😊 Azure Bastion

Azure Bastion is a fully managed platform as a service (PaaS) from Microsoft Azure that provides secure and seamless RDP and SSH access to virtual machines (VMs) directly through the Azure Portal. It eliminates the need for exposing VMs to the public internet or setting up a separate bastion host or jump server for accessing VMs in a virtual network.

Azure Bastion is designed to enhance security by providing secure RDP and SSH connectivity over SSL/TLS, which eliminates the need for administrators to manage public IP addresses or handle inbound NAT rules. It also integrates with Azure Active Directory (AD) for identity management and multifactor authentication (MFA), adding an extra layer of security.

Some key features of Azure Bastion include:

1. **Seamless RDP/SSH Access:** Azure Bastion provides browser-based access to Azure VMs via the Azure Portal, removing the need for VPNs or public IP addresses.
2. **Secure Connectivity:** All RDP/SSH sessions are encrypted using SSL/TLS, ensuring data confidentiality and integrity.
3. **Zero Public IP Exposure:** VMs do not require public IP addresses, reducing the attack surface and eliminating the need to manage network security groups (NSGs) or firewall rules for inbound traffic.
4. **Centralized Management:** Administrators can centrally manage access policies and permissions through Azure RBAC (Role-Based Access Control) and Azure AD.
5. **Audit Trails:** Azure Bastion logs all RDP/SSH sessions, providing administrators with detailed audit trails for compliance and security monitoring purposes.

Overall, Azure Bastion simplifies and secures remote access to Azure VMs, making it an essential component for managing and maintaining Azure infrastructure.

😄 Use cases of Azure Bastion:

Azure Bastion can be beneficial in various scenarios where secure remote access to Azure virtual machines (VMs) is required. Here are some common use cases:

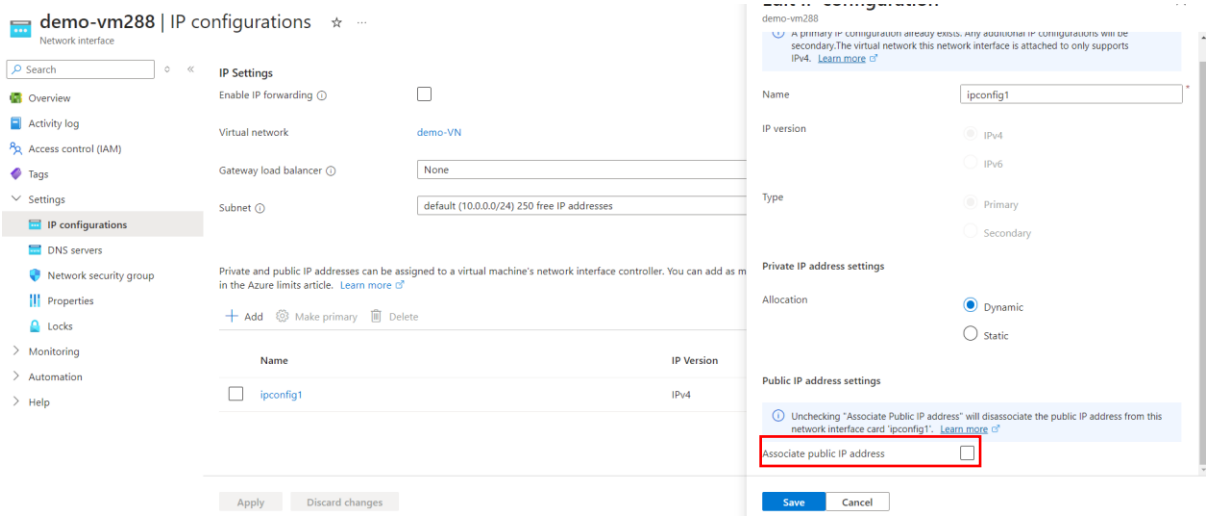
1. **Secure Remote Administration:** Azure Bastion provides a secure way for administrators to remotely access VMs for maintenance, troubleshooting, and management tasks without exposing them to the public internet.
2. **Compliance Requirements:** Organizations with strict compliance requirements, such as those in the healthcare or finance sectors, can use Azure Bastion to ensure that remote access to VMs meets security standards without compromising sensitive data.
3. **Remote Development and Testing:** Developers and testers often need remote access to VMs for software development, testing, and debugging purposes. Azure Bastion provides a secure and convenient way to access these VMs from anywhere.

4. **Hybrid Cloud Scenarios:** In hybrid cloud environments where on-premises infrastructure is integrated with Azure resources, Azure Bastion can serve as a secure gateway for accessing VMs deployed in Azure from on-premises networks.
5. **Third-party Access:** When providing access to VMs for third-party vendors or contractors, Azure Bastion ensures that access is secure and auditable, reducing the risk of unauthorized access to sensitive systems.
6. **Multi-user Access:** Azure Bastion supports multi-user access with role-based access control (RBAC), allowing organizations to define granular access policies and permissions for different users or groups.
7. **Zero Trust Network Access:** As part of a zero trust security model, Azure Bastion helps enforce the principle of least privilege by providing secure, on-demand access to VMs without exposing them to the broader network.
8. **Dynamic Scalability:** Azure Bastion scales dynamically based on demand, allowing organizations to handle fluctuations in remote access requirements efficiently without the need for manual intervention or provisioning of additional infrastructure.

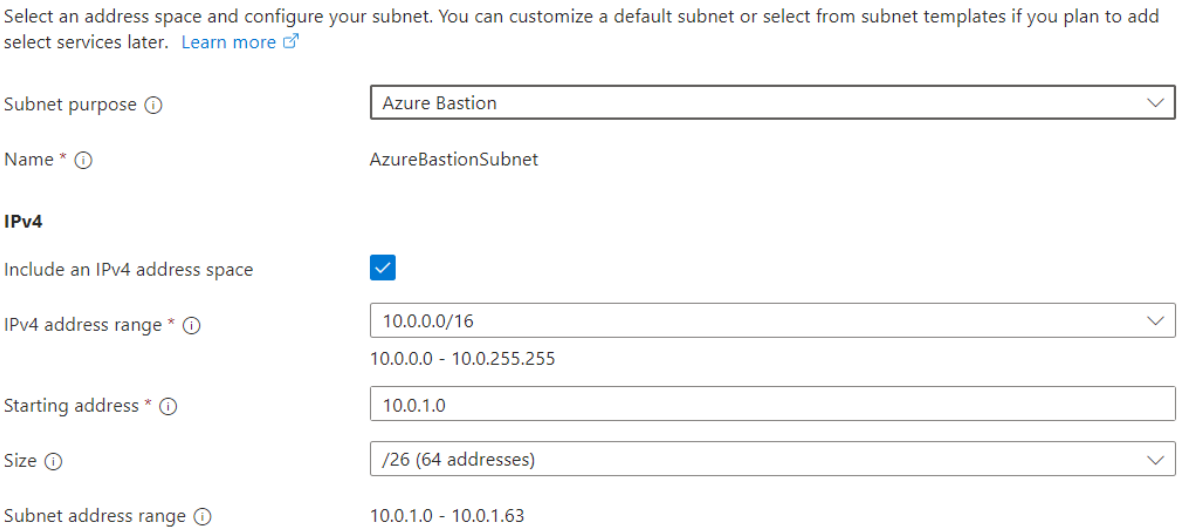
In this lab, we are configuring Azure Bastion to enable secure remote access to Azure virtual machines (VMs) without exposing them to the public internet. The end goal is to enhance security by eliminating the need for public IP addresses, managing inbound NAT rules, and ensuring encrypted RDP/SSH sessions for VM access. By setting up Azure Bastion, we simplify remote administration, comply with security standards, facilitate remote development and testing, and enable secure access for third parties while maintaining centralized management and audit trails.

😄 To begin with the Lab:

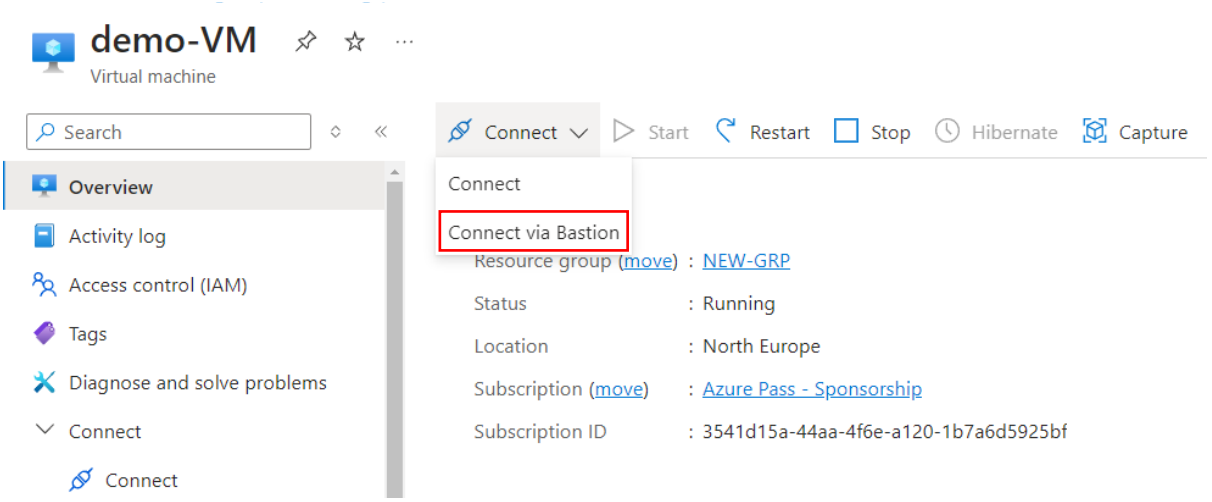
1. Now from the previous lab we have our setup ready.
2. The whole idea of the Azure Bastion service is to ensure that we don't have public IP addresses assigned to machines. Now, we do have a public IP address assigned to the demo VM.
3. So, we are going to remove it. Then we will delete it from our resources.
4. For that go to the Network interface then go to IP configuration and disassociate the public IP address.



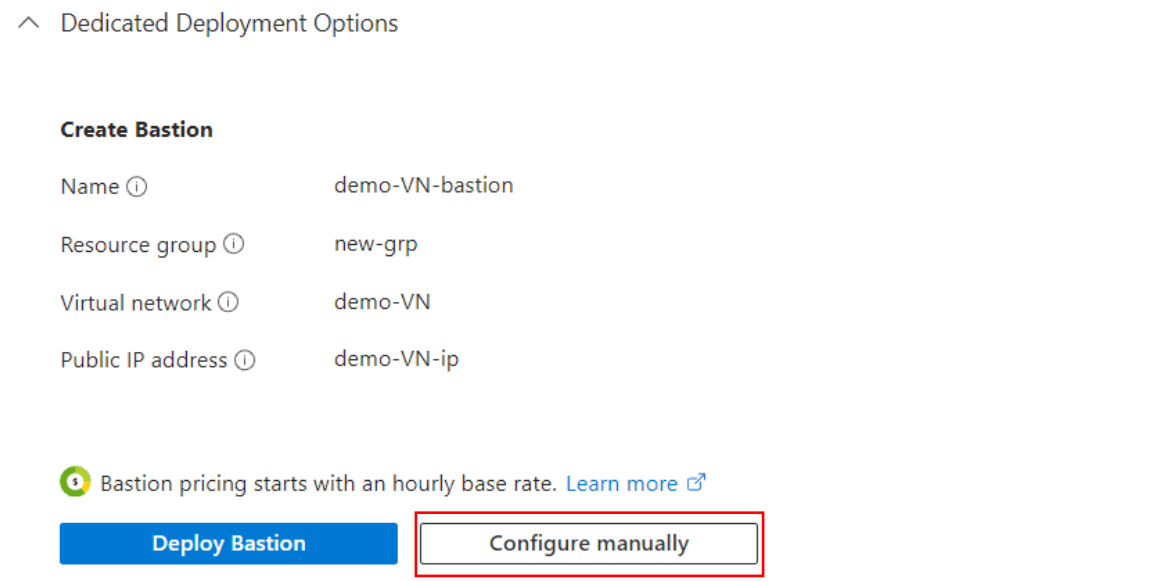
5. After that you have to go to the Virtual Network of Demo VM and create an empty subnet for Bastion service. Also, you need to select Azure Bastion for Subnet Purpose.



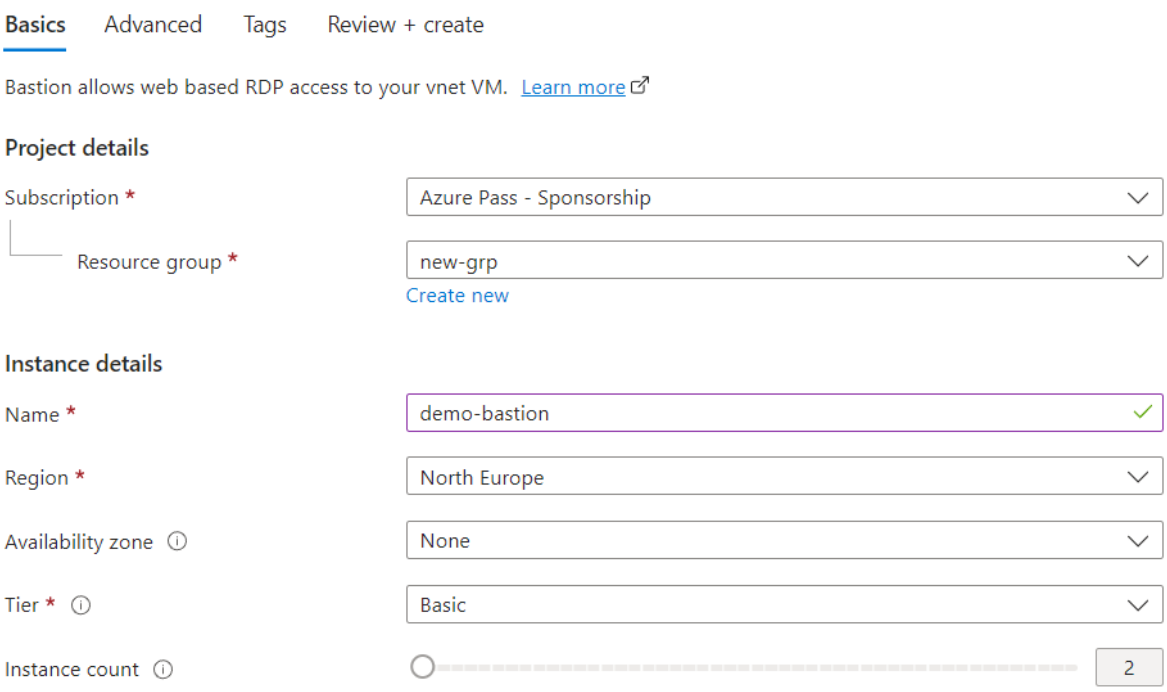
6. Now you need to go to Demo VM and from overview click on Connect and choose to connect via Bastion.



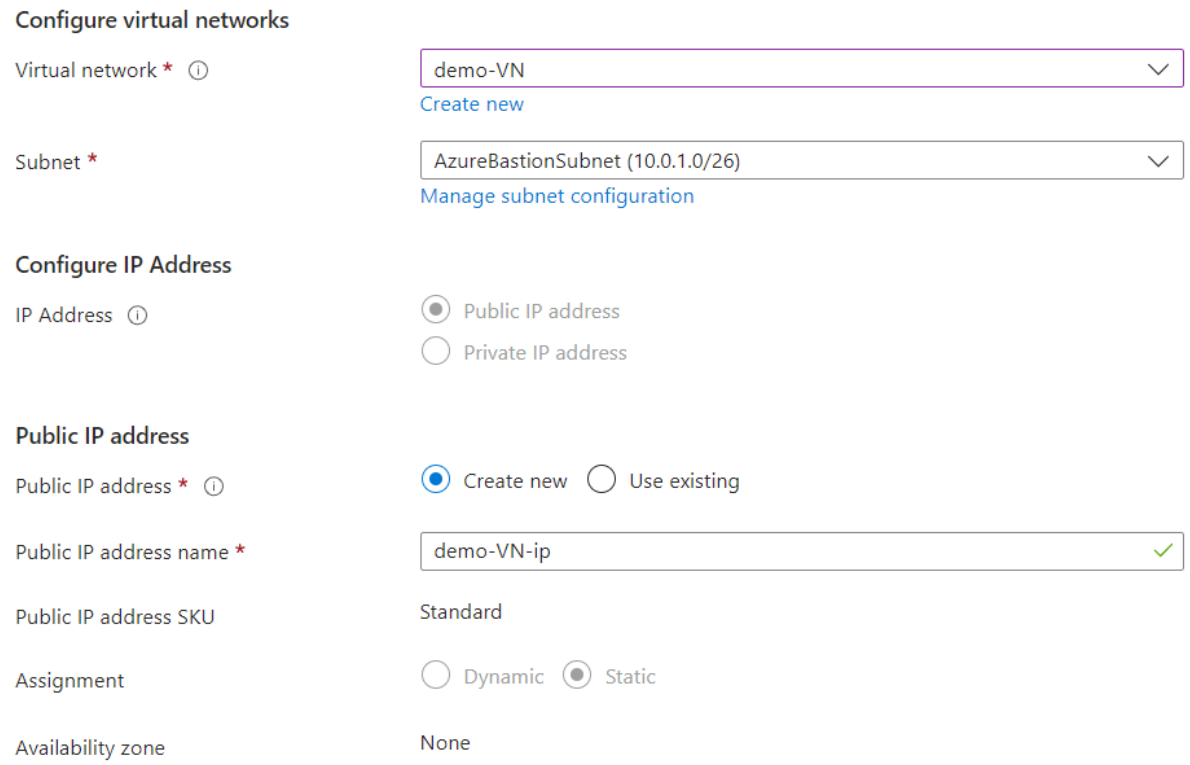
7. After that you have to choose dedicated Deployment Options and then click on Configure Manually.



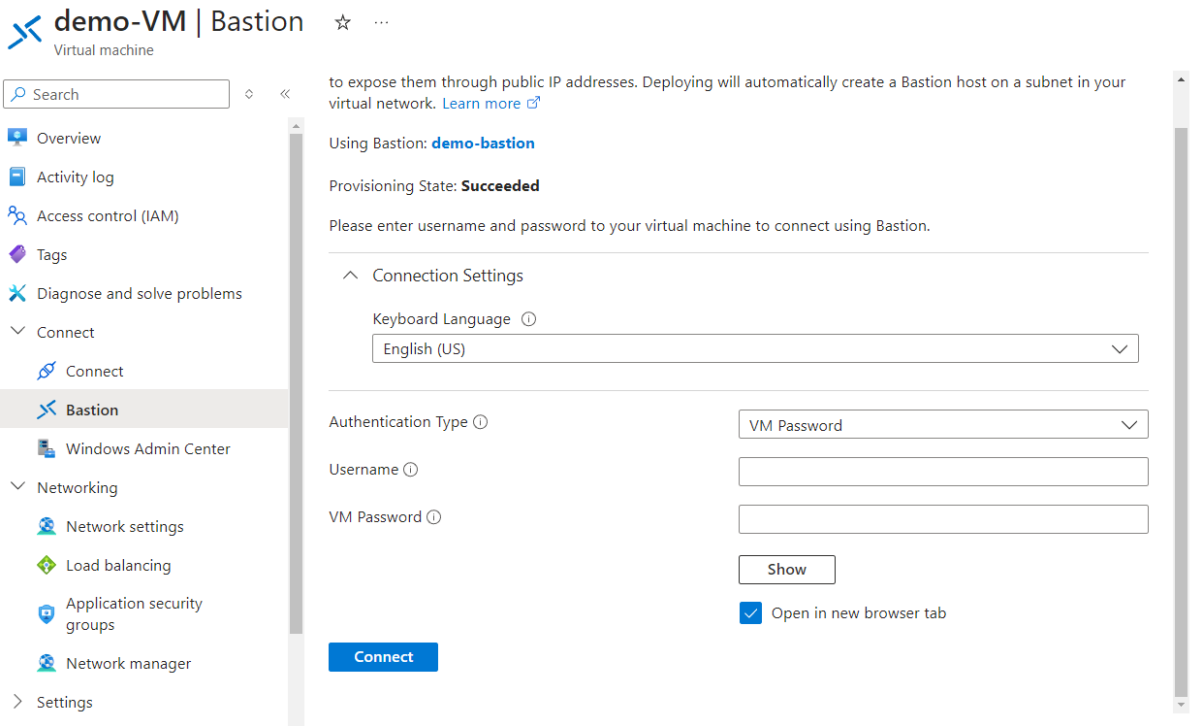
8. Now you need to give it a name and then for tier choose basic.



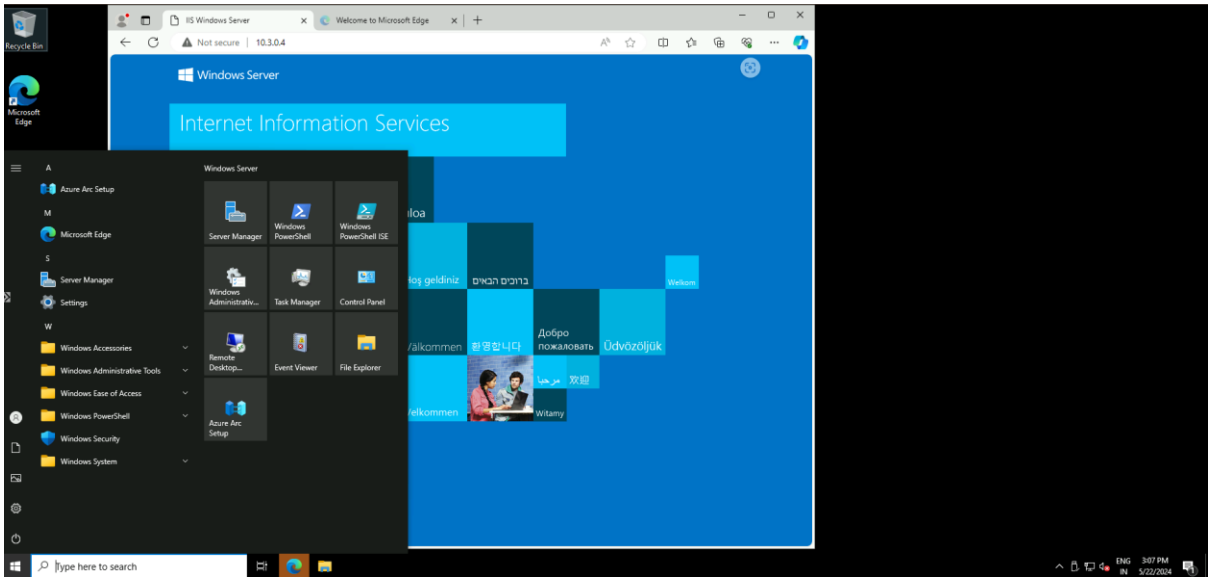
9. After that you need to choose the virtual network and it will automatically pick up the subnet. Now it will be going to create a new IP address it will be for Bastion.



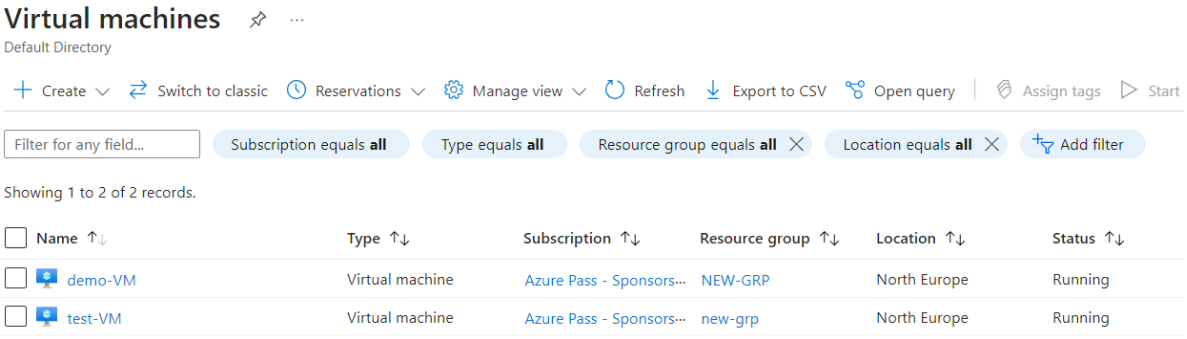
10. After that just move to the review page and create your bastion. This will take some time to deploy.
11. Now once your resource is deployed go to all resources and go to Demo VM and connect via Bastion.
12. Below you can see that you just need to write the username and password and click on connect.



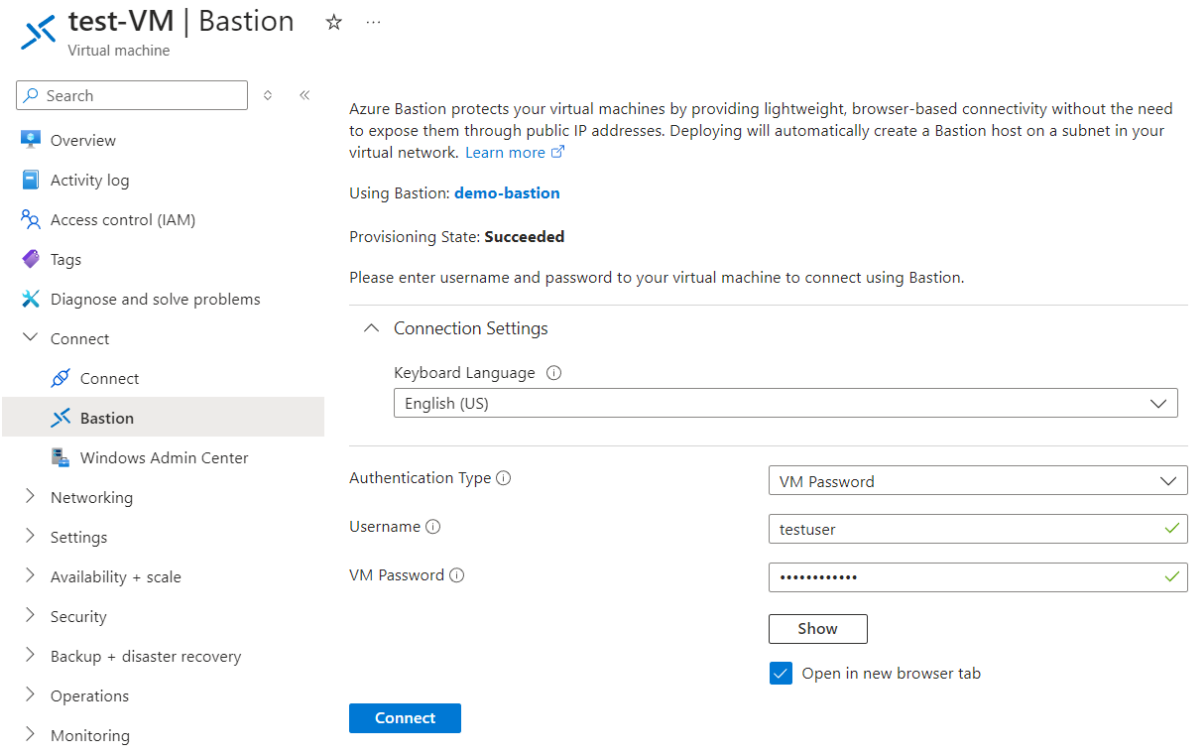
13. In your browser in the new tab you can see that you have connected with your VM.



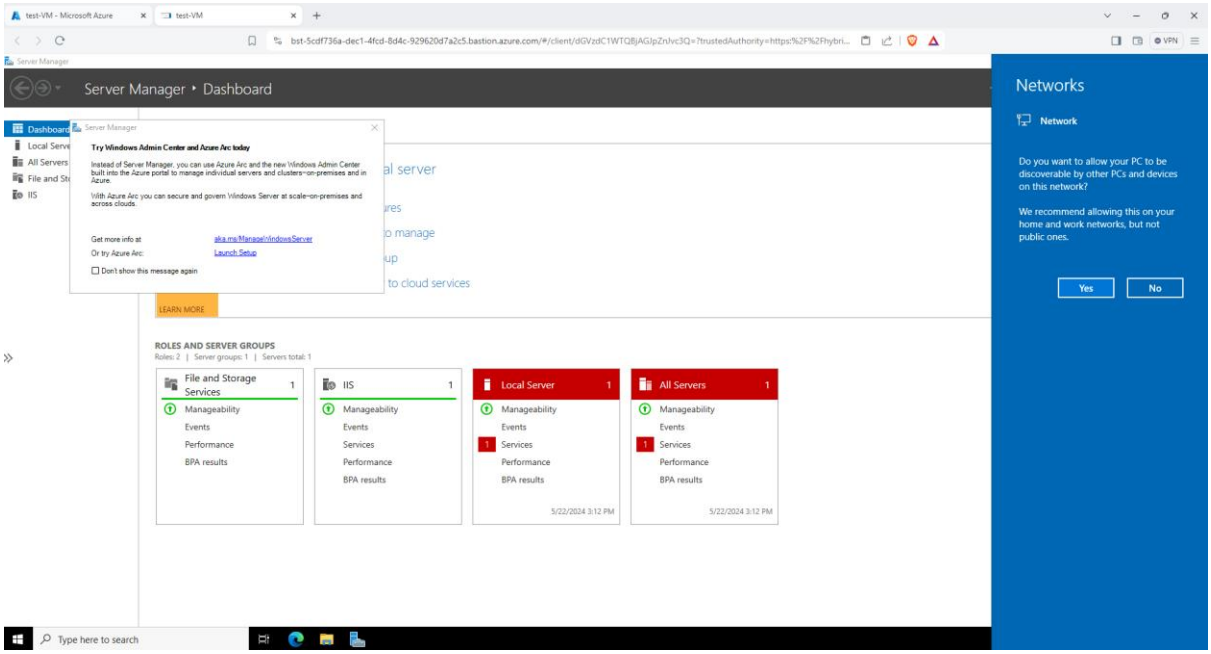
14. Now you should go to Test VM and try to connect via bastion in it too.



15. Below you can see that you have the option to connect.



16. And here you can see that you have connected successfully.



17. When you have a virtual network peering between virtual networks you can use the same Azure Bastion host to even connect to virtual machines that are in the remote network.