



illion Decisioning Logging Guide

Version 1.3, September 2019

Private and Confidential

The content of this document is copyright and contains confidential information which is the property of illion Software Solutions. No part of this document may be copied, reproduced, transmitted, stored in a retrieval system or divulged to any other party without prior written permission of illion Software Solutions.

© illion Pty Ltd



Contents

1	Document Purpose	3
1.1	Rebrand of Inteflow to illion Decisioning	3
2	NLog vs Previous Logging	3
2.1	Logging Format	3
	Old Format	3
	New Format.....	3
3	illion Decisioning Logging Settings.....	4
3.1	Common Settings.....	4
	Logging_Cleanup	4
3.2	Engine Settings	4
	Logging_Path	5
	Logging_Company.....	5
	Logging_File.....	5
	Logging_Debug	5
	Logging_Rule	5
	Logging_Item.....	5
	Logging_LinkedXML	5
	Logging_ICBS	5
	Logging_Calculator	5
	Debug_SQL	6
3.3	Integate Settings.....	6
	LogLevel	6
	Default Logging Directory	6
3.4	Inteport Settings.....	7
	LogLevel	7
	Default Logging Directory	7
4	NLog Configuration	7
4.1	Default Configuration	7
4.2	Configuration Options.....	9
	Target.....	9
	Rule	9
5	Appendix A – Document History	10



1 Document Purpose

This document provides information around the logging settings in illion Decisioning, and the introduction of NLog in illion Decisioning (Inteflow) version 5.1.0.1.

The content of this document assumes existing knowledge of Inteflow system configuration files and a general understanding of logging settings.

1.1 Rebrand of Inteflow to illion Decisioning

We have changed the Inteflow brand to illion Decisioning. The rebranding transition includes a refresh of the corporate branding in documentation and online, as well as within the user interface of the product. However, some technical aspects of illion Decisioning will still refer to Inteflow.

2 NLog vs Previous Logging

With the introduction of NLog in version 5.1.0.1, illion Decisioning's default logging looks a little different. Following is a comparison of the logging.

2.1 Logging Format

The previous logging format was fixed. NLog allows users to configure the logging format. Below are examples of new vs old, using the default configured format.

Please Note: the logging below has the 'Logging_Cleanup' setting in turned on in illion Decisioning. This setting provides a cleaner display of the logs. Refer to section 3.1 Common Settings for further information.

Old Format

Following is a fictional engine log from prior to version 5.1.0:

```
12-10-2018 @ 9:28:04.975 Thread:6 Informational , Information message...
12-10-2018 @ 10:00:28.270 Thread:127 Debugging, Debugging message...
12-10-2018 @ 13:70:18.163 Thread:2 Warning, Warning message...
12-10-2018 @ 14:07:14.193 Thread:54 Fatal error, [Company: COMPANYID] [Code:
ERRORCODE] Error message...
12-10-2018 @ 14:07:14.224 Thread:54 Supplemental, [Company: COMPANYID]
<inteflow>...</inteflow>
```

New Format

The log below shows the same logging after version 5.1.0:

```
2018-10-12 09:28:04.9756|Thread: 6| INFO| Information message...
2018-10-12 10:00:28.2704|Thread:127|DEBUG| Debugging Message...
2018-10-12 13:70:18.1635|Thread: 2| WARN| Warning Message...
2018-10-12 14:07:14.1937|Thread: 54|ERROR|[Company: COMPANYID] [Code: ERRORCODE]
Error message...
2018-10-12 14:07:14.2243|Thread: 54| INFO|[Company: COMPANYID]
<inteflow>...</inteflow>
```

Further information about NLog configuration can be found in section 4 - NLog Configuration.



3 illion Decisioning Logging Settings

Logging settings are initially set within illion Decisioning. illion Decisioning's logging settings determine what logs are sent to NLog.

For example, if illion Decisioning is configured to only log errors, and NLog is set to log everything, only errors would be logged out by NLog.

3.1 Common Settings

Logging settings covered in this section are common across all illion Decisioning system components (ie; Engine, Integrate & Inteport) and can be turned on/off within the respective configuration file. The following list displays the config file name for each illion Decisioning system component:

- Engine: engine.exe.config
- Integrate: web.config
- Inteport: web.config

The following settings can be found within the 'appSettings' section of each configuration file.

```
<add key="Logging_Cleanup" value="0"/>
```

Logging_Cleanup

By default the log file provides information on a number of lines. When turned on, this setting will remove all line breaks from the log entry before logging.

3.2 Engine Settings

The Engine allows for different types of logging. The following settings can be turned on/off via the Engine configuration file (engine.exe.config).

The settings below can be found within the 'appSettings' section of the engine config file.

```
<add key="Logging_Company" value="1" />
<add key="Logging_Path" value="C:\Program Files\Decision Intellect\Inteflow
Engine\Logs"/>
<add key="Logging_File" value="1"/>
<add key="Logging_Debug" value="0"/>
<add key="Logging_Rule" value="0"/>
<add key="Logging_Item" value="0"/>
<add key="Logging_LinkedXML" value="0"/>
<add key="Logging_ICBS" value="0"/>
<add key="Logging_Calculator" value="0"/>
<add key="Debug_SQL" value="0"/>
```



Following is a description of the above settings:

Logging_Path

Allows a custom path to be specified for logging. If setting is not provided, the default location will be used (*Engine base directory*).

Logging_Company

If turned on, log files will be split up where the log file relates to a specific company.

- Anything that cannot be attributed to a company will still log to the default log location (see *Logging_Path*)
- Anything that is attributed to a company will be logged to a file in the following sub-folder:
companylogs\COMPANY_ID

Logging_File

Turns on logging of application processing information to the log file.

The log file name is stored in the following format: yyyy-mm-dd.log

Logging_Debug

Applicable only when 'Logging_File' setting is turned on.

Turns on additional logging for all processes (e.g. bureau transformations, etc.) and provides significantly more information.

Logging_Rule

Applicable only when 'Logging_File' setting is turned on.

Turns on logging of rule processing to the log file.

Logging_Item

Applicable only when 'Logging_File' setting is turned on.

Turns on logging of item calculations to the log file.

Logging_LinkedXML

Applicable only when 'Logging_File' setting is turned on.

Logs out the linked xml data as part of the application xml to the log file.

Logging_ICBS

Applicable only when 'Logging_File' setting is turned on.

Provides additional logging for the ICBS object to the log file.

Logging_Calculator

Applicable only when 'Logging_File' setting is turned on.

Provides additional logging for the Loan Calculator object to the log file.



Debug_SQL

Applicable only when 'Logging_File' setting is turned on.

Logs out all SQL queries to the log file.

3.3 Integrate Settings

Integrate has limited logging settings. While most logging is switched 'on' by default, some logging is able to be configured. The logging settings that can be configured can be turned on/off via the Integrate web.config file.

The settings below can be found within the 'appSettings' section of the Integrate web.config file:

```
<add key="LogLevel" value="0"/>
```

LogLevel

LogLevel is configured as a numeric value and (where used) determines what level of logging occurs.

Please Note: For logging that uses this configuration, the default logging path is the "Logs" directory underneath the base directory (e.g. *Integrate\Logs*) unless overridden by NLog configuration.

0=Off

1=Error

2=Warning

3=DebugLevel1

4=DebugLevel2

5=DebugLevel3

Default Logging Directory

The default logging path for Integrate is the base directory (e.g. *Integrate*) unless overridden by NLog Configuration.



3.4 Inteport Settings

Inteport has limited logging settings. While most logging is switched 'on' by default, some logging is able to be configured. The logging settings that can be configured can be turned on/off via the Inteport web.config file.

The settings below can be found within the "appSettings" section of the Inteport web.config file:

```
<add key="LogLevel" value="1"/>
```

LogLevel

This is configured as a numeric value and (where used) determines what level of logging occurs.

0=Off

1=Info

2=Warning

3=Error

Default Logging Directory

The default logging path is the base directory (e.g. *Inteport*) unless overridden by NLog configuration.

4 NLog Configuration

The NLog configuration / settings determine what WILL BE logged. The logging setting must be turned on within illion Decisioning configuration files for NLog to provide the log.

For example, if illion Decisioning is configured for debug logging but NLog is set to INFO, then only errors, warning and info would be logged out (not debugging).

Please Note: By default, NLog is configured to log out Errors only. You may need to change the NLog configuration to align with the expected level of logging.

4.1 Default Configuration

Following is the default NLog configuration, found in the 'NLog.config' file deployed in the base directory of all three illion Decisioning components (Engine, Integrate and Inteport). Each configuration is independent.

NLog.config content

```
<?xml version="1.0" encoding="utf-8" ?>
<NLog xmlns="http://www.NLog-project.org/schemas/NLog.xsd"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xsi:schemaLocation="http://www.NLog-project.org/schemas/NLog.xsd
NLog.xsd"
      autoReload="true"
      throwExceptions="false"
      internalLogLevel="Off" internalLogFile="c:\temp\NLog-internal.log">

  <!-- optional, add some variables
  https://github.com/NLog/NLog/wiki/Configuration-file#variables
  -->
  <variable name="myvar" value="myvalue"/>

  <!--
  See https://github.com/NLog/NLog/wiki/Configuration-file
```



```
for information on customizing logging rules and outputs.
-->
<targets>
  <!-- =====Logging Format===== -->
  <!--File name can be set to a custom location and filename Example:
fileName="D:\Temp\Log_${date:format=yyyy-MM-dd}.log" -->
  <target xsi:type="File" name="logfile" fileName=""
layout="${longdate}|Thread:${pad:padding=3:inner=${threadid}}|${pad:padding=5:inner=${level:uppercase=true}}|${all-event-properties:format=\[[key]\:[value]\]:separator=} ${message}" />

  <!--
  add your targets here
  See https://github.com/NLog/NLog/wiki/Targets for possible targets.
  See https://github.com/NLog/NLog/wiki/Layout-Renderers for the possible
  layout renderers.
  -->

  <!--
  Write events to a file with the date in the filename.
  <target xsi:type="File" name="f"
fileName="${basedir}/logs/${shortdate}.log"
      layout="${longdate} ${uppercase:${level}} ${message}" />
  -->
</targets>

<rules>
  <!-- add your logging rules here -->
  <!--=====N Log Levels=====
  Error - For example application crashes / exceptions.
  Warn - Incorrect behavior but the application can continue
  Info - Normal behavior like mail sent, user updated profile etc.
  Debug - Executed queries, user authenticated, session expired-->
  <logger name="*" minlevel="Error" writeTo="logfile" />

</rules>
</NLog>
```




4.2 Configuration Options

NLog offers a wide variety of configuration options which can be found at:

<https://nlog-project.org/config/>.

The following information covers some of the specific configuration options for illion Decisioning.

Target

Multiple 'targets' can be configured, however, illion Decisioning expects a file target to be configured via the 'Logging_Path' setting in the Engine config file. The default file target 'logfile' will output logs.

name	Each target is given a name so it can be referred to in other parts of the configuration
layout	This is the layout of the log line to be written
fileName	can be used to override the location of the log file. Leaving this blank will allow illion Decisioning to continue to manage the log file location
keepFileOpen	This indicates whether to keep log file open instead of opening and closing it on each logging event. Changing this property to true will improve performance substantially, but will also keep the file handle locked until a new log file is created automatically. We recommend setting this to "true"
openFileCacheTimeout	Maximum number of seconds that files are kept open. If this number is negative the files are not automatically closed after a period of inactivity. Integer. Default: -1. We recommend setting this to "10"

Rule

Rules are used to define what type(s) of logs will go to each target.

Name	Each target is given a name so it can be referred to in other parts of the configuration
minlevel	<p>The minimum level to log with this rule. For example, setting to 'Error' will only log errors, but setting to 'Debug' will log all four types:</p> <ul style="list-style-type: none">• Debug• Info• Warn• Error
writeTo	The name of the 'target' to write this log to



5 Appendix A – Document History

Version History

Version	Date	Name	Description
1.0	Oct 2018	Fiona Maher	Established document
1.1	Nov 2018	Rory Dwyer	Added new NLog configuration options
1.2	Feb 2019	Fiona Maher	Rebranded Inteflow to illion Decisioning
1.3	Sep 2019	Ben Sawyer	Updated to remove obsolete logging settings