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# Azure subscription and service limits, quotas, and constraints

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This document lists some of the most common Microsoft Azure limits, which are also sometimes called quotas.

To learn more about Azure pricing, see Azure pricing overview. There, you can estimate your costs by using the pricing calculator. You also can go to the pricing details page for a particular service, for example, Windows VMs. For tips to help manage your costs, see Prevent unexpected costs with Azure billing and cost management.

# **Managing limits**

#### ① Note

Some services have adjustable limits.

When a service doesn't have adjustable limits, the following tables use the header **Limit**. In those cases, the default and the maximum limits are the same.

When the limit can be adjusted, the tables include **Default limit** and **Maximum limit** headers. The limit can be raised above the default limit but not above the maximum limit.

If you want to raise the limit or quota above the default limit, open an online

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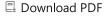
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customer support request at no cnarge.

Free Trial subscriptions aren't eligible for limit or quota increases. If you have a Free Trial subscription, you can upgrade to a Pay-As-You-Go subscription. For more information, see

Upgrade your Azure Free Trial subscription to a Pay-As-You-Go subscription and the Free Trial subscription FAQ.

Some limits are managed at a regional level.

Let's use vCPU quotas as an example. To request a quota increase with support for vCPUs, you must decide how many vCPUs you want to use in which regions. You then make a specific request for Azure resource group vCPU quotas for the amounts and regions that you want. If you need to use 30 vCPUs in West Europe to run your application there, you specifically request 30 vCPUs in West Europe. Your vCPU quota isn't increased in any other region--only West Europe has the 30-vCPU quota.

As a result, decide what your Azure resource group quotas must be for your workload in any one region. Then request that amount in each region into which you want to deploy. For help in how to determine your current quotas for specific regions, see Resolve errors for resource quotas.

### **General limits**

For limits on resource names, see Naming rules and restrictions for Azure resources.

For information about Resource Manager API read and write limits, see Throttling Resource Manager requests.

### Management group limits

The following limits apply to management groups.

Resource Limit

Management groups per directory	10,000
Subscriptions per management group	Unlimited.
Levels of management group hierarchy	Root level plus 6 levels <sup>1</sup>
Direct parent management group per management group	One
Management group level deployments per location	800 <sup>2</sup>

<sup>&</sup>lt;sup>1</sup>The 6 levels don't include the subscription level.

<sup>2</sup>If you reach the limit of 800 deployments, delete deployments from the history that are no longer needed. To delete management group level deployments, use Remove-AzManagementGroupDeployment or az deployment mg delete.

# **Subscription limits**

The following limits apply when you use Azure Resource Manager and Azure resource groups.

Resource	Limit
Subscriptions per Azure Active Directory tenant	Unlimited.
Coadministrators per subscription	Unlimited.
Resource groups per subscription	980
Azure Resource Manager API request size	4,194,304 bytes.
Tags per subscription <sup>1</sup>	50
Unique tag calculations per subscription <sup>1</sup>	10,000

<sup>1</sup>You can apply up to 50 tags directly to a subscription. However, the subscription can contain an unlimited number of tags that are applied to resource groups and resources within the subscription. The number of tags per resource or resource group is limited to 50.

Resource Manager returns a list of unique tag name and values in the subscription only when the number of tags is 10,000 or less. You still can find a resource by tag when the number exceeds 10,000.

<sup>2</sup>If you reach the limit of 800 deployments, delete deployments from the history that are no longer needed. To delete subscription level deployments, use Remove-AzDeployment or az deployment sub delete.

### Resource group limits

Resource	Limit
Resources per resource group	Resources aren't limited by resource group. Instead, they're limited by resource type in a resource group. See next row.
Resources per resource group, per resource type	800 - Some resource types can exceed the 800 limit. See Resources not limited to 800 instances per resource group.
Deployments per resource group in the deployment history	8001
Resources per deployment	800
Management locks per unique scope	20
Number of tags per resource or resource group	50

Tag key length	512
Tag value length	256

<sup>1</sup>Starting in June 2020, deployments will be automatically deleted from the history as you near the limit. Deleting an entry from the deployment history doesn't affect the deployed resources. For more information, see Automatic deletions from deployment history.

#### **Template limits**

Value	Limit
Parameters	256
Variables	256
Resources (including copy count)	800
Outputs	64
Template expression	24,576 chars
Resources in exported templates	200
Template size	4 MB
Parameter file size	64 KB

You can exceed some template limits by using a nested template. For more information, see Use linked templates when you deploy Azure resources. To reduce the number of parameters, variables, or outputs, you can combine several values into an object. For more information, see Objects as parameters.

# **Active Directory limits**

Here are the usage constraints and other service limits for the Azure Active Directory (Azure AD) service.

Category	Limit		
Directories	A single user can belong to a maximum of 500 Azure AD directories as a member or a guest.  A single user can create a maximum of 200 directories.		
Domains	You can add no more than 900 managed domain names. If you set up all of your domains for federation with on-premises Active Directory, you can add no more than 450 domain names in each directory.		
Resources	<ul> <li>A maximum of 50,000 Azure AD resources can be created in a single directory by users of the Free edition of Azure Active Directory by default. If you have at least one verified domain, the default Azure AD service quota for your organization is extended to 300,000 Azure AD resources. This service limit is unrelated to the pricing tier limit of 500,000 resources on the Azure AD pricing page. To go beyond the default quota, you must contact Microsoft Support.</li> <li>A non-admin user can create no more than 250 Azure AD resources. Both active resources and deleted resources that are available to restore count toward this quota. Only deleted Azure AD resources that were deleted fewer than 30 days ago are available to restore. Deleted Azure AD resources that are no longer available to restore count toward this quota at a value of one-quarter for 30 days. If you have developers who are likely to repeatedly exceed this quota in the course of their regular duties, you can create and assign a custom role with permission to create a limitless number of app registrations.</li> </ul>		
Schema	<ul> <li>String-type extensions can have a maximum of 256 characters.</li> </ul>		

# extensions

- String-type extensions can have a maximum of 256 characters.
- Binary-type extensions are limited to 256 bytes.
- Only 100 extension values, across all types and all applications, can be

written to any single Azure AD resource.

- Only User, Group, TenantDetail, Device, Application, and ServicePrincipal entities can be extended with string-type or binary-type single-valued attributes.
- Schema extensions are available only in the Graph API version 1.21 preview. The application must be granted write access to register an extension.

Applications	A maximum of 100 users can be owners of a single application.
Application Manifest	A maximum of 1200 entries can be added in the Application Manifest.

#### Groups

- A user can create a maximum of 250 groups in an Azure AD organization.
- An Azure AD organization can have a maximum of 5000 dynamic groups.
- A maximum of 100 users can be owners of a single group.
- Any number of Azure AD resources can be members of a single group.
- A user can be a member of any number of groups.
- By default, the number of members in a group that you can synchronize from your on-premises Active Directory to Azure Active Directory by using Azure AD Connect is limited to 50,000 members. If you need to synch a group membership that's over this limit, you must onboard the Azure AD Connect Sync V2 endpoint API.
- Nested Groups in Azure AD are not supported within all scenarios

At this time the following are the supported scenarios with nested groups.

- One group can be added as a member of another group and you can achieve group nesting.
- Group membership claims (when an app is configured to receive group membership claims in the token, nested groups the signed-in user is a member of are included)
- Conditional access (when scoping a conditional access policy to a group)
- Restricting access to self-serve password reset
- Restricting which users can do Δzure ΔD Join and device registration

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The following scenarios DO NOT supported nested groups:

- App role assignment (assigning groups to an app is supported, but groups nested within the directly assigned group will not have access),
  - both for access and for provisioning
- Group-based licensing (assigning a license automatically to all members of a group)
- Office 365 Groups.

#### Application Proxy

- A maximum of 500 transactions per second per App Proxy application
- A maximum of 750 transactions per second for the Azure AD organization

A transaction is defined as a single http request and response for a unique resource. When throttled, clients will receive a 429 response (too many requests).

#### Access Panel

There's no limit to the number of applications that can be seen in the Access Panel per user regardless of assigned licenses.

#### Reports

A maximum of 1,000 rows can be viewed or downloaded in any report. Any additional data is truncated.

# Administrative units

An Azure AD resource can be a member of no more than 30 administrative units.

# Admin roles and permissions

- A group cannot be added as an owner.
- Users' ability to read other users' directory information cannot be restricted outside of the Azure AD organization-wide switch to disable all non-admin users' access to all directory information (not recommended). More information on default permissions here.
- It may take up to 15 minutes or signing out/signing in before admin role membership additions and revocations take effect.

# **API Management limits**

Resource	Limit
Maximum number of scale units	10 per region <sup>1</sup>
Cache size	5 GiB per unit <sup>2</sup>
Concurrent back-end connections <sup>3</sup> per HTTP authority	2,048 per unit <sup>4</sup>
Maximum cached response size	2 MiB
Maximum policy document size	256 KiB <sup>5</sup>
Maximum custom gateway domains per service instance <sup>6</sup>	20
Maximum number of CA certificates per service instance <sup>7</sup>	10
Maximum number of service instances per subscription <sup>8</sup>	20
Maximum number of subscriptions per service instance <sup>8</sup>	500
Maximum number of client certificates per service instance <sup>8</sup>	50
Maximum number of APIs per service instance <sup>8</sup>	50
Maximum number of API operations per service instance <sup>8</sup>	1,000
Maximum total request duration <sup>8</sup>	30 seconds
Maximum buffered payload size <sup>8</sup>	2 MiB
Maximum request URL size <sup>9</sup>	4096 bytes

<sup>1</sup>Scaling limits depend on the pricing tier. For details on the pricing tiers and their scaling limits, see API Management pricing.

<sup>2</sup>Per unit cache size depends on the pricing tier. To see the pricing tiers and their scaling limits, see API Management pricing.

<sup>3</sup>Connections are pooled and reused unless explicitly closed by the back end.

<sup>4</sup>This limit is per unit of the Basic, Standard, and Premium tiers. The Developer tier is limited to 1,024. This limit doesn't apply to the Consumption tier.

<sup>5</sup>This limit applies to the Basic, Standard, and Premium tiers. In the Consumption tier, policy document size is limited to 4 KiB.

<sup>6</sup>Multiple custom domains are supported in the Developer and Premium tiers only.

<sup>7</sup>CA certificates are not supported in the Consumption tier.

<sup>8</sup>This resource applies to the Consumption tier only.

<sup>9</sup>Applies to the Consumption tier only. Includes an up to 2048 bytes long query string.

<sup>10</sup>Self-hosted gateways are supported in the Developer and Premium tiers only. The limit applies to the number of self-hosted gateway resources. To raise this limit please contact support. Note, that the number of nodes (or replicas) associated with a self-hosted gateway resource is unlimited in the Premium tier and capped at a single node in the Developer tier.

# **App Service limits**

The following App Service limits include limits for Web Apps, Mobile Apps, and API Apps.

Resource	Free	Shared	Basic	Standard
Web, mobile, or API apps per Azure App Service plan <sup>1</sup>	10	100	Unlimited <sup>2</sup>	Unlimited <sup>2</sup>
App Service plan	10 per region	10 per resource group	100 per resource	100 per resource

			group	group
Compute instance type	Shared	Shared	Dedicated <sup>3</sup>	Dedicated <sup>3</sup>
Scale out (maximum instances)	1 shared	1 shared	3 dedicated <sup>3</sup>	10 dedicated <sup>3</sup>
Storage <sup>5</sup>	1 GB <sup>5</sup>	1 GB <sup>5</sup>	10 GB <sup>5</sup>	50 GB <sup>5</sup>
CPU time (5 minutes) <sup>6</sup>	3 minutes	3 minutes	Unlimited, pay at standard rates	Unlimited, pay at standard rates
CPU time (day) <sup>6</sup>	60 minutes	240 minutes	Unlimited, pay at standard rates	Unlimited, pay at standard rates
Memory (1 hour)	1,024 MB per App Service plan	1,024 MB per app	N/A	N/A
Bandwidth	165 MB	Unlimited, data transfer rates apply	Unlimited, data transfer rates apply	Unlimited, data transfer rates apply
Application architecture	32-bit	32-bit	32-bit/64- bit	32-bit/64- bit

Web sockets per instance <sup>7</sup>	5	35	350	Unlimited
IP connections	600	600	Depends on instance size <sup>8</sup>	Depends on instance size <sup>8</sup>
Concurrent debugger connections per application	1	1	1	5
App Service Certificates per subscription <sup>9</sup>	Not supported	Not supported	10	10
Custom domains per app	0 (azurewebsites.net subdomain only)	500	500	500
Custom domain SSL support	Not supported, wildcard certificate for *.azurewebsites.net available by default	Not supported, wildcard certificate for *.azurewebsites.net available by default	Unlimited SNI SSL connections	Unlimited SNI SSL and 1 IP SSL connections included
Hybrid connections			5 per plan	25 per plan
Virtual Network Integration				Х
Integrated load balancer		Х	Х	X
Always On			Х	Х

Scheduled backups				Scheduled backups every 2 hours, a maximum of 12 backups per day (manual + scheduled
Autoscale				X
WebJobs <sup>11</sup>	X	X	Х	X
Endpoint monitoring			Х	Х
Staging slots per app				5
Testing in Production				Х
Diagnostic Logs	Х	Х	Х	Х
Kudu	Χ	Х	Х	Х
Authentication and Authorization	X	X	X	Х
App Service Managed Certificates			Х	Х

Preview) <sup>12</sup>		
SLA	99.95%	99.95%

<sup>1</sup>Apps and storage quotas are per App Service plan unless noted otherwise.

<sup>2</sup>The actual number of apps that you can host on these machines depends on the activity of the apps, the size of the machine instances, and the corresponding resource utilization.

<sup>3</sup>Dedicated instances can be of different sizes. For more information, see App Service

<sup>4</sup>More are allowed upon request.

pricing.

<sup>5</sup>The storage limit is the total content size across all apps in the same App service plan. The total content size of all apps across all App service plans in a single resource group and region cannot exceed 500GB.

<sup>6</sup>These resources are constrained by physical resources on the dedicated instances (the instance size and the number of instances).

<sup>7</sup>If you scale an app in the Basic tier to two instances, you have 350 concurrent connections for each of the two instances. For Standard tier and above, there are no theoretical limits to web sockets, but other factors can limit the number of web sockets. For example, maximum concurrent requests allowed (defined by maxConcurrentRequestsPerCpu) are: 7,500 per small VM, 15,000 per medium VM (7,500 x 2 cores), and 75,000 per large VM (18,750 x 4 cores).

<sup>8</sup>The maximum IP connections are per instance and depend on the instance size: 1,920 per B1/S1/P1V2 instance, 3,968 per B2/S2/P2V2 instance, 8,064 per B3/S3/P3V2 instance.

<sup>9</sup>The App Service Certificate quota limit per subscription can be increased via a support request to a maximum limit of 200.

<sup>10</sup>App Service Isolated SKUs can be internally load balanced (ILB) with Azure Load Balancer, so there's no public connectivity from the internet. As a result, some features of an ILB Isolated App Service must be used from machines that have direct access to the ILB network endpoint.

<sup>11</sup>Run custom executables and/or scripts on demand, on a schedule, or continuously as a background task within your App Service instance. Always On is required for continuous WebJobs execution. There's no predefined limit on the number of WebJobs that can run in

an App Service instance. There are practical limits that depend on what the application code is trying to do.

<sup>12</sup>Naked domains are not supported. Only issuing standard certificates (wildcard certificates are not available). Limited to only one free certificate per custom domain.

### **Automation limits**

#### **Process automation**

Resource	Limit	Notes
Maximum number of new jobs that can be submitted every 30 seconds per Azure Automation account (nonscheduled jobs)	100	When this limit is reached, the subsequent requests to create a job fail. The client receives an error response.
Maximum number of concurrent running jobs at the same instance of time per Automation account (nonscheduled jobs)	200	When this limit is reached, the subsequent requests to create a job fail. The client receives an error response.
Maximum storage size of job metadata for a 30-day rolling period	10 GB (approximately 4 million jobs)	When this limit is reached, the subsequent requests to create a job fail.
Maximum job stream limit	1 MiB	A single stream cannot be larger than 1 MB.
Maximum number of modules that can be imported every 30 seconds per Automation account	5	
Maximum size of a module	100 MB	
Job run time, Free tier	500 minutes	

	per subscription per calendar month	
Maximum amount of disk space allowed per sandbox <sup>1</sup>	1 GB	Applies to Azure sandboxes only.
Maximum amount of memory given to a sandbox <sup>1</sup>	400 MB	Applies to Azure sandboxes only.
Maximum number of network sockets allowed per sandbox <sup>1</sup>	1,000	Applies to Azure sandboxes only.
Maximum runtime allowed per runbook <sup>1</sup>	3 hours	Applies to Azure sandboxes only.
Maximum number of Automation accounts in a subscription	No limit	
Maximum number of Hybrid Worker Groups per Automation Account	4,000	
Maximum number of concurrent jobs that can be run on a single Hybrid Runbook Worker	50	
Maximum runbook job parameter size	512 kilobytes	
Maximum runbook parameters	50	If you reach the 50-parameter limit, you can pass a JSON or XML string to a parameter and parse it with the runbook.
Maximum webhook payload size	512 kilobytes	

Maximum days that job data is retained	30 days	
Maximum PowerShell workflow state size	5 MB	Applies to PowerShell workflow runbooks when checkpointing workflow.

<sup>&</sup>lt;sup>1</sup>A sandbox is a shared environment that can be used by multiple jobs. Jobs that use the same sandbox are bound by the resource limitations of the sandbox.

### **Change Tracking and Inventory**

The following table shows the tracked item limits per machine for change tracking.

Resource	Limit	Notes
File	500	
Registry	250	
Windows software	250	Doesn't include software updates.
Linux packages	1,250	
Services	250	
Daemon	250	

### **Update Management**

The following table shows the limits for Update Management.

Resource	Limit	Notes
Number of machines per update deployment	1000	

### **Azure Cache for Redis limits**

Resource	Limit
Cache size	1.2 TB
Databases	64
Maximum connected clients	40,000
Azure Cache for Redis replicas, for high availability	1
Shards in a premium cache with clustering	10

Azure Cache for Redis limits and sizes are different for each pricing tier. To see the pricing tiers and their associated sizes, see Azure Cache for Redis pricing.

For more information on Azure Cache for Redis configuration limits, see Default Redis server configuration.

Because configuration and management of Azure Cache for Redis instances is done by Microsoft, not all Redis commands are supported in Azure Cache for Redis. For more information, see Redis commands not supported in Azure Cache for Redis.

### **Azure Cloud Services limits**

Resource	Limit
Web or worker roles per deployment <sup>1</sup>	25
Instance input endpoints per deployment	25
Input endpoints per deployment	25

Internal endpoints per deployment	25
Hosted service certificates per deployment	199

<sup>1</sup>Each Azure Cloud Service with web or worker roles can have two deployments, one for production and one for staging. This limit refers to the number of distinct roles, that is, configuration. This limit doesn't refer to the number of instances per role, that is, scaling.

# **Azure Cognitive Search limits**

Pricing tiers determine the capacity and limits of your search service. Tiers include:

- **Free** multi-tenant service, shared with other Azure subscribers, is intended for evaluation and small development projects.
- **Basic** provides dedicated computing resources for production workloads at a smaller scale, with up to three replicas for highly available query workloads.
- **Standard**, which includes S1, S2, S3, and S3 High Density, is for larger production workloads. Multiple levels exist within the Standard tier so that you can choose a resource configuration that best matches your workload profile.

#### **Limits per subscription**

You can create multiple services within a subscription. Each one can be provisioned at a specific tier. You're limited only by the number of services allowed at each tier. For example, you could create up to 12 services at the Basic tier and another 12 services at the S1 tier within the same subscription. For more information about tiers, see Choose an SKU or tier for Azure Cognitive Search.

Maximum service limits can be raised upon request. If you need more services within the same subscription, contact Azure Support.

Resource	Free <sup>1</sup>	Basic	<b>S1</b>	S2	<b>S</b> 3	S3 HD	L1	L2	
Mavimum carvicas	1	16	16	Ω	6	6	6	6	

INIAVIIIIMIII PELVICEP	ı	IU	10	U	U	U	U	U
Maximum scale in search units (SU) <sup>2</sup>	N/A	3 SU	36 SU	36 SU	36 SU	36 SU	36 SU	36 SU

#### Limits per search service

A search service is constrained by disk space or by a hard limit on the maximum number of indexes or indexers, whichever comes first. The following table documents storage limits. For maximum object limits, see Limits by resource.

Resource	Free	Basic <sup>1</sup>	<b>S</b> 1	<b>S2</b>	<b>S</b> 3	S3 HD	L1	L2
Service level agreement (SLA) <sup>2</sup>	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Storage per partition	50 MB	2 GB	25 GB	100 GB	200 GB	200 GB	1 TB	2 TB
Partitions per service	N/A	1	12	12	12	3	12	12
Partition size	N/A	2 GB	25 GB	100 GB	200 GB	200 GB	1 TB	2 TB
Replicas	N/A	3	12	12	12	12	12	12

<sup>&</sup>lt;sup>1</sup> Basic has one fixed partition. Additional search units can be used to add replicas for larger query volumes.

<sup>&</sup>lt;sup>1</sup> Free is based on shared, not dedicated, resources. Scale-up is not supported on shared resources.

<sup>&</sup>lt;sup>2</sup> Search units are billing units, allocated as either a *replica* or a *partition*. You need both resources for storage, indexing, and query operations. To learn more about SU computations, see Scale resource levels for query and index workloads.

<sup>2</sup> Service level agreements are in effect for billable services on dedicated resources. Free services and preview features have no SLA. For billable services, SLAs take effect when you provision sufficient redundancy for your service. Two or more replicas are required for query (read) SLAs. Three or more replicas are required for query and indexing (read-write) SLAs. The number of partitions isn't an SLA consideration.

To learn more about limits on a more granular level, such as document size, queries per second, keys, requests, and responses, see Service limits in Azure Cognitive Search.

### **Azure Cognitive Services limits**

The following limits are for the number of Cognitive Services resources per Azure subscription. Each of the Cognitive Services may have additional limitations, for more information see Azure Cognitive Services.

Туре	Limit	Example
A mixture of Cognitive Services resources	Maximum of 200 total Cognitive Services resources.	100 Computer Vision resources in West US 2, 50 Speech Service resources in West US, and 50 Text Analytics resources in East US.
A single type of Cognitive Services resources.	Maximum of 100 resources per region, with a maximum of 200 total Cognitive Services resources.	100 Computer Vision resources in West US 2, and 100 Computer Vision resources in East US.

#### **Azure Cosmos DB limits**

For Azure Cosmos DB limits, see Limits in Azure Cosmos DB.

# **Azure Data Explorer limits**

The following table describes the maximum limits for Azure Data Explorer clusters.

Resource	Limit
Clusters per region per subscription	20
Instances per cluster	1000
Number of databases in a cluster	10,000
Number of attached database configurations in a cluster	70

The following table describes the limits on management operations performed on Azure Data Explorer clusters.

Scope	Operation	Limit
Cluster	read (for example, get a cluster)	500 per 5 minutes
Cluster	write (for example, create a database)	1000 per hour

# Azure Database for MySQL

For Azure Database for MySQL limits, see Limitations in Azure Database for MySQL.

# Azure Database for PostgreSQL

For Azure Database for PostgreSQL limits, see Limitations in Azure Database for PostgreSQL.

### **Azure Functions limits**

Resource Consumption Premium Dedicated ASE Kubernete

	plan	plan	plan		
Default timeout duration (min)	5	30	30 <sup>1</sup>	30	30
Max timeout duration (min)	10	unbounded <sup>7</sup>	unbounded <sup>2</sup>	unbounded	unboundec
Max outbound connections (per instance)	600 active (1200 total)	unbounded	unbounded	unbounded	unboundec
Max request size (MB) <sup>3</sup>	100	100	100	100	Depends or cluster
Max query string length <sup>3</sup>	4096	4096	4096	4096	Depends or cluster
Max request URL length <sup>3</sup>	8192	8192	8192	8192	Depends or cluster
ACU per instance	100	210-840	100-840	210-250 <sup>8</sup>	AKS pricing
Max memory (GB per instance)	1.5	3.5-14	1.75-14	3.5 - 14	Any node i: supported

Function apps per plan	100	100	unbounded <sup>4</sup>	unbounded	unbounde
App Service	100 per	100 per resource group	100 per resource group	-	-
Storage <sup>5</sup>	5 TB	250 GB	50-1000 GB	1 TB	n/a
Custom domains per app	500 <sup>6</sup>	500	500	500	n/a
Custom domain SSL support	unbounded SNI SSL connection included	unbounded SNI SSL and 1 IP SSL connections included	unbounded SNI SSL and 1 IP SSL connections included	unbounded SNI SSL and 1 IP SSL connections included	n/a

<sup>&</sup>lt;sup>1</sup> By default, the timeout for the Functions 1.x runtime in an App Service plan is unbounded.

For more information, see Functions Hosting plans comparison.

<sup>&</sup>lt;sup>2</sup> Requires the App Service plan be set to Always On. Pay at standard rates.

<sup>&</sup>lt;sup>3</sup> These limits are set in the host.

<sup>&</sup>lt;sup>4</sup> The actual number of function apps that you can host depends on the activity of the apps, the size of the machine instances, and the corresponding resource utilization.

<sup>&</sup>lt;sup>5</sup> The storage limit is the total content size in temporary storage across all apps in the same App Service plan. Consumption plan uses Azure Files for temporary storage.

<sup>&</sup>lt;sup>6</sup> When your function app is hosted in a Consumption plan, only the CNAME option is supported. For function apps in a Premium plan or an App Service plan, you can map a custom domain using either a CNAME or an A record.

<sup>&</sup>lt;sup>7</sup> Guaranteed for up to 60 minutes.

 $<sup>^8</sup>$  Workers are roles that host customer apps. Workers are available in three fixed sizes: One vCPU/3.5 GB RAM; Two vCPU/7 GB RAM; Four vCPU/14 GB RAM.

#### **Azure Kubernetes Service limits**

Resource	Limit
Maximum clusters per subscription	100
Maximum nodes per cluster with Virtual Machine Availability Sets and Basic Load Balancer SKU	100
Maximum nodes per cluster with Virtual Machine Scale Sets and Standard Load Balancer SKU	1000 (100 nodes per node pool)
Maximum pods per node: Basic networking with Kubenet	110
Maximum pods per node: Advanced networking with Azure Container Networking Interface	Azure CLI deployment: 30 <sup>1</sup> Azure Resource Manager template: 30 <sup>1</sup> Portal deployment: 30

<sup>1</sup>When you deploy an Azure Kubernetes Service (AKS) cluster with the Azure CLI or a Resource Manager template, this value is configurable up to 250 pods per node. You can't configure maximum pods per node after you've already deployed an AKS cluster, or if you deploy a cluster by using the Azure portal.

# **Azure Machine Learning limits**

The latest values for Azure Machine Learning Compute quotas can be found in the Azure Machine Learning quota page

# **Azure Maps limits**

The following table shows the usage limit for the Azure Maps S0 pricing tier. Usage limit depends on the pricing tier.

Resource	S0 pricing tier limit
Maximum request rate per subscription	50 requests per second

The following table shows the cumulative data size limit for Azure Maps accounts in an Azure subscription. The Azure Maps Data service is available only at the S1 pricing tier.

Resource	Limit
Maximum storage per Azure subscription	1 GB
Maximum size per file upload	100 MB

For more information on the Azure Maps pricing tiers, see Azure Maps pricing.

### **Azure Monitor limits**

### **Alerts**

Resource	Default limit	Maximum limit
Metric alerts (classic)	100 active alert rules per subscription.	Call support
Metric alerts	5,000 active alert rules per subscription in Azure public, Azure China 21Vianet and Azure Government clouds. If you are hitting this limit, explore if you can use same type multiresource alerts.	Call support.
Activity log alerts	100 active alert rules per subscription.	Same as default

Log alerts	512 active alert rules per subscription. 200 active alert rules per resource.	Call support
Action groups	2,000 action groups per subscription.	Call support
Alert rules and Action rules description length	Log search alerts 4096 characters All other 2048 characters	Same as default
Autoscale settings	100 per region per subscription.	Same as default
Autoscale profiles	20 profiles per autoscale setting.	Same as default

# **Action groups**

Resource	Default limit	Maximum limit
Azure app push	10 Azure app actions per action group.	Call support.
Email	1,000 email actions in an action group.  No more than 100 emails in an hour.  Also see the rate limiting information.	Call support.
ITSM	10 ITSM actions in an action group.	Call support.
Logic app	10 logic app actions in an action group.	Call support.

Runbook	10 runbook actions in an action group.	Call support.
SMS	10 SMS actions in an action group.  No more than 1 SMS message every 5 minutes.  Also see the rate limiting information.	Call support.
Voice	10 voice actions in an action group.  No more than 1 voice call every 5 minutes.  Also see the rate limiting information.	Call support.
Webhook	10 webhook actions in an action group. Maximum number of webhook calls is 1500 per minute per subscription. Other limits are available at action-specific information.	Call support.

# Log queries and language

# **General query limits**

Limit	Description
Query language	Azure Monitor uses the same Kusto query language as Azure Data Explorer. See Azure Monitor log query language differences for KQL language elements not supported in Azure Monitor.
Azure regions	Log queries can experience excessive overhead when data spans Log Analytics workspaces in multiple Azure regions. See Query limits for details.
Cross resource queries	Maximum number of Application Insights resources and Log Analytics workspaces in a single query limited to 100.  Cross-resource query is not supported in View Designer.  Cross-resource query in log alerts is supported in the new scheduledQueryRules API.  See Cross-resource query limits for details.

### User query throttling

Azure Monitor has several throttling limits to protect against users sending an excessive number of queries. Such behavior can potentially overload the system backend resources

and jeopardize service responsiveness. The following limits are designed to protect customers from interruptions and ensure consistent service level. The user throttling and limits are designed to impact only extreme usage scenario and should not be relevant for typical usage.

Measure	Limit per user	Description
Concurrent queries	5	If there are already 5 queries running for the user, any new queries are placed in a per-user concurrency queue. When one of the running queries ends, the next query will be pulled from the queue and started. This does not include queries from alert rules.
Time in concurrency queue	2.5 minutes	If a query sits in the queue for more than 2.5 minutes without being started, it will be terminated with an HTTP error response with code 429.
Total queries in concurrency queue	40	Once the number of queries in the queue reaches 40, any additional queries will by rejected with an HTTP error code 429. This number is in addition to the 5 queries that can be running simultaneously.
Query rate	200 queries per 30 seconds	This is the overall rate that queries can be submitted by a single user to all workspaces. This limit applies to programmatic queries or queries initiated by visualization parts such as Azure dashboards and the Log Analytics workspace summary page.

- Optimize your queries as described in Optimize log queries in Azure Monitor.
- Dashboards and workbooks can contain multiple queries in a single view that generate a burst of queries every time they load or refresh. Consider breaking them

- up into multiple views that load on demand.
- In Power BI, consider extracting only aggregated results rather than raw logs.

# Log Analytics workspaces

#### **Data collection volume and retention**

Tier	Limit per day	Data retention	Comment
Current Per GB pricing tier (introduced April 2018)	No limit	30 - 730 days	Data retention beyond 31 days is available for additional charges. Learn more about Azure Monitor pricing.
Legacy Free tiers (introduced April 2016)	500 MB	7 days	When your workspace reaches the 500 MB per day limit, data ingestion stops and resumes at the start of the next day. A day is based on UTC. Note that data collected by Azure Security Center is not included in this 500 MB per day limit and will continue to be collected above this limit.
Legacy Standalone Per GB tier (introduced April 2016)	No limit	30 to 730 days	Data retention beyond 31 days is available for additional charges. Learn more about Azure Monitor pricing.
Legacy Per Node (OMS) (introduced April 2016)	No limit	30 to 730 days	Data retention beyond 31 days is available for additional charges. Learn more about Azure Monitor pricing.
Legacy Standard	No limit	30 days	Retention can't be adjusted

stanuaru tier	ШПП		
Legacy Premium tier	No limit	365 days	Retention can't be adjusted

#### Number of workspaces per subscription.

Pricing tier	Workspace limit	Comments
Free tier	10	This limit can't be increased.
All other tiers	No limit	You're limited by the number of resources within a resource group and the number of resource groups per subscription.

#### **Azure portal**

Category	Limit	Comments
Maximum records returned by a log query	10,000	Reduce results using query scope, time range, and filters in the query.

#### **Data Collector API**

Category	Limit	Comments
Maximum size for a single post	30 MB	Split larger volumes into multiple posts.
Maximum size for field values	32 KB	Fields longer than 32 KB are truncated.

#### Search API

Category	Limit	Comments
Maximum records returned	500,000	

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Maximum size of data returned	64,000,000 bytes (~61 MiB)	
Maximum query running time	10 minutes	See Timeouts for details.
Maximum request rate	200 requests per 30 seconds per Azure AD user or client IP address	See Rate limits for details.

#### **General workspace limits**

in a single query

Category	Limit	Comments
Maximum columns in a table	500	
Maximum characters for column name	500	
Data export	Not currently available	Use Azure Function or Logic App to aggregate and export data.

#### **Data ingestion volume rate**

Azure Monitor is a high scale data service that serves thousands of customers sending terabytes of data each month at a growing pace. The volume rate limit intends to protect Azure Monitor customers from sudden ingestion spikes in multitenancy environment. A default ingestion volume rate threshold of 500 MB (compressed) applies to workspaces, which is approximately **6 GB/min** uncompressed -- the actual size can vary between data types depending on the log length and its compression ratio. This threshold applies to all ingested data whether sent from Azure resources using Diagnostic settings, Data Collector API or agents.

When you send data to a workspace at a volume rate higher than 80% of the threshold

every 6 hours while the threshold continues to be exceeded. When ingested volume rate is higher than threshold, some data is dropped and an event is sent to the *Operation* table in your workspace every 6 hours while the threshold continues to be exceeded. If your ingestion volume rate continues to exceed the threshold or you are expecting to reach it

sometime soon, you can request to increase it in your workspace by opening a support request.

To be notified on such an event in your workspace, create a log alert rule using the following query with alert logic base on number of results grater than zero, evaluation period of 5 minutes and frequency of 5 minutes.

Ingestion volume rate reached 80% of threshold:

```
Operation
|where OperationCategory == "Ingestion"
|where Detail startswith "The data ingestion volume rate crossed 80% of t
```

Ingestion volume rate reached threshold:

```
Operation
|where OperationCategory == "Ingestion"
|where Detail startswith "The data ingestion volume rate crossed the thre
```

#### ① Note

Depending on how long you've been using Log Analytics, you might have access to legacy pricing tiers. Learn more about Log Analytics legacy pricing tiers.

#### **Application Insights**

- --- --- --- --- --- --- ---

There are some limits on the number of metrics and events per application, that is, per instrumentation key. Limits depend on the pricing plan that you choose.

Resource	Limit	Note
Total data per day	100 GB	You can reduce data by setting a cap. If you need more data, you can increase the limit in the portal, up to 1,000 GB. For capacities greater than 1,000 GB, send email to AIDataCap@microsoft.com.
Throttling	32,000 events/second	The limit is measured over a minute.
Data retention	90 days	This resource is for Search, Analytics, and Metrics Explore
Availability multi-step test detailed results retention	90 days	This resource provides detailed results of each step.
Maximum event size	64,000,000 bytes	
Property and metric name length	150	See type schemas.
Property value string length	8,192	See type schemas.
Trace and exception message length	32,768	See type schemas.
Availability tests count per	100	

арр			
Profiler data retention	5 days		
Profiler data sent per day	10 GB		

For more information, see About pricing and quotas in Application Insights.

# **Azure Policy limits**

There's a maximum count for each object type for Azure Policy. An entry of *Scope* means either the subscription or the management group.

Where	What	Maximum count
Scope	Policy definitions	500
Scope	Initiative definitions	200
Tenant	Initiative definitions	2,500
Scope	Policy or initiative assignments	200
Policy definition	Parameters	20
Initiative definition	Policies	1000
Initiative definition	Parameters	100
Policy or initiative assignments	Exclusions (notScopes)	400
Policy rule	Nested conditionals	512
Remediation task	Resources	1000

# **Azure SignalR Service limits**

Resource	Default limit	Maximum limit
Azure SignalR Service units per instance for Free tier	1	1
Azure SignalR Service units per instance for Standard tier	100	100
Azure SignalR Service units per subscription per region for Free tier	5	5
Total Azure SignalR Service unit counts per subscription per region	150	Unlimited
Connections per unit per day for Free tier	20	20
Connections per unit per day for Standard tier	1,000	1,000
Included messages per unit per day for Free tier	20,000	20,000
Additional messages per unit per day for Free tier	0	0
Included messages per unit per day for Standard tier	1,000,000	1,000,000
Additional messages per unit per day for Standard tier	Unlimited	Unlimited

To request an update to your subscription's default limits, open a support ticket.

# **Backup limits**

For a summary of Azure Backup support settings and limitations, see Azure Backup

## **Batch limits**

Resource	Default limit	Maximum limit
Azure Batch accounts per region per subscription	1-3	50
Dedicated cores per Batch account	90-900	Contact support
Low-priority cores per Batch account	10-100	Contact support
<b>Active</b> jobs and job schedules per Batch account ( <b>completed</b> jobs have no limit)	100-300	1,000 <sup>1</sup>
Pools per Batch account	20-100	500 <sup>1</sup>

<sup>&</sup>lt;sup>1</sup>To request an increase beyond this limit, contact Azure Support.

#### (i) Important

We are changing how you request and manage dedicated quota. The total dedicated vCPUs is the currently enforced value, but soon we will enforce dedicated quota per VM series. Low-priority quota will continue being enforced based on the total limit; it will not be enforced by VM series.

#### ① Note

Default limits vary depending on the type of subscription you use to create a Batch account. Cores quotas shown are for Batch accounts in Batch service mode. View the quotas in your Batch account

quotas iri your buteri account.

#### (i) Important

To help us better manage capacity during the global health pandemic, the default core quotas for new Batch accounts in some regions and for some types of subscription have been reduced from the above range of values, in some cases to zero cores. When you create a new Batch account, **check your core quota** and **request a core quota increase**, if required.

# Classic deployment model limits

If you use classic deployment model instead of the Azure Resource Manager deployment model, the following limits apply.

Resource	Default limit	Maximum limit
vCPUs per subscription <sup>1</sup>	20	10,000
Coadministrators per subscription	200	200
Storage accounts per subscription <sup>2</sup>	100	100
Cloud services per subscription	20	200
Local networks per subscription	10	500
DNS servers per subscription	9	100
Reserved IPs per subscription	20	100
Affinity groups per subscription	256	256

<sup>1</sup>Extra small instances count as one vCPU toward the vCPU limit despite using a partial CPU core.

<sup>2</sup>The storage account limit includes both Standard and Premium storage accounts.

# **Container Instances limits**

Resource	Limit
Standard sku container groups per region per subscription	100 <sup>1</sup>
Dedicated sku container groups per region per subscription	01
Number of containers per container group	60
Number of volumes per container group	20
Standard sku cores (CPUs) per region per subscription	10 <sup>1,2</sup>
Standard sku cores (CPUs) for K80 GPU per region per subscription	18 <sup>1,2</sup>
Standard sku cores (CPUs) for P100 or V100 GPU per region per subscription	0 <sup>1,2</sup>
Ports per IP	5
Container instance log size - running instance	4 MB
Container instance log size - stopped instance	16 KB or 1,000 lines
Container creates per hour	300 <sup>1</sup>

Container creates per 5 minutes	100 <sup>1</sup>
Container deletes per hour	300 <sup>1</sup>
Container deletes per 5 minutes	100 <sup>1</sup>

<sup>1</sup>To request a limit increase, create an Azure Support request. Free subscriptions including Azure Free Account and Azure for Students aren't eligible for limit or quota increases. If you have a free subscription, you can upgrade to a Pay-As-You-Go subscription.

<sup>2</sup>Default limit for Pay-As-You-Go subscription. Limit may differ for other category types.

# **Container Registry limits**

The following table details the features and limits of the Basic, Standard, and Premium service tiers.

Resource	Basic	Standard	Premium
Included storage <sup>1</sup> (GiB)	10	100	500
Storage limit (TiB)	20	20	20
Maximum image layer size (GiB)	200	200	200
ReadOps per minute <sup>2, 3</sup>	1,000	3,000	10,000
WriteOps per minute <sup>2, 4</sup>	100	500	2,000
Download bandwidth MBps <sup>2</sup>	30	60	100
Upload bandwidth MBps <sup>2</sup>	10	20	50
Webhooks	2	10	500
Geo-replication	N/A	N/A	Supported

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Content trust	N/A	N/A	Supported
Private link with private endpoints	N/A	N/A	Supported
Private endpoints	N/A	N/A	10
Service endpoint VNet access	N/A	N/A	Preview
Customer-managed keys	N/A	N/A	Supported
Repository-scoped permissions	N/A	N/A	Preview
• Tokens	N/A	N/A	20,000
Scope maps	N/A	N/A	20,000
Repositories per scope map	N/A	N/A	500

<sup>&</sup>lt;sup>1</sup> Storage included in the daily rate for each tier. For additional storage, you're charged an additional daily rate per GiB, up to the storage limit. For rate information, see Azure Container Registry pricing.

# **Content Delivery Network limits**

<sup>&</sup>lt;sup>2</sup>ReadOps, WriteOps, and Bandwidth are minimum estimates. Azure Container Registry strives to improve performance as usage requires.

<sup>&</sup>lt;sup>3</sup>A docker pull translates to multiple read operations based on the number of layers in the image, plus the manifest retrieval.

<sup>&</sup>lt;sup>4</sup>A docker push translates to multiple write operations, based on the number of layers that must be pushed. A docker push includes *ReadOps* to retrieve a manifest for an existing image.

Resource	Limit
Azure Content Delivery Network profiles	25
Content Delivery Network endpoints per profile	25
Custom domains per endpoint	25

A Content Delivery Network subscription can contain one or more Content Delivery Network profiles. A Content Delivery Network profile can contain one or more Content Delivery Network endpoints. You might want to use multiple profiles to organize your Content Delivery Network endpoints by internet domain, web application, or some other criteria.

# **Data Factory limits**

Azure Data Factory is a multitenant service that has the following default limits in place to make sure customer subscriptions are protected from each other's workloads. To raise the limits up to the maximum for your subscription, contact support.

## Version 2

Resource	Default limit	Maximum limit
Data factories in an Azure subscription	800	Contact support.
Total number of entities, such as pipelines, data sets, triggers, linked services, Private Endpoints, and integration runtimes, within a data factory	5,000	Contact support.
Total CPU cores for Azure-SSIS Integration	256	Contact

Runtimes under one subscription		support.
Concurrent pipeline runs per data factory that's shared among all pipelines in the factory	10,000	Contact support.
Concurrent External activity runs per subscription per Azure Integration Runtime region  External activities are managed on integration runtime but execute on linked services, including Databricks, stored procedure, HDInsights, Web, and others.	3000	Contact support.
Concurrent Pipeline activity runs per subscription per Azure Integration Runtime region Pipeline activities execute on integration runtime, including Lookup, GetMetadata, and Delete.	1000	Contact support.
Concurrent authoring operations per subscription per Azure Integration Runtime region Including test connection, browse folder list and table list, preview data.	200	Contact support.
Concurrent Data Integration Units <sup>1</sup> consumption per subscription per Azure Integration Runtime region	Region group 1 <sup>2</sup> : 6000 Region group 2 <sup>2</sup> : 3000 Region group 3 <sup>2</sup> : 1500	Contact support.
Maximum activities per pipeline, which includes inner activities for containers	40	40
Maximum number of linked integration runtimes that can be created against a single self-hosted integration runtime	100	Contact support.
Maximum parameters per pipeline	50	50
ForEach items	100,000	100,000
ForEach parallelism	20	50

Maximum queued runs per pipeline	100	100
Characters per expression	8,192	8,192
Minimum tumbling window trigger interval	15 min	15 min
Maximum timeout for pipeline activity runs	7 days	7 days
Bytes per object for pipeline objects <sup>3</sup>	200 KB	200 KB
Bytes per object for dataset and linked service objects <sup>3</sup>	100 KB	2,000 KB
Data Integration Units <sup>1</sup> per copy activity run	256	Contact support.
Write API calls	1,200/h	Contact support.
	This limit is imposed by Azure Resource Manager, not Azure Data Factory.	
Read API calls	12,500/h	Contact support.
	This limit is imposed by Azure Resource Manager, not Azure Data Factory.	зиррогі.
Monitoring queries per minute	1,000	Contact support.
Entity CRUD operations per minute	50	Contact support.
Maximum time of data flow debug session	8 hrs	8 hrs
Concurrent number of data flows per integration	50	Contact

runtime		support.
Concurrent number of data flow debug sessions per user per factory	3	3
Data Flow Azure IR TTL limit	4 hrs	Contact support.

<sup>&</sup>lt;sup>1</sup> The data integration unit (DIU) is used in a cloud-to-cloud copy operation, learn more from Data integration units (version 2). For information on billing, see Azure Data Factory pricing.

<sup>&</sup>lt;sup>2</sup> Azure Integration Runtime is globally available to ensure data compliance, efficiency, and reduced network egress costs.

Region group	Regions
Region group 1	Central US, East US, East US2, North Europe, West Europe, West US, West US 2
Region group 2	Australia East, Australia Southeast, Brazil South, Central India, Japan East, Northcentral US, Southcentral US, Southeast Asia, West Central US
Region group 3	Canada Central, East Asia, France Central, Korea Central, UK South

<sup>&</sup>lt;sup>3</sup> Pipeline, data set, and linked service objects represent a logical grouping of your workload. Limits for these objects don't relate to the amount of data you can move and process with Azure Data Factory. Data Factory is designed to scale to handle petabytes of data.

### **Version 1**

Resource	Default limit	Maximum limit
Pipelines within a data factory	2,500	Contact
		support.
Data sets within a data factory	5,000	Contact support.
Concurrent slices per data set	10	10
Bytes per object for pipeline objects <sup>1</sup>	200 KB	200 KB
Bytes per object for data set and linked service objects <sup>1</sup>	100 KB	2,000 KB
Azure HDInsight on-demand cluster cores within a subscription <sup>2</sup>	60	Contact support.
Cloud data movement units per copy activity run <sup>3</sup>	32	Contact support.
Retry count for pipeline activity runs	1,000	MaxInt (32 bit)

<sup>&</sup>lt;sup>1</sup> Pipeline, data set, and linked service objects represent a logical grouping of your workload. Limits for these objects don't relate to the amount of data you can move and process with Azure Data Factory. Data Factory is designed to scale to handle petabytes of data.

 $<sup>^2</sup>$  On-demand HDInsight cores are allocated out of the subscription that contains the data factory. As a result, the previous limit is the Data Factory-enforced core limit for on-demand HDInsight cores. It's different from the core limit that's associated with your Azure subscription.

<sup>&</sup>lt;sup>3</sup> The cloud data movement unit (DMU) for version 1 is used in a cloud-to-cloud copy

operation, learn more from Cloud data movement units (version 1). For information on billing, see Azure Data Factory pricing.

Resource	Default lower limit	Minimum limit
Scheduling interval	15 minutes	15 minutes
Interval between retry attempts	1 second	1 second
Retry timeout value	1 second	1 second

#### Web service call limits

Azure Resource Manager has limits for API calls. You can make API calls at a rate within the Azure Resource Manager API limits.

# **Data Lake Analytics limits**

Azure Data Lake Analytics makes the complex task of managing distributed infrastructure and complex code easy. It dynamically provisions resources, and you can use it to do analytics on exabytes of data. When the job completes, it winds down resources automatically. You pay only for the processing power that was used. As you increase or decrease the size of data stored or the amount of compute used, you don't have to rewrite code. To raise the default limits for your subscription, contact support.

Resource	Limit	Comments
Maximum number of concurrent jobs	20	
Maximum number of analytics units (AUs) per account	250	Use any combination of up to a maximum of 250 AUs across 20 jobs. To increase this limit, contact Microsoft Support.
Maximum script size for job	3 MB	

Maximum number of Data Lake
Analytics accounts per region pe
subscription

To increase this limit, contact Microsoft Support.

## **Data Lake Store limits**

Azure Data Lake Storage Gen1 is an enterprise-wide hyper-scale repository for big data analytic workloads. You can use Data Lake Storage Gen1 to capture data of any size, type, and ingestion speed in one single place for operational and exploratory analytics. There's no limit to the amount of data you can store in a Data Lake Storage Gen1 account.

Resource	Limit	Comments
Maximum number of Data Lake Storage Gen1 accounts, per subscription, per region	10	To request an increase for this limit, contact support.
Maximum number of access ACLs, per file or folder	32	This is a hard limit. Use groups to manage access with fewer entries.
Maximum number of default ACLs, per file or folder	32	This is a hard limit. Use groups to manage access with fewer entries.

## **Data Share limits**

Azure Data Share enables organizations to simply and securely share data with their customers and partners.

Resource	Limit
Maximum number of Data Share resources per Azure subscription	100
Maximum number of sent shares per Data Share resource	200

Maximum number of received shares per Data Share resource	100
Maximum number of invitations per sent share	200
Maximum number of share subscriptions per sent share	200
Maximum number of datasets per share	200
Maximum number of snapshot schedules per share	1

# **Database Migration Service Limits**

Azure Database Migration Service is a fully managed service designed to enable seamless migrations from multiple database sources to Azure data platforms with minimal downtime.

Resource	Limit	Comments
Maximum number of services per subscription, per region	10	To request an increase for this limit, contact support.

# **Digital Twins limits**

#### ① Note

Some areas of this service have adjustable limits, and others do not. This is represented in the tables below with the *Adjustable?* column. When the limit can be adjusted, the *Adjustable?* value is *Yes*.

## **Functional limits**

The table below lists the functional limits of Azure Digital Twins in the current preview.

Area	Capability	Default limit	Adjustable?
Azure resource	Number of Azure Digital Twins instances in a region, per subscription	10	Yes
Digital twins	Number of twins in an Azure Digital Twins instance	200,000	Yes
Digital twins	Number of incoming relationships to a single twin	5,000	No
Digital twins	Number of outgoing relationships from a single twin	5,000	No
Routing	Number of endpoints for a single Azure Digital Twins instance	6	No
Routing	Number of routes for a single Azure Digital Twins instance	6	Yes
Models	Number of models within a single Azure Digital Twins instance	10,000	Yes
Models	Number of models that can be uploaded in a single API call	250	No
Models	Number of items returned in a single page	100	No
Query	Number of items returned in a single page	100	No
Query	Number of AND / OR expressions in a query	50	Yes
Query	Number of array items in an IN / NOT IN clause	50	Yes
Query	Number of characters in a query	8,000	Yes

## **Rate limits**

Query

This table reflects the rate limits of different APIs.

API	Capability	Default limit	Adjustable?
Models API	Number of requests per second	100	Yes
Digital Twins API	Number of requests per second	1,000	Yes
Query API	Number of requests per second	500	Yes
Query API	Query units per second	4,000	Yes
Event Routes API	Number of requests per second	100	Yes

## Other limits

Limits on data types and fields within DTDL documents for Azure Digital Twins models can be found within its spec documentation in GitHub: *Digital Twins Definition Language* (DTDL) - version 2.

Query latency details and other guidelines on writing queries during preview can be found in *How-to: Query the twin graph*.

## **Event Grid limits**

The following limits apply to Azure Event Grid system topics and custom topics, *not* event domains.

Resource

Limit

Custom topics per Azure subscription	100
Event subscriptions per topic	500
Publish rate for a custom topic (ingress)	5,000 events per second per topic
Event size	1 MB. Operations are charged in 64 KB increments though. So, events over 64 KB will incur operations charges as though they were multiple events. For example, an event that is 130 KB would incur operations as though it were 3 separate events.
Topics per event domain	100,000
Event subscriptions per topic within a domain	500
Domain scope event subscriptions	50
Publish rate for an event domain (ingress)	5,000 events per second

Event Domains per Azure Subscription	100			
Private endpoint connections per topic or domain	64			
IP Firewall rules per topic or domain	16			

# **Event Hubs limits**

The following tables provide quotas and limits specific to Azure Event Hubs. For information about Event Hubs pricing, see Event Hubs pricing.

The following limits are common across basic and standard tiers.

Limit	Scope	Notes	Value
Number of Event Hubs namespaces per subscription	Subscription	-	100
Number of event hubs per namespace	Namespace	Subsequent requests for creation of a new event hub are rejected.	10
Number of partitions per event hub	Entity	-	32
Maximum size of an	Entity	-	256

event hub name	Littly	-	دعا characters
Maximum size of a consumer group name	Entity	-	256 characters
Number of non-epoch receivers per consumer group	Entity	-	5
Maximum throughput units	Namespace	Exceeding the throughput unit limit causes your data to be throttled and generates a server busy exception. To request a larger number of throughput units for a Standard tier, file a support request. Additional throughput units are available in blocks of 20 on a committed purchase basis.	20
Number of authorization rules per namespace	Namespace	Subsequent requests for authorization rule creation are rejected.	12
Number of calls to the GetRuntimeInformation method	Entity	-	50 per second
Number of virtual network (VNet) and IP Config rules	Entity	-	128

# **Event Hubs Basic and Standard - quotas and limits**

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Maximum size of Event Hubs event	Entity		256 KB	1 MB
Number of consumer groups per event hub	Entity		1	20
Number of AMQP connections per namespace	Namespace	Subsequent requests for additional connections are rejected, and an exception is received by the calling code.	100	5,000
Maximum retention period of event data	Entity		1 day	1-7 days
Apache Kafka enabled namespace	Namespace	Event Hubs namespace streams applications using Kafka protocol	No	Yes
Capture	Entity	When enabled, micro-batches on the same stream	No	Yes

# **Event Hubs Dedicated - quotas and limits**

The Event Hubs Dedicated offering is billed at a fixed monthly price, with a minimum of 4 hours of usage. The Dedicated tier offers all the features of the Standard plan, but with enterprise scale capacity and limits for customers with demanding workloads.

Feature	Limits	
Bandwidth	20 CUs	

Namespaces	50 per CU
Event Hubs	1000 per namespace
Ingress events	Included
Message Size	1 MB
Partitions	2000 per CU
Consumer groups	No limit per CU, 1000 per event hub
Brokered connections	100 K included
Message Retention	90 days, 10 TB included per CU
Capture	Included

# **Identity Manager limits**

Category	Limit
User- assigned managed identities	<ul> <li>When you create user-assigned managed identities, only alphanumeric characters (0-9, a-z, and A-Z) and the hyphen (-) are supported. For the assignment to a virtual machine or virtual machine scale set to work properly, the name is limited to 24 characters.</li> <li>If you use the managed identity virtual machine extension, the supported limit is 32 user-assigned managed identities. Without the managed identity virtual machine extension, the supported limit is 512 user-assigned identities.</li> </ul>

# **IoT Central limits**

IoT Central limits the number of applications you can deploy in a subscription to 10. If you need to increase this limit, contact Microsoft support.

## **IoT Hub limits**

The following table lists the limits associated with the different service tiers S1, S2, S3, and F1. For information about the cost of each *unit* in each tier, see Azure IoT Hub pricing.

Resource	S1 Standard	S2 Standard	S3 Standard	F1 Free
Messages/day	400,000	6,000,000	300,000,000	8,000
Maximum units	200	200	10	1

#### ① Note

If you anticipate using more than 200 units with an S1 or S2 tier hub or 10 units with an S3 tier hub, contact Microsoft Support.

The following table lists the limits that apply to IoT Hub resources.

Resource	Limit
Maximum paid IoT hubs per Azure subscription	50
Maximum free IoT hubs per Azure subscription	1
Maximum number of characters in a device ID	128
Maximum number of device identities	1 በበበ

returned in a single call	1,000
IoT Hub message maximum retention for device-to-cloud messages	7 days
Maximum size of device-to-cloud message	256 KB
Maximum size of device-to-cloud batch	AMQP and HTTP: 256 KB for the entire batch MQTT: 256 KB for each message
Maximum messages in device-to-cloud batch	500
Maximum size of cloud-to-device message	64 KB
Maximum TTL for cloud-to-device messages	2 days
Maximum delivery count for cloud-to- device messages	100
Maximum cloud-to-device queue depth per device	50
Maximum delivery count for feedback messages in response to a cloud-to-device message	100
Maximum TTL for feedback messages in response to a cloud-to-device message	2 days
Maximum size of device twin	8 KB for tags section, and 32 KB for desired and reported properties sections each

Maximum length of device twin string key	1 KB
Maximum length of device twin string value	4 KB
Maximum depth of object in device twin	10
Maximum size of direct method payload	128 KB
Job history maximum retention	30 days
Maximum concurrent jobs	10 (for S3), 5 for (S2), 1 (for S1)
Maximum additional endpoints	10 (for S1, S2, and S3)
Maximum message routing rules	100 (for S1, S2, and S3)
Maximum number of concurrently connected device streams	50 (for S1, S2, S3, and F1 only)
Maximum device stream data transfer	300 MB per day (for S1, S2, S3, and F1 only)

#### ① Note

If you need more than 50 paid IoT hubs in an Azure subscription, contact Microsoft Support.

#### ① Note

Currently, the total number of devices plus modules that can be registered to a single IoT hub is capped at 1,000,000. If you want to increase this limit, contact **Microsoft Support**.

IoT Hub throttles requests when the following quotas are exceeded.

Throttle	Per-hub value
Identity registry operations (create, retrieve, list, update, and delete), individual or bulk import/export	83.33/sec/unit (5,000/min/unit) (for S3). 1.67/sec/unit (100/min/unit) (for S1 and S2).
Device connections	6,000/sec/unit (for S3), 120/sec/unit (for S2), 12/sec/unit (for S1). Minimum of 100/sec.
Device-to-cloud sends	6,000/sec/unit (for S3), 120/sec/unit (for S2), 12/sec/unit (for S1). Minimum of 100/sec.
Cloud-to-device sends	83.33/sec/unit (5,000/min/unit) (for S3), 1.67/sec/unit (100/min/unit) (for S1 and S2).
Cloud-to-device receives	833.33/sec/unit (50,000/min/unit) (for S3), 16.67/sec/unit (1,000/min/unit) (for S1 and S2).
File upload operations	83.33 file upload initiations/sec/unit (5,000/min/unit) (for S3), 1.67 file upload initiations/sec/unit (100/min/unit) (for S1 and S2). 10,000 SAS URIs can be out for an Azure Storage account at one time. 10 SAS URIs/device can be out at one time.
Direct methods	24 MB/sec/unit (for S3), 480 KB/sec/unit (for S2), 160 KB/sec/unit (for S1). Based on 8-KB throttling meter size.
Device twin reads	500/sec/unit (for S3), Maximum of 100/sec or 10/sec/unit (for S2), 100/sec (for S1)
Device twin updates	250/sec/unit (for S3), Maximum of 50/sec or 5/sec/unit (for S2), 50/sec (for S1)

Jobs operations (create, update, list, and delete)	83.33/sec/unit (5,000/min/unit) (for S3), 1.67/sec/unit (100/min/unit) (for S2), 1.67/sec/unit (100/min/unit) (for S1).
Jobs per-device operation throughput	50/sec/unit (for S3), maximum of 10/sec or 1/sec/unit (for S2), 10/sec (for S1).
Device stream initiation rate	5 new streams/sec (for S1, S2, S3, and F1 only).

# **IoT Hub Device Provisioning Service limits**

The following table lists the limits that apply to Azure IoT Hub Device Provisioning Service resources.

Resource	Limit
Maximum device provisioning services per Azure subscription	10
Maximum number of enrollments	1,000,000
Maximum number of registrations	1,000,000
Maximum number of enrollment groups	100
Maximum number of CAs	25
Maximum number of linked IoT hubs	50
Maximum size of message	96 KB

#### ① Note

To increase the number of enrollments and registrations on your provisioning service.

contact Microsoft Support.

① Note

Increasing the maximum number of CAs is not supported.

The Device Provisioning Service throttles requests when the following quotas are exceeded.

Throttle	Per-unit value
Operations	200/min/service
Device registrations	200/min/service
Device polling operation	5/10 sec/device

# **Key Vault limits**

# Key transactions (maximum transactions allowed in 10 seconds, per vault per region<sup>1</sup>):

Key type	HSM key CREATE key	HSM key All other transactions	Software key CREATE key	Software key All other transactions
RSA 2,048-bit	5	1,000	10	2,000
RSA 3,072-bit	5	250	10	500
RSA 4,096-bit	5	125	10	250

ECC P-256	5	1,000	10	2,000
ECC P-384	5	1,000	10	2,000
ECC P-521	5	1,000	10	2,000
ECC SECP256K1	5	1,000	10	2,000

#### ① Note

In the previous table, we see that for RSA 2,048-bit software keys, 2,000 GET transactions per 10 seconds are allowed. For RSA 2,048-bit HSM-keys, 1,000 GET transactions per 10 seconds are allowed.

The throttling thresholds are weighted, and enforcement is on their sum. For example, as shown in the previous table, when you perform GET operations on RSA HSM-keys, it's eight times more expensive to use 4,096-bit keys compared to 2,048-bit keys. That's because 1,000/125 = 8.

In a given 10-second interval, an Azure Key Vault client can do *only one* of the following operations before it encounters a 429 throttling HTTP status code:

- 2,000 RSA 2,048-bit software-key GET transactions
- 1,000 RSA 2,048-bit HSM-key GET transactions
- 125 RSA 4,096-bit HSM-key GET transactions
- 124 RSA 4,096-bit HSM-key GET transactions and 8 RSA 2,048-bit HSM-key GET transactions

# Secrets, managed storage account keys, and vault transactions:

Transactions type	Maximum transactions allowed in 10 seconds, per vault per region <sup>1</sup>	
All transactions	2,000	

For information on how to handle throttling when these limits are exceeded, see Azure Key Vault throttling guidance.

<sup>1</sup> A subscription-wide limit for all transaction types is five times per key vault limit. For example, HSM-other transactions per subscription are limited to 5,000 transactions in 10 seconds per subscription.

## **Azure Private Link integration**

#### ① Note

The number of key vaults with private endpoints enabled per subscription is an adjustable limit. The limit shown below is the default limit. If you would like to request a limit increase for your service, please send an email to akv-privatelink@microsoft.com. We will approve these requests on a case by case basis.

Resource	Limit
Private endpoints per key vault	64
Key vaults with private endpoints per subscription	400

## **Media Services limits**

① Note

For recourses that aren't fixed open a support ticket to ask for an increase in the

quotas. Don't create additional Azure Media Services accounts in an attempt to obtain higher limits.

### **Account limits**

Resource	Default Limit
Media Services accounts in a single subscription	25 (fixed)

#### **Asset limits**

Resource	Default Limit
Assets per Media Services account	1,000,000

# Storage (media) limits

Resource	Default Limit
File size	In some scenarios, there is a limit on the maximum file size supported for processing in Media Services. <sup>(1)</sup>
Storage accounts	100 <sup>(2)</sup> (fixed)

<sup>&</sup>lt;sup>1</sup> The maximum size supported for a single blob is currently up to 5 TB in Azure Blob Storage. Additional limits apply in Media Services based on the VM sizes that are used by the service. The size limit applies to the files that you upload and also the files that get generated as a result of Media Services processing (encoding or analyzing). If your source

file is larger than 260-GB, your Job will likely fail.

The following table shows the limits on the media reserved units S1, S2, and S3. If your source file is larger than the limits defined in the table, your encoding job fails. If you encode 4K resolution sources of long duration, you're required to use S3 media reserved

units to achieve the performance needed. If you have 4K content that's larger than the 260-GB limit on the S3 media reserved units, open a support ticket.

Media reserved unit type	Maximum input size (GB)
S1	26
S2	60
S3	260

<sup>&</sup>lt;sup>2</sup> The storage accounts must be from the same Azure subscription.

# Jobs (encoding & analyzing) limits

Resource	Default Limit
Jobs per Media Services account	500,000 <sup>(3)</sup> (fixed)
Job inputs per Job	50 (fixed)
Job outputs per Job	20 (fixed)
Transforms per Media Services account	100 (fixed)
Transform outputs in a Transform	20 (fixed)
Files per job input	10 (fixed)

Any Job record in your account older than 90 days will be automatically deleted, even if the total number of records is below the maximum quota.

# Live streaming limits

Resource	Default Limit
Live Events <sup>(4)</sup> per Media Services account	5
Live Outputs per Live Event	3 (5)
Max Live Output duration	Size of the DVR window

<sup>&</sup>lt;sup>4</sup> For detailed information about Live Event limitations, see Live Event types comparison and limitations.

# Packaging & delivery limits

Resource	Default Limit
Streaming Endpoints (stopped or running) per Media Services account	2 (fixed)
Dynamic Manifest Filters	100
Streaming Policies	100 <sup>(6)</sup>
Unique Streaming Locators associated with an Asset at one time	100 <sup>(7)</sup> (fixed)

<sup>&</sup>lt;sup>6</sup> When using a custom Streaming Policy, you should design a limited set of such policies

<sup>&</sup>lt;sup>3</sup> This number includes queued, finished, active, and canceled Jobs. It does not include deleted Jobs.

<sup>&</sup>lt;sup>5</sup> Live Outputs start on creation and stop when deleted.

for your Media Service account, and re-use them for your StreamingLocators whenever the same encryption options and protocols are needed. You should not be creating a new Streaming Policy for each Streaming Locator.

#### **Protection limits**

Resource	Default Limit
Options per Content Key Policy	30
Licenses per month for each of the DRM types on Media Services key delivery service per account	1,000,000

# Support ticket

For resources that are not fixed, you may ask for the quotas to be raised, by opening a support ticket. Include detailed information in the request on the desired quota changes, use-case scenarios, and regions required.

Do **not** create additional Azure Media Services accounts in an attempt to obtain higher limits.

## Media Services v2 (legacy)

For limits specific to Media Services v2 (legacy), see Media Services v2 (legacy)

## **Mobile Services limits**

Tier	Free	Basic	Standard

<sup>&</sup>lt;sup>7</sup> Streaming Locators are not designed for managing per-user access control. To give different access rights to individual users, use Digital Rights Management (DRM) solutions.

API calls	500,000	1.5 million per unit	15 million per unit
Active devices	500	Unlimited	Unlimited
Scale	N/A	Up to 6 units	Unlimited units
Push notifications	Azure Notification Hubs Free tier included, up to 1 million pushes	Notification Hubs Basic tier included, up to 10 million pushes	Notification Hubs Standard tier included, up to 10 million pushes
Real-time messaging/ Web Sockets	Limited	350 per mobile service	Unlimited
Offline synchronizations	Limited	Included	Included
Scheduled jobs	Limited	Included	Included
Azure SQL Database (required) Standard rates apply for additional capacity	20 MB included	20 MB included	20 MB included
CPU capacity	60 minutes per day	Unlimited	Unlimited
Outbound data transfer	165 MB per day (daily rollover)	Included	Included

For more information on limits and pricing, see Azure Mobile Services pricing.

# **Multi-Factor Authentication limits**

Resource	Default limit	Maximum limit
Maximum number of trusted IP addresses or ranges per subscription	0	50
Remember my devices, number of days	14	60
Maximum number of app passwords	0	No limit
Allow <b>X</b> attempts during MFA call	1	99
Two-way text message timeout seconds	60	600
Default one-time bypass seconds	300	1,800
Lock user account after <b>X</b> consecutive MFA denials	Not set	99
Reset account lockout counter after <b>X</b> minutes	Not set	9,999
Unlock account after <b>X</b> minutes	Not set	9,999

# **Networking limits**

# Networking limits - Azure Resource Manager

The following limits apply only for networking resources managed through **Azure Resource Manager** per region per subscription. Learn how to view your current resource usage against your subscription limits.

① Note

We recently increased all default limits to their maximum limits. If there's no

maximum limit column, the resource doesn't have adjustable limits. If you had these limits increased by support in the past and don't see updated limits in the following tables, open an online customer support request at no charge

Resource	Limit
Virtual networks	1,000
Subnets per virtual network	3,000
Virtual network peerings per virtual network	500
Virtual network gateways (VPN gateways) per virtual network	1
Virtual network gateways (ExpressRoute gateways) per virtual network	1
DNS servers per virtual network	20
Private IP addresses per virtual network	65,536
Private IP addresses per network interface	256
Private IP addresses per virtual machine	256
Public IP addresses per network interface	256
Public IP addresses per virtual machine	256
Concurrent TCP or UDP flows per NIC of a virtual machine or role instance	500,000
Network interface cards	65,536
Network Security Groups	5,000
NSG rules per NSG	1,000

IP addresses and ranges specified for source or destination in a security group	4,000
Application security groups	3,000
Application security groups per IP configuration, per NIC	20
IP configurations per application security group	4,000
Application security groups that can be specified within all security rules of a network security group	100
User-defined route tables	200
User-defined routes per route table	400
Point-to-site root certificates per Azure VPN Gateway	20
Virtual network TAPs	100
Network interface TAP configurations per virtual network TAP	100

## **Public IP address limits**

Resource	Default limit	Maximum limit
Public IP addresses <sup>1</sup>	10 for Basic.	Contact support.
Static Public IP addresses <sup>1</sup>	10 for Basic.	Contact support.
Standard Public IP addresses <sup>1</sup>	10	Contact support.
Public IP Prefixes	limited by number of Standard Public IPs in a	Contact

I dolle II I Felixes	subscription	support.
Public IP prefix length	/28	Contact support.

### Load balancer limits

The following limits apply only for networking resources managed through Azure Resource Manager per region per subscription. Learn how to view your current resource usage against your subscription limits.

#### Standard Load Balancer

Resource	Limit
Load balancers	1,000
Rules per resource	1,500
Rules per NIC (across all IPs on a NIC)	300
Frontend IP configurations	600
Backend pool size	1,000 IP configurations, single virtual network
Backend resources per Load Balancer <sup>1</sup>	150
High-availability ports	1 per internal frontend
Outbound rules per Load Balancer	600
TCP idle timeout	4 minutes/30 minutes

<sup>&</sup>lt;sup>1</sup>Default limits for Public IP addresses vary by offer category type, such as Free Trial, Pay-As-You-Go, CSP. For example, the default for Enterprise Agreement subscriptions is 1000.

<sup>1</sup>The limit is up to 150 resources, in any combination of standalone virtual machine resources, availability set resources, and virtual machine scale-set placement groups.

#### **Basic Load Balancer**

Resource	Limit
Load balancers	1,000
Rules per resource	250
Rules per NIC (across all IPs on a NIC)	300
Frontend IP configurations	200
Backend pool size	300 IP configurations, single availability set
Availability sets per Load Balancer	150

The following limits apply only for networking resources managed through the **classic** deployment model per subscription. Learn how to view your current resource usage against your subscription limits.

Resource	Default limit	Maximum limit
Virtual networks	100	100
Local network sites	20	50
DNS servers per virtual network	20	20
Private IP addresses per virtual network	4,096	4,096
Concurrent TCP or UDP flows per NIC of a virtual machine or role instance	500,000, up to 1 000 000 for two or	500,000, up to 1 000 000 for two or

or a virtual machine of fole instance	more NICs.	more NICs.
Network Security Groups (NSGs)	200	200
NSG rules per NSG	1,000	1,000
User-defined route tables	200	200
User-defined routes per route table	400	400
Public IP addresses (dynamic)	500	500
Reserved public IP addresses	500	500
Public VIP per deployment	5	Contact support
Private VIP (internal load balancing) per deployment	1	1
Endpoint access control lists (ACLs)	50	50

# **ExpressRoute limits**

Resource	Limit
ExpressRoute circuits per subscription	10
ExpressRoute circuits per region per subscription, with Azure Resource Manager	10
Maximum number of routes advertised to Azure private peering with ExpressRoute Standard	4,000
Maximum number of routes advertised to Azure private peering with ExpressRoute Premium add-on	10,000

Maximum number of routes advertised from Azure private peering from the VNet address space for an ExpressRoute connection	200
Maximum number of routes advertised to Microsoft peering with ExpressRoute Standard	200
Maximum number of routes advertised to Microsoft peering with ExpressRoute Premium add-on	200
Maximum number of ExpressRoute circuits linked to the same virtual network in the same peering location	4
Maximum number of ExpressRoute circuits linked to the same virtual network in different peering locations	4
Number of virtual network links allowed per ExpressRoute circuit	See the Number of virtual networks per ExpressRoute circuit table.

# Number of virtual networks per ExpressRoute circuit

Circuit size	Number of virtual network links for Standard	Number of virtual network links with Premium add-on
50 Mbps	10	20
100 Mbps	10	25
200 Mbps	10	25
500	10	40

Mbps		
1 Gbps	10	50
2 Gbps	10	60
5 Gbps	10	75
10 Gbps	10	100
40 Gbps*	10	100
100 Gbps*	10	100

<sup>\*100</sup> Gbps ExpressRoute Direct Only

#### ① Note

Global Reach connections count against the limit of virtual network connections per ExpressRoute Circuit. For example, a 10 Gbps Premium Circuit would allow for 5 Global Reach connections and 95 connections to the ExpressRoute Gateways or 95 Global Reach connections and 5 connections to the ExpressRoute Gateways or any other combination up to the limit of 100 connections for the circuit.

### **Virtual WAN limits**

Resource	Limit
Virtual WAN hubs per region	1
Virtual WAN hubs per virtual wan	Azure regions

VPN (branch) connections per hub	1,000
VNet connections per hub	500
Point-to-Site users per hub	10,000
Aggregate throughput per Virtual WAN VPN gateway	20 Gbps
Throughput per Virtual WAN VPN connection (2 tunnels)	2 Gbps with 1 Gbps/IPsec tunnel
Aggregate throughput per Virtual WAN ExpressRoute gateway	20 Gbps

# **Application Gateway limits**

The following table applies to v1, v2, Standard, and WAF SKUs unless otherwise stated.

Resource	Limit	Note
Azure Application Gateway	1,000 per subscription	
Front-end IP configurations	2	1 public and 1 private
Front-end ports	100 <sup>1</sup>	
Back-end address pools	100 <sup>1</sup>	
Back-end servers per	1,200	

HTTP listeners	2001	Limited to 100 active listeners that are routing traffic. Active listeners = total number of listeners - listeners not active.  If a default configuration inside a routing rule is set to route
		traffic (for example, it has a listener, a backend pool, and HTTP settings) then that also counts as a listener.
HTTP load- balancing rules	100 <sup>1</sup>	
Back-end HTTP settings	100 <sup>1</sup>	
Instances per gateway	V1 SKU - 32 V2 SKU - 125	
SSL certificates	100 <sup>1</sup>	1 per HTTP listener
Maximum SSL certificate size	V1 SKU - 10 KB V2 SKU - 16 KB	
Authentication certificates	100	
Trusted root certificates	100	
Request timeout minimum	1 second	

Request timeout maximum	24 hours	
Number of sites	100 <sup>1</sup>	1 per HTTP listener
URL maps per listener	1	
Maximum path-based rules per URL map	100	
Redirect configurations	100 <sup>1</sup>	
Concurrent WebSocket connections	Medium gateways 20k Large gateways 50k	
Maximum URL length	32KB	
Maximum header size for HTTP/2	4KB	
Maximum file upload size, Standard	2 GB	
Maximum file upload size	V1 Medium WAF	

WAF	gateways, 100 MB V1 Large WAF gateways, 500 MB V2 WAF, 750 MB
WAF body size limit, without files	128 KB
Maximum WAF custom rules	100
Maximum WAF exclusions	100

<sup>&</sup>lt;sup>1</sup> In case of WAF-enabled SKUs, we recommend that you limit the number of resources to 40 for optimal performance.

### **Network Watcher limits**

Resource	Limit	Note
Azure Network Watcher	1 per region	Network Watcher is created to enable access to the service. Only one instance of Network Watcher is required per subscription per region.
Packet capture sessions	10,000 per region	Number of sessions only, not saved captures.

### **Private Link limits**

The following limits apply to Azure private link:

Resource	Limit
Number of private endpoints per virtual network	1000
Number of private endpoints per subscription	64000
Number of private link services per subscription	800
Number of IP Configurations on a private link service	8 (This number is for the NAT IP addresses used per PLS)
Number of private endpoints on the same private link service	1000
Number of private endpoints per key vault	64
Number of key vaults with private endpoints per subscription	400

# **Traffic Manager limits**

Resource	Limit
Profiles per subscription	200
Endpoints per profile	200

#### **Azure Bastion limits**

Resource	Limit
Concurrent RDP connections	25*
Concurrent SSH connections	50**

<sup>\*</sup>May vary due to other on-going RDP sessions or other on-going SSH sessions.

### **Azure DNS limits**

#### **Public DNS zones**

Resource	Limit
Public DNS Zones per subscription	250 <sup>1</sup>
Record sets per public DNS zone	10,000 <sup>1</sup>
Records per record set in public DNS zone	20
Number of Alias records for a single Azure resource	20

<sup>&</sup>lt;sup>1</sup>If you need to increase these limits, contact Azure Support.

#### **Private DNS zones**

Resource	Limit
Private DNS zones per subscription	1000
Record sets per private DNS zone	25000

<sup>\*\*</sup>May vary if there are existing RDP connections or usage from other on-going SSH sessions.

Records per record set for private DNS zones	20
Virtual Network Links per private DNS zone	1000
Virtual Networks Links per private DNS zones with auto-registration enabled	100
Number of private DNS zones a virtual network can get linked to with autoregistration enabled	1
Number of private DNS zones a virtual network can get linked	1000
Number of DNS queries a virtual machine can send to Azure DNS resolver, per second	500 <sup>1</sup>
Maximum number of DNS queries queued (pending response) per virtual machine	200 <sup>1</sup>

<sup>&</sup>lt;sup>1</sup>These limits are applied to every individual virtual machine and not at the virtual network level. DNS queries exceeding these limits are dropped.

### **Azure Firewall limits**

Resource	Limit
Data throughput	30 Gbps <sup>1</sup>
Rules	10,000. All rule types combined.
Maximum DNAT rules	298 for a single public IP address.  Any additional public IP addresses contribute to the available SNAT ports, but reduce the number of the available DNAT rules. For example, two public IP addresses allow for 297 DNAT rules. If a rule's protocol is configured for both TCP and UDP, it counts as two rules.
Minimum AzureFirewallSubnet size	/26

Port range in network and application rules	1 - 65535
Public IP addresses	250 maximum. All public IP addresses can be used in DNAT rules and they all contribute to available SNAT ports.
IP addresses in IP Groups	Maximum of 100 IP Groups per firewall.  Maximum 5000 individual IP addresses or IP prefixes per each IP Group.
Route table	By default, AzureFirewallSubnet has a 0.0.0.0/0 route with the NextHopType value set to <b>Internet</b> .  Azure Firewall must have direct Internet connectivity. If your AzureFirewallSubnet learns a default route to your on-premises network via BGP, you must override that with a 0.0.0.0/0 UDR with the
	NextHopType value set as Internet to maintain direct Internet connectivity. By default, Azure Firewall doesn't support forced tunneling to an on-premises network.
	However, if your configuration requires forced tunneling to an on- premises network, Microsoft will support it on a case by case basis. Contact Support so that we can review your case. If accepted, we'll allow your subscription and ensure the required firewall Internet connectivity is maintained.

<sup>&</sup>lt;sup>1</sup>If you need to increase these limits, contact Azure Support.

### **Azure Front Door Service limits**

Resource	Limit
Azure Front Door resources per subscription	100
Front-end hosts, which includes custom domains per resource	500

Routing rules per resource	500
Back-end pools per resource	50
Back ends per back-end pool	100
Path patterns to match for a routing rule	25
URLs in a single cache purge call	100
Custom web application firewall rules per policy	100
Web application firewall policy per subscription	100
Web application firewall match conditions per custom rule	10
Web application firewall IP address ranges per match condition	600
Web application firewall string match values per match condition	10
Web application firewall string match value length	256
Web application firewall POST body parameter name length	256
Web application firewall HTTP header name length	256
Web application firewall cookie name length	256
Web application firewall HTTP request body size inspected	128 KB
Web application firewall custom response body length	2 KB

### **Timeout values**

#### **Client to Front Door**

Front Door has an idle TCP connection timeout of 61 seconds.

### Front Door to application back-end

- If the response is a chunked response, a 200 is returned if or when the first chunk is received.
- After the HTTP request is forwarded to the back end, Front Door waits for 30 seconds for the first packet from the back end. Then it returns a 503 error to the client. This value is configurable via the field sendRecvTimeoutSeconds in the API.
  - For caching scenarios, this timeout is not configurable and so, if a request is cached and it takes more than 30 seconds for the first packet from Front Door or from the backend, then a 504 error is returned to the client.
- After the first packet is received from the back end, Front Door waits for 30 seconds in an idle timeout. Then it returns a 503 error to the client. This timeout value is not configurable.
- Front Door to the back-end TCP session timeout is 90 seconds.

## Upload and download data limit

	With chunked transfer encoding (CTE)	Without HTTP chunking
Download	There's no limit on the download size.	There's no limit on the download size.
Upload	There's no limit as long as each CTE upload is less than 2 GB.	The size can't be larger than 2 GB.

### Other limits

- Maximum URL size 8,192 bytes Specifies maximum length of the raw URL (scheme + hostname + port + path + query string of the URL)
- Maximum Query String size 4,096 bytes Specifies the maximum length of the query string, in bytes.
- Maximum HTTP response header size from health probe URL 4,096 bytes Specified the maximum length of all the response headers of health probes.

### **Notification Hubs limits**

Tier	Free	Basic	Standard
Included pushes	1 million	10 million	10 million
Active devices	500	200,000	10 million
Tag quota per installation or registration	60	60	60

For more information on limits and pricing, see Notification Hubs pricing.

### Role-based access control limits

Resource	Limit
Role assignments for Azure resources per Azure subscription	2,000
Role assignments for Azure resources per management group	500
Azure custom roles per tenant	5,000
Azure custom roles per tenant (for Azure Germany and Azure China 21Vianet)	2,000

# **Service Bus limits**

The following table lists quota information specific to Azure Service Bus messaging. For information about pricing and other quotas for Service Bus, see Service Bus pricing.

Quota name	Scope	Notes	Value
Maximum number of Basic or Standard namespaces per Azure subscription	Namespace	Subsequent requests for additional Basic or Standard namespaces are rejected by the Azure portal.	100
Maximum number of Premium namespaces per Azure subscription	Namespace	Subsequent requests for additional Premium namespaces are rejected by the portal.	100
Queue or topic size	Entity	Defined upon creation of the queue or topic.	1, 2, 3, 4 GB or GB.
		Subsequent incoming messages are rejected, and an exception is received by the calling code.	In the Premiun SKU, and the Standard SKU partitioning enabled, the maximum quel topic size is 80
Number of concurrent connections on a namespace	Namespace	Subsequent requests for additional connections are rejected, and an exception	Net Messaging 1,000.
		is received by the calling code. REST operations don't count toward concurrent TCP connections.	AMQP: 5,000.
Number of concurrent receive	Entity	Subsequent receive	5,000

Maximum size of any	Fntity		260 character
or queues per mannespace		partitioned topic or queue on the namespace are rejected. As a result, if configured through the Azure portal, an error message is generated. If called from the management API, the exception  QuotaExceededException is received by the calling code.	Partitioned en aren't support the Premium to Each partition queue or topic counts toward quota of 1,000 entities per namespace.
Number of partitioned topics or queues per namespace	Namespace	Subsequent requests for creation of a new	limit is 4,000.  Basic and Stantiers: 100.
		called from the management API, an exception is received by the calling code.	For the Premin tier, 1,000 per messaging un (MU). Maximu
		queue on the namespace are rejected. As a result, if configured through the Azure portal, an error message is generated. If	total number of topics and que in a namespace must be less t equal to 10,00
Number of topics or queues per namespace	Namespace	Subsequent requests for creation of a new topic or	10,000 for the
		receive operations across all subscriptions on a topic.	
subscription entity		an exception is received by the calling code. This quota applies to the combined number of concurrent	

messaging entity path: queue or topic	Linux		200 characters
Maximum size of any messaging entity name:	Entity	-	50 characters.
namespace, subscription, or subscription rule			
Maximum size of a message ID	Entity	-	128
Maximum size of a message session ID	Entity	-	128
Message size for a queue,	Entity	Incoming messages that	Maximum mes
topic, or subscription entity	,	exceed these quotas are	size: 256 KB fo
		rejected, and an exception	Standard tier,
		is received by the calling code.	for Premium ti
			Due to system
			overhead, this
			is less than the
			values.
			Maximum head
			size: 64 KB.
			Maximum nun
			of header prop
			in property ba
			byte/int.Max\
			Maximum size
			property in pro
			bag: No explici
			limit. Limited b
			maximum head

Message property size for a queue, topic, or subscription entity	Entity	The exception SerializationException is generated.	Maximum mes property size file each property 32,000. Cumul size of all propican't exceed 64. This limit applies the entire head the Brokered Message, which both user propiand system properties, suc Sequence Num Label, and Message, and Message, and Message.
Number of subscriptions per topic	Entity	Subsequent requests for creating additional subscriptions for the topic are rejected. As a result, if configured through the portal, an error message is shown. If called from the management API, an exception is received by the calling code.	2,000 per-topi the Standard ti
Number of SQL filters per topic	Entity	Subsequent requests for creation of additional filters on the topic are rejected, and an exception is received by the calling code.	2,000
Number of correlation filters per topic	Entity	Subsequent requests for creation of additional filters on the topic are rejected, and an exception is	100,000

received by the calling code.

Size of SQL filters or actions	Namespace	Subsequent requests for creation of additional filters are rejected, and an exception is received by the	Maximum leng filter condition string: 1,024 (
		calling code.	Maximum len- rule action str 1,024 (1 K).
			Maximum nur of expressions rule action: 32
Number of SharedAccessAuthorizationRule rules per namespace, queue, or topic	Entity, namespace	Subsequent requests for creation of additional rules are rejected, and an exception is received by the	Maximum nur of rules per er type: 12.
		calling code.	Rules that are configured on Service Bus
			namespace ap all types: qued topics.
Number of messages per transaction	Transaction	Additional incoming messages are rejected, and	100
		an exception stating "Cannot send more than 100 messages in a single transaction" is received by the calling code.	For both <b>Send</b> and <b>SendAsy</b> operations.
Number of virtual network and IP filter rules	Namespace		128

# **Site Recovery limits**

The following limits apply to Azure Site Recovery.

Limit identifier	Limit
Number of vaults per subscription	500
Number of servers per Recovery Services vault	250
Number of protection groups per Recovery Services vault	No limit
Number of recovery plans per Recovery Services vault	No limit
Number of servers per protection group	No limit
Number of servers per recovery plan	100

# **SQL** Database limits

For SQL Database limits, see SQL Database resource limits for single databases, SQL Database resource limits for elastic pools and pooled databases, and SQL Database resource limits for SQL Managed Instance.

# **Azure Synapse Analytics limits**

For Azure Synapse Analytics limits, see Azure Synapse resource limits.

# **Storage limits**

The following table describes default limits for Azure general-purpose v1, v2, Blob storage, and block blob storage accounts. The *ingress* limit refers to all data that is sent to a storage account. The *earess* limit refers to all data that is received from a storage account.

Resource	Limit
Number of storage accounts per region per subscription, including standard, and premium storage accounts.	250
Maximum storage account capacity	5 PiB <sup>1</sup>
Maximum number of blob containers, blobs, file shares, tables, queues, entities, or messages per storage account	No limit
Maximum request rate <sup>1</sup> per storage account	20,000 requests per second
Maximum ingress <sup>1</sup> per storage account (US, Europe regions)	10 Gbps
Maximum ingress <sup>1</sup> per storage account (regions other than US and Europe)	5 Gbps if RA-GRS/GRS is enabled, 10 Gbps for LRS/ZRS <sup>2</sup>
Maximum egress for general-purpose v2 and Blob storage accounts (all regions)	50 Gbps
Maximum egress for general-purpose v1 storage accounts (US regions)	20 Gbps if RA-GRS/GRS is enabled, 30 Gbps for LRS/ZRS <sup>2</sup>
Maximum egress for general-purpose v1 storage accounts (non-US regions)	10 Gbps if RA-GRS/GRS is enabled, 15 Gbps for LRS/ZRS <sup>2</sup>
Maximum number of virtual network rules per storage account	200
Maximum number of IP address rules per storage account	200

<sup>&</sup>lt;sup>1</sup> Azure Storage standard accounts support higher capacity limits and higher limits for ingress by request. To request an increase in account limits, contact Azure Support.

<sup>2</sup> If your storage account has read-access enabled with geo-redundant storage (RA-GRS) or geo-zone-redundant storage (RA-GZRS), then the egress targets for the secondary location are identical to those of the primary location. For more information, see Azure Storage replication.

#### ① Note

Microsoft recommends that you use a general-purpose v2 storage account for most scenarios. You can easily upgrade a general-purpose v1 or an Azure Blob storage account to a general-purpose v2 account with no downtime and without the need to copy data. For more information, see **Upgrade to a general-purpose v2 storage** account.

If the needs of your application exceed the scalability targets of a single storage account, you can build your application to use multiple storage accounts. You can then partition your data objects across those storage accounts. For information on volume pricing, see Azure Storage pricing.

All storage accounts run on a flat network topology regardless of when they were created. For more information on the Azure Storage flat network architecture and on scalability, see Microsoft Azure Storage: A Highly Available Cloud Storage Service with Strong Consistency.

For more information on limits for standard storage accounts, see Scalability targets for standard storage accounts.

### Storage resource provider limits

The following limits apply only when you perform management operations by using Azure Resource Manager with Azure Storage.

Resource	Limit
Storage account management operations (read)	800 per 5 minutes

Storage account management operations (write)	10 per second / 1200 per hour
Storage account management operations (list)	100 per 5 minutes

# **Azure Blob storage limits**

Resource	Target	Target (Preview)
Maximum size of single blob container	Same as maximum storage account capacity	
Maximum number of blocks in a block blob or append blob	50,000 blocks	
Maximum size of a block in a block blob	100 MiB	4000 MiB (preview)
Maximum size of a block blob	50,000 X 100 MiB (approximately 4.75 TiB)	50,000 X 4000 MiB (approximately 190.7 TiB) (preview)
Maximum size of a block in an append blob	4 MiB	
Maximum size of an append blob	50,000 x 4 MiB (approximately 195 GiB)	
Maximum size of a page blob	8 TiB	
Maximum number of stored access policies per blob container	5	

larget request rate for a single blob	Up to 500 requests per second
Target throughput for a single page blob	Up to 60 MiB per second
Target throughput for a single block blob	Up to storage account ingress/egress limits <sup>1</sup>

<sup>&</sup>lt;sup>1</sup> Throughput for a single blob depends on several factors, including, but not limited to: concurrency, request size, performance tier, speed of source for uploads, and destination for downloads. To take advantage of the performance enhancements of high-throughput block blobs, upload larger blobs or blocks. Specifically, call the Put Blob or Put Block operation with a blob or block size that is greater than 4 MiB for standard storage accounts. For premium block blob or for Data Lake Storage Gen2 storage accounts, use a block or blob size that is greater than 256 KiB.

The following table describes the maximum block and blob sizes permitted by service version.

Service version	Maximum block size (via Put Block)	Maximum blob size (via Put Block List)	Maximum blob size via single write operation (via Put Blob)
Version 2019-12- 12 and later	4000 MiB (preview)	Approximately 190.7 TiB (4000 MiB X 50,000 blocks) (preview)	5000 MiB (preview)
Version 2016-05- 31 through version 2019-07- 07	100 MiB	Approximately 4.75 TiB (100 MiB X 50,000 blocks)	256 MiB
Versions prior to 2016-05-31	4 MiB	Approximately 195 GiB (4 MiB X 50,000 blocks)	64 MiB

# **Azure Files limits**

For more information on Azure Files limits, see Azure Files scalability and performance targets.

Resource	Standard file shares	Premium file shares
Minimum size of a file share	No minimum; pay as you go	100 GiB; provisioned
Maximum size of a file share	100 TiB*, 5 TiB	100 TiB
Maximum size of a file in a file share	1 TiB	4 TiB
Maximum number of files in a file share	No limit	No limit
Maximum IOPS per share	10,000 IOPS*, 1,000 IOPS	100,000 IOPS
Maximum number of stored access policies per file share	5	5
Target throughput for a single file share	up to 300 MiB/sec*, Up to 60 MiB/sec ,	See premium file share ingress and egress values
Maximum egress for a single file share	See standard file share target throughput	Up to 6,204 MiB/s
Maximum ingress for a single file share	See standard file share target throughput	Up to 4,136 MiB/s
Maximum open handles per file or	2,000 open handles	2,000 open handles

directory		
Maximum number of share snapshots	200 share snapshots	200 share snapshots
Maximum object (directories and files) name length	2,048 characters	2,048 characters
Maximum pathname component (in the path \A\B\C\D, each letter is a component)	255 characters	255 characters

<sup>\*</sup> Default on standard file shares is 5 TiB, see Enable and create large file shares for the details on how to increase the standard file shares scale up to 100 TiB.

# **Azure File Sync limits**

Resource	Target	Hard limit
Storage Sync Services per region	100 Storage Sync Services	Yes
Sync groups per Storage Sync Service	200 sync groups	Yes
Registered servers per Storage Sync Service	99 servers	Yes
Cloud endpoints per sync group	1 cloud endpoint	Yes
Server endpoints per sync group	50 server endpoints	No
Server endpoints per	30 server endpoints	Yes

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File system objects (directories and files) per sync group	100 million objects	No
Maximum number of file system objects (directories and files) in a directory	5 million objects	Yes
Maximum object (directories and files) security descriptor size	64 KiB	Yes
File size	100 GiB	No
Minimum file size for a file to be tiered	V9: Based on file system cluster size (double file system cluster size). For example, if the file system cluster size is 4kb, the minimum file size will be 8kb. V8 and older: 64 KiB	Yes

#### ① Note

An Azure File Sync endpoint can scale up to the size of an Azure file share. If the Azure file share size limit is reached, sync will not be able to operate.

# **Azure Queue storage limits**

Resource	Target
Maximum size of a single queue	500 TiB
Maximum size of a message in a queue	64 KiB

Maximum number of stored access policies per queue	5
Maximum request rate per storage account	20,000 messages per second, which assumes a 1- KiB message size
Target throughput for a single queue (1- KiB messages)	Up to 2,000 messages per second

# **Azure Table storage limits**

The following table describes capacity, scalability, and performance targets for Table storage.

Resource	Target
Number of tables in an Azure storage account	Limited only by the capacity of the storage account
Number of partitions in a table	Limited only by the capacity of the storage account
Number of entities in a partition	Limited only by the capacity of the storage account
Maximum size of a single table	500 TiB
Maximum size of a single entity, including all property values	1 MiB
Maximum number of properties in a table entity	255 (including the three system properties, <b>PartitionKey</b> , <b>RowKey</b> , and <b>Timestamp</b> )

Maximum total size of an individual property in an entity	Varies by property type. For more information, see <b>Property Types</b> in Understanding the Table Service Data Model.
Size of the  PartitionKey	A string up to 1 KiB in size
Size of the <b>RowKey</b>	A string up to 1 KiB in size
Size of an entity group transaction	A transaction can include at most 100 entities and the payload must be less than 4 MiB in size. An entity group transaction can include an update to an entity only once.
Maximum number of stored access policies per table	5
Maximum request rate per storage account	20,000 transactions per second, which assumes a 1-KiB entity size
Target throughput for a single table partition (1 KiB-entities)	Up to 2,000 entities per second

### Virtual machine disk limits

You can attach a number of data disks to an Azure virtual machine. Based on the scalability and performance targets for a VM's data disks, you can determine the number and type of disk that you need to meet your performance and capacity requirements.

#### (i) Important

For optimal performance, limit the number of highly utilized disks attached to the virtual machine to avoid possible throttling. If all attached disks aren't highly utilized at the same time, the virtual machine can support a larger number of disks.

#### For Azure managed disks:

The following table illustrates the default and maximum limits of the number of resources per region per subscription. There is no limit for the number of Managed Disks, snapshots and images per resource group.

Resource	Limit
Standard managed disks	50,000
Standard SSD managed disks	50,000
Premium managed disks	50,000
Standard_LRS snapshots	50,000
Standard_ZRS snapshots	50,000
Managed image	50,000

• **For Standard storage accounts:** A Standard storage account has a maximum total request rate of 20,000 IOPS. The total IOPS across all of your virtual machine disks in a Standard storage account should not exceed this limit.

You can roughly calculate the number of highly utilized disks supported by a single Standard storage account based on the request rate limit. For example, for a Basic tier VM, the maximum number of highly utilized disks is about 66, which is 20,000/300 IOPS per disk. The maximum number of highly utilized disks for a Standard tier VM is about 40, which is 20,000/500 IOPS per disk.

• **For Premium storage accounts:** A Premium storage account has a maximum total throughput rate of 50 Gbps. The total throughput across all of your VM disks should not exceed this limit.

For more information, see Virtual machine sizes.

### Disk encryption sets

There's a limitation of 50 disk encryption sets per region, per subscription. For more information, see the encryption documentation for Linux or Windows virtual machines. If you need to increase the quota, contact Azure support.

# Managed virtual machine disks

#### **Standard HDD managed disks**

Standard Disk Type	<b>S4</b>	<b>S</b> 6	S10	S15	S20	S30	S40
Disk size in GiB	32	64	128	256	512	1,024	2,048
IOPS per disk	Up to 500						
Throughput per disk	Up to 60 MB/sec						

#### **Standard SSD managed disks**

Standard SSD sizes	E1	<b>E2</b>	E3	E4	<b>E</b> 6	E10	E15
Disk size in GiB	4	8	16	32	64	128	256
IOPS per disk	Up to 500						
Throughput	Up to						

per disk	60	60	60	60	60	60	60
<b> </b>	MB/sec						

### Premium SSD managed disks: Per-disk limits

Premium SSD sizes	P1	P2	Р3	P4	P6	P10	P15
Disk size in GiB	4	8	16	32	64	128	256
Provisioned IOPS per disk	120	120	120	120	240	500	1,100
Provisioned Throughput per disk	25 MB/sec	25 MB/sec	25 MB/sec	25 MB/sec	50 MB/sec	100 MB/sec	125 MB/sec
Max burst IOPS per disk	3,500	3,500	3,500	3,500	3,500	3,500	3,500
Max burst throughput per disk	170 MB/sec						
Max burst duration	30 min						
Eligible for reservation	No						

### **Premium SSD managed disks: Per-VM limits**

Resource Limit

Maximum IOPS Per VM	80,000 IOPS with GS5 VM
Maximum throughput per VM	2,000 MB/s with GS5 VM

## Unmanaged virtual machine disks

#### Standard unmanaged virtual machine disks: Per-disk limits

VM tier	Basic tier VM	Standard tier VM
Disk size	4,095 GB	4,095 GB
Maximum 8-KB IOPS per persistent disk	300	500
Maximum number of disks that perform the maximum IOPS	66	40

#### Premium unmanaged virtual machine disks: Per-account limits

Resource	Limit
Total disk capacity per account	35 TB
Total snapshot capacity per account	10 TB
Maximum bandwidth per account (ingress + egress) <sup>1</sup>	<=50 Gbps

<sup>&</sup>lt;sup>1</sup>Ingress refers to all data from requests that are sent to a storage account. Egress refers to all data from responses that are received from a storage account.

#### Premium unmanaged virtual machine disks: Per-disk limits

Premium storage disk type	P10	P20	P30	P40	P50	

Disk size	128 GiB	512 GiB	1,024 GiB (1 TB)	2,048 GiB (2 TB)	4,095 GiB (4 TB)
Maximum IOPS per disk	500	2,300	5,000	7,500	7,500
Maximum throughput per disk	100 MB/sec	150 MB/sec	200 MB/sec	250 MB/sec	250 MB/sec
Maximum number of disks per storage account	280	70	35	17	8

### Premium unmanaged virtual machine disks: Per-VM limits

Resource	Limit
Maximum IOPS per VM	80,000 IOPS with GS5 VM
Maximum throughput per VM	2,000 MB/sec with GS5 VM

# **StorSimple System limits**

Limit identifier	Limit	Comments
Maximum number of storage account credentials	64	
Maximum number of volume containers	64	

Maximum number of volumes	255	
Maximum number of schedules per bandwidth template	168	A schedule for every hour, every day of the week.
Maximum size of a tiered volume on physical devices	64 TB for StorSimple 8100 and StorSimple 8600	StorSimple 8100 and StorSimple 8600 are physical devices.
Maximum size of a tiered volume on virtual devices in Azure	30 TB for StorSimple 8010 64 TB for StorSimple 8020	StorSimple 8010 and StorSimple 8020 are virtual devices in Azure that use Standard storage and Premium storage, respectively.
Maximum size of a locally pinned volume on physical devices	9 TB for StorSimple 8100 24 TB for StorSimple 8600	StorSimple 8100 and StorSimple 8600 are physical devices.
Maximum number of iSCSI connections	512	
Maximum	512	

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number of iSCSI connections from initiators		
Maximum	64	
number of access control records per device		
Maximum number of volumes per backup policy	24	
Maximum number of backups retained per backup policy	64	
Maximum number of schedules per backup policy	10	
Maximum number of snapshots of any type that can be retained per volume	256	This amount includes local snapshots and cloud snapshots.
Maximum number of snapshots that can be present	10,000	

in any device		
Maximum number of volumes that can be  processed in parallel for backup, restore, or clone	16	<ul> <li>If there are more than 16 volumes, they're processed sequentially as processing slots become available.</li> <li>New backups of a cloned or a restored tiered volume can't occur until the operation is finished. For a local volume, backups are allowed after the volume is online</li> </ul>
Restore and clone recover time for tiered volumes	<2 minutes	<ul> <li>The volume is made available within 2 minutes of a restore or clone operation, regardless of the volume size.</li> <li>The volume performance might initially be slower than normal as most of the data and metadata still resides in the cloud. Performance might increase as data flows from the cloud to the StorSimple device.</li> <li>The total time to download metadata depends on the allocated volume size. Metadata is automatically brought into the device in the background at the rate of 5 minutes per TB of allocated volume data. This rate might be affected by Internet bandwidth to the cloud.</li> <li>The restore or clone operation is complete when all the metadata is on the device.</li> <li>Backup operations can't be performed until the restore or clone operation is fully complete.</li> </ul>
Restore recover time for locally pinned volumes	<2 minutes	<ul> <li>The volume is made available within 2 minutes of the restore operation, regardless of the volume size.</li> <li>The volume performance might initially be slower than normal as most of the data and metadata still resides in the cloud. Performance might increase as data flows from the cloud to the StorSimple device.</li> <li>The total time to download metadata depends on the allocated volume size. Metadata is automatically.</li> </ul>

brought into the device in the background at the rate of 5 minutes per TB of allocated volume data. This rate might be affected by Internet bandwidth to the cloud.

• Unlike tiered volumes, if there are locally pinned volumes, the volume data is also downloaded locally

on the device. The restore operation is complete when all the volume data has been brought to the device.

• The restore operations might be long and the total time to complete the restore will depend on the size of the provisioned local volume, your Internet bandwidth, and the existing data on the device. Backup operations on the locally pinned volume are allowed while the restore operation is in progress.

Thin-restore availability	Last failover	
Maximum client read/write throughput, when served from the SSD tier*	920/720 MB/sec with a single 10- gigabit Ethernet network interface	Up to two times with MPIO and two network interfaces.
Maximum client read/write throughput, when served from the HDD tier*	120/250 MB/sec	
Maximum client read/write	11/41 MB/sec	Read throughput depends on clients generating and maintaining sufficient I/O queue depth.

throughput, when served from the cloud tier\*

\*Maximum throughput per I/O type was measured with 100 percent read and 100 percent write scenarios. Actual throughput might be lower and depends on I/O mix and network conditions.

# **Stream Analytics limits**

Limit identifier	Limit	Comments
Maximum number of streaming units per subscription per region	500	To request an increase in streaming units for your subscription beyond 500, contact Microsoft Support.
Maximum number of inputs per job	60	There's a hard limit of 60 inputs per Azure Stream Analytics job.
Maximum number of outputs per job	60	There's a hard limit of 60 outputs per Stream Analytics job.
Maximum number of functions per job	60	There's a hard limit of 60 functions per Stream Analytics job.
Maximum number of streaming units per job	192	There's a hard limit of 192 streaming units per Stream Analytics job.
Maximum number of jobs per region	1,500	Each subscription can have up to 1,500 jobs per geographical region.
Reference data blob MB	300	Reference data blobs can't be larger than 300 MB each.

# Virtual Machines limits Virtual Machines limits

Resource	Limit
Virtual machines per cloud service <sup>1</sup>	50
Input endpoints per cloud service <sup>2</sup>	150

<sup>&</sup>lt;sup>1</sup> Virtual machines created by using the classic deployment model instead of Azure Resource Manager are automatically stored in a cloud service. You can add more virtual machines to that cloud service for load balancing and availability.

# Virtual Machines limits - Azure Resource Manager

The following limits apply when you use Azure Resource Manager and Azure resource groups.

Resource	Limit
VMs per subscription	25,000 <sup>1</sup> per region.
VM total cores per subscription	20 <sup>1</sup> per region. Contact support to increase limit.

<sup>&</sup>lt;sup>2</sup> Input endpoints allow communications to a virtual machine from outside the virtual machine's cloud service. Virtual machines in the same cloud service or virtual network can automatically communicate with each other.

Azure Spot VM total cores per subscription	20 <sup>1</sup> per region. Contact support to increase limit.
VM per series, such as Dv2 and F, cores per subscription	20 <sup>1</sup> per region. Contact support to increase limit.
Availability sets per subscription	2,500 per region.
Virtual machines per availability set	200
Certificates per subscription	Unlimited <sup>2</sup>

<sup>1</sup>Default limits vary by offer category type, such as Free Trial and Pay-As-You-Go, and by series, such as Dv2, F, and G. For example, the default for Enterprise Agreement subscriptions is 350.

<sup>2</sup>With Azure Resource Manager, certificates are stored in the Azure Key Vault. The number of certificates is unlimited for a subscription. There's a 1-MB limit of certificates per deployment, which consists of either a single VM or an availability set.

#### ① Note

Virtual machine cores have a regional total limit. They also have a limit for regional per-size series, such as Dv2 and F. These limits are separately enforced. For example, consider a subscription with a US East total VM core limit of 30, an A series core limit of 30, and a D series core limit of 30. This subscription can deploy 30 A1 VMs, or 30 D1 VMs, or a combination of the two not to exceed a total of 30 cores. An example of a combination is 10 A1 VMs and 20 D1 VMs.

# **Shared Image Gallery limits**

There are limits, per subscription, for deploying resources using Shared Image Galleries:

• 100 shared image galleries per subscription per region

- 100 sharea hhage ganeries, per sabscription, per region
- 1,000 image definitions, per subscription, per region
- 10,000 image versions, per subscription, per region

### Virtual machine scale sets limits

Resource	Limit
Maximum number of VMs in a scale set	1,000
Maximum number of VMs based on a custom VM image in a scale set	600
Maximum number of scale sets in a region	2,500

### See also

- Understand Azure limits and increases
- Virtual machine and cloud service sizes for Azure
- Sizes for Azure Cloud Services
- Naming rules and restrictions for Azure resources

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