



Enabling RFC8138 in brown field

draft-thubert-roll-turnon-rfc8138

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RFC 8138

- RFC 8138
 - Compresses RPL artifacts
 - Fine in a new deployment
 - But no possible coexistence and no migration scenario
- vs. draft-ietf-roll-useofrplinfo
 - In contrast, UseOfRPLInfo sets bit 3 in DODAG Configuration option
 - Indicates switch to RPI 0x23
 - Possible coexistence

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- Adds another flag (T) in the DODAG Configuration Option
 - Avoids a flag day
 - Nodes are migrated to new code with flag off
 - When all nodes support RFC 8138, T flag can be turned on
 - At turn on nodes that do not support RFC 8138 can only be leaves

Operation

A node that supports this specification SHOULD source packets in the compressed form using [RFC8138] if the new T flag is set in the RPL configuration option from its parents. Failure to do so will result in larger packets, yields higher risks of loss and may cause a fragmentation.

A node that supports this specification SHOULD refrain from sourcing packets in the compressed form using [RFC8138] if the T flag is reset.

This behavior can be overridden by a configuration of the node in order to cope with intermediate implementations of the root that support [RFC8138] but not this specification and cannot set the T flag.

Regardless of the setting of the bit, the node MUST forward a packet in the form it was received, compressed or uncompressed.

Transition

The T flag in the DODAG Configuration option prevents Flag Days that might otherwise include truck rolls.

Operators can reflash over the air and then restart the devices asynchronously, keeping the network globally alive.

A network can only be migrated to this specification if all nodes support [RFC8138] or the remaining nodes that do not support [RFC8138] operate as only as leaves.

Failure to observe that rule may cause the remaining node to receives compressed packets that they can neither un-compress nor forward.

Transition

A new MOP or a new OF would satisfy the same need since it forces the legacy nodes to be leaves only

Supposedly capabilities will also enable that but needs new work

If all possible routers are not capable of RFC 8138, zones may be isolated. Draft proposes single and double instance scenarios that enforce leaf behavior

Also need to encapsulate to the parent, same as for an unaware leaf. Needs work.