

Port (Protokoll)

Ein **Port** ist ein Teil einer Adresse, der Datensegmente einem Netzwerkprotokoll zuordnet. Dieses Konzept ist beispielsweise in TCP, UDP und SCTP vorgesehen, um Protokolle auf den höheren Schichten des OSI-Modells zu adressieren. Ein Port ist auch ein prozessspezifisches Softwarekonstrukt, das einen Kommunikationsendpunkt zur Verfügung stellt. Man kann sich einen Port also vorstellen wie eine Tür zwischen Rechner und Netzwerk.

In diesen drei Protokollen ist die Portnummer 16 Bit groß, d. h. sie kann Werte von 0 bis 65535 annehmen. Bestimmte Applikationen verwenden Portnummern, die ihnen von der IANA fest zugeordnet und allgemein bekannt sind. Sie liegen üblicherweise von 0 bis 1023, und werden als *Well Known Ports* bezeichnet. Von Port 1024 bis 49151 befinden sich die *Registered Ports*. Anwendungshersteller können bei Bedarf Ports für eigene Protokolle registrieren lassen, ähnlich wie Domainnamen. Die Registrierung hat den Vorteil, dass eine Anwendung anhand der Portnummer identifiziert werden kann, allerdings nur wenn die Anwendung auch den bei der IANA eingetragenen Port verwendet. Die restlichen Ports von Portnummer 49152 bis 65535 sind so genannte *Dynamic* und/oder *Private Ports*. Diese lassen sich variabel einsetzen, da sie nicht registriert und damit keiner Anwendung zugehörig sind.

Port Sperre

Tauschen Computer untereinander Daten aus, so werden unterschiedliche Datenströme durch Ports voneinander getrennt.

Eine Port Sperre ist das Sperren oder Drosseln eines bestimmten Portes bzw. des darauf zugreifenden Dienstes. Das Sperren von Ports wird von einigen Internet Service Providern eingesetzt, um ungeliebte Dienste zu blockieren. Bei Providern können Dienste beispielsweise ungeliebt sein, weil sie sehr viel Datenverkehr verursachen, wie beispielsweise beim Filesharing.

Ports können auch mit einer Firewall gesperrt werden. Bei einer lokalen Firewall wird normalerweise andersherum vorgegangen: Nur die tatsächlich benötigten Ports werden freigegeben und alle anderen Ports bleiben gesperrt. Somit werden die Angriffspunkte auf das geschützte Netz bzw. den PC reduziert.

Portscanner werden von Angreifern verwendet, um einen oder mehrere Zielrechner nach offenen Ports und damit möglichen Einfallstoren zu untersuchen. Unterstützt die Firewall bzw. der Paketfilter das Portknocking-Verfahren, kann ein Portscan erschwert werden, indem Ports erst dann geöffnet werden, wenn ihnen eine vorher vereinbarte Folge von Paketen gesendet wurden.

Beispiele

Die nachfolgende Liste ist eine kleine Auswahl bekannter Ports, eine vollständige(re) Liste ist im Artikel Liste der standardisierten Ports zu finden.

Portnummer	Dienst	Beschreibung
7	Echo	Zurücksenden empfangener Daten
20	FTP-Data	Dateitransfer (Datentransfer vom Server zum Client)
21	FTP	Dateitransfer (Initiierung der Session und Senden der FTP-Steuerbefehle durch den Client)
22	SSH	Secure Shell
23	Telnet	Terminalemulation
25	SMTP, ESMTP	E-Mail-Versand
53	DNS	Auflösung von Domainnamen in IP-Adressen
67	DHCP	Zuweisung der Netzwerkkonfiguration an Clients

70	Gopher	Vorläufer des World Wide Web
80	HTTP	Webserver
110	POP3	Client-Zugriff für E-Mail-Server
143	IMAP	Client-Zugriff für E-Mail-Server
443	HTTPS	sicherer Webserver (via SSL verschlüsselt)
515	LPD	Line Printer Daemon, Druckdienst, Spooler
548	AFP over IP	Datei- und Druckdienste (Mac OS und Mac OS X)
993	IMAPS	sicherer Client-Zugriff für E-Mail-Server
995	POP3S	sicherer Client-Zugriff für E-Mail-Server
1433	Microsoft SQL Server	Zugriff auf SQL-Server-Datenbanken
1521	Oracle	Zugriff auf Oracle-Datenbanken
1723	VPN	Aufbau von VPN-Verbindungen
3050	Firebird	Zugriff auf Firebird-Datenbanken
3306	MySQL	Zugriff auf MySQL-Datenbanken
3389	RDP	Windows Remotedesktopzugriff, Windows Terminal Services
5190	ICQ	Instant-Messaging-Programm ICQ
5432	PostgreSQL	Zugriff auf PostgreSQL-Datenbanken
5984	CouchDB	Zugriff auf CouchDB-Datenbanken
6667	IRC	Chatserver
8080	alternativer HTTP Port	Webserver (Standardport bei Apache Tomcat)

Portnamen-Datei

Auf einem Unix-Rechner ist diese Liste in der Datei `/etc/services` definiert.

Unter Betriebssystemen der Windows-NT-Linie findet sich diese unter `%WINDIR%\system32\drivers\etc\services`, bei der älteren Windows9x-Linie direkt im Windows-Ordner (`%WINDIR%\services`).

Sockets und Port-Forwarding

Einen Port mit einer IP-Adresse bezeichnet man als Socket. Die Weiterleitung von Anfragen an Ports über ein Netzwerk wird Port Forwarding genannt.

Weblinks

- IANA-Liste der zugeordneten Ports ^[1] – „offizielle“, registrierte Portnummern
- Ausführliche Liste der Ports ^[2] – incl. vieler Würmer, Trojaner und Backdoors
- Liste der TCP- und UDP-Ports ^[3] (englisch)

Referenzen

[1] <http://www.iana.org/assignments/port-numbers>

[2] http://www.bekkoame.ne.jp/~s_ita/port/port1-99.html

[3] http://en.wikipedia.org/wiki/List_of_TCP_and_UDP_port_numbers

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