



Phone Number Validation:

The Ultimate Guide





Whether you need to reach out to leads, customers, employees or supporters, a list of phone numbers is an invaluable asset. But dealing with large lists of numbers can present some challenges. Wrong formatting and extra characters make phone numbers unusable, while mixing phone numbers from different countries/carriers is bad for cost control.

A **valid phone number** is one that is accepted by carriers and routed to a phone subscriber

Phone number validation is the process of checking the validity of phone numbers. A process that promises to improve the quality of a list by fixing formatting issues and appending data points like country, carrier, line type and user consent.

This guide will cover three types of validations. Each provides a different level of validation with different data points. After reading through and considering the pros and cons of each type, you should hopefully be able to choose the right type of validation for your needs.

In a nutshell:

- 1 **Number validation** is fast, comprehensive, costs less, but returns limited data points with limited accuracy.
- 2 **Network validation** is slower, costs more, has less coverage but provides more data, more accurately.
- 3 **User validation** Provides the explicit consent of a user to be reached on a particular phone number. It costs even more and provides no extra data points.

Ready for a deep dive? let's go...



NUMBER VALIDATION

This is the most basic and fastest level of validation, where the goal is to validate that a phone number is approved by a given country's telecom authority. In most countries, not all numbers are in use. In Seychelles for example, number +248 2 510 123 is valid but not +248 5 510 123 even though it has the right number of digits.

This method checks that a phone number falls into one of the national numbering ranges assigned by authorities. A valid number is one that is approved for use by carriers but not necessarily currently in use.

In most countries, telecom authorities will also assign numbers to specific carriers and line types. In France, for example, number +33 6 12 34 56 78 is known to be a mobile number assigned to SFR.

DATA POINTS

By validating a phone number, you can expect to receive the following data points:

| | |
|------------------|---|
| Valid | True means that the number is approved for use. |
| Format | the phone number in a standard international or local format. |
| Line type | the line type assigned by telecom authorities. Examples of line types are mobile, landline, VoIP, toll-free, satellite. |
| Region | The country region to which a landline number is assigned. |
| Carrier | the carrier name to which the number is assigned. |

PROS

- + Covers 100% of all numbers used worldwide.
- + Very fast, usually in the order of milliseconds.
- + Costs as low as 0.0001\$ per validation.
- + Reveals the carrier and line-type assigned by telecom authorities.

CONS

- No guarantee that the number is currently active or reachable.
- The carrier name may not be accurate in case the number is ported or roaming.
- The carrier, region and line type may not be available for some numbers.

PROVIDERS

| Provider | Bulk | API | Free Quota | Price/validation |
|---|------|-----|------------|------------------|
| twilio.com/lookup | No | Yes | 0 | \$0.005 |
| numverify.com | No | Yes | 500 | \$0.0004 |
| veriphone.io | Yes | Yes | 500 | \$0.0002 |

NETWORK VALIDATION

Network validation involves contacting the carrier to inquire about the current state of the phone number without contacting the number itself. Connecting directly to the telephone network reveals if the number is active, the name of the current carrier and the roaming status. A major drawback of this method is the coverage rate. Only mobile numbers are supported on less than 85% of worldwide carriers.

DATA POINTS

| | |
|------------------|---|
| Active | True if the number is assigned and active*. |
| Original network | The name of the original network assigned by the telecom authority. |
| Ported network | The name of the new carrier if ported |
| Roaming network | The name of the roaming network if roaming |

* a number can be active but not reachable (eg. phone switched off).

PROS

- + Reveals if the number is assigned and active.
- + A reliable source of carrier identity for mobile numbers.

CONS

- Limited coverage: only available for mobile numbers on less than 85% of worldwide carriers.
- Slow: a validation usually takes more than a second, and up to a few seconds.
- Cost: carriers charge for the use of their network per query.
- No guarantee that the phone is currently reachable.

PROVIDERS

| Provider | Bulk | API | Free Quota | Price/validation |
|----------------------------|------|-----|------------|------------------|
| <i>Infobip.com</i> | No | Yes | 0 | \$0.0100 |
| <i>Nexmo.com</i> | No | Yes | 0 | \$0.0385 |
| <i>phone-validator.net</i> | Yes | Yes | 0 | \$0.0350 |

USER VALIDATION

The next level of validation is to check that the phone is ready to receive text or voice communication and that the user who provided a number can actually be reached on that number. This level of validation is achieved by sending a numeric code by voice or text message to the phone number and requesting the owner to return the code via the web or a mobile app. The returned code constitutes a user's explicit consent to be reached on that number.

DATA POINTS

NONE

PROS

- + Validates that the phone number is active and reachable
- + Validates that a particular user can be reached on that number.
- + Provides consent to receive text or voice communication on that number.

CONS

- Cost: the cost of the voice or text message in addition to the provider's markup.
- Slow: The time necessary to send or resend a message, then return it, will not only slow down the validation process but can also be a deterrent for some users.

PROVIDERS

| Provider | Bulk | API | Free Quota | Price/validation |
|-------------------|------|-----|------------|------------------|
| <i>twilio.com</i> | Yes | No | 0 | \$0.050 + SMS |
| <i>cm.com</i> | Yes | No | 0 | From \$0.008 |
| <i>Nexmo.com</i> | Yes | No | 0 | \$0.057 + SMS |

CONCLUSION

You probably figured out that no validation method is perfect on its own. Depending on the use case, one, two, or even the three methods must be combined to achieve the desired outcome.

Number validation is a no brainer. Any solution can benefit from this validation type to exclude unauthorized numbers before eventually seeking more data or more accuracy in the next two levels.