Ethereum Consortium 구축

2miles 윤혜식

실습 내용

- 지역 설정
- 노드 사이즈 설정
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- OMS 설정
- Summary

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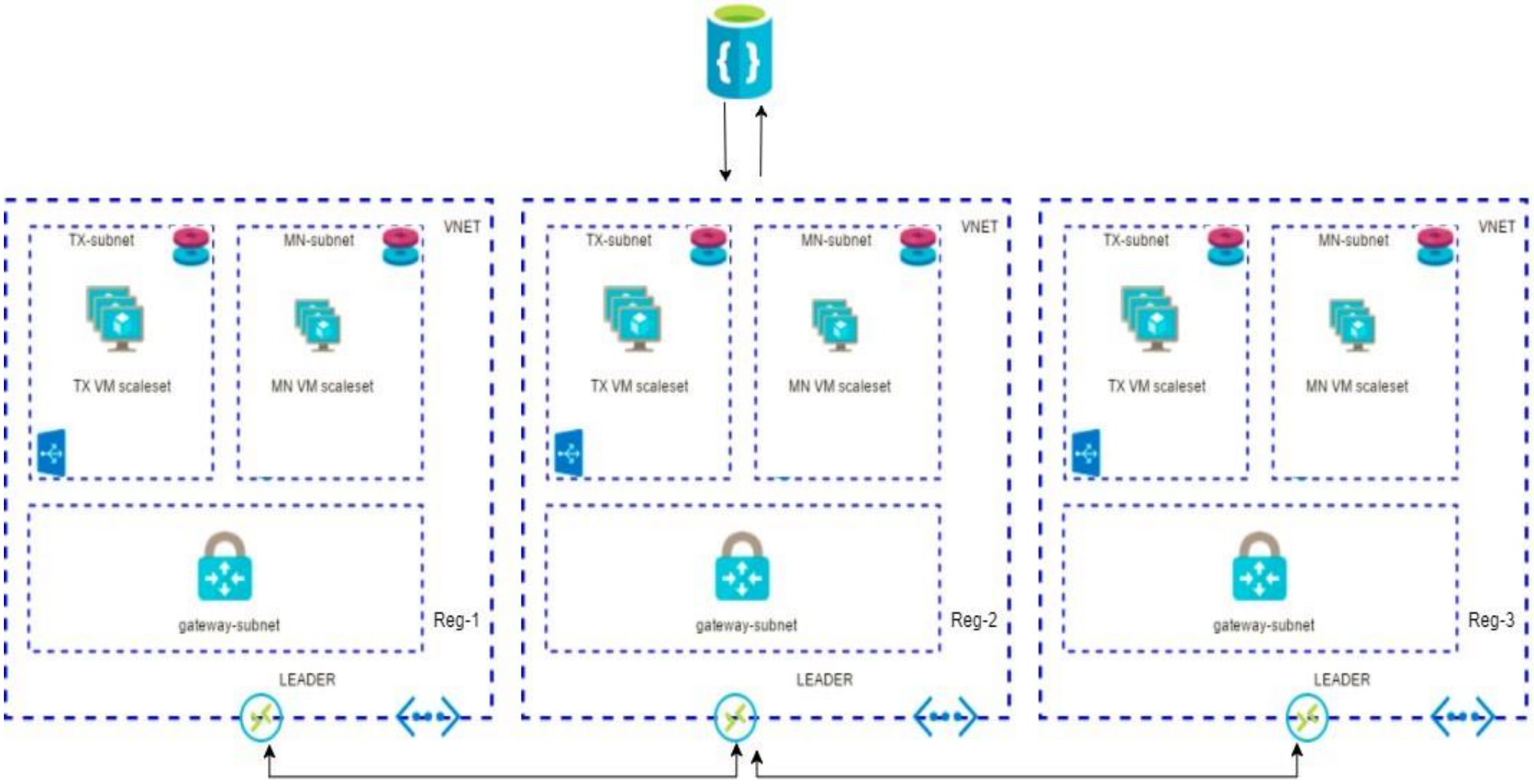
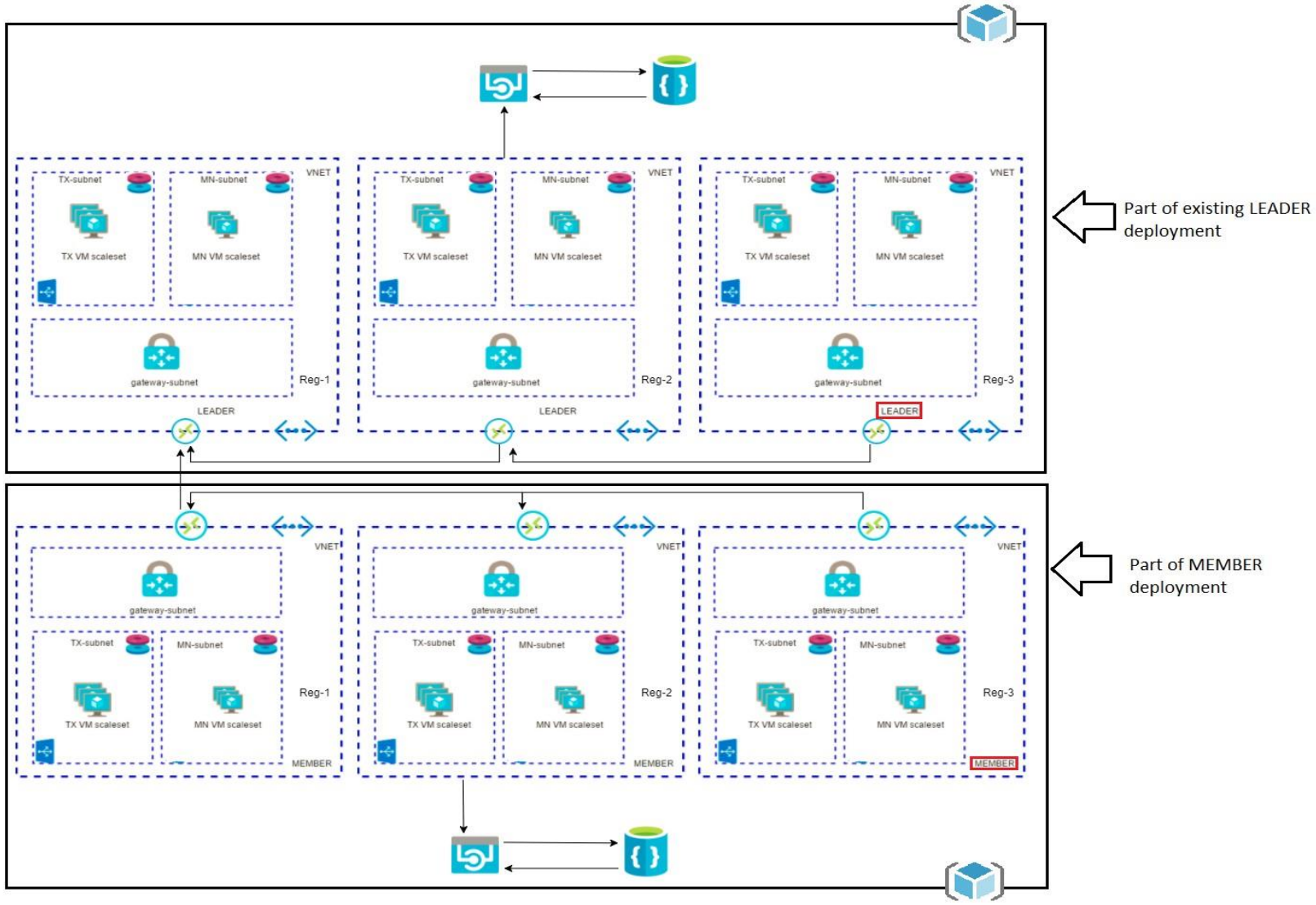
- 계정 생성
- Coin 전송

- OMS 기능 설명
- 서비스 모니터링

Standalone and Consortium Leader Overview

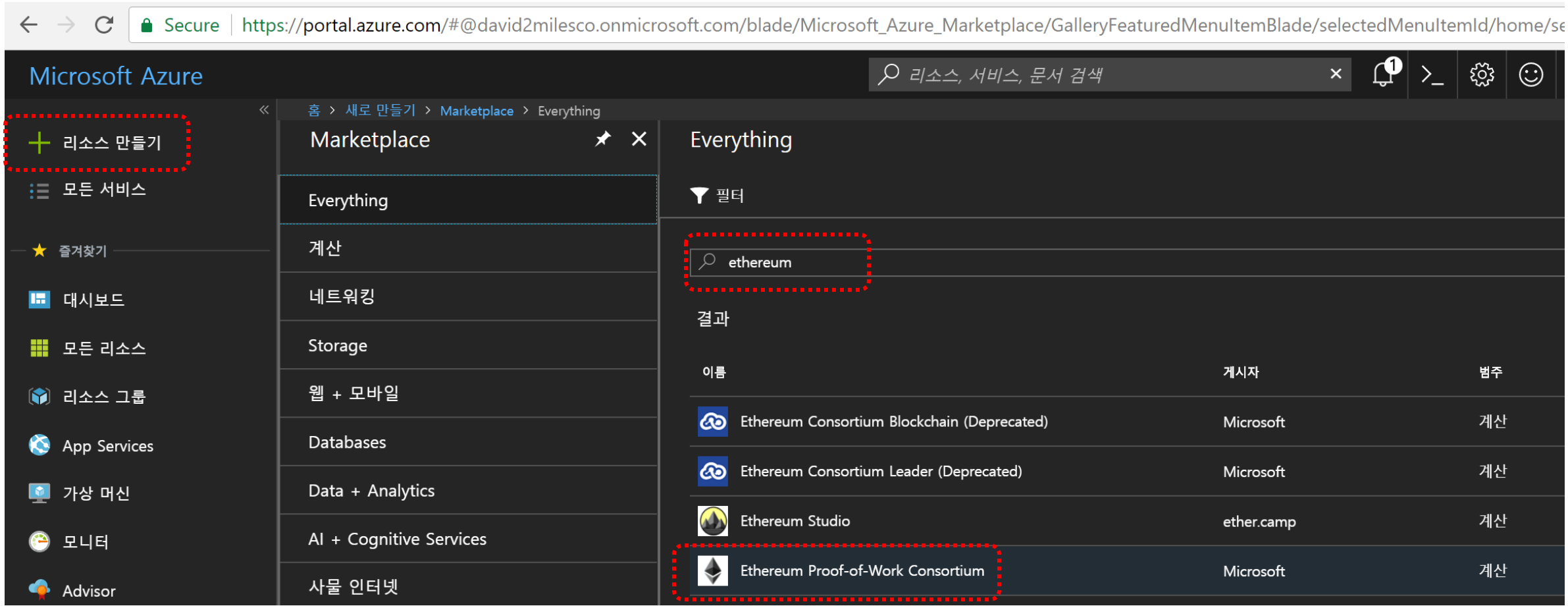


Joining Consortium Member Overview

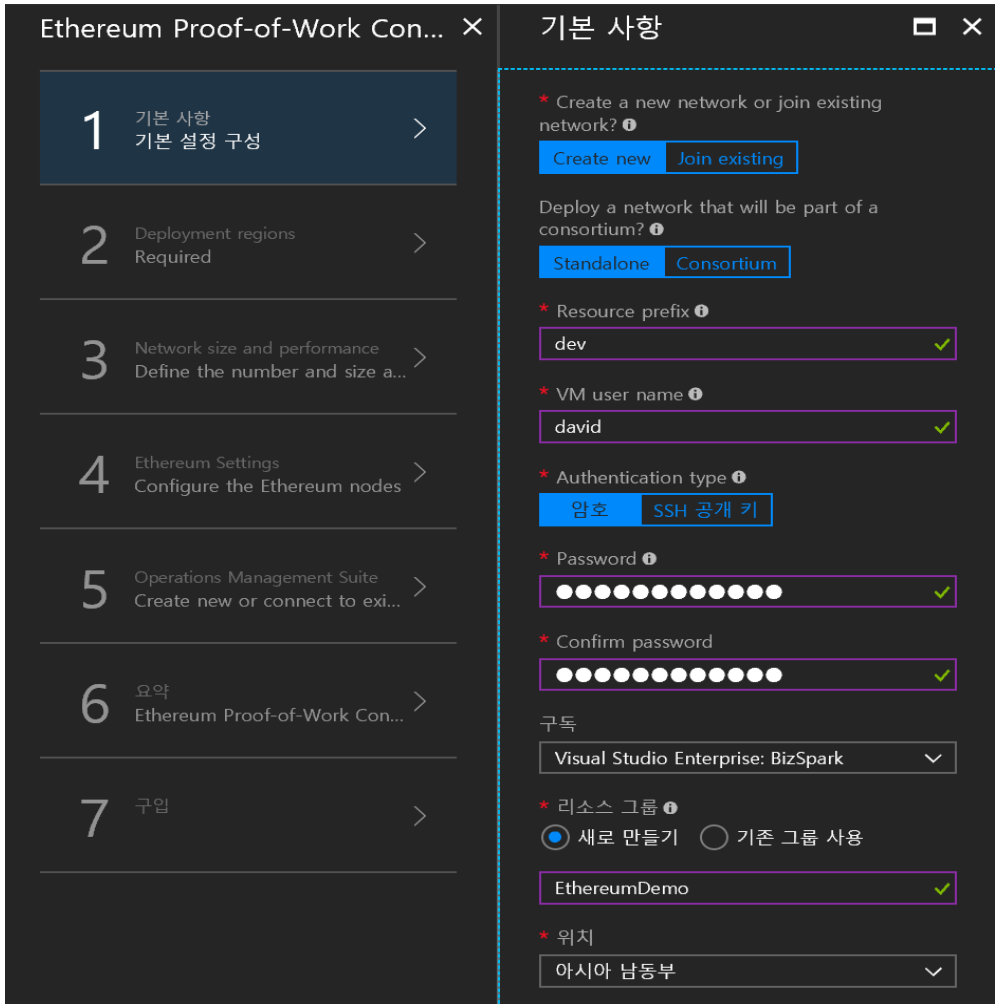


Azure Portal 에서 Ethereum Proof-of-Work Consortium 선택

Azure Portal 에서 “리소스 만들기 " 선택 후 “Ethereum” 으로 검색
검색 결과에서 “Etereum Proof-of-Work Consortium” 선택

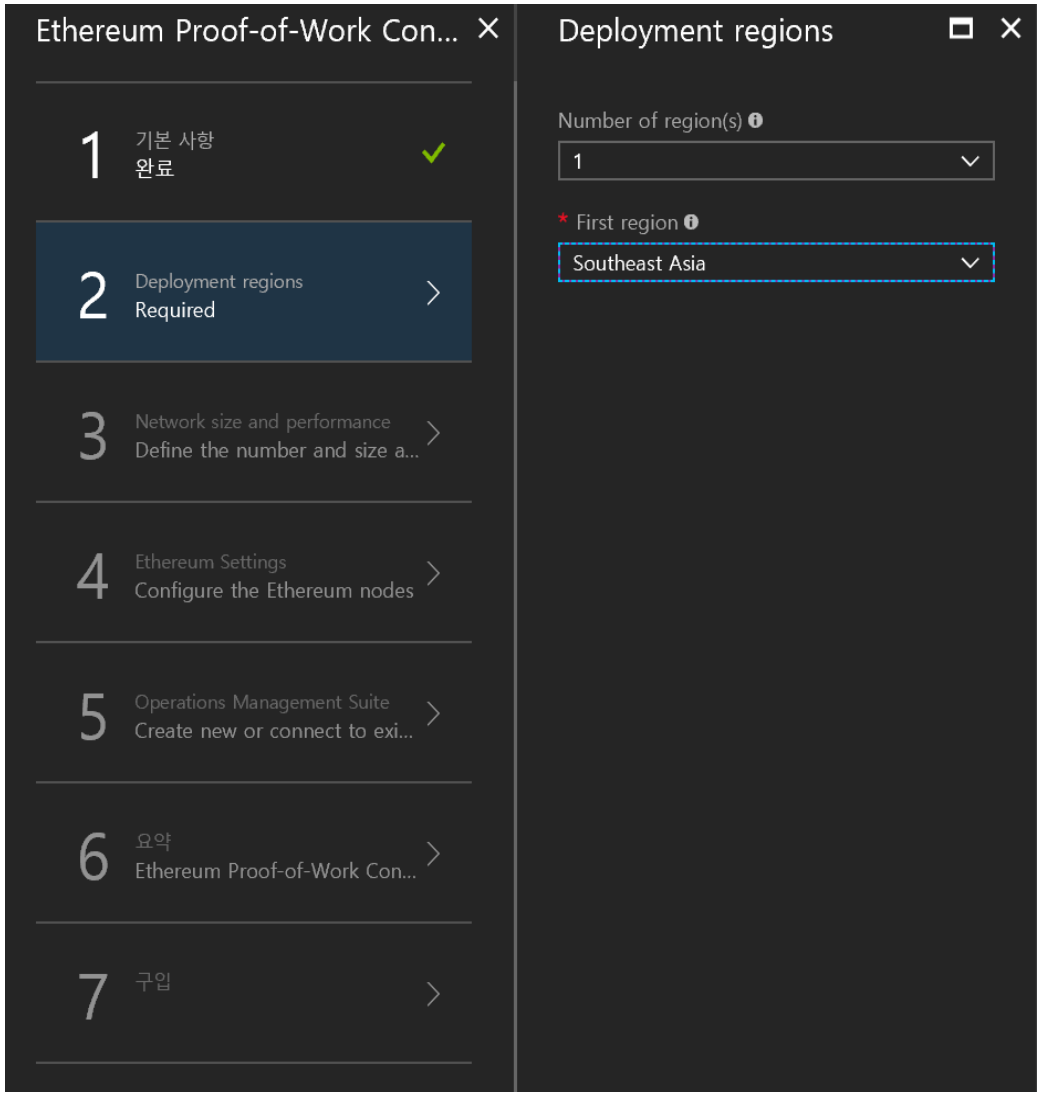


Azure Portal 에서 Ethereum Proof-of-Work Consortium 구축



Parameter Name	Description	Allowed Values	Default Values
Create a new network or join existing network?	Create a new network or join a preexisting consortium network	Create New Join Existing	Create New
Deploy a network that will be part of a consortium?	A consortium network allows future deployments to join this network (visible when "Create New" is selected above)	Standalone Consortium	Standalone
Resource Prefix	String used as a base for naming resources (2 to 4 alphanumeric characters). A unique hash is prepended to the string for some resources, while resource-specific information is appended.	Alphanumeric characters with length 2 to 4	NA
VM user name	Administrator username of each deployed VM (alphanumeric characters only)	1-64 characters	gethadmin
Authentication type	The method to authenticate to the virtual machine.	Password or SSH public key	Password
Password (Authentication type = Password)	The password for the administrator account for each of the virtual machines deployed. The password must contain 3 of the following: 1 upper case character, 1 lower case character, 1 number, and 1 special character. While all VMs initially have the same password, you can change the password after provisioning.	12 -72 characters	NA
SSH Key (Authentication type = Public Key)	The secure shell key used for remote login.		NA
Subscription	The subscription to which to deploy the consortium network		NA
Resource Group	The resource group to which to deploy the consortium network.		NA
Location	The Azure region for resource group.		NA

Ethereum PoW Consortium – 지역 설정



Parameter Name	Description	Allowed Values	Default Values
Number of mining nodes	The number of mining nodes deployed per region	2-15	2
Mining node storage performance	The type of managed disk backing each of the deployed mining nodes.	Standard or Premium	Standard
Mining node virtual machine size	The virtual machine size used for mining nodes.	Standard A, Standard D, Standard D-v2, Standard F series, Standard DS, and Standard FS	Standard D1 v2
Number of load balanced transaction nodes	The number of transaction nodes to provision as part of the network.	1-5	2
Transaction node storage performance	The type of managed disk backing each of the deployed transaction nodes.	Standard or Premium	Standard
Transaction node virtual machine size	The virtual machine size used for transaction nodes.	Standard A, Standard D, Standard D-v2, Standard F series, Standard DS, and Standard FS	Standard D1 v2

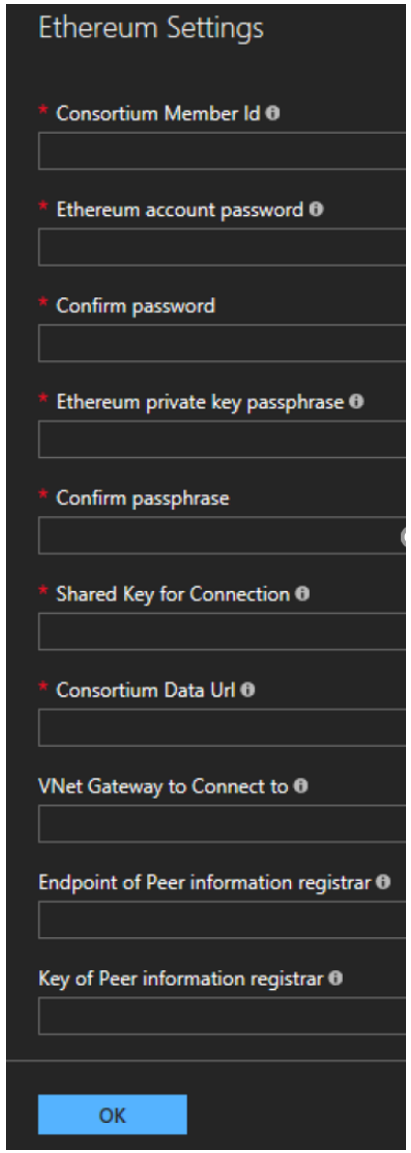
Ethereum PoW Consortium – 노드 사이즈 선택

Parameter Name	Description	Allowed Values	Default Values
Number of mining nodes	The number of mining nodes deployed per region	2-15	2
Mining node storage performance	The type of managed disk backing each of the deployed mining nodes.	Standard or Premium	Standard
Mining node virtual machine size	The virtual machine size used for mining nodes.	Standard A, Standard D, Standard D-v2, Standard F series, Standard DS, and Standard FS	Standard D1 v2
Number of load balanced transaction nodes	The number of transaction nodes to provision as part of the network.	1-5	2
Transaction node storage performance	The type of managed disk backing each of the deployed transaction nodes.	Standard or Premium	Standard
Transaction node virtual machine size	The virtual machine size used for transaction nodes.	Standard A, Standard D, Standard D-v2, Standard F series, Standard DS, and Standard FS	Standard D1 v2

Ethereum PoW Consortium – Ethereum 설정 (Standalone 인 경우)

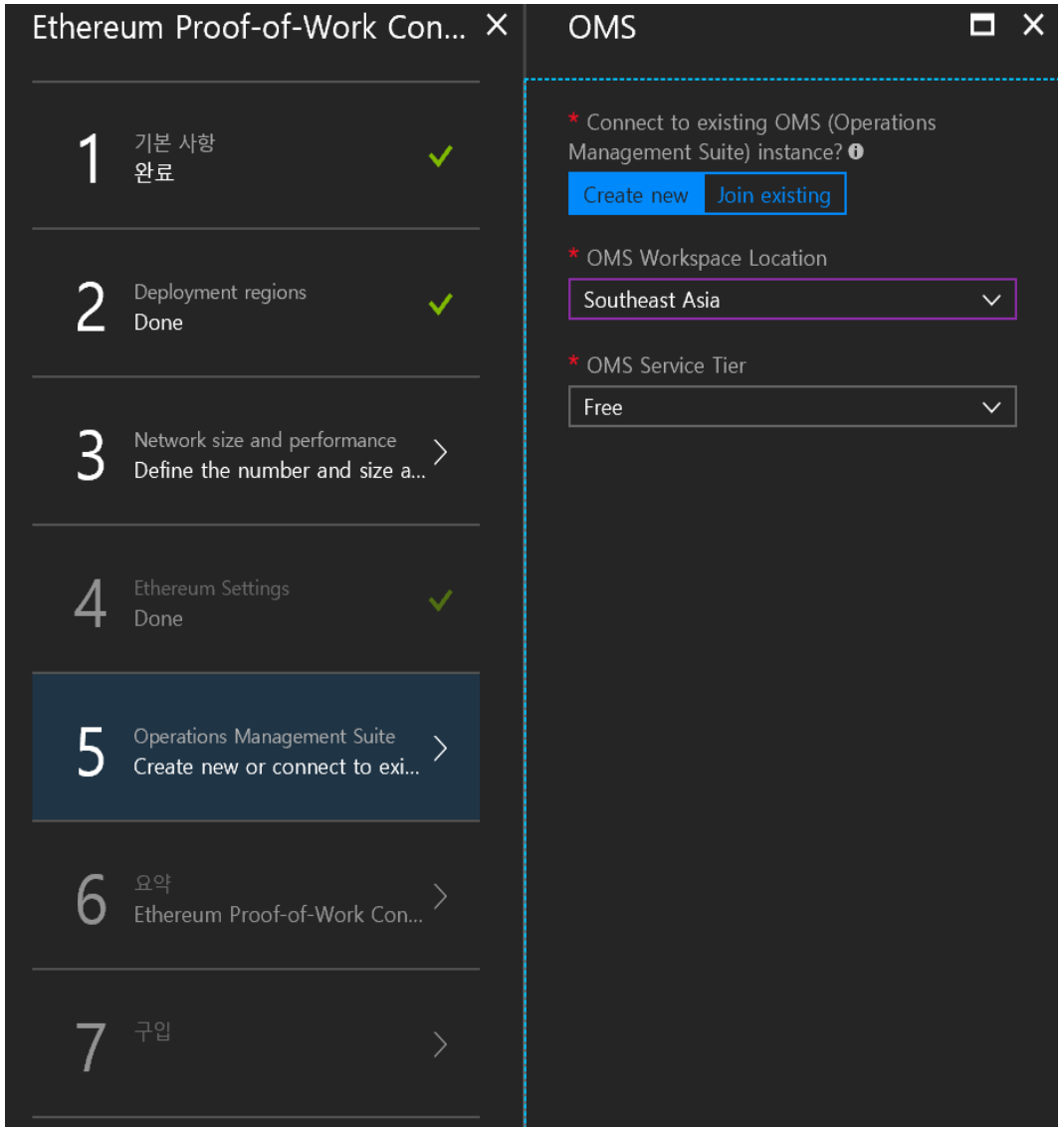
Parameter Name	Description	Allowed Values	Default Values
Consortium Member ID	The ID associated with each member participating in the consortium network used to configure IP address spaces to avoid collision. Member ID should be unique across different organizations in the same network. A unique member ID is needed even when the same organization deploys to multiple regions. Make note of the value of this parameter since you will need to share it with other joining members.	0-255	
Ethereum Network ID	The network ID for the consortium Ethereum network being deployed. Each Ethereum network has its own Network ID, with 1 being the ID for the public network. While we have restricted network access for mining nodes, we still recommend using a large number to prevent collisions.	5 - 999,999,999	10101010
Custom genesis block	Option to either automatically generate a genesis block or provide a custom one.	Yes/No	No
Ethereum Account Password (Custom genesis block = No)	The administrator password used to secure the Ethereum account imported into each node. The password must contain the following: 1 upper case character, 1 lower case character, and 1 number.	12 or more characters	NA
Ethereum private key passphrase (Custom genesis block = No)	The passphrase used to generate the ECC private key associated with the default Ethereum account that is generated. A pre-generated private key does not need to be explicitly passed in.	12 or more characters	NA

Ethereum PoW Consortium – Ethereum 설정 (Join Member 인 경우)



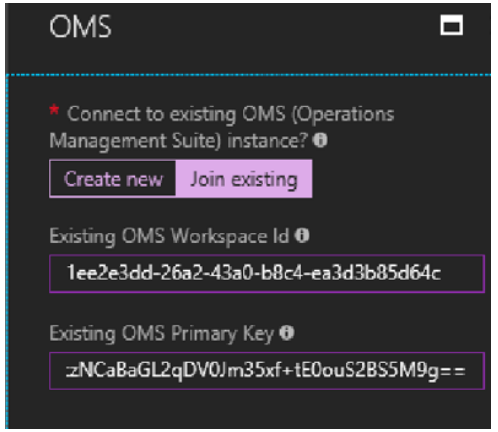
Genesis block (Custom genesis block = Yes)	JSON string representing custom genesis block. You can find more details on the format of the genesis block here, under Custom Networks. An Ethereum account is still created when providing a custom genesis block. You should still consider specifying a prefunded Ethereum account in the genesis block to not wait for mining.	Valid JSON	NA
Shared Key for Connection	A Shared key for connection between VNET gateways.	12 or more characters	NA
Consortium Data URL	The URL pointing to the relevant consortium configuration data provided by another member's deployment. This information is provided by an already connected member who has a deployment. If you deployed the rest of the network, the URL is the template deployment output, named CONSORTIUM-DATA.		NA
VNet Gateway to Connect to	The resource path of the VNet Gateway to which to connect. This information is provided by an already connected member who has a deployment. If you deployed the rest of the network, the URL is in template deployment output, named CONSORTIUM_MEMBER_GATEWAY_ID. Note: The same member's consortium data URL and VNet Gateway resource must be used.		NA
Endpoint of Peer information registrar	Peer info endpoint provided by another member's deployment	Valid endpoint of first member in consortium	NA
Key of Peer information registrar	Peer info primary key provided by another member's deployment	Valid primary key of first member in consortium	NA

Ethereum PoW Consortium – OMS(모니터링 솔루션) 설정



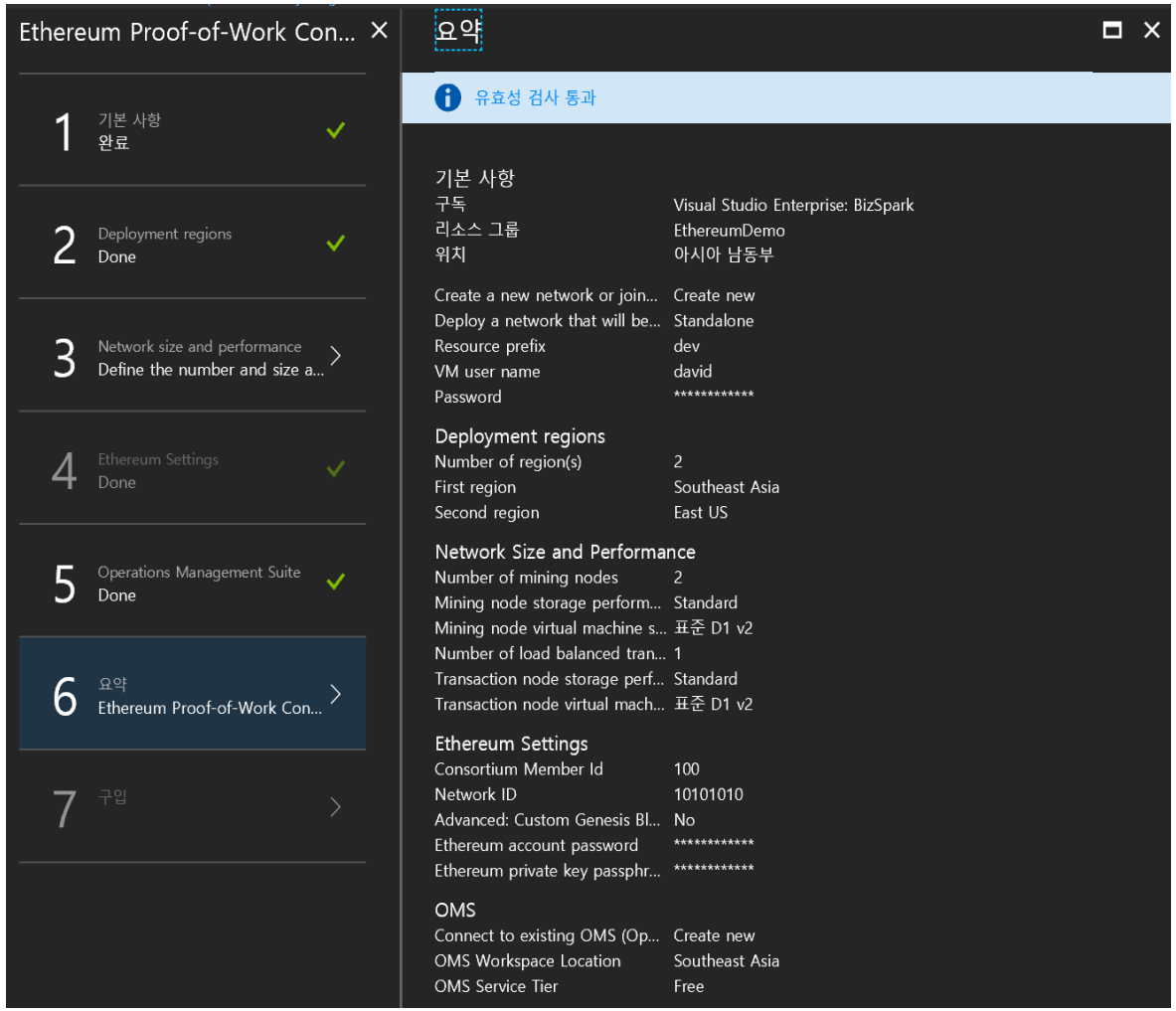
Parameter Name	Description	Allowed Values	Default Values
Connect to existing OMS	Create a new Log Analytics instance or join an existing instance	Create new Join existing	Create new
Log Analytics Location	The region where the new Log Analytics will be deployed (Visible if "Create new" is selected)		
Existing OMS Workspace Id	Workspace ID of the existing instance (Visible if "Join Existing is selected)		
OMS Service Tier	Choose the pricing tier for the new instance. More Info at https://azure.microsoft.com/en-us/pricing/details/loganalytics/ (Visible if "Join Existing is selected)	Free Standalone Per Node	Free
Existing OMS Primary Key	The primary key used to connect to the existing OMS instance (Visible if "Join Existing is selected)		

참고)



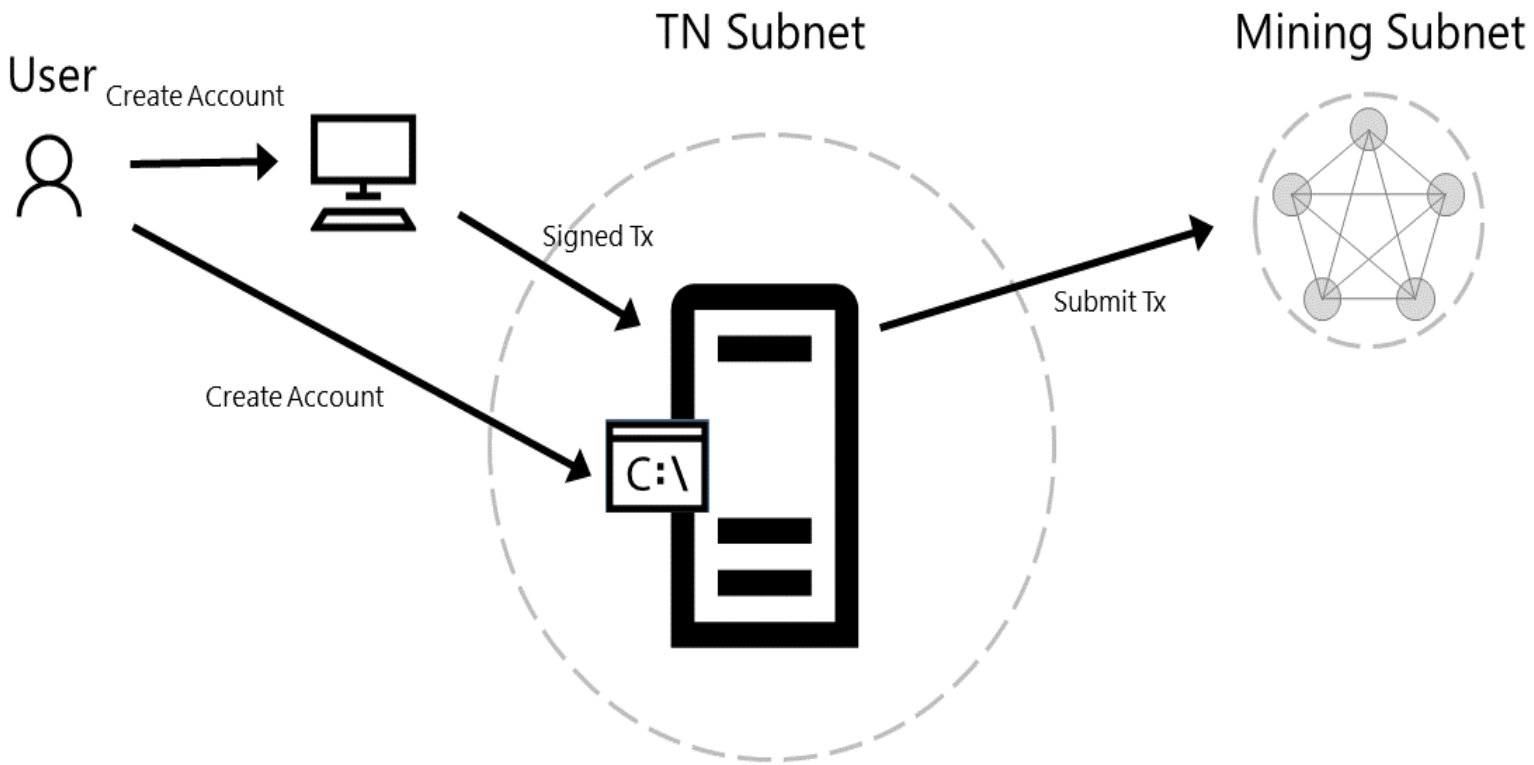
기존 OMS에 연결하는 경우 Workspace ID와 Primary Key 값을 등록

Ethereum PoW Consortium – OMS(모니터링 솔루션) 설정



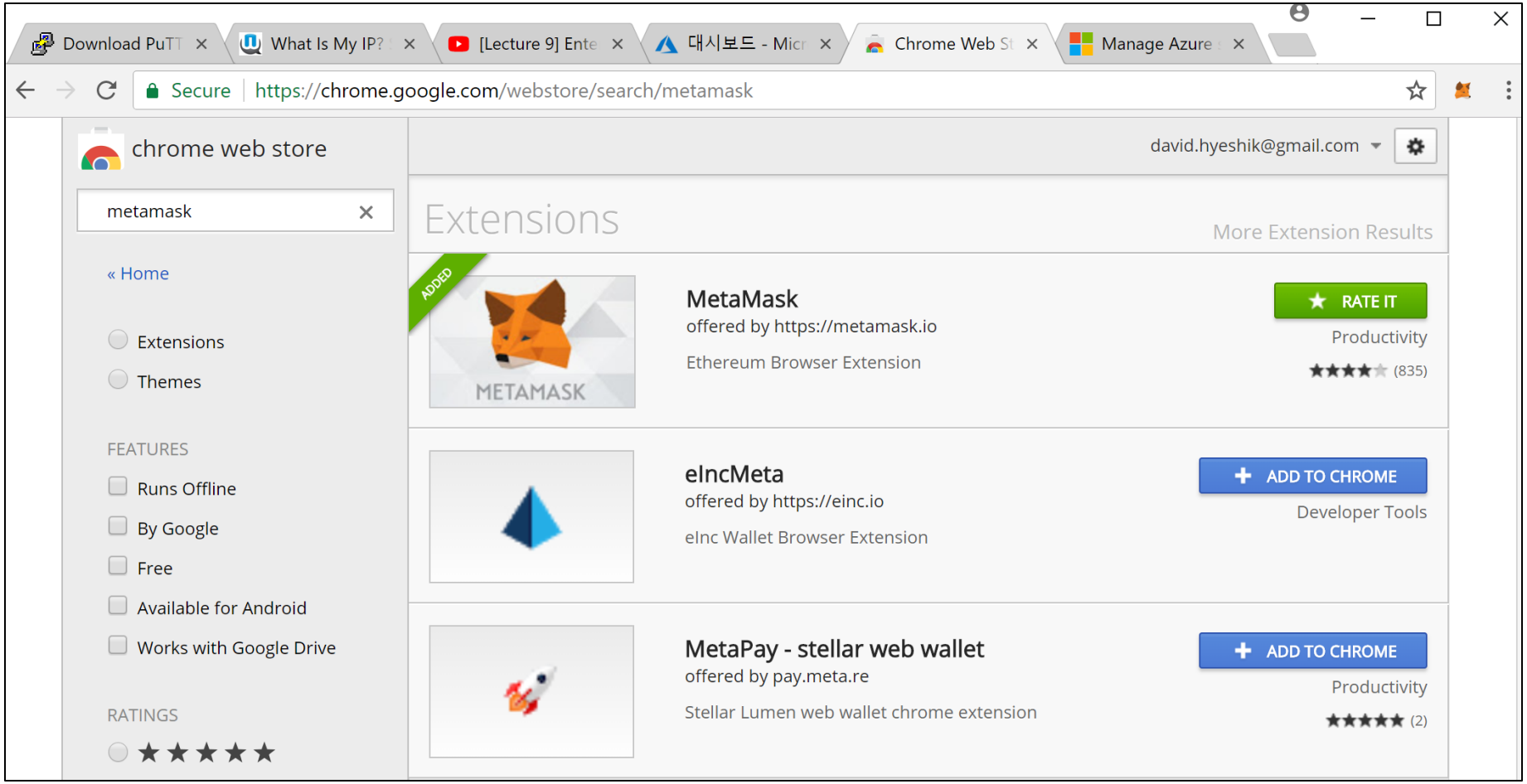
- 설치 전에 설정값 전체적으로 확인
- Region / VM Type 등 확인 필요

Ethereum 계정 생성



Chrome Web store에서 MetaMask 설치

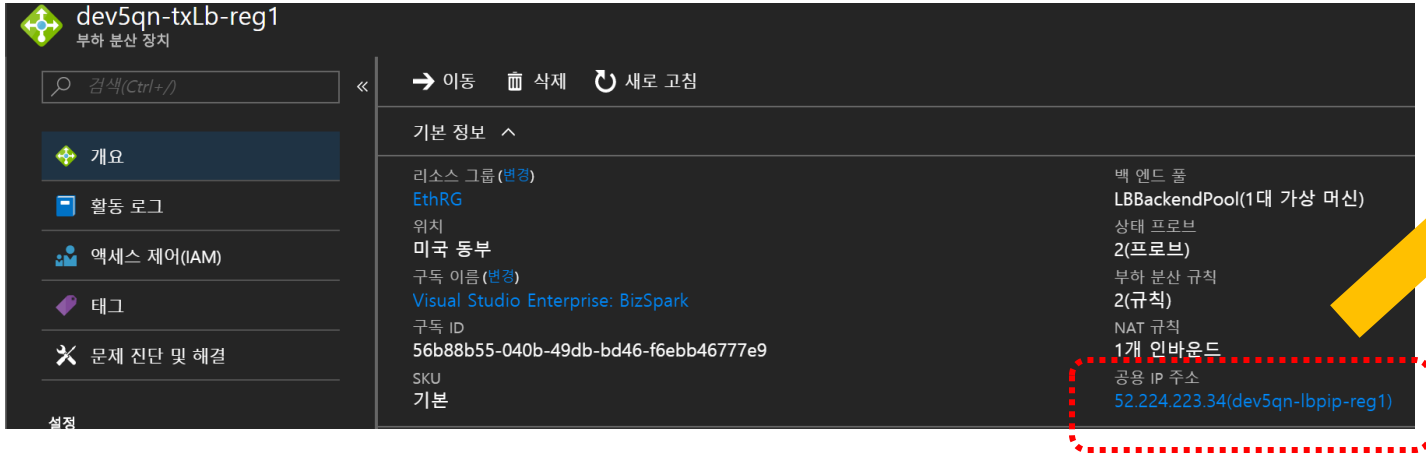
URL - https://chrome.google.com/webstore/search/metamask



MetaMask 에서 Ethereum 접속

Ethereum 접속을 위한 IP확인

- Load Balancer의 IP 주소가 Ethereum 네트워크의 접속 주소

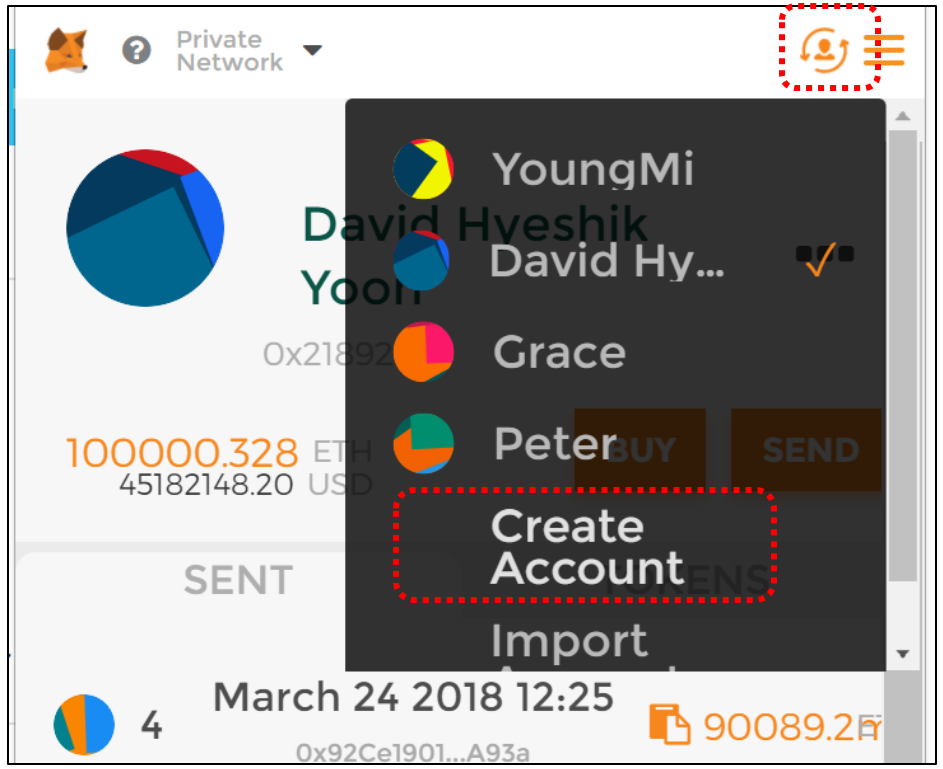


MetaMask에서 Ethereum 접속 URL 등록

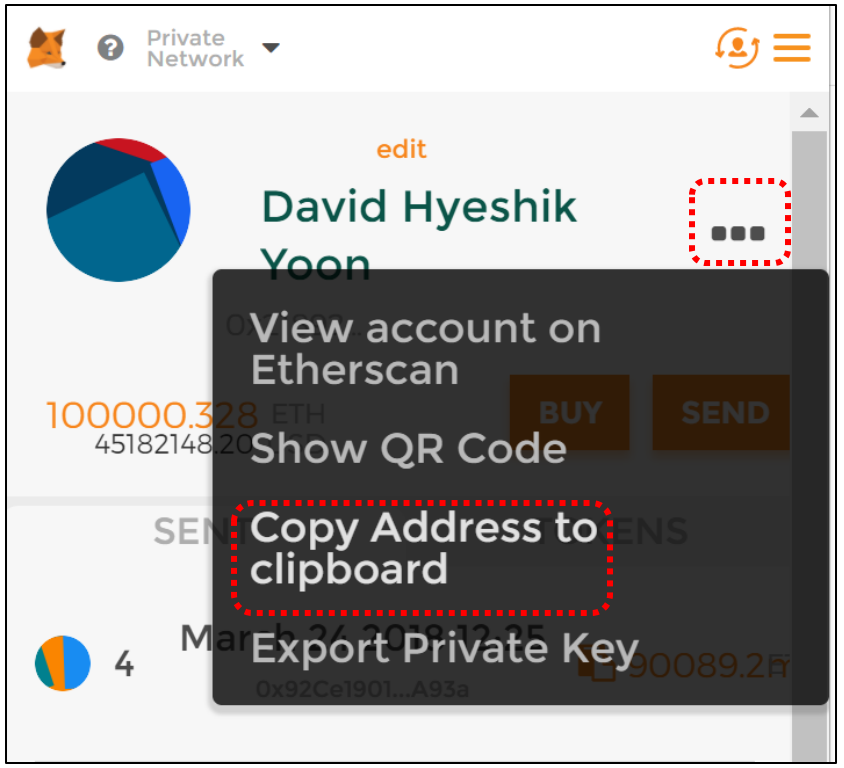
- Load Balancer의 IP 주소의 8545 포트가 접속 URL

Ethereum 계정 생성 및 Wallet 주소 확인

MetaMask 우측 상단 사람모양 아이콘 클릭 후
“Create Account” 통해서 계정 생성

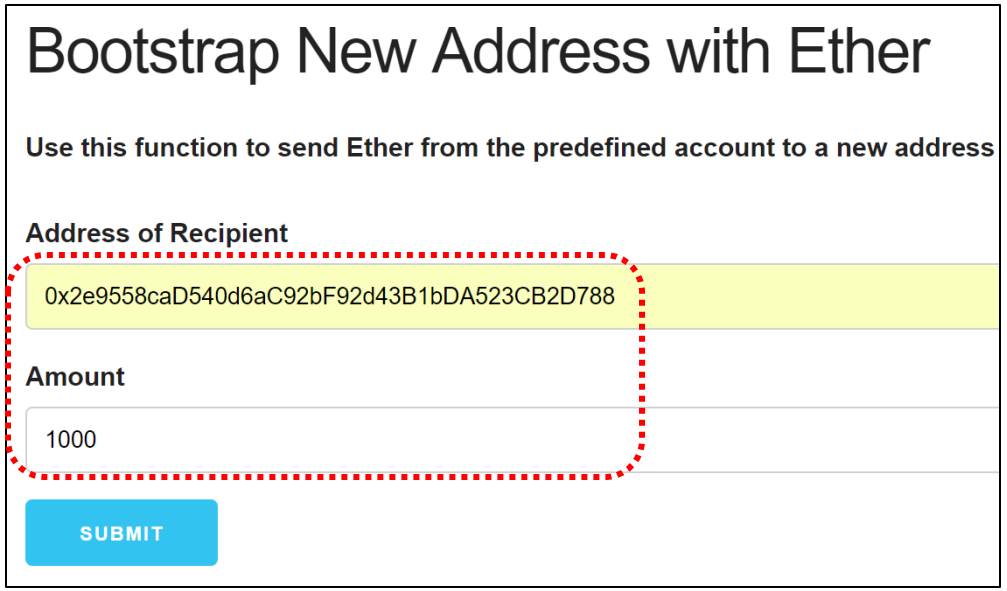


Wallet 주소를 클립보드로 복사(확인)

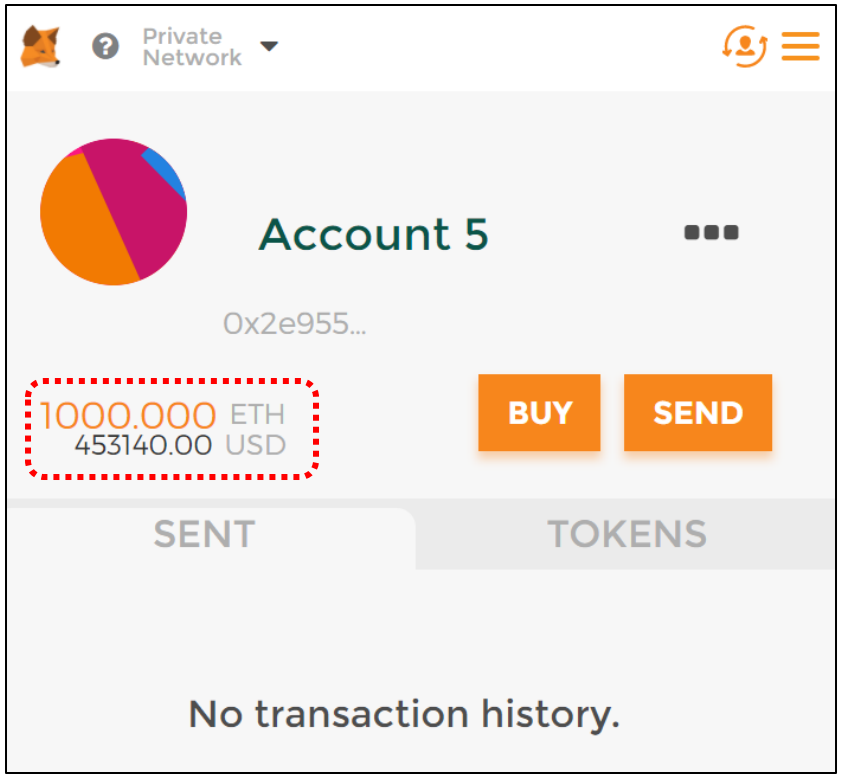


Ethereum 초기 전송

신규 생성한 계정으로 Ethereum 전송

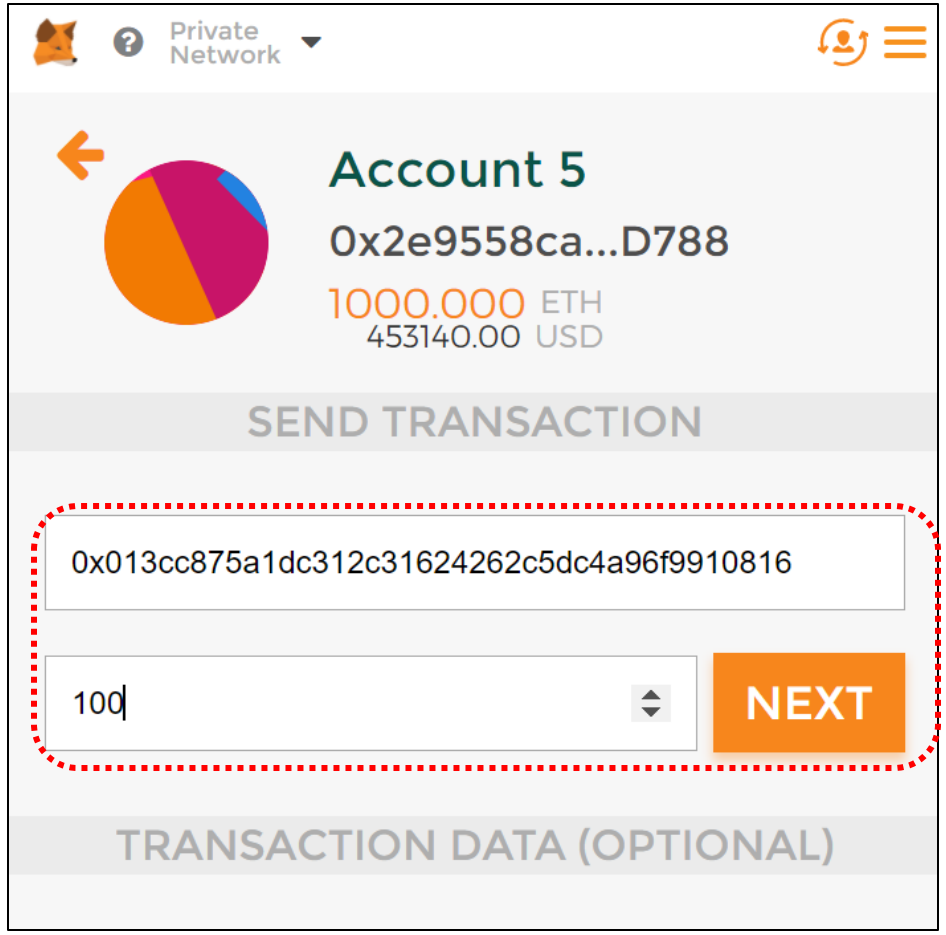


전송 완료후 확인

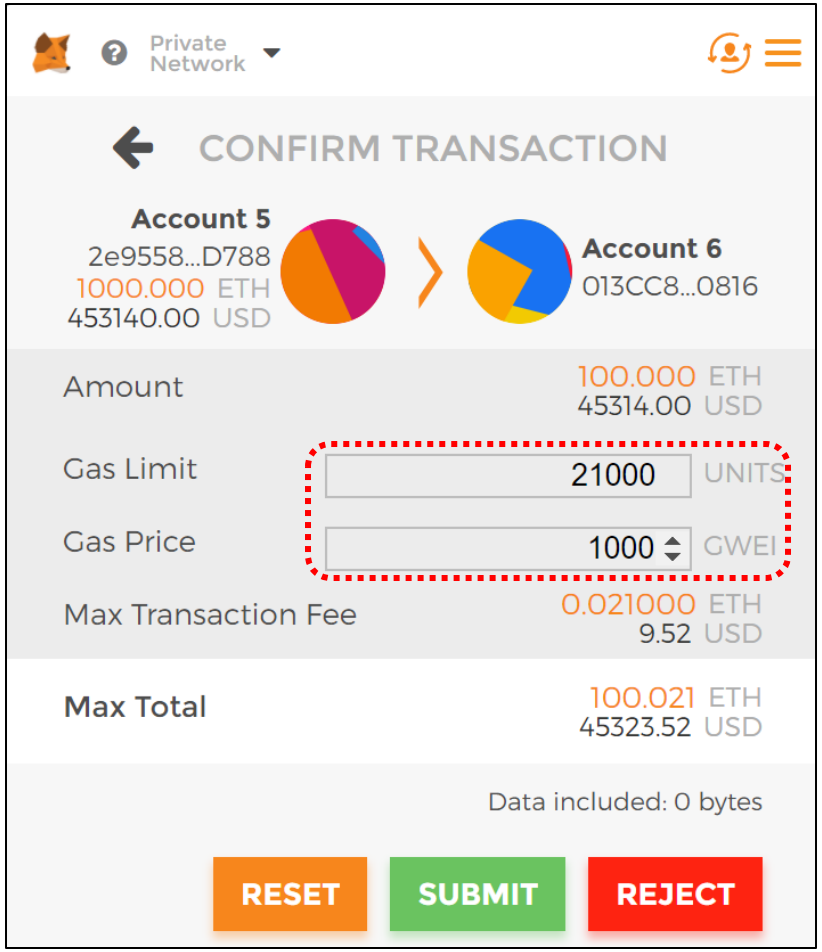


Ethereum 계정간 Coin 전송

신규 생성한 계정으로 Ethereum 전송

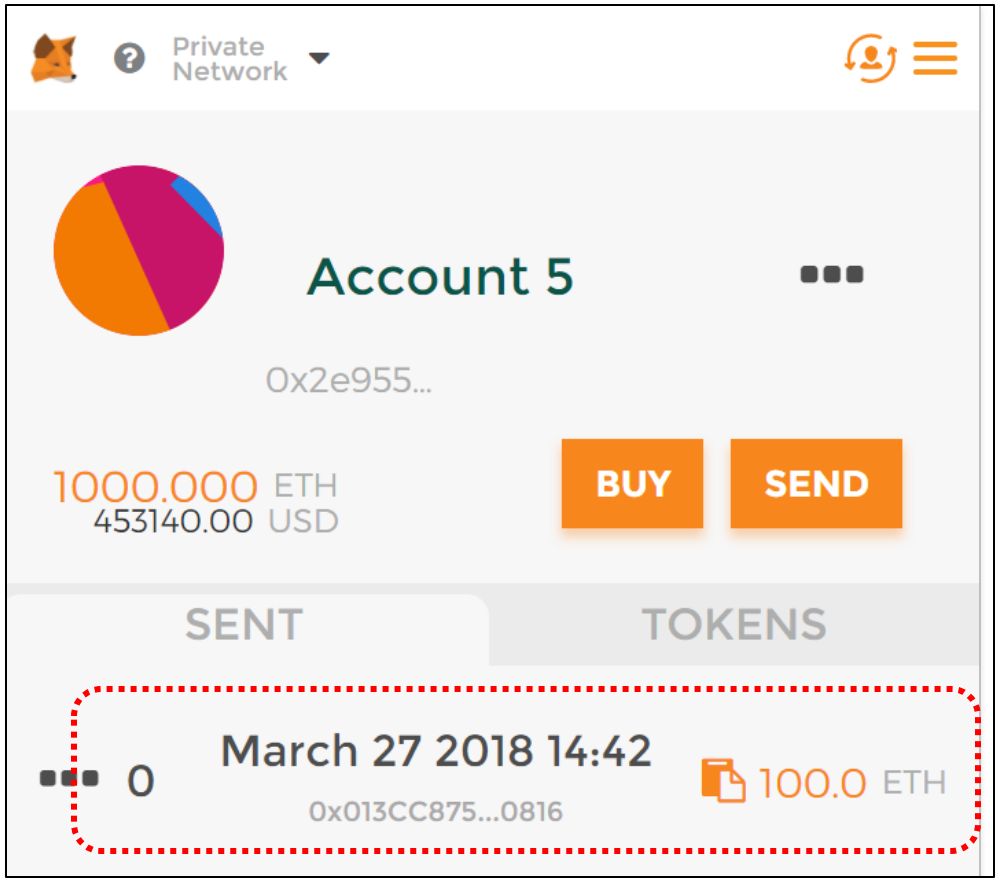


Gas 금액 확인 후 전송

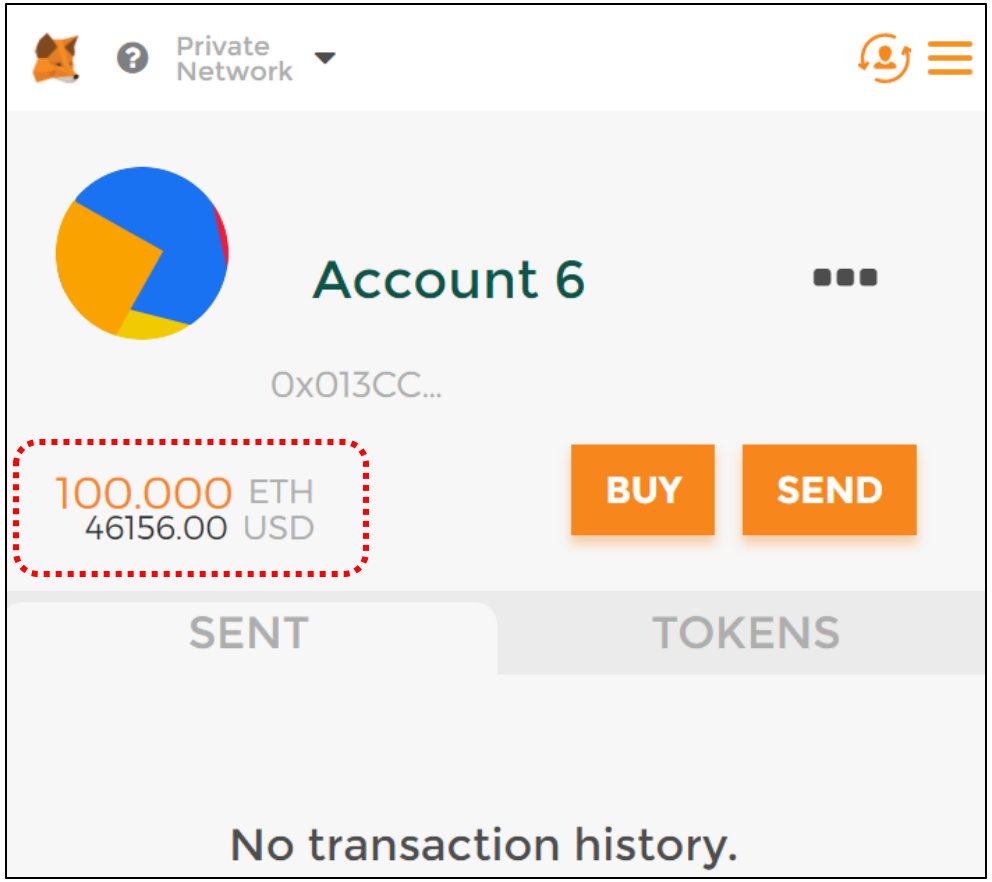


Ethereum 계정간 Coin 전송

전송 상황 확인



전송 완료 확인



OMS에서 서비스 성능 모니터링