

ENUM Information Sheet

What is ENUM?

ENUM (Electronic Number Mapping) is used for the mapping of telephone numbers onto internet addresses. Thus, ENUM is a basic component for linking the internet to the classical telephone system.

ENUM is a shared database which allows the storage of communication addresses for any globally used telephone number. These addresses include VoIP addresses (internet telephone numbers)¹, e-mail addresses, Instant Message addresses, or other telephone numbers that are also used by the user of this phone number.

ENUM is especially significant regarding telephone calls via internet connection using a special end device. If a VoIP connection is available for a telephone number, ENUM enables a cheap connection via internet².

The ENUM database is a special application of the well-proven domain name system (DNS). It converts the domain names (e.g. www.enum.at or www.rtr.at), which are easy to read and to remember, into numerical IP addresses (83.136.32.24 or 192.168.2.5) in an uncomplicated way for the user.

How can I use ENUM?

In order to take advantage of the ENUM technology, both the caller and the callee have to use ENUM.

The callee or the addressee of a message has his telephone number registered in the ENUM database. Subsequently, further communication addresses can be specified for this telephone number. It must be pointed out that these specifications are publicly visible worldwide, as long as the telephone number is known.

The caller or the sender of a message can use ENUM by querying the ENUM database before a call or a different communication method (e.g. e-mail). By querying the ENUM database – using the known telephone number as a search criteria – the caller gets a list of all communication addresses for the relevant telephone number. This process can be performed on a PC using the particular communication application – either explicitly (for example via a special application) or implicitly (i.e. automatically).

¹ The formation of VoIP addresses (internet telephone numbers) is similar to e-mail addresses (e.g. name@provider.at), and they are used for addressing voice communications on the internet.

² This functionality requires the use of ENUM by the caller, i.e. the ENUM database is queried. At the moment, this usually does not apply to calls from the current conventional and mobile telephone networks (except calls to the number area (0)780).

How can I enter my telephone number in the ENUM database?

Entering a telephone number in the ENUM database technically means the delegation of a certain internet domain to a certain user (registrant). This internet domain is referred to as ENUM domain³ and is clearly derivable from the telephone number. This is the precondition for the registrant to specify different communication addresses for this domain.

The registrant contacts a so-called ENUM registrar. These are companies that enter the information, which is the delegation of a certain ENUM domain for a certain registrant, in the central ENUM database. The central ENUM database in Austria is operated by enum.at.

As a matter of course, a delegation can only be made for the person who has the usage rights for the telephone number. This is usually the owner of the relevant telephone number. As soon as a delegation is requested, the existence of a usage authorisation is verified. This process is called validation and can be performed by various methods, e.g. by submitting telephone bills and a photo identification, or by technical procedures like SMS notifications or call-backs.

Why is the validation of usage rights necessary?

The most important requirement for the successful operation of ENUM is to provide the integrity of the telephone numbers. This means that only the person who owns the telephone extension of the relevant number is allowed to specify or change the communication addresses of an ENUM domain. If somebody succeeds in accessing the ENUM domain of another user's telephone number anyway, certain calls, faxes or e-mails could be forwarded to other addresses without the user's authorisation, or configurations could be made which at least prevent the availability of the "proper" user. In fact, this would only affect those calls and e-mails for which the caller or sender queries the ENUM database. But knowing that only some calls are "redirected" makes it very hard for the affected user to identify such cases. Calls from the conventional telephone network are usually not affected.

In order to prevent the unauthorised use of an ENUM domain, the validation process is necessary. As the validation is only a temporary check and the usage rights might change over time, it is necessary to repeat and check the validation regularly. This revalidation is typically performed every 2 – 6 months depending on the used telephone number and the validation method.

In addition, the end customer is responsible to inform his registrar about any changes regarding the usage right for the telephone number of the relevant ENUM domain.

It is basically recommendable to check at the allocation of a telephone number, whether there is an active ENUM delegation for this number. This especially applies to the transfer of a telephone extension or the purchase of a used mobile phone including a SIM card, as the telephone number is assigned to a new user without any transition time.

³ The ENUM domain is the telephone number mirrored and separated by dots behind the domain E164.arpa. e.g.: The ENUM domain for the telephone number +43 1 58058 is: 8.5.0.8.5.1.3.4.E164.arpa

How can I check if there is a delegation for my number?

enum.at offers a simple mask on its homepage (www.enum.at), which allows to check whether there is an existing ENUM delegation for any Austrian telephone number. In case of an existing ENUM delegation the contact data of the current registrar is displayed. If there are doubts regarding the legitimacy of the delegation, the authorised user of a telephone number has the possibility to file a complaint to the specified registrar. For this purpose, enum.at provides a contact form which electronically forwards the inquiry to the registrar and makes a documentation at enum.at.

Whom do I contact in case of problems?

The first contact address for an ENUM domain holder is always the registrar who has initiated this delegation. Unless the proper registrar reacts in due time, the facts regarding the delegation can be requested from enum.at. Afterwards enum.at has the possibility to take proper measures, as soon as it is necessary for maintaining the integrity of the number area and the claims of the complainant have been submitted adequately.

What is special about telephone numbers within the area (0)780?

Calls from the conventional telephone network to the number area (0)780 entail an ENUM database query by the conventional telephone network. This means that in such cases ENUM is used without the caller's effort. As a result, the possibilities and advantages of ENUM become immediately effective for services within (0)780.