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| *Title:* | **Layer Dependency Signaling in VPS Extension** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Proposal | | |
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| *Source:* | Sharp, Ericsson | | |

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# Abstract

This document proposes syntax and semantics based on combining of proposals JCTVC-L0138 and JCTVC-L0210 based on feedback during BoG. Additionally semantics to derive NumDirectRefLayers[i] and RefLayerId[i][j] are added.

# Proposal

The proposed Syntax and Semantics and derivation of variables are shown below.

### Syntax

|  |  |
| --- | --- |
| vps\_extension( ) { | Descriptor |
| … |  |
| for( i = 1; i <= vps\_max\_layers\_minus1; i++ ) |  |
| **layer\_dependency\_flag**[ i ] | u(1) |
| for( i = 1; i <= vps\_max\_layers\_minus1; i++ ) { |  |
| // layer dependency |  |
| **~~num\_direct\_ref\_layers~~**~~[ i ]~~ | ~~u(6)~~ |
| ~~for( j = 0; j < num\_direct\_ref\_layers[ i ]; j++ )~~ |  |
| **~~ref\_layer\_id~~**~~[ i ][ j ]~~ | ~~u(6)~~ |
| if( layer\_dependency\_flag[ i ] == 1 ) |  |
| for( j = 0; j < i; j++ ) |  |
| **direct\_dependency\_flag**[ i ][ j ] | u(1) |
| } |  |
| } |  |

### Semantics

**layer\_dependency\_flag**[ i ] equal to 0 indicates that the layer with index i is an independent layer. layer\_dependency\_flag[ i ] equal to 1 indicates that the layer with index i is a dependent layer.

**direct\_dependency\_flag**[ i ][ j ] equal to 0 indicates that the layer with index j is not a direct reference layer for the layer with index i. direct\_dependency\_flag[ i ][ j ] equal to 1 indicates that the layer with index j may be a direct reference layer for the layer with index i. When direct\_dependency\_flag[ i ][ j ] is not present for i and j in the range of 0 to vps\_max\_num\_layers\_minus1, it is inferred to be equal to 0.

### Derivation of NumDirectRefLayers[i], RefLayerId[i][

for( i = 1; i <= vps\_max\_layers\_minus1; i++ )

for( j = 0, NumDirectRefLayers[ i ] = 0; j < i; j++ )

if( direct\_dependency\_flag[ i ][ j ] == 1 )

RefLayerId[ i ][ NumDirectRefLayers[ i ]++ ] = layer\_id\_in\_nuh[ j ]

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