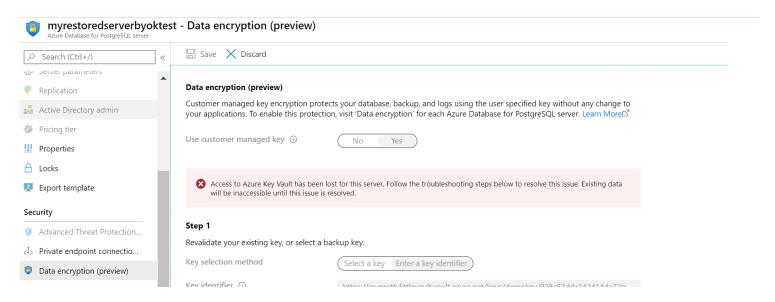
# Issues\_with\_Key\_Vault\_&\_KeyVault\_Outage

Last updated by | Lisa Liu | Nov 6, 2020 at 10:35 AM PST

#### Issue

Issues with Key Vault/Key Vault Outage

Database will be in inaccessible state



Accidental key access revocation from Key Vault It might happen that someone with sufficient access rights to Key Vault accidentally disables server access to the key by:

- Revoking the key vault's get, wrapKey, and unwrapKey permissions from the server.
- Changing the key vault's firewall rules.
- Deleting the managed identity of the server in Azure AD.

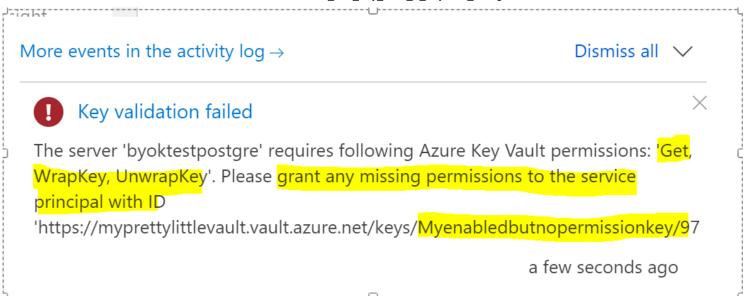
### Investigation/Analysis

For a given server, a customer-managed key, called the key encryption key (KEK), is used to encrypt the data encryption key (DEK) used by the service. The KEK is an asymmetric key stored in a customer-owned and customer-managed Azure Key Vault instance. Key Vault is a cloud-based, external key management system. It's highly available and provides scalable, secure storage for RSA cryptographic keys, optionally backed by FIPS 140-2 Level 2 validated hardware security modules (HSMs).

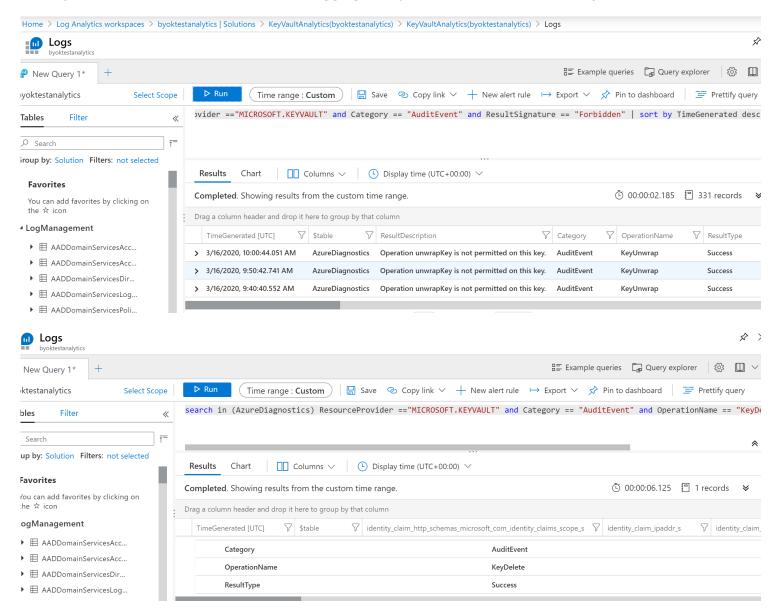
### **Key Vault Missing Permissions**

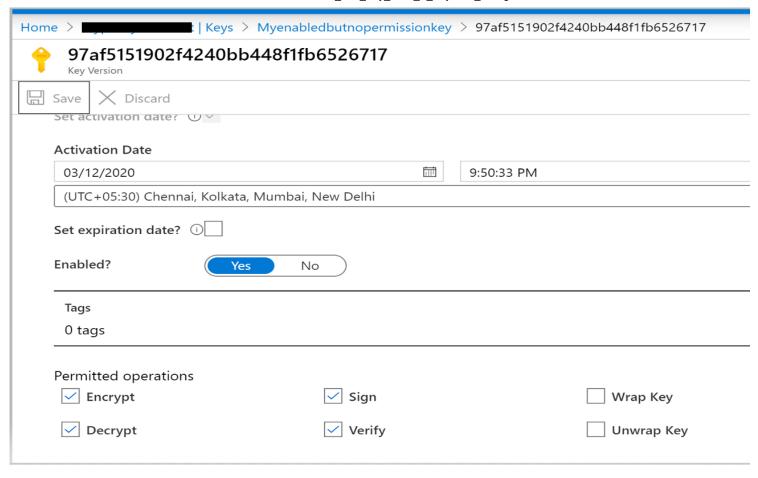
Key Vault administrator gives the following access rights to the server:

- **get**: For retrieving the public part and properties of the key in the key vault.
- wrapKey: To be able to encrypt the DEK.
- unwrapKey: To be able to decrypt the DEK.



The key vault administrator can also enable logging of Key Vault 2 audit events, so they can be audited later.





To check since when the database was not accessible

```
MonAnalyticsElasticServersSnapshot
```

```
where name == "{REPLACE_HERE}"
summarize min(TIMESTAMP), max(TIMESTAMP) by ['state'], bin(TIMESTAMP, 1h)
```

For any failed operation from the customer side to enable this feature, we are going to use the normal troubleshooting steps once we get the tracking ID from the customer side of that failed operation from the activity Log: Example:

#### HttpIncomingRequests

```
| where subscriptionId =="13ef485e-ff37-448c-ad35-7b06b9bd6eb9" | where serviceRequestId == "93452b9c-ec8d-4a96-a523-40588e8cfc2e"
```

We can see that the request id = 083621aa-2fe1-4d43-aea6-0df87ffc1a9f

#### MonManagement

```
| where request_id ==toupper("083621aa-2fe1-4d43-aea6-0df87ffc1a9f")
| project originalEventTimestamp, NodeName, event, ['state'] , fsm_event , caller_state_machine_type , state_machine_type , exception_type , old_state , new_state , error_message , operation_type, exception, error , error_classification , error_code , error_message_format , error_number , stack_trace, elastic_server_name, operation_parameters
```

and engage the product group based on the above results.

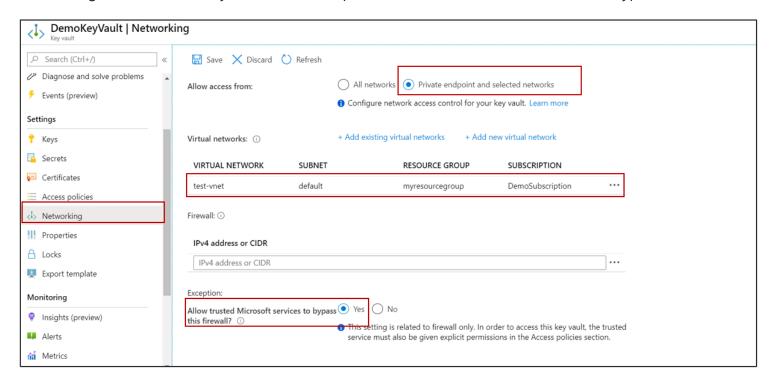
#### **Key Vault Outage**

AKV service supports high availability out of the box providing both the local and Geo redundancy.

**Note:** Azure Key Vault Service provides local and Geo redundancy requiring no explicit action or configuration from customers.

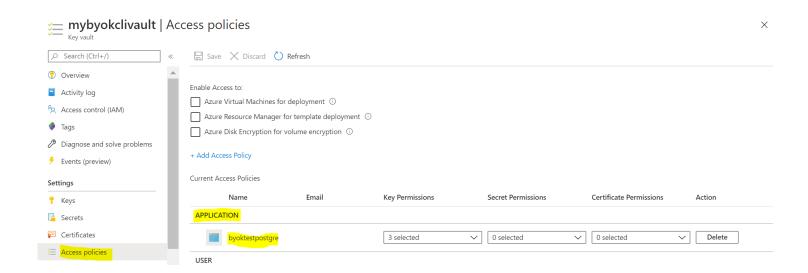
#### Firewall Issue

When using firewall with AKV, you must enable option Allow trusted Microsoft services to bypass the firewall.



# Deleting the managed identity of the server in Azure AD

If this is deleted, we will see database in Inaccessible state



# RCA (optional)

Activity log: When access to the customer key in the customer-managed Key Vault fails, entries are added to the activity log. You can reinstate access as soon as possible, if you create alerts for these events.

### More Information (optional)

# **Public Doc Reference (optional)**

See Above

### **Root Cause Classification**

Cases resolved by this TSG should be coded to the following root cause: Azure Open Source DB V2\Security\User Issue/Error\Data Encryption\Issues with Key Vault/Key Vault Outage

#### How good have you found this content?

