Reaction Engineering

Network Security with Mettler-Toledo EasyMax®/OptiMax™ Instruments

This document provides an overview of measures implemented on Mettler-Toledo EasyMax®/OptiMax™ instruments to guard against security threats resulting from malware or network attacks.

Overview of EasyMax®/OptiMax™ hardware and software:

Item	Description
Operating System	Microsoft Windows CE 5.0
Instrument Control Software	Custom Mettler-Toledo SW components running on .NET Compact Framework 3.5 and C/C++.
Processor Board	Toradex Colibri with Marvell PXA320 Processor
Ports for external connections	• USB Used to connect USB sticks to export experiment data or to upgrade the instrument firmware. • Ethernet / RJ45 Used to connect the instrument to the local network. PC software may be used to control or service the instrument.

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Malware on Windows® CE

Unlike Windows® Desktop Operating Systems (OS) such as XP, Vista or Windows® 7, malware is extremely rare on Windows CE due to the following reasons:

- Most malware is specifically developed for Desktop OS and does not run on Windows® CE.
- The tools that are typically used as entry points for malware, such as E-Mail readers, PDF readers, and Internet browsers, are not available on Mettler-Toledo instruments.
- There is no built-in OS auto-start mechanism for executables in the top folder of USB sticks.

Protection against network attacks

The following measures were implemented in order to protect the instruments from network attacks:

- All incoming ports except the ones needed for communication with PC software (TCP 8001, 8018, and 8019) are locked down (firewalled).
- In the event an instrument is flooded with IP packages (Denial of Service Attack), the service that answers network requests will be shut down and the instrument will transition to a safe temperature automatically.

Safe handling of user credentials

No user authentication is required to work with EasyMax®/OptiMax™ instruments. Therefore, no credentials, such as passwords, are stored on the instrument or transmitted over Ethernet.

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