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Output match Extension

Version 0.1

December 23, 2014



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1 Introduction

This document describes an ONF extension for OpenFlow version 1.3.X that match the output port from the action set.

2 How it works

A new OXM match field is defined. This field map to the output port decision of the action set, and enable output port based processing.

The Action Set Output match field `ONFOXM_ET_ACTSET_OUTPUT` can be used to match the forwarding actions embedded in the action set of the packet, and in most cases can be used to match packet based on their output port. If the action set contains an output action and no group action, this field equals the output port from that action. Else, the field equals its initial value, `OFPP_TABLE`.

The match field `ONFOXM_ET_ACTSET_OUTPUT` is a pipeline field, however it should not be included by the switch in the match field of a packet-in message.

3 Output match Experimenter ID

The Experimenter ID of this extension is:

`ONF_EXPERIMENTER_ID = 0x4F4E4600`

4 Output match field

This extension defines the following experimenter oxm types:

```
/* OXM types */
enum onf_oxm_exp_type {
    ONFOXM_ET_ACTSET_OUTPUT = 43, /* Output port from action set Metadata. */
};
```

The OXM fields have the size, prerequisites and masking capability specified in the following table.

Field	Bits	Mask	Pre-requisite	Description
ONFOXM_ET_ACTSET_OUTPUT	32	No	None	Output port from action set Metadata.

Table 1: Output port match fields details.

The ONFOXM_ET_ACTSET_OUTPUT oxm type uses the following action structure :

```

/* Structure for OXM field output match. */
struct onf_oxm_actset_output {
    uint32_t      oxm_header;      /* oxm_class = OFPXM_C_EXPERIMENTER,
                                   oxm_field = ONFOXM_ET_ACTSET_OUTPUT. */
    uint32_t      experimenter;    /* ONF_EXPERIMENTER_ID. */
    uint64_t      output;          /* Output port from action set Metadata. */
};
OFP_ASSERT(sizeof(struct onf_oxm_actset_output) == 16);

```

The `oxm_header` field must be set with class `OFPXM_C_EXPERIMENTER`, field type `ONFOXM_ET_ACTSET_OUTPUT` and the proper OXM length and mask bit.

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

The `output` field is the output port from the action set to match.