Az-IP Address

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IP services are a collection of IP address related services that enable communication in an Azure Virtual Network.

Public and private IP addresses are used in Azure for communication between resources.

The communication with resources can occur in a private Azure Virtual Network and the public Internet.

IP services consist of:

Public IP addresses

Public IP address prefixes

Custom IP address prefixes (BYOIP)

Private IP addresses

Routing preference

**Public IP addresses**

Public IPs are used by internet resources to communicate inbound to resources in Azure. Public IP addresses can be created with an IPv4 or IPv6 address. You may be given the option to create a dual-stack deployment with a IPv4 and IPv6 address. Public IP addresses are available in Standard and Basic SKUs. Public IP addresses can be static or dynamically assigned.

A public IP address is a resource with its own properties. Some of the resources that you can associate with a public IP address are:

Virtual machine network interfaces

Internet-facing load balancers

Virtual Network gateways (VPN/ER)

NAT gateways

Application gateways

Azure Firewall

Bastion Host

For more information about public IP addresses, see Public IP addresses and Create, change, or delete an Azure public IP address

**Public IP address prefixes**

Public IP prefixes are reserved ranges of IP addresses in Azure. Public IP address prefixes consist of IPv4 or IPv6 addresses.

In regions with Availability Zones, Public IP address prefixes can be created as zone-redundant or associated with a specific availability zone.

After the public IP prefix is created, you can create public IP addresses.

The following public IP prefix sizes are available:

/28 (IPv4) or /124 (IPv6) = 16 addresses

/29 (IPv4) or /125 (IPv6) = 8 addresses

/30 (IPv4) or /126 (IPv6) = 4 addresses

/31 (IPv4) or /127 (IPv6) = 2 addresses

Prefix size is specified as a Classless Inter-Domain Routing (CIDR) mask size.

There aren't limits as to how many prefixes created in a subscription. The number of ranges created can't exceed more static public IP addresses than allowed in your subscription.

**Private IP addresses**

Private IPs allow communication between resources in Azure. Azure assigns private IP addresses to resources from the address range of the virtual network subnet where the resource is. Private IP addresses in Azure are static or dynamically assigned.

Some of the resources that you can associate a private IP address with are:

Virtual machines

Internal load balancers

Application gateways

Private endpoints

**Routing preference**

Azure routing preference enables you to choose how your traffic routes between Azure and the Internet. You can choose to route traffic either via the Microsoft network, or, via the ISP network (public internet). You can choose the routing option while creating a public IP address. By default, traffic is routed via the Microsoft global network for all Azure services.

Routing preference choices include:

Microsoft Network - Both ingress and egress traffic stays bulk of the travel on the Microsoft global network. This routing is also known as cold potato routing.

Public Internet (ISP network) - The new routing choice Internet routing minimizes travel on the Microsoft global network, and uses the transit ISP network to route your traffic.