






Team Dynamix Web Api SDK

A fluent, opinionated C# SDK for interacting with the TeamDynamix Web API.

✨ Features

-  Fluent-style request builders
-  Strongly typed models and builders
-  Supports both basic and complex ticket operations
-  Extensible and customizable
-  Designed for testability and clean layering

Installation

Install via NuGet:

```
dotnet add package TdxClient
```

Or reference the project directly in your solution:

```
<ProjectReference Include="..\TdxClient\TdxClient.csproj" />
```

Setup

Quick Start

Option 1: Minimal Setup (Not Recommended for ASP.NET Core)

```
var client = new TdxClient(  
    tenant: "mytenant",  
    webServicesBeId: "abc123",  
    webServicesKey: "super-secret-key"  
);  
  
await client.AuthenticateAsync();  
  
var ticket = await client.Tickets("244")["123456"].GetAsync();
```

Option 2: Recommended Setup with IHttpConnectionFactory

In Program.cs or Startup.cs:

```

builder.Services.AddHttpClient<TdxClient>((provider, httpClient) =>
{
    // Optional: Add custom handlers, policies, etc.
})
.ConfigurePrimaryHttpMessageHandler(() => new HttpClientHandler
{
    AutomaticDecompression = DecompressionMethods.GZip
    | DecompressionMethods.Deflate
});

```

Then register your config:

```

builder.Services.AddSingleton(new TdxClientOptions
{
    EnableThrottleCountdownLogging = true,
    OnThrottleWait = remaining => Console.WriteLine($"Waiting
{remaining.TotalSeconds} seconds due to rate limit..."),
    OnThrottleContinue = () => Console.WriteLine("Continuing after wait.")
});

builder.Services.AddTransient<TdxClient>(provider =>
{
    var httpClient = provider.GetRequiredService<IHttpClientFactory>
().CreateClient(nameof(TdxClient));
    var options = provider.GetRequiredService<TdxClientOptions>();

    return new TdxClient(
        httpClient,
        tenant: "mytenant",
        webServicesBeId: "abc123",
        webServicesKey: "super-secret-key",
        options
    );
});

```

Then inject it in your service:

```

public class MyService
{
    private readonly TdxClient _tdx;

    public MyService(TdxClient tdx)

```

```

{
    _tdx = tdx;
}

public async Task RunAsync()
{
    await _tdx.AuthenticateAsync();

    var newTicket = new Ticket
    {
        Title = "My New Ticket",
        Description = "Created via fluent API",
        RequestorUid = Guid.Parse("..."),
        StatusID = 1234,
        TypeID = 5678,
        AccountID = 9876,
        PriorityID = 1111
    };

    var created = await _tdx.Tickets("244").Create(newTicket);
}
}

```

Inject Your Own HttpClient With Custom Delegating Handlers

```

// Custom logging handler example
public class LoggingHandler : DelegatingHandler
{
    protected override async Task<HttpResponseMessage> SendAsync(HttpRequestMessage request, CancellationToken cancellationToken)
    {
        Console.WriteLine($"Request: {request.Method} {request.RequestUri}");
        var response = await base.SendAsync(request, cancellationToken);
        Console.WriteLine($"Response: {response.StatusCode}");
        return response;
    }
}

// Create a list of custom handlers
var handlers = new List<DelegatingHandler> { new LoggingHandler() };

// Create HttpClient with custom handlers using the factory
var httpClient = TdxClientFactory.CreateHttpClient(handlers, tenant);

```

```
// Inject your HttpClient into TdxClient
var client = new TdxClient(httpClient, tenant, beId, webServicesKey);

// Authenticate and use
await client.AuthenticateAsync();

var tickets = await client.Tickets("244")["12345"].GetAsync();
```

Advanced: Adding Multiple Handlers (Logging + Retry + Telemetry)

```
var handlers = new List<DelegatingHandler>
{
    new LoggingHandler(),
    new RetryHandler(), // Your custom retry handler if you have one
    new TelemetryHandler() // Your telemetry handler for metrics
};

var httpClient = TdxClientFactory.CreateHttpClient(handlers, tenant);

var client = new TdxClient(httpClient, tenant, beId, webServicesKey);

await client.AuthenticateAsync();

// Now all requests go through the pipeline of your handlers
var tickets = await client.Tickets("244")["12345"].GetAsync();
```

Not Recommended: Manual `HttpClient` Instantiation

You will need to handle your own retry policies.

```
// Use only for quick tests or console apps
var httpClient = new HttpClient
{
    BaseAddress = new Uri("https://your-org.teamdynamix.com/TDWebApi/api/")
};

var tdxClient = new TdxClient(httpClient, "your-webservices-key", "your-beid");
```

This bypasses DI scopes, Polly retry policies, DNS refresh handling, and other best practices.



Usage Exmample



Search for a Person

```
var results = await tdxClient.Users.Search
    .WithEmail("jdoe@yourorg.edu")
    .ExecuteAsync();
```



Get a Ticket by ID

```
var ticket = await tdxClient.Tickets("244")["123456"].GetAsync();
```



Create a Ticket

```
var ticketRequest = new TicketRequest
{
    Title = "New Hire Onboarding",
    RequestorUid = "abc-123",
    Type = TicketType.OnboardingOrJobUpdate,
    Description = "Provision access and equipment",
    ResponsibleGroupId = "4000"
};

var ticket = await tdxClient.Tickets("244").Create(ticketRequest.MapToTicket());
```



Create ticket cont.

```
var ticket = await tdxClient.Tickets("244").Create().WithTitle("...")...
// if you attempt to send without all required fields it will error our and
// notify you
```



Resolve a Ticket

```
await tdxClient.Tickets("244")["123456"]
    .SetStatus(TicketStatus.Resolved)
    .WithComment("Issue resolved by help desk.")
    .UpdateAsync();
```

TdxClientOptions

Customize retry/throttling behavior:

```
var options = new TdxClientOptions
{
    MaxRetries = 3,
    EnableThrottleCountdownLogging = true,
    OnThrottleWait = remaining => Console.WriteLine($"Waiting
{remaining.TotalSeconds}..."),
    OnThrottleContinue = () => Console.WriteLine("Continuing.")
};
```

Structure

```
TdxClient
├─ People
│   └─ Search
├─ Tickets
│   └─ Create
│       └─ [ticketId]
│           ├── Get
│           ├── SetStatus
│           └─ AddFeedEntry
```

Extending

You can add more fluent builders by extending BaseRequestBuilder:

```
public class AssetsRequestBuilder : BaseRequestBuilder
{
    public AssetsRequestBuilder(TdxBaseClient client)
        : base("assets", client) { }

    public Task<Asset> GetAssetAsync(string id) =>
        SendAsync<Asset>(CreateRequest(HttpMethod.Get, id));
}
```

Testing

You can mock the `TdxBaseClient` and `HttpClient` layers for unit testing. Also would recommend implementing your own `httpClient` purely to repoint to



Authentication

Supports Web Services Key-based authentication. If your API uses OAuth, you'll need to extend `TdxBaseClient` accordingly.



License

MIT



Support / Contribution

Open an issue or submit a pull request — contributions welcome!

Namespace TeamDynamix.Api

Classes

[BaseRequestBuilder](#)

Abstract base class for building and sending HTTP requests to the TeamDynamix API. Provides helper methods to create requests with optional JSON bodies and send them using a [TdxBaseClient](#) instance.

[TdxBaseClient](#)

Base abstract client for interacting with the TeamDynamix API. Provides core HTTP communication features such as:

- Configurable [HttpClient](#) with base address setup.
- Retry policy handling for HTTP 429 (Too Many Requests) throttling responses.
- Token-based authorization header management.
- Generic request sending methods with built-in retry logic and deserialization.

[TdxClient](#)

Client for interacting with the TeamDynamix API, extending [TdxBaseClient](#). Provides strongly typed request builders for People, Tickets, and Accounts endpoints, and handles authentication using provided credentials.

[TdxClientFactory](#)

Factory for creating [HttpClient](#) instances with advanced control over the message handler pipeline.