
Technical Specification

for

LaceWatcher-PRO

Version 4.4.2

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Revision History

Name	Date	Reason For Changes	Version
BN	30.12.2009	Add Portable computers support	3.3.26
BN	1.1.2010	Repacking for distribution	4.4
ER	3.01.2010	Editing and formatting.	4.4.1
Crypkey	24.2.2010	Warning about losing license caused by Symantec Speed Disk product	4.4.1
KB	25.3.2010	Error messages	4.4.1
KB	30.6.10	Installation problem (No Mail agent)	4.4.2

1. Introduction

1.1 Purpose

LaceWatcher-PRO software has been developed to enable large companies to monitor and apply an optimized maintenance system to its computers in order to improve the storage management technology, thus expanding the life-span of PC's, laptops and servers. By optimizing the maintenance process, a substantial computer-performance improvement is obtained while preventing the familiar slow-down in aging computers, thereby enhancing user-satisfaction.

1.2 Intended Audience and References

This document is intended for IT managers, project managers, marketing staff, users and testers. The scientific concepts that lead to the development of the product can be found in <http://www.disklace.com>. The basic technology of measuring data quality is based on the experience gained in the previous product LACELEVEL2.

1.3 Product Scope

LaceWatcher-PRO supports Data Quality Management with the following main features:

Provides **immediate identification** of computers and servers that suffer from poor data quality and need immediate attention. These computers are already in a state which could develop into severe problems and data loss.

Surveys all computers and establishes those still functioning properly which can **delay replacement/upgrades** – thus providing an instant ROI for organizations.

Sets up an organization-level “**early-warning system**” for computers and servers which are about to enter the state in which users may suffer from performance degradation caused by poor data quality.

Fully capable of **unattended operation** identifying workstations and servers approaching a defined marginal status of data quality, and automatically activates the defragmentation utility at a convenient time in order to prevent performance degradation in those systems.

Operates as a **distributed** Data Quality measurement system using an **agent-less technology**. LaceWatcher-PRO operates from a centralized site with no manual modification required on the inspected computers. This option ensures smooth integration into existing infrastructures while avoiding change management procedures that are found in sensitive/secure environments.

Capable of measuring data quality of **laptops** computers and portable devices. The internal scheduler of the LaceWatcher-PRO waits for those systems to connect to the network and scans them upon availability.

2. Overall Description

2.1 Product Perspective

LaceWatcher-PRO was developed using the concept of Data Quality Management targeted to large organizations. LaceWatcher-PRO implements the technology that was tested in the initial product - Lacelevel2. Lacelevel2 is currently used by 300,000 users around the world. LaceWatcher-PRO provides a **focal point** for data quality management, which may be complementary to the traditional network and other resource management tools.

2.2 User Classes and Characteristics

Lacewatcher-PRO can be configured according to the end users' needs. Small/Medium sized business (SMB) users may prefer the package limited by the maximum number of workstations and servers, while enterprise users may prefer the support defined by the maximum accumulated storage installed in servers and workstations of the organization.

2.3 Operating Environment

Lacewatcher-PRO supports almost all of Microsoft's® operating systems. Home Edition operating system does **not** support the SERVICE capability of the operating system and therefore are **not** supported as a client. Lacewatcher-PRO supports disks using NTFS and FAT formats. Any storage device which simulates these supported formats (RAIDx, storage systems, USB memory sticks, cellular phones, etc.) is supported through the emulated mode.

2.4 Design and Implementation Constraints

Lacewatcher-PRO uses the operating system's security method and therefore does not require a separate security system of its own. Deploying the product on a computer having an "Administrator" credential is recommended in order to avoid typing specific passwords for every workstation and server.

The frequency for checking disk fragmentation levels is very versatile. The recommendation would be to start with the default of a weekly check of all the computers before choosing a more granular interval.

Special care must be taken by the users of "shared resources" option, because it might prevent the administrator from logging into the remote user's machine.

Using firewalls within the internal domain of the network might also cause problems if the appropriate network managing ports are not enabled as recommended. More information about this issue can be found in the **News** link through the **ABOUT** button on the LaceWarcher-PRO GUI..

LaceWatcher-PRO is a monitoring tool and not an online operating system. Online operating systems is built with subtasking capabilities where all the functions can be performed in parallel with very high CPU demand, while Lacewatcher-pro CPU needs are low (as expected from system which monitors a very slow changes) and the tasks are performed sequentially one after the other. As a result, operator commands are queued and performed one after the others with a slower response time.

2.5 User Documentation

All available documentation (i.e. this document) is accessible on-line at <http://www.disklace.com>.

2.6 Assumptions and Dependencies

Every running copy of Lacewatcher-PRO is aware of other installations of the same product currently active on the same network. A notification might be generated in case of a discrepancy due to the licenses that were purchased.

3. System Features

This section is organized by functional hierarchy as it would appear to the user during the installation and deployment of LaceWatcher-PRO.

3.1 Alert Setup

The first stage after installing Lacewatcher-PRO is to configure the Alert Setup. It is not necessarily that the person who operates Lacewatcher-PRO (which will be mainly operated unattended) be the same person who receives the alert messages. It is the customer's decision of how to implement this function.

Start this setup by choosing the "**Alert Setup**" button on the screen.

After the setup, it is possible to test and see that the message arrives at the requested destination.

The alerts reporting method is not exclusive, and any of the methods can be used in parallel. In this case, all the alerts will be sent to the desired destination.

3.1.1 System log (Default option)

All alerts and events will be recorded through the operating system's log. To access the alarm and event information:

Right click on the "My Computer" icon

Select "manage"

. Choose **events** recorded by the **application**

3.1.2 External Application

All alerts can be escalated to any asset management software (CA, HP, IBM, etc.).

The setup instructions can be found in the **News** link through the **ABOUT** button.

3.1.3 Send immediate Email message

Choosing this option will generate an HTML message that will be converted automatically into an Email message.

3.1.3 Send Email message through SMTP

When the Lacewatcher-PRO host is not capable of generating HTML messages (mostly because of security reasons), then it is possible to configure the alert to be delivered via your email system.

3.2 Adding disks to be scanned

When Lacewatcher-PRO is initially installed, there is neither a system nor disks which are defined as candidates for fragmentation check. It is the job of the maintenance manager to decide which computers and disks should be included. In order to start this stage, you have to click on the **ADD** button on the top of the screen.

3.1.1 Add Local Disks

Clicking on this button will automatically locate all the local disks on the Lacewatcher-PRO host and add them into the repository. These disks will be immediately scanned. (N.B. - Please allow the scan to complete.)

3.1.2 Add a single station

You may type the name of a single station in order to add it to LaceWatcher-PRO. To add more than one station you should separate the system names by a semicolon. The station will be added, and the scan immediately started.

3.1.3 Import from station list from file If you have a list of stations and servers on which you wish to install Lacewatcher-PRO then you may upload the list directly to Lacewatcher-PRO. The list can be in Excel (.XLS) format where the first column contains the station name. The file can also be a plain text file (.TXT) where each station's name is on a new line. (Please allow the entire scan to complete.)

3.1.4 Add station directly from the Network Folder

Open the Network Folder icon on the Desktop and mark any station or server you want to add to Lacewatcher-PRO. Use COPY AND PASTE (**Not** CUT AND PASTE) and drop the selected station into the "Add computer to list" activation box.

3.3 ACQUIRE parameter

The interval of scanning the disk is set according to the expected activity of the disk. The options are **daily**, **weekly**, **monthly** and **quarterly**. The default is set to weekly.

The **disable** option is useful when a disk is not required to be checked, but remains part of the list. It is not automatically removed for documentation purposes. The free demo version of the Lacewatcher-PRO product uses this value to represent disks above the disk size allowed in the demo application. Trying to activate a disabled disk on the demo version will generate a pop-up screen remind the user to purchase the licensed version.

3.4 PAUSE / RESUME Button

As mentioned above, LaceWatcher-PRO is a monitoring tool and not an online operating system, therefore a previously entered request has to be completed before the next one is entered. When the operator wants to enter several changes into the system, and in order to prevent automatic requests from entering the command queue and delaying the response there is a PAUSE/PRESUME function that holds the internal scheduler of Lacewatcher-PRO. Pressing the **PAUSE** button will delay any new automatic command to enter the queue. You will have to wait for the last request is finished before you enter your changes. No more automatic commands will be processed until the **RESUME** button will be pressed.

3.5 The ANALYZE button

Pressing the **Analyze** button on the LaceWatcher-PRO screen shows the accumulated distribution of all Lacewatcher-PRO installations worldwide versus. the local distribution of your local network.

Every user that uses the Analyze button anonymously contributes to the overall worldwide results that are accumulated and statistically analyzed at www.disklace.com.

A customer who would like to run LaceWatcher-PRO on an isolated environment may receive a substitute for the online query, but it can never be as statistically accurate compared to the dynamic distribution. Please contact us if you need this substitution.

3.6 Labeling and Filtering

When many disks are managed by LaceWatcher-PRO, it is sometimes required to create a special logical view in order to manage a group of users who's systems have the same attributes. It is possible to assign a special label to a specific group, and to then filter that particular group for further management.

To create this grouping you'll need to select a number of systems (use Shift + Enter or CTRL + Enter key). Pressing the **SETTING** button enables writing any name on the **LABEL** field. (Press **OK** to save the updates.) It is now possible to use the "**FILTERED BY**" button to view only the relevant group.

3.7 Support for Laptops and Portable storage

Defining a disk as **PORTABLE** means that tis device is not always available either because it is a laptop which by nature is not always present, or a removable storage device (a disk or any device having storage capabilities). During the scheduled run, if a

device is missing, instead of sending an alert, a repeatable delay is inserted. If during the next 7 days the device will be connected then it will be handled as usual. If the device is still missing after a week then an error message will be produced.

3.8 History

LaceWatcher-PRO records every operation in an internal log, who's sole purpose is for problem determination. Browsing the log requires shutting down LaceWatcher-PRO since it uses an exclusive lock on the log file.

All activities of the disks are recorded in an accumulative log for each disk, including the time stamp, the disk usage and the fragmentation level that was measured.

Selecting a disk (or more than one using "CTRL + click" capability of Windows) and pressing the **History** button will activate the program that has been assigned for CSV files. If the program is EXCEL, then a spreadsheet is opened and you can easily plot an XY Scatter chart of the fragmentation "heart-beats" along a time axis.

Using the above view, it is possible to understand the way a specific disk is being used and tune-up the parameters controlling the automatic defragmentation or the alert function.

3.9 Settings – "Alert at level" filter definition

3.9.1 Workstation/Server

The initial filter level for these cases has a default value of 8/9 respectively. This value was found adequate for many customers, but almost all of the customers have changed the value to reflect their specific needs.

3.9.2 Custom

This option enables the user to create his own filter according to their own installation experience.

3.9.3 Regulate

For customers who want to be know the pattern usage of disks by users, there is a possibility after initial measuring of fragmentation level of the disks, to set a regulated filter, which consists on the current level + 0.1 . After a while, alerts will start be produced as the users will start use the disks, but the first alerts will be of those who are more active than others. This option gives an internal look at the patters of users' data processing.

3.9.4 OFF

This option will scan the disk and measure the fragmentation level, but will never activate an alert.

3.10 DEFRAG option

When the DEFRAG option is checked for a disk, there will be no alert when the disk fragmentation level reaches the filter value. Instead, a task will be opened in the target machine, and the standard defragmentation utility will be activated for that disk.

After the defragmentation ends, another check will be made, and a **second level alert** will be generated if the result is not better than the result prior to the defragmentation. In this case, defragmentation did not help, and a manual operation is required.

Using this option requires a special alert: It is recommended to run the defragmentation utility when the computer is not in use. There is an option to make the check and defragmentation at a convenient time for the user, and appear in the **AT** parameter of the disk.

3.11 ABOUT button

Pressing this button introduce the current release of **LaceWatcher-PRO**. please note that the version used is marked on the upper panel of the screen.

Clicking the **NEWS** link will activate a HTTP query with the latest news. If there is a newer version available, it will be mentions at the reply screen.

4. External Interface Requirements

4.1 Interfaces to external Asset Management software

As described in section 3.1 *Alert Setup section*, alerts can be forwarded to any asset management software. Tests have been conducted in collaboration with major companies having asset management packages (CA, HP, and IBM). Those tests proved the simplicity of integration with those standard packages. In most of the tests, an external TRAP which is part of the Asset Management program was chosen. Within minutes the alert starts arriving at the requested system. The relevant parameters passed to the TRAP program are shown in the following sample:

```
c:\full_path.exe -h "$host$" -v "$volume$" -l "$level$" -e "$error$"
```

Implementation samples can be found at <http://www.disklace.com/news.html>.

4.2 Communications Interfaces

The global fragmentation map is continuously being aggregated based on anonymous user results. The map is not an integral part of the application. In order to use this information, the monitored system needs to have access to the internet, and the uploading is performed automatically by LaceWatcher-PRO. Some customers restrict their users (and the computer running LaceWatcher-PRO as well) from using internal internet access and therefore this fiunction will not work.

We have developed a bypass protocol for those customers which can be installed on their request.

4.3 Performance Issues

Calculating the fragmentation level of a disk based on the distribution of files and free space fragments is a CPU intensive task. To limit the use of CPU resources on the monitored workstations or servers, the calculation is not performed of that remote computer. The fragmentation map is moved into the LaceWatcher-PRO computer and the calculation is then performed without any adverse affects on the user's machine. The amount of data moved from the station into the LaceWatcher-PRO machine is relatively small and comparatively negligible to the existing network traffic.

4.4 Special considerations: Users using Symantec Speed Disk Defrag

Speed Disk is the defragmentation utility included in Symantec's Norton Utilities. Since Speed Disk Moves licensing files that we use to copy protect LaceWatcher product, it may cause errors and prevent access to the program.

LaceWatcher uses "CrypKey" product which uses four licensing files (.ent, .rst, .key, and .41s) to control the product licensing. These files are hidden system files and reside in the same directory as the protected product.

To Prevent License Loss:

1. Open Speed Disk, and choose **File, Options, Customize, Unmovable Files**.
2. Specify that the *.ent, *.rst, and .key files cannot be moved (the .41s files do not need to be specified)

5. Error Messages

5.1 Insufficient Network Rights to connect to remote volume

This message appears when the security credentials of the user running Lacewatcher-PRO conflicts with the security defined in the remote station.

It may happen when a remote user changes the Master password definition, or when there is a conflict with the basic setup of the system.

A typical conflict can be found when a WORKGROUP is being used and the SIMPLE FILE SHARING conflicts with the Administrator credential.

In this case, it is recommended to **clear** the SIMPLE FILE SHARING option and resolve the conflict. (My Compute→tools→ folder options→View →Use simple file sharing)

5.2 First time users: Probable Installation problem (No error message)

Installing Lacewatcher on a computer in which no mail agent was configured before, does not open the mail message that has to be sent to complete the registration and receive the KEY to unlock the program product.

Until the error will be fixed by the developer of the security product that we are using, you are requested to copy the string from the SITE CODE line on the installation screen and manually send it to the address on marked on the screen.

The Site KEY will be sent to you ASAP.