

ASP. Net core logging

Integration with Azure App Service and Azure Monitor (AI included)

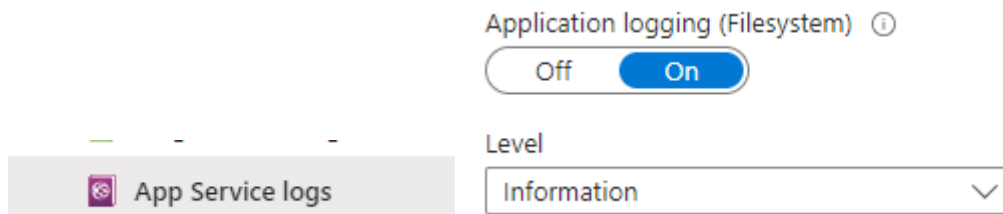
1. Scenario 1: ASP.Net core logger provider and App Service Logs feature

- Use built-in log provider of ASP.Net core, obtain ILogger to write logs.

```
[HttpGet("Topics")]
0 references | GiangHM, 69 days ago | 1 author, 1 change
public async Task<IEnumerable<TopicResponseModel>> GetAll()
{
    _logger.LogInformation("Get all topics - logging scenario 1");
    var entities = await _topicTableService.GetAllData();
    var res = _mapper.Map<IEnumerable<TopicEntity>, IEnumerable<TopicResponseModel>>(entities);
    return res;
}
```

- Activate "App Service logs" => Application logging (file system)

Note: This feature will turn itself off after 12h.



- Observation: Check log file in folder: ..\LogFiles\Application

diagnostics-20240923.txt	9/23/2024, 1:51:18 PM	30 KB
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I can see my log message.

```
2024-09-23 06:51:16.950 +00:00 [Information] ArticleManagementAPI.Controllers.TopicController => SpanId:1b2905665bd7c511, TraceId:768b3513c5ff5387c2
84710c7967bb => ArticleManagementAPI.Controllers.TopicController.GetAll (ArticleManagementAPI):
Get all topics - logging scenario 1
```

Side note: We couldn't find logs in "Log analytics workspace" by using Kusto queries.

```
1 AppServiceAppLogs
2 | where ResultDescription contains "Get all topics - logging scenario 1"
3 | order by TimeGenerated desc
4
```

Results Chart

i No results found from the last hour
Try [selecting another time range](#)

2. Scenario 2: Use “Diagnostic settings”

- To send logs to “Log Analytic Workspace”
- Setting: “Add a diagnostic setting”

The screenshot shows the 'Diagnostic settings' configuration page in the Azure portal. The left sidebar has 'Diagnostic settings' highlighted. The main area shows 'No diagnostic settings defined' and a '+ Add diagnostic setting' button. Below this is a list of categories with checkboxes for various logs: HTTP logs, App Service Console Logs, App Service Application Logs, Access Audit Logs, IP Security Audit logs, App Service Platform logs, App Service Authentication logs (preview), and AllMetrics. The 'Destination details' section shows 'Send to Log Analytics workspace' checked, with a 'Subscription' dropdown and a 'Log Analytics workspace' dropdown. Other options like 'Archive to a storage account', 'Stream to an event hub', and 'Send to partner solution' are unchecked.

- **Observation:** I can find my message by using Kusto query in table “AppServiceAppLogs”

```
1 AppServiceAppLogs
2 | where ResultDescription contains "logging scenario 1"
3 | order by TimeGenerated desc
4
```

Results

Chart

TimeGenerated [UTC]	Level	ResultDescription	CustomLevel	Source	Message
> 9/23/2024, 7:16:52.708 AM	Information	Create new topic - logging scenario 1	Information	Microsoft.Diagnostics.Tracing.E...	Create new topic - logging scenario 1
> 9/23/2024, 7:11:23.725 AM	Information	Get all topics - logging scenario 1	Information	Microsoft.Diagnostics.Tracing.E...	Get all topics - logging scenario 1

Side notes:

- + It doesn't depend on the setting of “App Service Logs.”
- + The log level is applied to filter logs send to “Log analytics workspace.”

BE storage is “Log analytics workspace” which can cause some costs.

3. Scenario 2: Use “AzureAppServices” provider

- By adding package: “Microsoft.Extensions.Logging.AzureAppServices” -> This package is Microsoft package but not shipped with shared framework
- **Use to write logs to file system or blob storage because ASP.Net core log provider doesn't support to write log to file.**
- There are some options to config the behaviour.
- Code:

```
// Use Microsoft.Extensions.Logging.AzureAppServices provider
builder.Logging.AddAzureWebAppDiagnostics();
builder.Services.Configure<AzureFileLoggerOptions>(options =>
{
    // TODO: Should have a config setting
    options.FileName = "VICTest-";
    options.FileSizeLimit = 50 * 1024;
    options.RetainedFileCountLimit = 5;
});
builder.Services.Configure<AzureBlobLoggerOptions>(options =>
{
    options.BlobName = "log.txt";
});
```

Observation:

... / Application + | 3 items | 🏠 🌐 📁

	Name	Modified	Size
📄	diagnostics-20240920.txt	9/20/2024, 4:57:50 PM	25 KB
📄	diagnostics-20240923.txt	9/23/2024, 2:11:24 PM	52 KB
📄	VICTest-20240923.txt	9/23/2024, 2:39:41 PM	7 KB

2024-09-23 07:39:40.292 +00:00 [Information] ArticleManagementAPI.Controllers.TopicController => SpanId: 84710c7967bb => ArticleManagementAPI.Controllers.TopicController.GetAll (ArticleManagementAPI):
Get all topics - logging scenario 3

4. Scenario 4: Use "ApplicationInsights" with ILogger

- To send logs to Application Insight
- We can query logs from "AI" (table: Traces)
- Or query logs from "Log Analytics Workspace" (Table: AppTraces)
- Code

```
// Use package Microsoft.Extensions.Logging.ApplicationInsights provider
builder.Logging.AddApplicationInsights(
    configureTelemetryConfiguration: (config) =>
    {
        config.ConnectionString = builder.Configuration.GetConnectionString("");
        configureApplicationInsightsLoggerOptions: (options) => { }
    });

builder.Logging.AddFilter<ApplicationInsightsLoggerProvider>("TopicController", LogLevel.Trace);
```

- Observation

```
1 traces
2 | where message contains "Get all topics "
3
```

Results		Chart		
timestamp [UTC] ↑↓	message	severityLevel	itemType	
9/23/2024, 8:03:14.460 ...	Get all topics - logging scenario 3	1	trace	
timestamp [UTC]	2024-09-23T08:03:14.4601193Z			
message	Get all topics - logging scenario 3			
severityLevel	1			
itemType	trace			
> customDimensions	{"ActionId":"1027c4bb-b9a3-4670-bf2f-d61dd5eaa819","RequestId":"40f...			

5. Scenario 5: Use "Application Insight" SDK

- Fully support helpful features: Failures, Dependencies, Requests, Traces, Metrics...
- There are plenty of telemetry modules to collect the data.
- There is also a way to option for our necessities.
- Also integrate with ILogger.
- **Note:** Must config LogLevel as you want -> Since the default log level is "Warning"
- **BE storage is "Log analytics workspace" which can cause some costs.**