshots	Platform details	AMI name	Termination protection	
Lifecycle Manager	C Linux/UNIX	ddve-7.6.0.5-685135-GA-e6dcf885-d518-4baa-8f82-576225da21af	Disabled	
<ul> <li>Network &amp; Security</li> </ul>	Launch time	AMI location	Lifecycle	
Security Groups New	Wed May 26 2021 17:20:32 GMT+0530 (India Standard Time) (10 minutes)	aws-marketplace/ddve-7.6.0.5-685135-GA-e6dcf885-d518-4baa-8f82-	normal	
Elastic IPs Mex		576225da21af		
Placement Groups	Ston-hibernate behavior	AMI Launch index	Key pair name	
Key Pairs	disabled	0	PPDM	
Network Interfaces New				
	Etate transition rearies	Fredit readification	Kanad ID	

Please see <u>Dell EMC PowerProtect DDVE on Amazon Web Services Installation and Administration Guide</u> for details on how to configure the DDVE instance deployed on AWS.

## 3 Configuring Data Manager deployed on AWS

- 1. From a host that has network access to Data Manager, using Google Chrome connect to the appliance: https://<appliance\_hostname or IP address>
- 2. On the Welcome page, select New Install to set up Data Manager as a new installation and click Next.

D&LLEMC   PowerProtect	Data Manager
Install	Welcome to PowerProtect Data Manager
1 Welcome	Would you like to setup PowerProtect Data Manager as a new appliance or restore all of your settings from a previous backup?
2 End User License Agreement	New Install Install and configure a new PowerProtect Data Manager appliance
3 Software License	Restore Backup Use PowerProtect Data Manager backup to restore your appliance
4 Authentication	After restore, keep the product in recovery mode so that scheduled workflows are not triggered
5 System Settings	
6 Email Setup	
7 AutoSupport	
8 Summary	
5 they, // 100 0.4 106 000/#	Next

3. Review the End User License Agreement, choose I accept and select Next.

stall	End User License Agreement
1 Welcome 2 End User License Agreement	Congratulations on your new Dell EMC purchase! Your purchase and use of this Dell EMC product is subject to and governed by the Dell EMC Commercial Terms of Sale, unless you have a separate written agreement with Dell EMC that specifically applies to your order, and the Dell End User License Agreement (EULA), which are each presented below in the following order:
3 Software License	Commercial Terms of Sale     End User License Agreement (EULA)
4 Authentication	The Commercial Terms of Sale for the United States are presented below and are also available online at the website below that corresponds to the country in which this product was purchased.
5 System Settings	By the act of clicking "1 accept," you agree (or re-affirm your agreement to) the foregoing terms and conditions. To the extent that Dell inc, or any Dell inc,'s direct or indirect subsidiary ('Dell') is deemed under applicable law to have accepted an offer by you: (a) Dell hereby objects to and rejects all additional or inconsistent terms that may be contained in any purchase order or other documentation submitted by you in connection with your order and (b) Dell hereby conditions its acceptance on your assent that the foregoing terms and conditions shall exturbed.
6 Email Setup	IF YOU DO NOT AGREE WITH THESE TERMS, DO NOT USE THIS PRODUCT AND CONTACT YOUR DELL REPRESENTATIVE WITHIN FIVE BUSINESS DAYS TO ARRANGE A RETURN.
7 AutoSupport	
	Commercial Terms of Sale
8 Summary	These Commercial Terms of Sale (CTST) apply to orders for hardware, and services by direct commercial and public sector purchasers and to commercial end-users who purchase through a reseller ("Customer"), unless Customer and Suppliers (delined below) have entered into a separate written agreement that applies to Customer's orders for specific products or services, in which case, the separate written agreement governs Customer's purchase and use of such specific products or services.
	The term "Supplier(s)" means, as applicable:
	EMC Corporation ("EMC")
	176 South Street

- 4. On the Software License pane, perform the following actions:
- a. In the License Type field, select a type of license.
  - To use an evaluation license, select 90 days evaluation license
  - To load a license, select License File > Choose File and browse to and select the license file to load
  - To copy the contents of the license file, select Plain Text and copy the contents of the license file into the plain text field
- b. Click Next.

	Data Manager		
Install	Software License		
1 Welcome	License Type	90 day evaluation license 🗸	
2 End User License Agreement 3 Software License	License File	The evaluation license supports all the PowerProtect Data Manager features without any restrictions for 90 days.	
4 Authentication			
5 System Settings			
6 Email Setup			
7 AutoSupport			
8 Summary			
		Cancel Back	Next

5. In the Authentication pane, perform the following actions:

The Use common password option is selected by default. This toggle sets one initial password for use with all Data Manager interfaces.

DELLEMC   PowerProtect	Data Manager
Install	Authentication
1 Welcome 2 End User License Agreement	Use same initial password for all Password Set a password for use across all the PowerProtect Data Manager interfaces.
3 Software License	Enter a new password
4 Authentication 5 System Settings	Reenter password to confirm
6 Email Setup	Use common password × Set a password for use with all PowerProtect Data Manager Interfaces and for the lockbox passphrase.
7 AutoSupport	Interface passwords are not synchronized after installation and may expire at different intervals. The lockbox passphrase does not expire.
8 Summary	Do not lose the lockbox passphrase. This passphrase is critical for future operations. The Security Configuration Guide provides more information.
	Cancel Back Next

a. Optionally, clear the Use common password option.

If the Use common password option is selected, in the Enter a new password and Renter password to confirm fields, specify a password.

If the Use common password option is not selected, in the Enter a new password and Renter password to confirm fields, specify individual passwords for the interfaces.

D&LLEMC   PowerProtect	Data Manager	
Install	Authentication	
1 Welcome 2 End User License Agreement	Use same initial password for all Admin Password Set a password for the admin appliance management.	
3 Software License	Enter a new password (	
4 Authentication		
5 System Settings	Reenter password to confirm	
6 Email Setup	Service Password Set a password for the root/admin/support accounts for Linux, SSH and support activities. Password can be individually customized after setup in settings.	
7 AutoSupport	Enter a new password	
8 Summary	Reenter password to confirm	
	Cancel Back	Next

Ensure that the password meets the following requirements:

- A minimum of nine characters and a maximum of one hundred characters
- At least one numeric character (0-9)
- At least one uppercase character (A-Z)
- At least one lowercase character (a-z)
- At least one special character from the following list of acceptable characters:
   !@#\$%^&\*()\_-+=~{}[]<>?/`:;',.]\" (Spaces are allowed)

#### b. Click Next.

- 6. In the System Settings pane, perform the following actions:
  - a. In the **Current Timezone** list box, select the time zone where the system is physically located.
  - b. To add an NTP server, click Add.
  - c. In the Server IP Address field, specify the NTP server IP address.
  - d. Click Add.
  - e. To change the list of NTP servers, click Edit or Delete.
  - f. Click Next.

	Data Manager				
Install	System Settings				
1 Welcome	Current Timezone	PST8PDT - Pacific Standard Time	~		
2 End User License Agreement	NTP	Add Edit Delete			
3 Software License					
4 Authentication			There is currently no data to view. Click the 'add' button above to enter NTP server details.		
5 System Settings					
6 Email Setup					
8 Summary					
				Cancel Back	Next

- 7. In the Email Setup Optional pane, perform the following actions:
  - a. In the Mail Server field, specify the SMTP server IP address.
  - b. In the Admin Email field, specify the administrator email address.
  - c. In the Recipient for Test Email field, specify the recipient email address.
  - d. In the **Port** field, specify the TCP port to connect to the SMTP server.
  - e. In the Username field, specify the mail username.
  - f. In the **Password** field, specify the mail password.
  - g. To send a test email to the specified IP address, click Send Test Email.
  - h. To acknowledge the test email was successfully sent, click OK.

i. To send diagnostic and usage data to Dell EMC for proactive support and to help improve our products and services, switch Auto Support to ON.

When enabling auto support, click View Terms to review the telemetry software terms. Scroll down to click **Accept** to finish enabling auto support or Decline to disable auto support.

j. Click Next.

CLLEMC   PowerProtect	Data Manager					
stall	Email Setup					
1 Welcome	Configure Email					
2 End Liser License Agreement	Required to enable AutoSuppor	t				
2 End over Electrice Agreement	Server Settings					
3 Software License	Mail Server	hostname or ip address	(Required)			
4 Authentication						
5 System Settings	Admin Email	administrator email	(Required)			
6 Email Setup			_			
7 AutoSupport	Recipient for Test Email	recipient email				
/ Autosupport		Required in order to send a test email				
8 Summary	Port	25				
	Authoptication					
	Addienteduon					
	User Name	user name				
			, I			
	Password	password				
	Send Test Email					
				1		_
					Cancel	

8. On the **Summary** pane, review the configuration choices and select **Done**.

D&LLEMC   PowerProtect	Data Manager		
Install	Summary		
1 Welcome	Installation may take several minutes		
2 End User License Agreement	End User License Agreement		
3 Software License	EULA Accepted Software License	Yes	
4 Authentication	License Type Days left for expiry	TRIAL 90 days	
5 System Settings	Authentication	Set	
6 Email Setup	System Settings	Jei	
7 Summary	Current Timezone NTP	PST8PDT - Pacific Standard Time Unset	
	Email Setup Mail Server Admin Email Mail Server Port User Name Password AutoSupport Enable AutoSupport Telemetry Notice Accepted	Unset 25 Unset Unset No No	
			Cancel Back Done

9. Within few minutes Data Manager configuration will be completed and prompt with the login screen.

D&LLEMC	I	PowerProtect Data Manag	ger		
			_		
				Setting up your PowerProtect Data Manager	25

10. Login with username as "admin" the password set during the configuration.

PowerProtect Data Manager copyright © 2015-2021 Def Inc. or its subsidiaries. All Rights Reserved					
	D≪LLEMC				
	User Name: 1 Password: © Forgot password? Log In				

11. Data Manager is ready to protect the cloud workloads running on AWS.

DELLEMC   PowerProt	ect Data Manager		Q Q @• &• 0 @• 88
Dashboard     Infrastructure >	Dashboard		
Protection >	Alerts	Jobs   Protection @ 1 Day :	Health
C     Recovery     >       △     Alerts        ▲     Administration     >       ③     Jobs        ▲     Reporting	Healthy     Is minutes     ago     The system has been restarted.     View All	Conceled Concelect	Image: Services     Trial : Valid Ucense       Image: Support     Image: Operational Protection Engines       Image: Server Backups     Image: Operational Protection Engines
	Protection @ Last 24 Hours  No Protection Policies Found. <u>Add</u> View All  Decoment:	Protection Storage I Highest Utilization  No Data Domains associated Add a Data Domain Add	Compliance           No Protection Policies Found.         Add           Al <ul></ul>
e	Recovery		

## A Technical support and resources

Dell.com/support is focused on meeting customer needs with proven services and support.

<u>Storage and data protection technical white papers and videos</u> provide expertise that helps to ensure customer success with Dell EMC storage and data protection products.

### A.1 Related resources

#### Dell EMC PowerProtect Data Manager

- Dell EMC PowerProtect Data Manager Amazon Web Services Deployment Guide
- Dell EMC PowerProtect Data Manager Administration and User Guide
- Dell EMC PowerProtect Data Manager Security Configuration Guide

#### Dell EMC PowerProtect DD Virtual Edition

- Dell EMC PowerProtect DDVE on Amazon Web Services Installation and Administration Guide
- Dell EMC PowerProtect DD Virtual Edition on Amazon Web Services Technical White Paper