







32-Bit AS-Numbers in German HAMNET

Policy

IP-Koordination Germany assigns as-numbers and ip-networks under the following policies:

-  **POLICY:** Every autonomous system (AS) must include several locations (*Sites*)¹⁾.
-  **POLICY:** Every autonomous system (parent-AS) has been assigned a 16-bit-AS-number.
-  **POLICY:** Every parent-AS has been assigned a block of 100 32-bit as-numbers derived from the last 3 digits of the 16-bit as-number.
-  **POLICY:** Every parent-AS has been assigned different ip-subnetworks for backbone and user/services.
-  **POLICY:** Every site within the parent-AS gets a 32-bit as-number out of the parent-AS pool.
-  **POLICY:** There has to be „site-to-site eBGP routing“ within the parent-AS.

Construction of the German 32-bit-AS-numbers

According to the X.121 Dokument of ITU, Germany has got the four county-codes 262 to 265. According to the proposal for assigning private 32-bit-as-numbers in AMPRNettm, Germany has four blocks of as-number-range, with 100000 32-bit-as-numbers each(*status: 01.01.2020*).

AS-block	Usage
42262XXXyy	HAMNET DL
42263XXXyy	future use
42264XXXyy	future use
42265XXXyy	future use

This is a huge amount of numbers! At the moment in German HAMNET only the first 32-bit-as-block has been used. IP-Coordination Germany assigns 32-bit-numbers in blocks with 100 each (see digits yy=0-99) to the existing parent-AS. Assignment of digits **XXX** follows a principle called „as-based numbers“.

AS-based Numbers

In this variant the last 3 digits of the 16-bit parent-as-number are placed into the first of the five

available digits of the new 32-bit as-block. The last 2 digits of the new 32-bit as-number are freely available for usage at sites within the parent-as. The as-maintainers are free to decide how the 32-bit-numbers are used at the local sites within their parent-as.

Example AS64625

AS64625 the last 3 digits are 625
possible 32-bit-AS-range within AS64625:
42 262 625 yy --> from 4226262500 to 4226262599

advantages:

- no central registry needed for 32-bit as-numbers
- maintainer of parent-as can use them immediately
- no doubles possible in other parent-as
- affiliation to the right 16-bit parent-as is human readable
- no effort in administration when ip-networks are transferred
- AS-numbers remain at their location when ip-networks must be transferred
- mapable to the structure of HamnetDB without any problems

disadvantages:

- „only“ 100 32-bit-as-numbers available for each 16-bit parent-as
- ???

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¹⁾

a single site is no as!

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