Sending Firebase Push Notifications from ASP.NET API

# 1. Get Firebase Service Account Key

1. Go to https://console.firebase.google.com/  
2. Select your project.  
3. Click on the gear icon (Project Settings) → Service accounts.  
4. Click 'Generate new private key' and download the JSON file.  
5. Save this file in your ASP.NET project directory (e.g., 'serviceAccountKey.json').

# 2. Install Required NuGet Packages

Use the following commands in the terminal:  
 dotnet add package Google.Apis.Auth  
 dotnet add package Newtonsoft.Json

# 3. Create the FCM Sender Service

Add a class called FcmService.cs:

using Google.Apis.Auth.OAuth2;  
using Newtonsoft.Json;  
using System.Net.Http.Headers;  
using System.Text;  
  
public class FcmService  
{  
 private const string FcmEndpoint = "https://fcm.googleapis.com/v1/projects/YOUR\_PROJECT\_ID/messages:send";  
  
 public async Task SendNotificationAsync(string deviceToken, string title, string body)  
 {  
 var credential = GoogleCredential  
 .FromFile("serviceAccountKey.json")  
 .CreateScoped("https://www.googleapis.com/auth/firebase.messaging");  
  
 var accessToken = await credential.UnderlyingCredential.GetAccessTokenForRequestAsync();  
  
 var message = new  
 {  
 message = new  
 {  
 token = deviceToken,  
 notification = new  
 {  
 title = title,  
 body = body  
 },  
 data = new  
 {  
 customKey = "customValue"  
 }  
 }  
 };  
  
 var jsonMessage = JsonConvert.SerializeObject(message);  
  
 using var client = new HttpClient();  
 client.DefaultRequestHeaders.Authorization = new AuthenticationHeaderValue("Bearer", accessToken);  
 var response = await client.PostAsync(  
 FcmEndpoint,  
 new StringContent(jsonMessage, Encoding.UTF8, "application/json")  
 );  
  
 var result = await response.Content.ReadAsStringAsync();  
 Console.WriteLine($"FCM response: {result}");  
 }  
}

# 4. Use the Service in a Controller

Create a controller (e.g., NotificationController.cs):

[ApiController]  
[Route("api/[controller]")]  
public class NotificationController : ControllerBase  
{  
 private readonly FcmService \_fcmService = new();  
  
 [HttpPost("send")]  
 public async Task<IActionResult> Send([FromQuery] string token)  
 {  
 await \_fcmService.SendNotificationAsync(  
 token,  
 "Hello from ASP.NET!",  
 "This is a push notification from your C# backend."  
 );  
  
 return Ok("Notification sent");  
 }  
}

# 5. Send a Test Notification

Use Postman or browser:  
 GET http://localhost:5000/api/notification/send?token=<your-device-token>