

## 启动流程

## 一.调用Microsoft.Extensions.Hosting.dll下的静态方法

```
Microsoft.Extensions.Hosting.Host.Created  
efaultBuilder() 注册通用主机
```

```

public static class Host
{
    // Token: 0x06000004 RID: 4 RVA: 0x00002C9D File Offset: 0x0000169D
    public static IHostBuilder CreateDefaultBuilder()
    {
        return Host.CreateDefaultBuilder(null);
    }

    // Token: 0x06000005 RID: 5 RVA: 0x00002CA8 File Offset: 0x000016A8
    public static IHostBuilder CreateDefaultBuilder(string[] args)
    {
        HostBuilder hostBuilder = new HostBuilder();
        hostBuilder.UseContentRoot(Directory.GetCurrentDirectory()); 指定主机要使用的内容根目录
        hostBuilder.ConfigureHostConfiguration(delegate(IConfigurationBuilder config)
        {
            config.AddEnvironmentVariables("DOTNET_");
            if (args != null)
            {
                config.AddCommandLine(args);
            }
        });
        hostBuilder.ConfigureAppConfiguration(delegate(HostBuilderContext hostingContext, IConfigurationBuilder config)
        {
            IHostEnvironment hostingEnvironment = hostingContext.HostingEnvironment;
            bool value = hostingContext.Configuration.GetValue("hostBuilder:reloadConfigOnChange", true);
            config.AddJsonFile("appsettings.json", true, value).AddJsonFile("appsettings." + hostingEnvironment.EnvironmentName + ".json", true, value);
            if (hostingEnvironment.IsDevelopment() && !string.IsNullOrEmpty(hostingEnvironment.ApplicationName))
            {
                Assembly assembly = Assembly.Load(new AssemblyName(hostingEnvironment.ApplicationName));
                if (assembly != null)
                {
                    config.AddUserSecrets(assembly, true);
                }
            }
            config.AddEnvironmentVariables();
            if (args != null)
            {
                config.AddCommandLine(args);
            }
        }).ConfigureLogging(delegate(HostBuilderContext hostingContext, ILoggingBuilder logging)
        {
            bool flag = RuntimeInformation.IsOSPlatform(OSPlatform.Windows);
            if (flag)
            {
                logging.AddFilter((LogLevel level) => level >= LogLevel.Warning);
            }
            logging.AddConfiguration(hostingContext.Configuration.GetSection("Logging"));
            logging.AddConsole();
            logging.AddDebug();
            logging.AddEventSourceLogger();
            if (flag)
            {
                logging.AddEventLog();
            }
        });
        hostBuilder.UseDefaultServiceProvider(delegate(HostBuilderContext context, ServiceProviderOptions options)
        {
            bool flag = context.HostingEnvironment.IsDevelopment();
            options.ValidateScopes = flag;
            options.ValidateOnBuild = flag;
        });
        return hostBuilder;
    }
}

```

## 二、调用Microsoft.AspNetCore.Hosting.dll的静态方法

## Microsoft.Extensions.Hosting.GenericWebHostBuilderExtensions.ConfigureWebHost()注册web主机

```
C#
GenericWebHostBuilderExtensions
10 // Token: 0x0600008A RID: 138 RVA: 0x00005FAA File Offset: 0x00004FAA
11 public static IHostBuilder ConfigureWebHost(this IHostBuilder builder, Action<IWebHostBuilder> configure)
12 {
13     if (configure == null)
14     {
15         throw new ArgumentNullException("configure");
16     }
17     return builder.ConfigureWebHost(configure, delegate(WebHostBuilderOptions _)
18     {
19     });
20 }
21
22 // Token: 0x0600008B RID: 139 RVA: 0x00005FE0 File Offset: 0x00004FE0
23 public static IHostBuilder ConfigureWebHost(this IHostBuilder builder, Action<IWebHostBuilder> configure, Action<WebHostBuilderOptions> configureWebHostBuilder)
24 {
25     if (configure == null)
26     {
27         throw new ArgumentNullException("configure");
28     }
29     if (configureWebHostBuilder == null)
30     {
31         throw new ArgumentNullException("configureWebHostBuilder");
32     }
33     WebHostBuilderOptions webHostBuilderOptions = new WebHostBuilderOptions();
34     configureWebHostBuilder(webHostBuilderOptions);
35     GenericWebHostBuilder obj = new GenericWebHostBuilder(builder, webHostBuilderOptions);
36     configure(obj);
37     builder.ConfigureServices(delegate(HostBuilderContext context, IServiceCollection services)
38     {
39         services.AddHostedService<GenericWebHostService>();
40     });
41     return builder;
42 }
43 }
44 }
45 }
```

最后调用 Microsoft.AspNetCore.dll 下的静态方法

Microsoft.AspNetCore.WebHost.ConfigureWebDefaults(IWebHostBuilder \*\*builder\*\*)

```
WebHost
153 }
154
155 // Token: 0x06000013 RID: 19 RVA: 0x00002BC8 File Offset: 0x000011C8
156 internal static void ConfigureWebDefaults(IWebHostBuilder builder)
157 {
158     builder.ConfigureAppConfiguration(delegate(WebHostBuilderContext ctx, IConfigurationBuilder cb)
159     {
160         if (ctx.HostingEnvironment.IsDevelopment())
161         {
162             StaticWebAssetsLoader.UseStaticWebAssets(ctx.HostingEnvironment, ctx.Configuration);
163         }
164     });
165     builder.UseKestrel(delegate(WebHostBuilderContext builderContext, KestrelServerOptions options)
166     {
167         options.Configure(builderContext.Configuration.GetSection("Kestrel"), true);
168     }).ConfigureServices(delegate(WebHostBuilderContext hostingContext, IServiceCollection services)
169     {
170         services.PostConfigure(delegate(HostFilteringOptions options)
171         {
172             if (options.AllowedHosts == null || options.AllowedHosts.Count == 0)
173             {
174                 string text = hostingContext.Configuration["AllowedHosts"];
175                 string[] array = (text != null) ? text.Split(new char[]
176                 {
177                     ','
178                 }, StringSplitOptions.RemoveEmptyEntries) : null;
179                 string[] allowedHosts;
180                 if (array == null || array.Length == 0)
181                 {
182                     (allowedHosts = new string[1])[0] = "*";
183                 }
184                 else
185                 {
186                     allowedHosts = array;
187                 }
188                 options.AllowedHosts = allowedHosts;
189             }
190         });
191         services.AddSingleton(new ConfigurationChangeTokenSource<HostFilteringOptions>(hostingContext.Configuration));
192         services.AddTransient<IStartupFilter, HostFilteringStartupFilter>();
193         if (string.Equals("true", hostingContext.Configuration["ForwardedHeaders_Enabled"], StringComparison.OrdinalIgnoreCase))
194         {
195             services.Configure(delegate(ForwardedHeadersOptions options)
196             {
197                 options.ForwardedHeaders = (ForwardedHeaders.XForwardedFor | ForwardedHeaders.XForwardedProto);
198                 options.KnownNetworks.Clear();
199                 options.KnownProxies.Clear();
200             });
201             services.AddTransient<IStartupFilter, ForwardedHeadersStartupFilter>();
202         }
203         services.AddRouting();
204         UseIIS().UseIISIntegration();
205     });
206 }
```

### 三、注册主机的各种委托会放到

Microsoft.Extensions.Hosting.dll 下的主机

Microsoft.Extensions.Hosting.HostBuilder

的本地集合中

```

8 using Microsoft.Extensions.Hosting.Internal;
9
10 namespace Microsoft.Extensions.Hosting
11 {
12     // Token: 0x02000004 RID: 4
13     public class HostBuilder : IHostBuilder
14     {
15         // Token: 0x17000002 RID: 2
16         // (get) Token: 0x06000006 RID: 6 RVA: 0x00002D43 File Offset: 0x00001743
17         public IDictionary<Object, object> Properties { get; } = new Dictionary<Object, object>();
18
19         // Token: 0x06000007 RID: 7 RVA: 0x00002D48 File Offset: 0x00001748
20         public IHostBuilder ConfigureHostConfiguration(Action<IConfigurationBuilder> configureDelegate)
21         {
22             List<Action<IConfigurationBuilder>> configureHostConfigActions = this._configureHostConfigActions;
23             if (configureDelegate == null)
24             {
25                 throw new ArgumentNullException("configureDelegate");
26             }
27             configureHostConfigActions.Add(configureDelegate);
28             return this;
29         }
30
31         // Token: 0x06000008 RID: 8 RVA: 0x00002D69 File Offset: 0x00001769
32         public IHostBuilder ConfigureAppConfiguration(Action<HostBuilderContext, IConfigurationBuilder> configureDelegate)
33         {
34             List<Action<HostBuilderContext, IConfigurationBuilder>> configureAppConfigActions = this._configureAppConfigActions;
35             if (configureDelegate == null)
36             {
37                 throw new ArgumentNullException("configureDelegate");
38             }
39             configureAppConfigActions.Add(configureDelegate);
40             return this;
41         }
42
43         // Token: 0x06000009 RID: 9 RVA: 0x00002D87 File Offset: 0x00001787
44         public IHostBuilder ConfigureServices(Action<HostBuilderContext, IServiceCollection> configureDelegate)
45         {
46             List<Action<HostBuilderContext, IServiceCollection>> configureServicesActions = this._configureServicesActions;
47             if (configureDelegate == null)
48             {
49                 throw new ArgumentNullException("configureDelegate");
50             }
51             configureServicesActions.Add(configureDelegate);
52             return this;
53         }
54     }

```

```

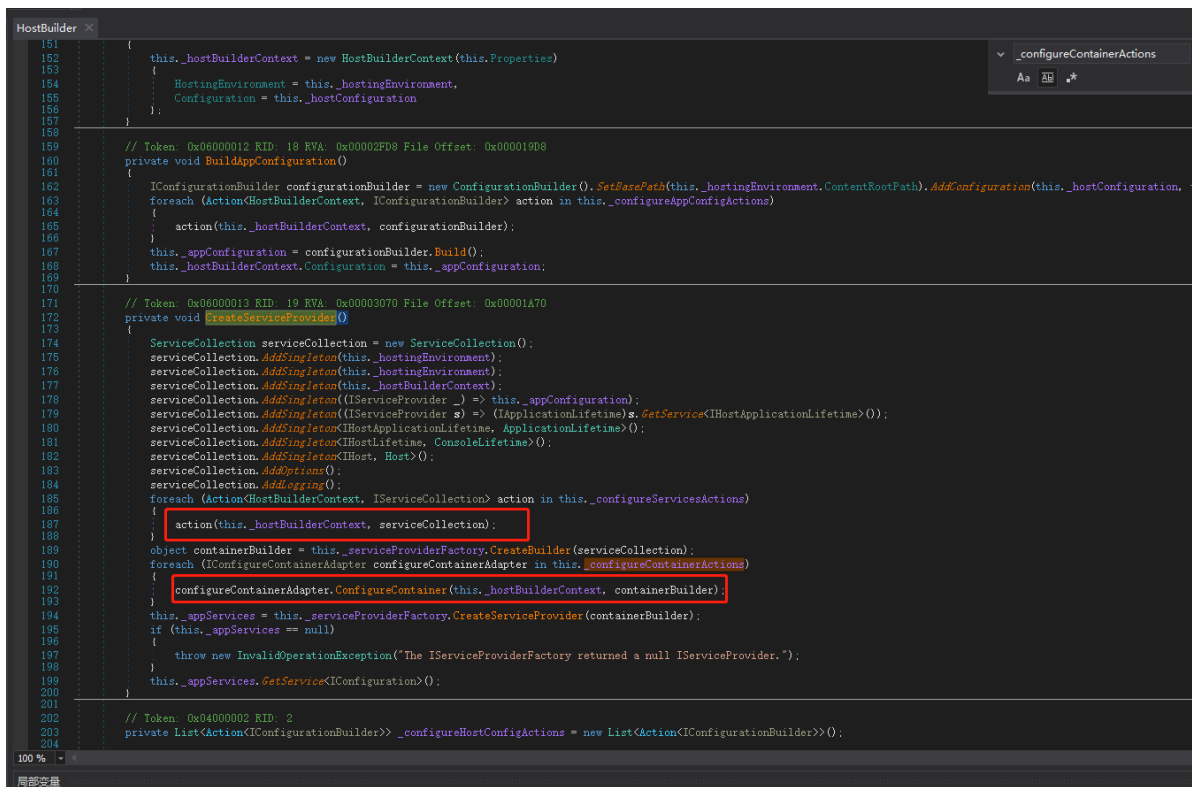
187 {
188     action(this._hostBuilderContext, serviceCollection);
189     object containerBuilder = this._serviceProviderFactory.CreateBuilder(serviceCollection);
190     foreach (IConfigureContainerAdapter configureContainerAdapter in this._configureContainerActions)
191     {
192         configureContainerAdapter.ConfigureContainer(this._hostBuilderContext, containerBuilder);
193     }
194     this._appServices = this._serviceProviderFactory.CreateServiceProvider(containerBuilder);
195     if (this._appServices == null)
196     {
197         throw new InvalidOperationException("The IServiceProviderFactory returned a null IServiceProvider.");
198     }
199     this._appServices.GetService<IConfiguration>();
200 }
201
202 // Token: 0x04000002 RID: 2
203 private List<Action<IConfigurationBuilder>> _configureHostConfigActions = new List<Action<IConfigurationBuilder>>();
204 // Token: 0x04000003 RID: 3
205 private List<Action<HostBuilderContext, IConfigurationBuilder>> _configureAppConfigActions = new List<Action<HostBuilderContext, IConfigurationBuilder>>();
206 // Token: 0x04000004 RID: 4
207 private List<Action<HostBuilderContext, IServiceCollection>> _configureServicesActions = new List<Action<HostBuilderContext, IServiceCollection>>();
208 // Token: 0x04000005 RID: 5
209 private List<IConfigureContainerAdapter> _configureContainerActions = new List<IConfigureContainerAdapter>();
210
211 // Token: 0x04000006 RID: 6
212 private IServiceFactoryAdapter _serviceProviderFactory = new ServiceFactoryAdapter<IServiceCollection>(new DefaultServiceProviderFactory());
213
214 // Token: 0x04000007 RID: 7
215 private bool _hostBuilt;
216
217 // Token: 0x04000008 RID: 8
218 private IConfiguration _hostConfiguration;
219 // Token: 0x04000009 RID: 9
220 private IConfiguration _appConfiguration;
221
222 // Token: 0x0400000A RID: 10
223 private HostBuilderContext _hostBuilderContext;
224 // Token: 0x0400000B RID: 11
225 private HostingEnvironment _hostingEnvironment;
226
227 // Token: 0x0400000C RID: 12
228 private IServiceProvider _appServices;
229
230 }

```

四、紧接着调用主机的Build()方法将注册的委托都执行一遍,初始化Startup类型, 并调用Startup的ConfigureServices方法

```
HostBuilder X
91 public IHost Build()
92 {
93     if (this._hostBuilt)
94     {
95         throw new InvalidOperationException("Build can only be called once.");
96     }
97     this._hostBuilt = true;
98     this.BuildHostConfiguration();
99     this.CreateHostingEnvironment();
100     this.CreateHostBuilderContext();
101     this.BuildAppConfiguration();
102     this.CreateServiceProvider();
103     return this._appServices.GetRequiredService<IHost>();
104 }
105
106 // Token: 0x0600000E RID: 14 RVA: 0x00002E60 File Offset: 0x00001860
107 private void BuildHostConfiguration()
108 {
109     IConfigurationBuilder configurationBuilder = new ConfigurationBuilder().AddInMemoryCollection();
110     foreach (Action<IConfigurationBuilder> action in this._configureHostConfigActions)
111     {
112         action(configurationBuilder);
113     }
114     this._hostConfiguration = configurationBuilder.Build();
115 }
116
117 // Token: 0x0600000F RID: 15 RVA: 0x00002ECC File Offset: 0x000018CC
118 private void CreateHostingEnvironment()
119 {
120     this._hostingEnvironment = new HostingEnvironment
121     {
122         ApplicationName = this._hostConfiguration[HostDefaults.ApplicationKey],
123         EnvironmentName = (this._hostConfiguration[HostDefaults.EnvironmentKey] ?? Environments.Production),
124         ContentRootPath = this.ResolveContentRootPath(this._hostConfiguration[HostDefaults.ContentRootKey], AppContext.BaseDirectory)
125     };
126     if (string.IsNullOrEmpty(this._hostingEnvironment.ApplicationName))
127     {
128         HostingEnvironment hostingEnvironment = this._hostingEnvironment;
129         Assembly entryAssembly = Assembly.GetEntryAssembly();
130         hostingEnvironment.ApplicationName = ((entryAssembly != null) ? entryAssembly.GetName().Name : null);
131     }
132     this._hostingEnvironment.ContentRootFileProvider = new PhysicalFileProvider(this._hostingEnvironment.ContentRootPath);
133 }
134
135 // Token: 0x06000010 RID: 16 RVA: 0x00002F88 File Offset: 0x00001988
136 private string ResolveContentRootPath(string contentRootPath, string basePath)
137 {
138     if (string.IsNullOrEmpty(contentRootPath))
139     {
140         return basePath;
141     }
142     if (Path.IsPathRooted(contentRootPath))
143     {
144         return contentRootPath;
145     }
146     return Path.Combine(Path.GetFullPath(basePath), contentRootPath);
147 }
148
149 // Token: 0x06000011 RID: 17 RVA: 0x00002FAA File Offset: 0x000019AA
150 private void CreateHostBuilderContext()
151 {
152     this._hostBuilderContext = new HostBuilderContext(this.Properties)
153     {
154         HostingEnvironment = this._hostingEnvironment,
155         Configuration = this._hostConfiguration
156     };
157 }
158
159 // Token: 0x06000012 RID: 18 RVA: 0x00002FD8 File Offset: 0x000019D8
160 private void BuildAppConfiguration()
161 {
162     IConfigurationBuilder configurationBuilder = new ConfigurationBuilder().SetBasePath(this._hostingEnvironment.ContentRootPath).AddConfiguration(
163     foreach (Action<HostBuilderContext, IConfigurationBuilder> action in this._configureAppConfigActions)
164     {
165         action(this._hostBuilderContext, configurationBuilder);
166     }
167     this._appConfiguration = configurationBuilder.Build();
168     this._hostBuilderContext.Configuration = this._appConfiguration;
169 }
170
171 // Token: 0x06000013 RID: 19 RVA: 0x00003070 File Offset: 0x00001A70
```

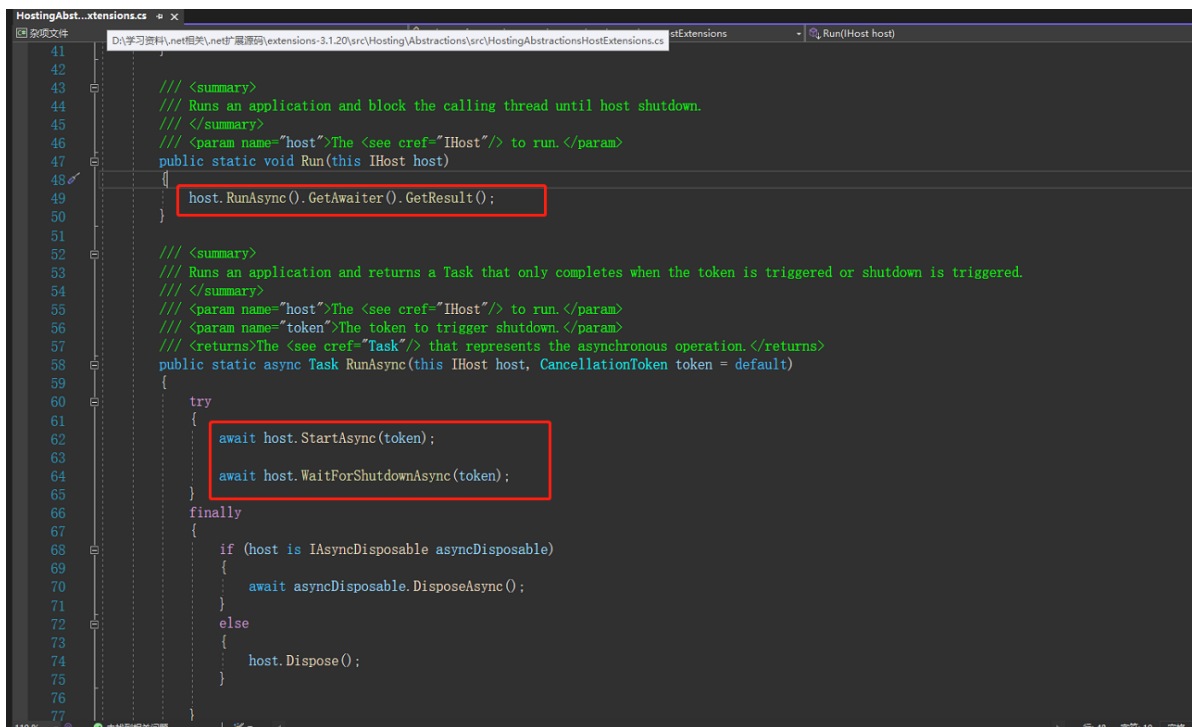
```
HostBuilder X
136 private string ResolveContentRootPath(string contentRootPath, string basePath)
137 {
138     if (string.IsNullOrEmpty(contentRootPath))
139     {
140         return basePath;
141     }
142     if (Path.IsPathRooted(contentRootPath))
143     {
144         return contentRootPath;
145     }
146     return Path.Combine(Path.GetFullPath(basePath), contentRootPath);
147 }
148
149 // Token: 0x06000011 RID: 17 RVA: 0x00002FAA File Offset: 0x000019AA
150 private void CreateHostBuilderContext()
151 {
152     this._hostBuilderContext = new HostBuilderContext(this.Properties)
153     {
154         HostingEnvironment = this._hostingEnvironment,
155         Configuration = this._hostConfiguration
156     };
157 }
158
159 // Token: 0x06000012 RID: 18 RVA: 0x00002FD8 File Offset: 0x000019D8
160 private void BuildAppConfiguration()
161 {
162     IConfigurationBuilder configurationBuilder = new ConfigurationBuilder().SetBasePath(this._hostingEnvironment.ContentRootPath).AddConfiguration(
163     foreach (Action<HostBuilderContext, IConfigurationBuilder> action in this._configureAppConfigActions)
164     {
165         action(this._hostBuilderContext, configurationBuilder);
166     }
167     this._appConfiguration = configurationBuilder.Build();
168     this._hostBuilderContext.Configuration = this._appConfiguration;
169 }
170
171 // Token: 0x06000013 RID: 19 RVA: 0x00003070 File Offset: 0x00001A70
```



## 五、执行

Microsoft.Extensions.Hosting.Abstractions.dll中

Microsoft.Extensions.Hosting.HostingAbstractionsHostExtensions的Run方法运行应用并阻止调用线程，直到关闭主机





```

DataProtectionHostedService
4 using System.Threading.Tasks;
5 using Microsoft.AspNetCore.DataProtection.KeyManagement.Internal;
6 using Microsoft.Extensions.Hosting;
7 using Microsoft.Extensions.Logging;
8 using Microsoft.Extensions.Logging.Abstractions;
9
10 namespace Microsoft.AspNetCore.DataProtection.Internal
11 {
12     // Token: 0x0200005C RID: 92
13     [Nullable(0)]
14     [NullableContext(1)]
15     internal class DataProtectionHostedService : IHostedService
16     {
17         // Token: 0x060001D2 RID: 466 RVA: 0x0000ACAD File Offset: 0x00009AAD
18         public DataProtectionHostedService(IKeyRingProvider keyRingProvider) : this(keyRingProvider, NullLoggerFactory.Instance)
19         {
20         }
21
22         // Token: 0x060001D3 RID: 467 RVA: 0x0000ACBB File Offset: 0x00009ABB
23         public DataProtectionHostedService(IKeyRingProvider keyRingProvider, ILoggerFactory loggerFactory)
24         {
25             this._keyRingProvider = keyRingProvider;
26             this._logger = loggerFactory.CreateLogger<DataProtectionHostedService>();
27         }
28
29         // Token: 0x060001D4 RID: 468 RVA: 0x0000ACD8 File Offset: 0x00009AD8
30         public Task StartAsync(CancellationToken token)
31         {
32             try
33             {
34                 IKeyRing currentKeyRing = this._keyRingProvider.GetCurrentKeyRing();
35                 this._logger.KeyRingWasLoadedOnStartup(currentKeyRing.DefaultKeyId);
36             }
37             catch (Exception innerException)
38             {
39                 this._logger.KeyRingFailedToLoadOnStartup(innerException);
40             }
41             return Task.CompletedTask;
42         }
43
44         // Token: 0x060001D5 RID: 469 RVA: 0x0000AD28 File Offset: 0x00009B28
45         public Task StopAsync(CancellationToken token)
46         {
47             return Task.CompletedTask;
48         }
49
50         // Token: 0x040000D0 RID: 208
51         private readonly IKeyRingProvider _keyRingProvider;
52
53         // Token: 0x040000D1 RID: 209
54         private readonly ILogger<DataProtectionHostedService> _logger;
55     }
56

```

```

Startup.cs GenericWebHost...dServices.cs
D:\学习资料\.net\src\aspnetcore-5.0.11\src\Hosting\src\GenericHost\GenericWebHostedService.cs StartAsync(CancellationToken cancellationToken)
Action<IApplicationBuilder> configure = Options.ConfigureApplication;
87
88
89 if (configure == null)
90 {
91     throw new InvalidOperationException($"No application configured. Please specify an application via
92     IWebHostBuilder.UseStartup, IWebHostBuilder.Configure, or specifying the startup assembly via {nameof
93     (WebHostDefaults.StartupAssemblyKey)} in the web host configuration.");
94 }
95
96 var builder = ApplicationBuilderFactory.CreateBuilder(Server.Features); 创建ApplicationBuilder实例
97
98 foreach (var filter in StartupFilters.Reverse())
99 {
100     configure = filter.Configure(configure);
101 }
102
103 configure(builder); 调用Startup类的Configure方法
104
105 // Build the request pipeline
106 application = builder.Build(); 调用ApplicationBuilder的Build()方法执行中间件
107
108 catch (Exception ex)
109 {
110     Logger.ApplicationError(ex);
111
112     if (!Options.WebHostOptions.CaptureStartupErrors)
113     {
114         throw;
115     }
116
117     application = BuildErrorPageApplication(ex);
118 }
119
120 var httpApplication = new HostingApplication(application, Logger, DiagnosticListener, HttpContextFactory);
121
122 await Server.StartAsync(httpApplication, cancellationToken);
123

```

```
ApplicationBuilder
87
88 // Token: 0x0600003A RID: 58 RVA: 0x00048ED File Offset: 0x0002EED
89 private void SetProperty<Nullable(2) T>(string key, T value)
90 {
91     this.Properties[key] = value;
92 }
93
94 // Token: 0x0600003B RID: 59 RVA: 0x0004901 File Offset: 0x0002F01
95 public IApplicationBuilder Use(Func<RequestDelegate, RequestDelegate> middleware)
96 {
97     this._components.Add(middleware);
98     return this;
99 }
100
101 // Token: 0x0600003C RID: 60 RVA: 0x0004910 File Offset: 0x0002F10
102 public IApplicationBuilder New()
103 {
104     return new ApplicationBuilder(this);
105 }
106
107 // Token: 0x0600003D RID: 61 RVA: 0x0004918 File Offset: 0x0002F18
108 public RequestDelegate Build()
109 {
110     RequestDelegate requestDelegate = delegate(HttpContext context)
111     {
112         Endpoint endpoint = context.GetEndpoint();
113         if (((endpoint != null) ? endpoint.RequestDelegate : null) != null)
114         {
115             throw new InvalidOperationException("The request reached the end of the pipeline without executing the endpoint. '" + endpoint.DisplayName + "'. Please register the EndpointMiddleware using 'ApplicationBuilder.UseEndpoints(...)' if using routing.");
116         }
117         context.Response.StatusCode = 404;
118         return Task.CompletedTask;
119     };
120     foreach (Func<RequestDelegate, RequestDelegate> func in this._components.Reverse<Func<RequestDelegate, RequestDelegate>>())
121     {
122         requestDelegate = func(requestDelegate);
123     }
124     return requestDelegate;
125 }
126
127 // Token: 0x04000009 RID: 9
128 private const string ServerFeaturesKey = "server.Features";
129
130 // Token: 0x0400000A RID: 10
131 private const string ApplicationServicesKey = "application.Services";
132
133 // Token: 0x0400000B RID: 11
134 private readonly IList<Func<RequestDelegate, RequestDelegate>> _components = new List<Func<RequestDelegate, RequestDelegate>>();
135
136 }
```