



endace
a c c e l e r a t e d

dagcat-setup Software Guide

EDM04-27



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The `dagcat-setup` tool is used to configure the CAT and control packet steering. The Color Association Table (CAT) is used to decouple the classification process from the steering process. The CAT allows complete re-mapping of the color embedded into each ERF record (which contains filtering and hashing result). This allows flexibility on how packets are steered to different memory holes. `dagcat-setup` allows packets to be steered, duplicated or dropped as a result of this re-mapping.

CAT is a lookup table which is organized into two banks, only one is active. `dagcat-setup` loads the new configuration in the inactive bank and then activates that bank.

The `dagcat-setup` tool is used to configure the DAG card:

- in one of several pre-defined modes, or
- by specifying a rule file used to load customized (per packet color) settings.

`dagconfig` attributes can be used to get/set CAT attributes.

Before you begin

Note: Before you read this Software Guide please read *EDM04-26 Enhanced Packet Processing* for the back ground details.

Requirements

The requirements for using the `dagcat-setup` are:

- A DAG card Enhanced Packet Processing features.
- DAG software (3.3.1 or greater).
Customers with a current support contract can download this from the secure Endace website: <https://www.endace.com/support>.

Refer to *EDM04-01 DAG Software Installation Guide* for details on how to install and compile the DAG software.

dagcat-setup options

The following table explains the `dagcat-setup` command line options.

Short Option	Long Option	Explanation
-h	--help	Help menu
-V	--version	Display version information.
-v	--verbose	Increase verbosity.
-d	--device	DAG card to use. default: /dev/dag0.
-f	--rules	Name of the file containing the rules to load
-m	--mode	Mode in which CAT should be configured in. Supported modes are: dup3, z4, z8, dup2, z3, z2, z3monitor. For further details, see Pre-defined modes (page 4)s.
-q	--query	Queries the maximum values allowed for different parameters.

dagconfig attributes - HAT

The following `dagconfig` attributes are applicable to the HAT (Hash Association Table) part of Enhanced Packet Processing. Using the `dagconfig -S` and `-G` options you can set and get values of the listed attributes.

Option	Description
hash_encoding_from_ipf	Enables (on) or disables (off) hash encoding in the DAG card.
n_tuple_select	Sets the hashing tuple value (2, 3, 4, 5 or 6).
hat_range	Sets the HAT ranges for the DAG card. This determines how the hash output are distributed over to the 16 banks. The ranges is 0 to 1000. Note: You may need to tune these ranges to ensure even distribution. For example : <code>dagconfig -d0 -S hat_range=0-90:90-160:160-200:200-250:250-310:310-370:370-430:430-500:500-560:560-620:620-680:680-750:750-810:810-870:870-940:940-1000</code>
shift_colour	Enables (on) the higher 2 bits of color for the hash value. If not set, the user tag's lower two bits are overwritten by the hash value.

For more details about `dagconfig`, see you DAG Card User Guide.

dagconfig attributes - CAT

The following `dagconfig` attributes are applicable to the CAT (Color Association Table) part of Enhanced packet processing. Using the `dagconfig -S` and `-G` options you can set and get values of the listed attributes.

Option	Description
bank_select	Activates a CAT bank without loading a new configuration.
by_pass	Enables (off) or disables (on) the CAT.
interface_overwrite_enable	Enables (on) or disables (off) the use of Port ID.
deliberate_drop_count	Read only. Use with <code>dagconfig -G</code> only. Displays the number of packets dropped at the CAT.

For more details about `dagconfig`, see you DAG Card User Guide.

dagconfig attribute examples

The following examples demonstrate how to initialize and configure the steering function.

This example displays which CAT bank is currently active.

```
dagconfig -d0 -G bank_select
```

This example activates a bank without loading new configuration (0/1 are valid).

```
dagconfig -d0 -S bank_select=1
```

This example disables the CAT.

```
dagconfig -d0 -S by_pass=on
```

This example enables the CAT

```
dagconfig -d0 -S by_pass=off
```

This example enables use of port ID

```
dagconfig -d0 -S interface_overwrite_enable=on
```

This example disables use of port ID

```
dagconfig -d0 -S interface_overwrite_enable=off
```

Tip: For further details, see `dagconfig` [attributes - CAT](#) (page 2).

How to program - pre-defined mode

Type the following commands:

- `dagcat-setup -d0 -m z8`
This configures the DAG card in z8 mode. (where "0" is the device number of the DAG card you wish to capture data from)
- `dagcat-setup -d0 -m dup2`
This configures the DAG card in dup2 mode. (where "0" is the device number of the DAG card you wish to capture data from)

Pre-defined modes

`dagcat-setup` supports the following pre-defined modes:

Mode	Description
<code>dup3</code>	All packets are duplicated to Stream 0, 2, 4.
<code>dup2</code>	All packets are duplicated to Stream 0, 2.
<code>z8</code>	All packets depending on the packets Hash value, the packet is equally balanced across Stream 0, 2, 4, 6, 8, 10, 12, 14.
<code>z3</code>	All packets depending on the packets Hash value, the packet is equally balanced across Stream 0, 2, 4.
<code>z2</code>	All packets depending on the packets Hash value, the packet is equally balanced across Stream 0, 2.
<code>z4</code>	All packets depending on the packets Hash value, the packet is equally balanced across Stream 0, 2, 4, 6.
<code>z3monitor</code>	All packets depending on the packets Hash value, the packet is equally balanced across Stream 0, 2, 4. And every packet to be duplicated to the stream 6.

Note: `z(n)` modes, are load balancing modes. They use the `dagconfig` attribute `hat_range` to determine which stream to allocate a particular packet. For more details on the `dagconfig` attributes, see `dagconfig` [attributes - HAT](#) (page 2).

How to program - customized modes

Type the following command:

```
dagcat-setup -d0 -f cat_1.rule
```

(where "0" is the device number of the DAG card you wish to capture data from)

This configures the CAT as per the rules given in the input files. For details on the syntax of the CAT rules see [Rule file syntax](#) (page 5).

Rule file syntax

Rules are one-line specifications used to describe the color, interface and hash values and the stream(s) to which they are to be mapped. Refer to the following table for the `dagcat-setup` filter keywords.

Notes:

- If two rules have overlapping ranges for any of the parameters, `dagcat-setup` displays an error.
- Unspecified parameters assume 0 to maximum range as the default.
- The `--query` or `-q` options of `dagcat-setup` displays the maximum values allowed for each parameter for the DAG card's given configuration.

dagcat-setup filter keywords

keywords	Description
(not)color [<from>-<to>]	Specifies the <i>color range</i> for the rule. The use of "not" would mean that any values outside the specified range
(not)color <colour_value>	Specifies the <i>color value</i> for the rule (only single value). The use of "not" means that any value other than the given value.
(not)hash [<from>-<to>]	Specifies the <i>hash range</i> for the rule. The use of "not" means that any values outside the specified range
(not)hash <hash_value>	Specifies the <i>hash value</i> for the rule (only single value). The use of "not" means that any value other than the given value.
(not)iface [<from>-<to>]	Specifies the <i>iface range</i> for the rule. The use of "not" means that any values outside the specified range
(not)iface <iface_value>	Specify the <i>iface</i> for the rule. (only single value). The use of "not" means that any value other than the given value.
stream <list>	Specify the <i>destination streams</i> for the rule. Specified as a comma separated list, for example: stream 0,2,4

Rule Examples

The following example maps packets with the following settings to stream 0, 2 and 4 (duplicated):

```
color [0-127] hash[0-8] iface 1 stream 0,2,4
```

- colors 0 to 127,
- hash values 0 to 8 and
- iface 1

The following example maps packets with the following settings to stream 4:

```
not color [128-200] stream 4
```

- colors outside 0 to 127,
- hash values 0 to maximum hash and
- iface 0 to max iface

Use the following to configure the CAT into dup3 mode. All the ranges (color, hash, iface) are assumed to be from minimum to maximum.

```
stream 0,2,4
```

Version History

Version	Date	Reason
1	November 2008	First release.

