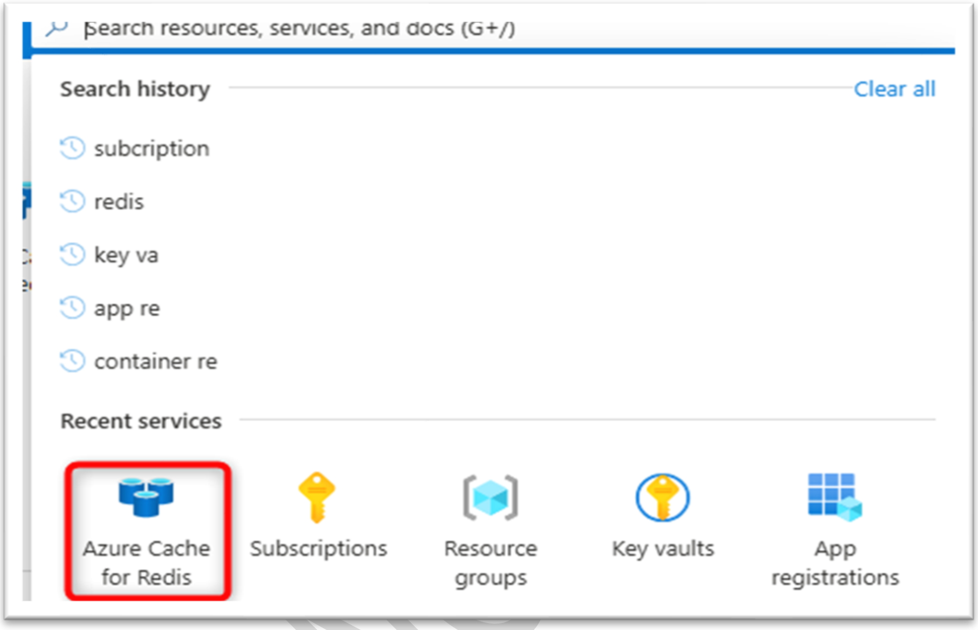
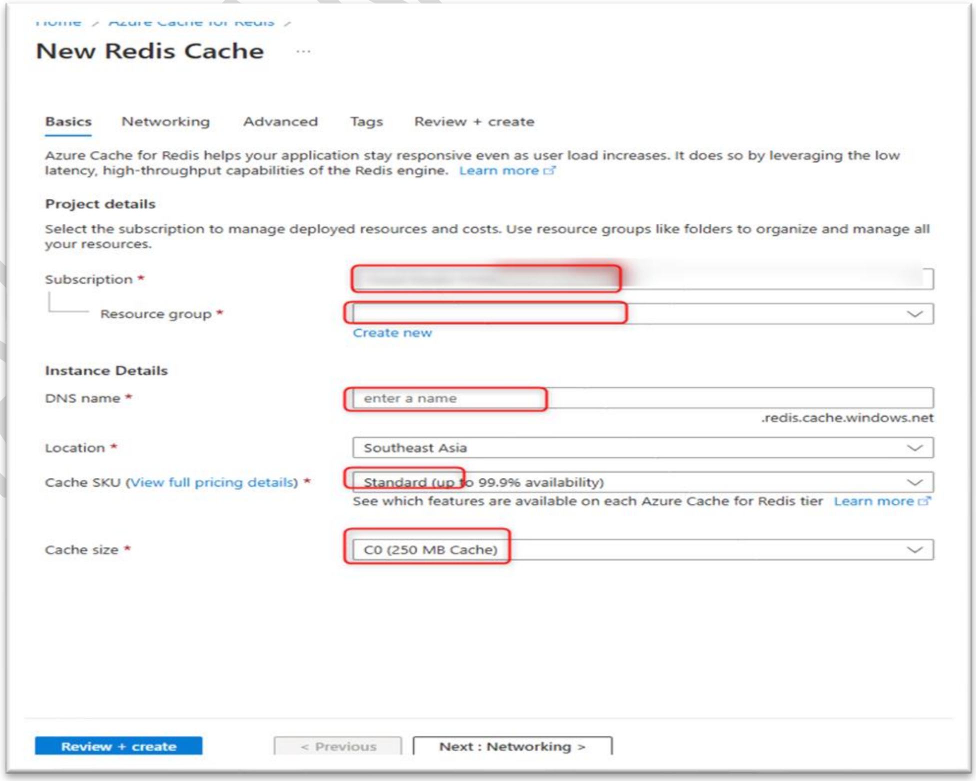
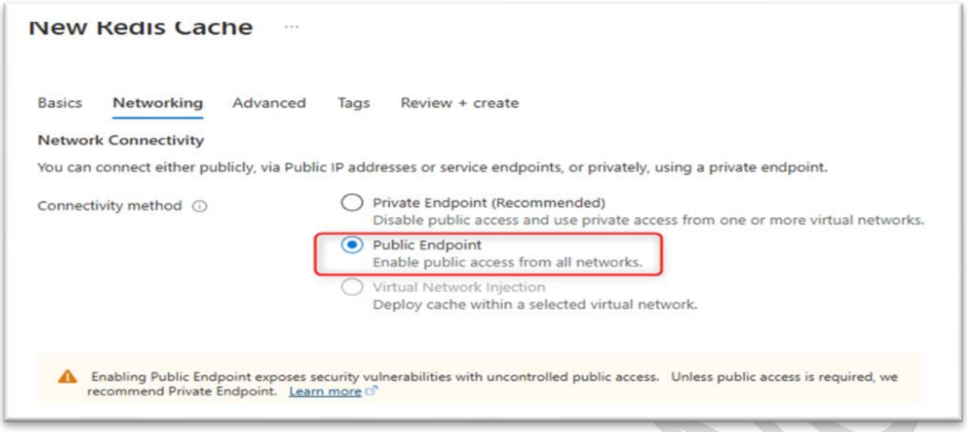
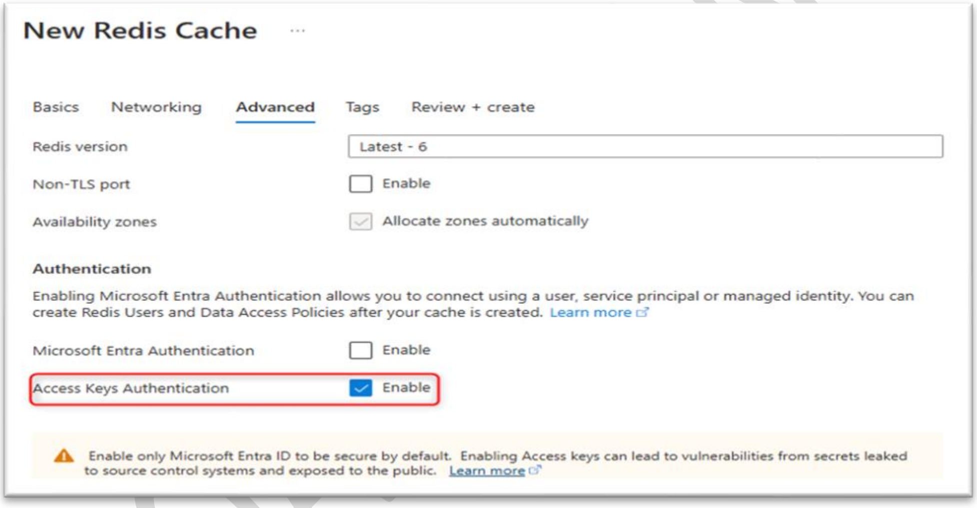
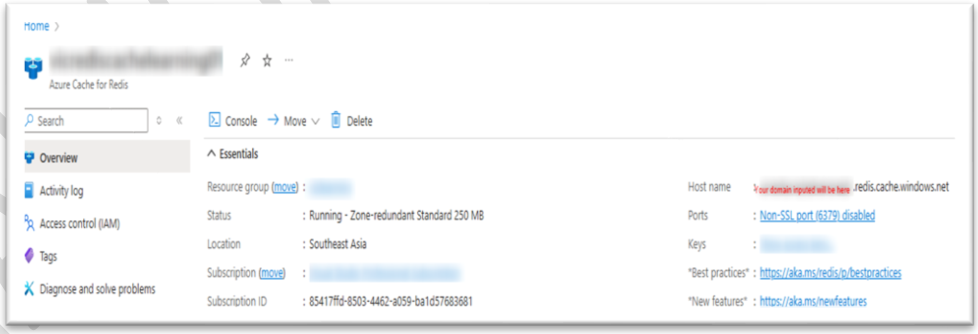
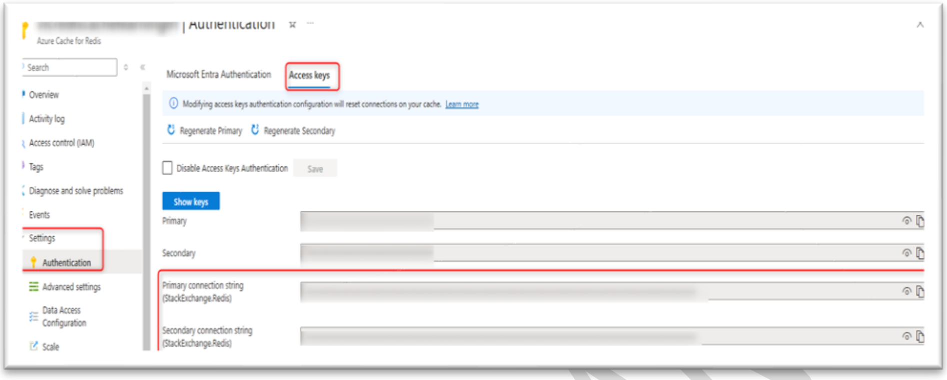
Azure Cache for Redis

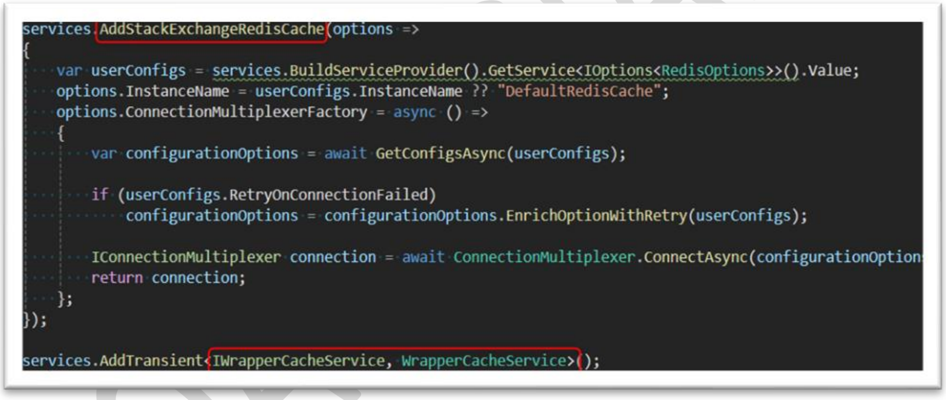
1. Create new resource in Azure.

Step	Demonstrations
Go to Azure Portal -> Search for Azure Cache for Redis	 Search resources, services, and docs (G+/) Search history Clear all subcription redis key va app re container re Recent services Azure Cache for Redis Subscriptions Resource groups Key vaults App registrations
Create a new resource (1) => Fill information in Basic tab.	 Home > Azure Cache for Redis > New Redis Cache ... Basics Networking Advanced Tags Review + create Azure Cache for Redis helps your application stay responsive even as user load increases. It does so by leveraging the low latency, high-throughput capabilities of the Redis engine. Learn more **Project details** Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources. Subscription * [redacted] Resource group * Create new **Instance Details** DNS name * enter a name .redis.cache.windows.net Location * Southeast Asia Cache SKU (View full pricing details) * Standard (up to 99.9% availability) See which features are available on each Azure Cache for Redis tier Learn more Cache size * C0 (250 MB Cache) Review + create < Previous Next : Networking >

Networking tab => First try, you should choose "Public Endpoint"	 New Redis Cache ··· Basics · **Networking** · Advanced · Tags · Review + create **Network Connectivity** You can connect either publicly, via Public IP addresses or service endpoints, or privately, using a private endpoint. Connectivity method ⓘ ○ Private Endpoint (Recommended) Disable public access and use private access from one or more virtual networks. ● Public Endpoint Enable public access from all networks. ○ Virtual Network Injection Deploy cache within a selected virtual network. ⚠ Enabling Public Endpoint exposes security vulnerabilities with uncontrolled public access. Unless public access is required, we recommend Private Endpoint. Learn more
Advance tab => Should use Access Keys Authentication at the beginning	 New Redis Cache ··· Basics · Networking · **Advanced** · Tags · Review + create Redis version: Latest - 6 Non-TLS port: □ Enable Availability zones: ☑ Allocate zones automatically **Authentication** Enabling Microsoft Entra Authentication allows you to connect using a user, service principal or managed identity. You can create Redis Users and Data Access Policies after your cache is created. Learn more Microsoft Entra Authentication: □ Enable Access Keys Authentication: ☑ Enable ⚠ Enable only Microsoft Entra ID to be secure by default. Enabling Access keys can lead to vulnerabilities from secrets leaked to source control systems and exposed to the public. Learn more
Click "Review and Create" => After the deployment finishes, you can see your resource	 Home > [redacted] Azure Cache for Redis Search · Console · Move · Delete Overview · Activity log · Access control (IAM) · Tags · Diagnose and solve problems ^ Essentials Resource group (move) : [redacted] Status : Running - Zone-redundant Standard 250 MB Location : Southeast Asia Subscription (move) : [redacted] Subscription ID : 85417ffd-8503-4462-a059-ba1d57683681 Host name : Your domain inputed will be here.redis.cache.windows.net Ports : Non-SSL port (6379) disabled Keys : [redacted] *Best practices* : https://aka.ms/redis/p/bestpractices *New features* : https://aka.ms/newfeatures

2. Working with Azure Cache for Redis

Step	Demonstrations
Take Access Key	 [redacted] | Authentication Azure Cache for Redis Search Overview Activity log Access control (IAM) Tags Diagnose and solve problems Events Settings Authentication Advanced settings Data Access Configuration Scale Microsoft Entra Authentication Access keys Modifying access keys authentication configuration will reset connections on your cache. Learn more Regenerate Primary Regenerate Secondary □ Disable Access Keys Authentication Save Show keys Primary [redacted] Secondary [redacted] Primary connection string (StackExchange.Redis) [redacted] Secondary connection string (StackExchange.Redis) [redacted]

Code implementation (For Ex: ASP .NET Core)
.Net lib: `Microsoft.Extensions.Caching.StackExchangeRedis`
	<ins>Register services to DI</ins>
	
	`services.AddStackExchangeRedisCache(options =>`
	`{`
	`    var userConfigs = services.BuildServiceProvider().GetService<IOptions<RedisOptions>>().Value;`
	`    options.InstanceName = userConfigs.InstanceName ?? "DefaultRedisCache";`
	`    options.ConnectionMultiplexerFactory = async () =>`
	`    {`
	`        var configurationOptions = await GetConfigsAsync(userConfigs);`
	
	`        if (userConfigs.RetryOnConnectionFailed)`
	`            configurationOptions = configurationOptions.EnrichOptionWithRetry(userConfigs);`
	
	`        IConnectionMultiplexer connection = await ConnectionMultiplexer.ConnectAsync(configurationOption`
	`        return connection;`
	`    };`
	`});`
	
	`services.AddTransient<IWrapperCacheService, WrapperCacheService>();`
	
	<ins>Implement a wrapper class inherit using IDistributedCache</ins>

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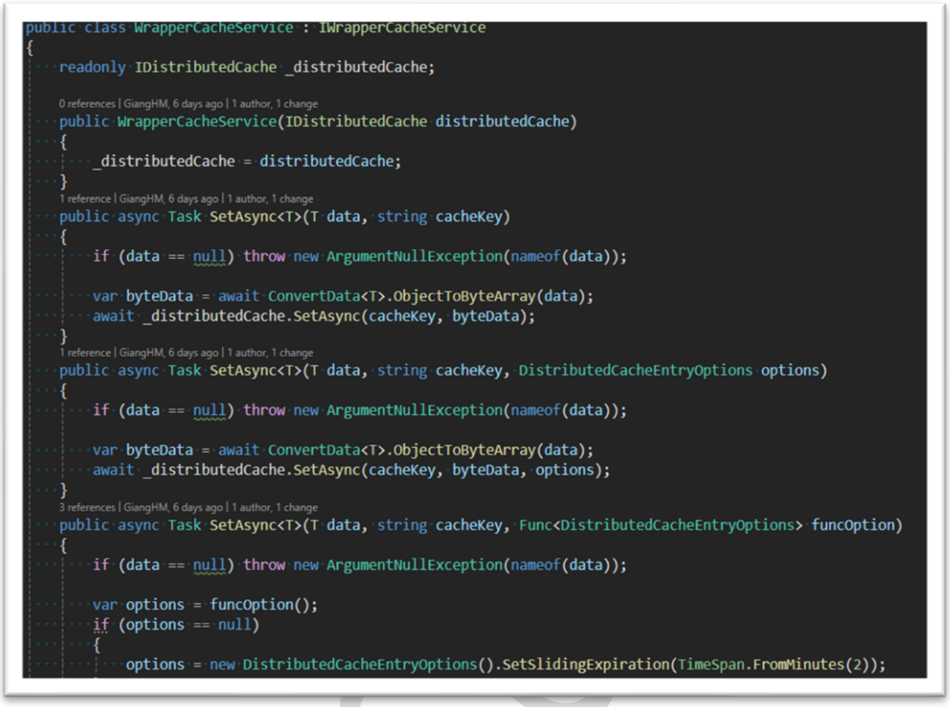
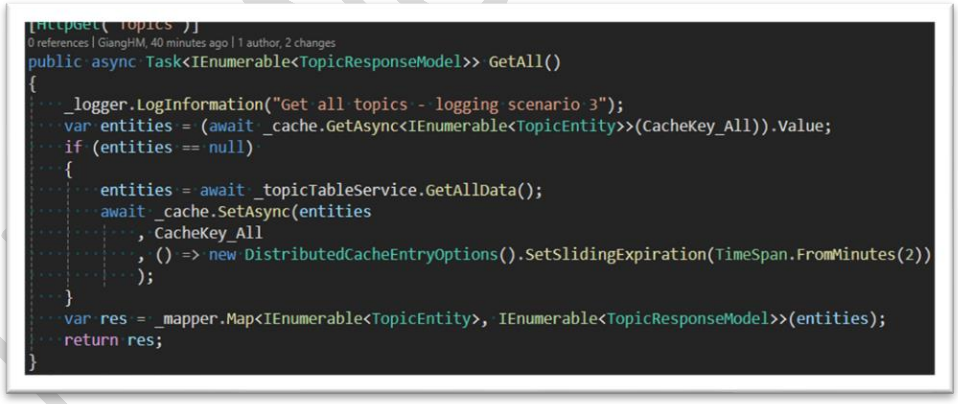


```
public class WrapperCacheService : IWrapperCacheService
{
    readonly IDistributedCache _distributedCache;

    0 references | GiangHM, 6 days ago | 1 author, 1 change
    public WrapperCacheService(IDistributedCache distributedCache)
    {
        _distributedCache = distributedCache;
    }
    1 reference | GiangHM, 6 days ago | 1 author, 1 change
    public async Task SetAsync<T>(T data, string cacheKey)
    {
        if (data == null) throw new ArgumentNullException(nameof(data));

        var byteData = await ConvertData<T>.ObjectToByteArray(data);
        await _distributedCache.SetAsync(cacheKey, byteData);
    }
    1 reference | GiangHM, 6 days ago | 1 author, 1 change
    public async Task SetAsync<T>(T data, string cacheKey, DistributedCacheEntryOptions options)
    {
        if (data == null) throw new ArgumentNullException(nameof(data));

        var byteData = await ConvertData<T>.ObjectToByteArray(data);
        await _distributedCache.SetAsync(cacheKey, byteData, options);
    }
    3 references | GiangHM, 6 days ago | 1 author, 1 change
    public async Task SetAsync<T>(T data, string cacheKey, Func<DistributedCacheEntryOptions> funcOption)
    {
        if (data == null) throw new ArgumentNullException(nameof(data));

        var options = funcOption();
        if (options == null)
        {
            options = new DistributedCacheEntryOptions().SetSlidingExpiration(TimeSpan.FromMinutes(2));
```

Use cache in Controller or where we want.



```
[HttpGet("Topics")]
0 references | GiangHM, 40 minutes ago | 1 author, 2 changes
public async Task<IEnumerable<TopicResponseModel>> GetAll()
{
    _logger.LogInformation("Get all topics - logging scenario 3");
    var entities = (await _cache.GetAsync<IEnumerable<TopicEntity>>(CacheKey_All)).Value;
    if (entities == null)
    {
        entities = await _topicTableService.GetAllData();
        await _cache.SetAsync(entities
            , CacheKey_All
            , () => new DistributedCacheEntryOptions().SetSlidingExpiration(TimeSpan.FromMinutes(2))
            );
    }
    var res = _mapper.Map<IEnumerable<TopicEntity>, IEnumerable<TopicResponseModel>>(entities);
    return res;
}
```

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<tr>
<td><em>Deploy app to Azure App Service</em></td>
<td></td>
</tr>
<tr>
<td><em>Results</em></td>
<td>API Response</td>
</tr>
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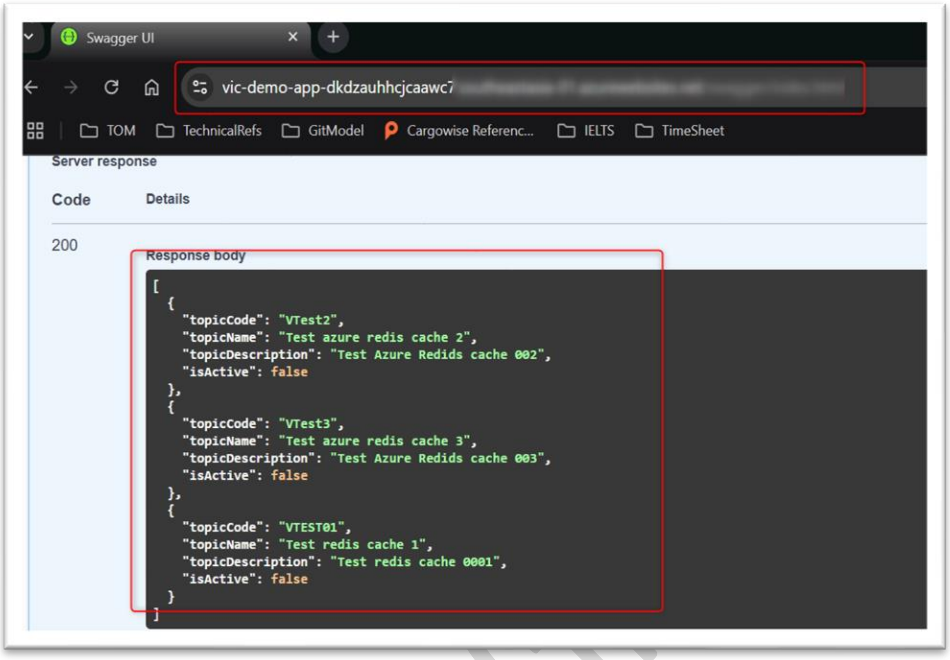


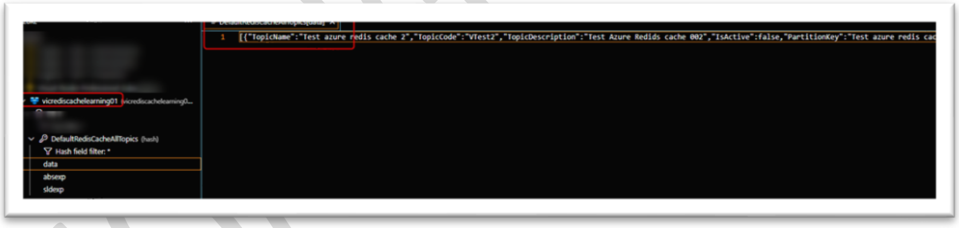
vic-demo-app-dkdzauhhcjcaawc7[redacted]

Server response

Code	Details
200	Response body

```
[
  {
    "topicCode": "VTest2",
    "topicName": "Test azure redis cache 2",
    "topicDescription": "Test Azure Redids cache 002",
    "isActive": false
  },
  {
    "topicCode": "VTest3",
    "topicName": "Test azure redis cache 3",
    "topicDescription": "Test Azure Redids cache 003",
    "isActive": false
  },
  {
    "topicCode": "VTEST01",
    "topicName": "Test redis cache 1",
    "topicDescription": "Test redis cache 0001",
    "isActive": false
  }
]
```

Verify data in Redis Cache

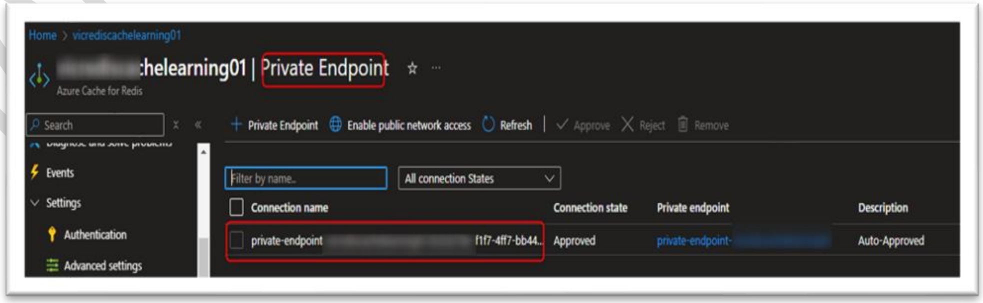


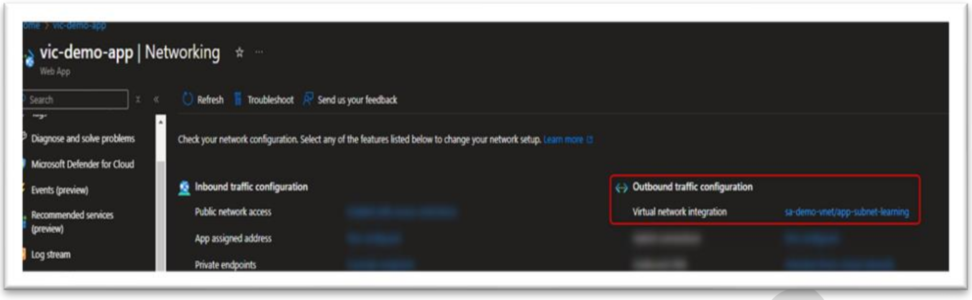
[redacted]

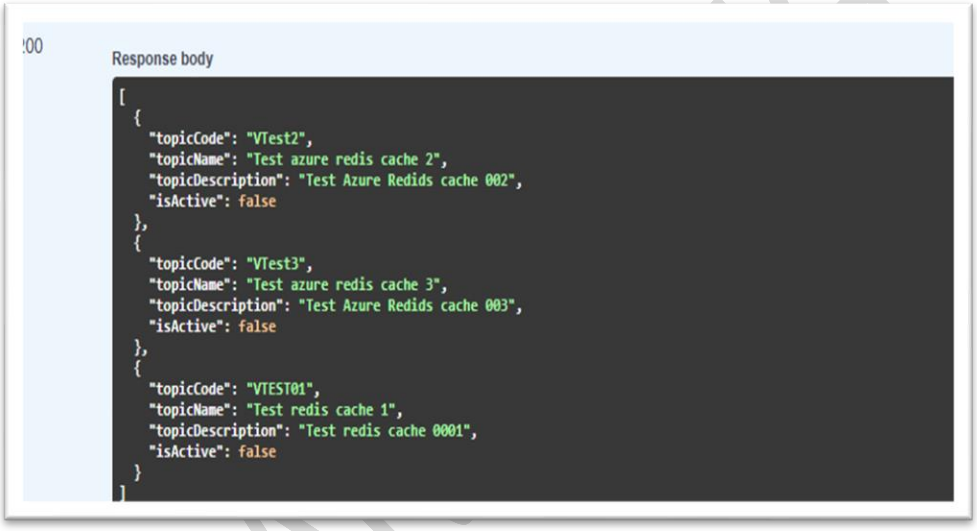
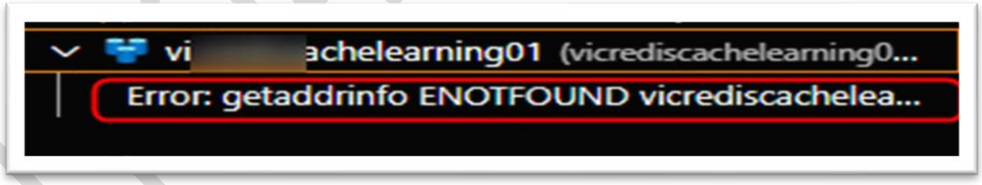
vicrediscachelearning01 vicrediscachelearning0...
DefaultRedisCacheAllTopics (hash)
Hash field filter: *
data
absexp
sldexp

```
1  [{"TopicName":"Test azure redis cache 2","TopicCode":"VTest2","TopicDescription":"Test Azure Redids cache 002","IsActive":false,"PartitionKey":"Test azure redis cac
```

3. Increase security by using “private endpoint”.

Steps	Demonstrations
Create private endpoint for Azure cache resource	 Home > vicrediscachelearning01 [redacted]:helearning01 | Private Endpoint Azure Cache for Redis Search + Private Endpoint · Enable public network access · Refresh · Approve · Reject · Remove Events Settings Authentication Advanced settings Filter by name.. All connection States Connection name · Connection state · Private endpoint · Description private-endpoint[redacted]f1f7-4ff7-bb44... · Approved · private-endpoint-[redacted] · Auto-Approved

Integrate VNET that associated to previous "private endpoint"	 ome > vic-demo-app vic-demo-app | Networking Web App Search Refresh Troubleshoot Send us your feedback Diagnose and solve problems Microsoft Defender for Cloud Events (preview) Recommended services (preview) Log stream Check your network configuration. Select any of the features listed below to change your network setup. Learn more Inbound traffic configuration Public network access App assigned address Private endpoints Outbound traffic configuration Virtual network integration sa-demo-vnet/app-subnet-learning

Results	App works well.
	
	200
	Response body
	[
	{
	"topicCode": "VTest2",
	"topicName": "Test azure redis cache 2",
	"topicDescription": "Test Azure Redids cache 002",
	"isActive": false
	},
	{
	"topicCode": "VTest3",
	"topicName": "Test azure redis cache 3",
	"topicDescription": "Test Azure Redids cache 003",
	"isActive": false
	},
	{
	"topicCode": "VTEST01",
	"topicName": "Test redis cache 1",
	"topicDescription": "Test redis cache 0001",
	"isActive": false
	}
	]
	Cannot access from outside since no public access allowed
	
	vi[redacted]achelearning01 (vicrediscachelearning0...
	Error: getaddrinfo ENOTFOUND vicrediscachelea...