

# ENUM privacy considerations

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# Agenda



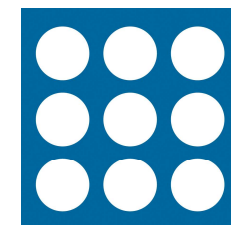
- ENUM in Austria – short overview
- ENUM facts
- ENUM-related privacy fears
- Privacy consideration details
- Conclusion
- Questions?

# ENUM in Austria – enum.at



- **2002 – 2004:** ENUM Trial
- **December 2004:** Launch of world's first commercially available ENUM registry
  - enum.at contracted by regulator (RTR)
- **May 2005:** Launch of ENUM-specific number range +43 780
  - Number allocated together with domain registration
- **Current state:** 8 active registrars, ~10 prospective registrars, ~30 new delegations per day
  - **Lesson learned:** Service development starts only when commercial offers are available :-/

# ENUM facts



enum.at  
net.communications

- ENUM maps **E.164** numbers to **URIs**
- ENUM is typically "**opt-in**"
- ENUM **could** serve as a business card replacement – It's rarely used for this purpose
- ENUM currently serves mainly as **routing mechanism** for VoIP calls – translating phone numbers in SIP URIs

# ENUM related privacy fears



## End users:

- Number disclosure
- Identity / data disclosure
- "Behaviour" disclosure (presence, etc.)
- SPIT / SPIM (is this privacy related?)

## Carriers:

- Market share disclosure

# Number disclosure



- **Fear:**
  - "With ENUM, everyone on the internet will know my phone number"
- **Facts:**
  - ENUM is neither a white pages directory
  - nor the "Google of phone numbers"
  - No way to find out which numbers are used by a certain person
  - But: ENUM entries reveal that a certain number is in use with certain services – be honest about this
  - And, btw. it's opt-in

# Data / Identity disclosure



- **Fear:**
  - "When someone knows my number, he will find out who i am"
- **Facts:**
  - When someone knows a number, he can perform an ENUM lookup
  - ENUM lists what the user wants to be listed
  - Entries may disclose close to nothing, eg.:  
`+4359966366366 -> sip:4359966366366@at43.at`
  - Or, they may disclose pretty much, eg.:  
`+431505641634 -> sip:alexander.mayrhofer@enum.at`  
`+431505641634 -> http://enum.at/calendar-alexm/`
  - It's the user's choice
  - And, again, btw. it's opt-in

# "Behaviour" disclosure



- **Fear:**
  - "ENUM is available to everyone – i don't want my presence / calendar available to everybody"
- **Facts:**
  - ENUM is available to everyone – right.
  - ENUM just identifies resources
  - And those resources may only be available to certain entities, eg.:  
+4315056416 -> <http://www.enum.at/calendar-alexm/>  
Girlfriend, identified by cookie: receives "200 OK"  
Bad guy, not identified: receives "401 Unauthorized"
  - And, again, btw. it's opt-in

# SPIT / SPIM



- **Fear:**
  - "Each day, several sons of some late nigerian president will call me, in addition to those offering to enlarge certain parts of my body"
- **Facts:**
  - SPIT/SPIM is a VoIP-Problem, not a ENUM problem (ENUM just identifies resources)
  - It's up to the protocols those resources provide to prevent malicious calls
    - eg. SIP: Prototypes currently developed
  - ENUM is just one of the ways to find out eg. SIP addresses – hiding an adress is close to impossible
    - Outbound conversations & worms ...
  - And, again, btw. it's opt-in
  - And, (IMHO), SPIT/SPIM is just partly a privacy topic

# Conclusion



- Most privacy fears come from a bad understanding what ENUM is all about
- Therefore, talking about privacy considerations is important
- Make clear that ENUM is just referencing to, not containing data & resources
- Make clear that it's up to the user what she/he puts into ENUM
  
- And, btw., it's opt-in

# Thank you for your attention



## Any questions?

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<http://www.enum.at/>