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Logbook to login

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Abstract

The concept of logbook started with a view to keep day-to-day navigation based records of a ship, for a better management of its operation. The duty watch signs into the logbook at the beginning of his shift, then signs off at the end, passing the watch duty to the next watch stander. This maintains a clear record of the ship evolutions in that time period, and the identity of the personnel on duty at the time.

Later on the concept was extended to a wide variety of other practices for the utilization and management of expensive and complex machines, vehicles, agricultural fields and so on.

In the modern era our personal computers do not need such a manual logbook, because they keep records of each and every operation performed. However, the terms login or logon, and logoff, derive from these precedents.

Keywords: History, logbook, login, logon, logoff

While manual logbooks might not be involved with the use of computers and/or computer applications today, the function of signing into a record book, even if electronically, remains¹. Use of logbooks started with a view of keeping records of important events in the management, operation, and navigation of a ship, beginning in the late 17th or early 18th centuries. It was an essential record-keeping tool, passed on among the duty watch standers, from one shift to the next. The term originally referred to a notebook for recording readings from the chip log (figure 1), as well as magnetic compass readings, anemometer, weather and sea state, noon and nightly position estimates based on celestial navigation, and any ship evolutions unrelated to just navigation per se, during each watch. For example, any changes in the ship's course and speed were noted, along with the time when these occurred. The use of logbooks, in ships, continues to this day, even if, in many cases, the record-keeping has been automated.



Figure 1: Chip log. This chip log image has been obtained by the author(s) from the Wikimedia;https://commons.wikimedia.org/wiki/File:Speyer_Handlog.jpg where it is quoted "Permission is granted to copy, distribute and/or modify this document under the terms of the GNU Free Documentation License, Version 1.2 or any later version published by the Free Software foundation." We are grateful to Lokilech who documented this site.

The term "log" as noted above, also refers to a specific navigation instrument, a device used to estimate a ship's speed through the water, whose readings were documented in the logbook. Originally, starting ca. the beginning of the 17th century², to measure ship speed, a wood chip, or log, tied to a spool of rope, was thrown over the side³. Knots were tied into the rope, at regular intervals. As the ship moved through the water, the spool of rope was let out. After a

predetermined amount of time, usually measured by sand glass, the rope was taken out of the water and the number of knots, in the rope, which had been spooled out, was counted. This is the origin of the term "knots," used to denote a ship's speed. The term is still used, now a global standard, in air and sea navigation⁴.

By combining the speed in knots, the magnetic heading, and the amount of time the ship had sailed, the navigator could establish east or west, and north or south distance traveled, with varying degrees of accuracy. Calculating this distance traveled, and adding it to the last position estimate, a ship sailing beyond view of land could estimate its current position, using what is known as the "dead reckoning" technique.

Today, records are frequently maintained for the utilization and management of expensive and complex machines such as nuclear plants, particle accelerators, equipment in laboratories viz. electron microscope, X-rays machines, lasers, fields for agricultural research, vehicles in offices, trucks and buses in transportation, planes and trains, and as a final point the personal computer (PC). Such records are also maintained in what are commonly referred to as paper logbooks, or automated log files.

The above suggests that our personal computer should have had a corresponding logbook for keeping its day-to-day usage records. And in fact, this is the case, even if automated. Evidenced, for example, by the .log files⁵ created automatically in computer updates, by the metadata automatically recorded when a file or a folder is generated, and evidenced by the requirement for individual users to "login" or "logon" to any number of computer-based accounts (on their PCs, at their bank's web site, at amazon.com, at their lawn care company, pharmacy, and so on).

With respect to the secure use of one's PC, some considerations might be as follows.

- The most important part in case of a personal computer is that it should not be available for others. More precisely, with today's operating systems, each user's account must be protected, even if the PC itself may be shared among several users. This is achieved through a built in security feature, so that only legitimate account holders can operate the PC. A login procedure is used, functionally equivalent to the ship watch standers signing into the logbook, at the start of their shift.

- “Login” is derived from logbook. The login typically requires user’s name and the password, or other similar secure credentials (such as smartcards, biometric readings including facial recognition, or other schemes).
- Next, date and time are important parts of the records in a logbook and in computer logs. The built in clock provides date and time.
- The personal computer can be operated as a typewriter for drafting letters, writing a book, a lecture on power point presentation, a legal document which can be saved for their use or further modification in the future. Every document keeps the information such as author, date, and time of its being saved. One can also find the respective size of the document in bytes.
- If the user makes use of the email feature, for normal correspondence, confidential letters, communication of documents such as question papers, articles, books, power point presentations and so on; the email application is also secured under lock and key, through username and password. There are even web-based, email services available on the market, free of cost. Depending how such systems are used, the computer, or the web application, keeps records of each correspondence, and any replies, with both date and time.
- Financial transactions are also protected, frequently using two factor authentications, passwords, including the use of a onetime password (OTP) received “out of band”, perhaps via email or text message.
- Details of shares, their market values, transactions, can also be verified for any period.
- Tenders, quotations, and applications submitted are also safe in the computer or web site, and can be retrieved anytime.
- Costly software loaded on the personal computer is similarly protected, including through the use of encrypted hard drives or solid state drives, which require verified user credentials, before the data are accessible.

So the common computer terms “log”, “login”, “logout” have a long and storied history, originating with ships sailing the high seas, centuries ago. The term harkens back to the ship’s logbook, a book into which, among other entries, were recorded the ship’s speed, measured by an instrument known as the speed log.

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- [2] Log | nautical instrument | Britannica
- [3] Schlueter, Roger (2016), "To understand knots, get a really long rope and a boat"
<https://www.bnd.com/living/liv-columns-blogs/answer-man/article116957033.html>
- [4] Today, the term "Knot" refers to one nautical mile per hour. And one nautical mile, by convention, refers to the distance between one minute of arc of latitude, and longitude at the equator, which has been standardized internationally to 1852.00 meters.
- [5] <https://docs.microsoft.com/en-us/windows/deployment/upgrade/log-files>