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Multipart timeout errors Extension

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1 Introduction

This document describes an ONF extension for OpenFlow version 1.3.X that returns errors for multipart requests and reply taking too long.

2 How it works

Two new error code are defined for timeout of multipart messages.

Multipart request are composed of a sequence of multiple messages from the controller, and the last message has the `OFPMPPF_REQ_MORE` flag set to zero to indicate the end of the sequence. If a switch receives a multipart request message sequence that does not include a message with `OFPMPPF_REQ_MORE` flag set to zero, after a switch defined amount of time greater than 100 milliseconds from the last message, the switch must discard the incomplete multipart request, and may generate a `ONFERR_ET_MPART_REQUEST_TIMEOUT` error message to the controller.

Multipart replies are composed of a sequence of multiple messages from the switch, and the last message has the `OFPMPPF_REPLY_MORE` flag set to zero to indicate the end of the sequence. If a controller receives a multipart reply message sequence that does not include a message with `OFPMPPF_REPLY_MORE` flag set to zero, after a controller defined amount of time greater than 1 second from the last message, the controller must discard the incomplete multipart reply, and may generate a `ONFERR_ET_MPART_REPLY_TIMEOUT` error message to the switch. The controller may retry the failed switch operation as needed as a new multipart request.

3 Multipart timeout Experimenter ID

The Experimenter ID of this extension is:

`ONF_EXPERIMENTER_ID = 0x4F4E4600`

4 Multipart timeout errors

The following errors are defined by this extension:

```
/* Error codes */
enum onf_error_exp_type {
    ONFERR_ET_MPART_REQUEST_TIMEOUT = 2640, /* Timeout during multipart request. */
    ONFERR_ET_MPART_REPLY_TIMEOUT = 2641,  /* Timeout during multipart reply. */
};
```

The error `ONFERR_ET_MPART_REQUEST_TIMEOUT` and `ONFERR_ET_MPART_REPLY_TIMEOUT` use the following structure:

```
/* Message structure for all errors. */
struct onf_error_msg {
    struct ofp_header header;
    uint16_t type;           /* OFPET_EXPERIMENTER. */
    uint16_t exp_type;       /* One of ONFERR_ET_* above. */
    uint32_t experimenter;    /* ONF_EXPERIMENTER_ID. */
    uint8_t data[0];         /* Up to 64 bytes of failed request. */
};
OFP_ASSERT(sizeof(struct onf_error_header) == sizeof(struct ofp_error_experimenter_msg));
```

The `type` field must be set to `OFPET_EXPERIMENTER`.

The `experimenter` field is the Experimenter ID (see 3).

The `data` fields contains a copy of the failed request message, truncated to 64 bytes.

The `exp_type` field is set to `ONFERR_ET_MPART_REQUEST_TIMEOUT` or `ONFERR_ET_MPART_REPLY_TIMEOUT`.