KSL & PSS System Key Management and Value Storage Cabinets Systems

Technical description and specification

Version: 1.2
Date: 2017.09.

Structure

The ProxerSafe systems include these main items as follows:

- Cabinet

- Controller module

- Keyholder modules

- Box/Safe modules

Controller module

The controller modules are made in 19" Rack module and door module design.

The controller module is the smart module of the key management system, and it consists of the following elements:

- Industrial PC with Windows OS

- Colour touchscreen

- RFID reader for identifying the user

- Power supply

- UPS

- Central controller panel: CPU, 5 pcs connected PoRS485 port, USB port, Ethernet port, UPS charger, PS, lock controllers, alarm system, Fire IN, tamper circuits, remote signaller circuits, ER opening controlling

Controller module
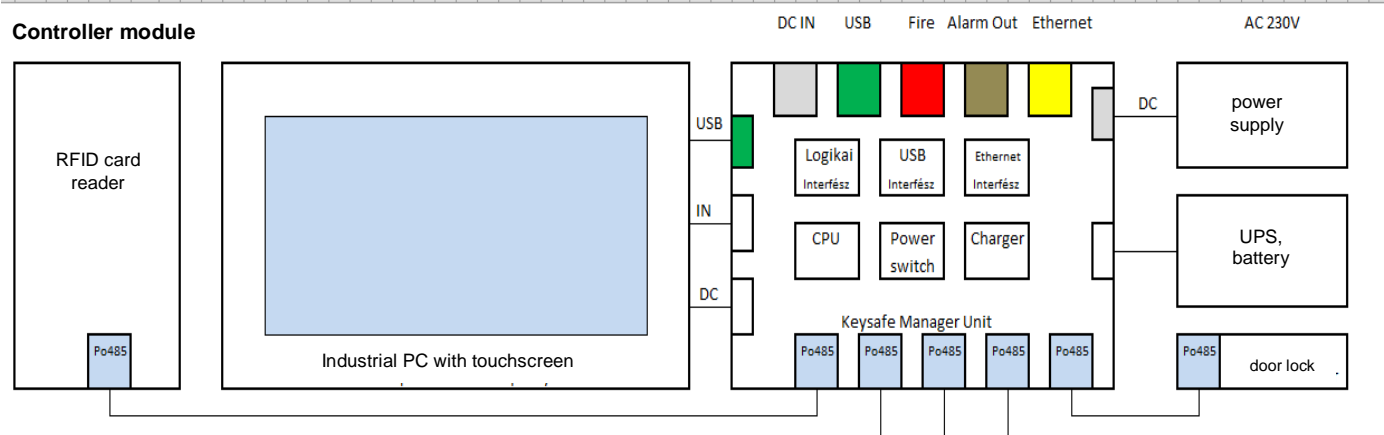
Industrial PC data

Operating System	Windows 10 + Office 365+KeySafe Management SW
Processor	Intel® Atom™Z3735G (2MB Cache, 1.83 GHz)
Memory	1 GB
Storage device	32GB eMMC
Graphics	Intel® HD Graphics
Size of display	8,2"
Type of display	IPS, HD 1280 x 800, capacitive touchscreen
Sound system	stereo loudspeakers
Card reader	micro SD card reader
Communication	Wi-Fi 802.11a/g/n, Bluetooth® 4.0 Ethernet 10/100 Mb LAN-RJ45, USB, RS485-RJ45

Loxtore RFID Systems AB, Regulatorvägen 19., S-141 49 Huddinge, Sweden
Tel: +46 (0)8 55151000 * www.loxtore.com * E-mail: info@loxtore.se

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KSM16 Keyholder module

The ProxerSafe and KeySafe systems work with RFID technology. With a vandal proof keyring (optional) a keyholder plug containing RFID transponder is attached to every key or bunch of keys.

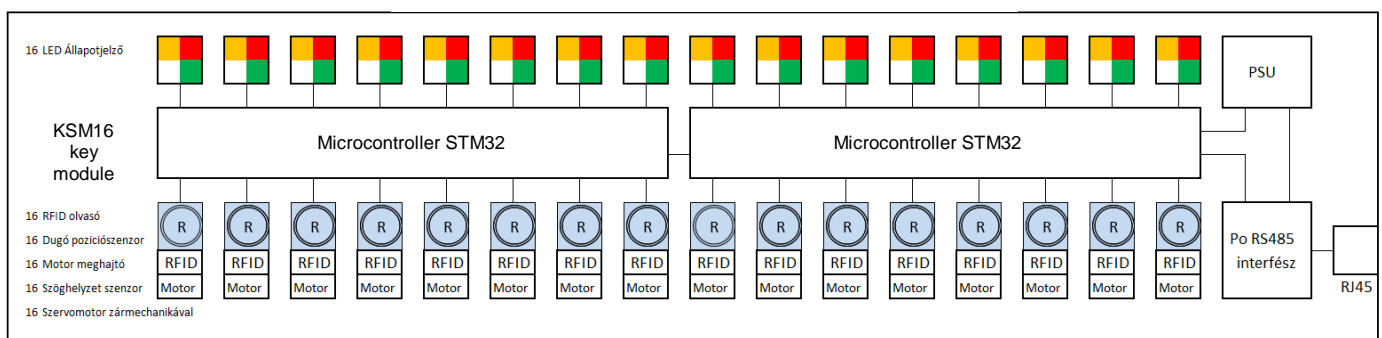A keyholder module contains 16 key positions, which can take in 16 key holder plugs. All positions have a plug position sensor, a servomotor, a latch with swivel arm, an RFID transponder reader and a multi-coloured status signaller.

The module is served by two 32-bit microcontrollers, working in a jointed mode and communicating outside with PoRS485 bus. Data transfer and power supply are solved as well via the bus with Cat6 standard cabling system. The keyholder module has its own inner power supply and can switch to the so-called low power operation mode. Low power mode is automatically switched on in case of power outage, and it results the long bridge time of the uninterrupted power supply.
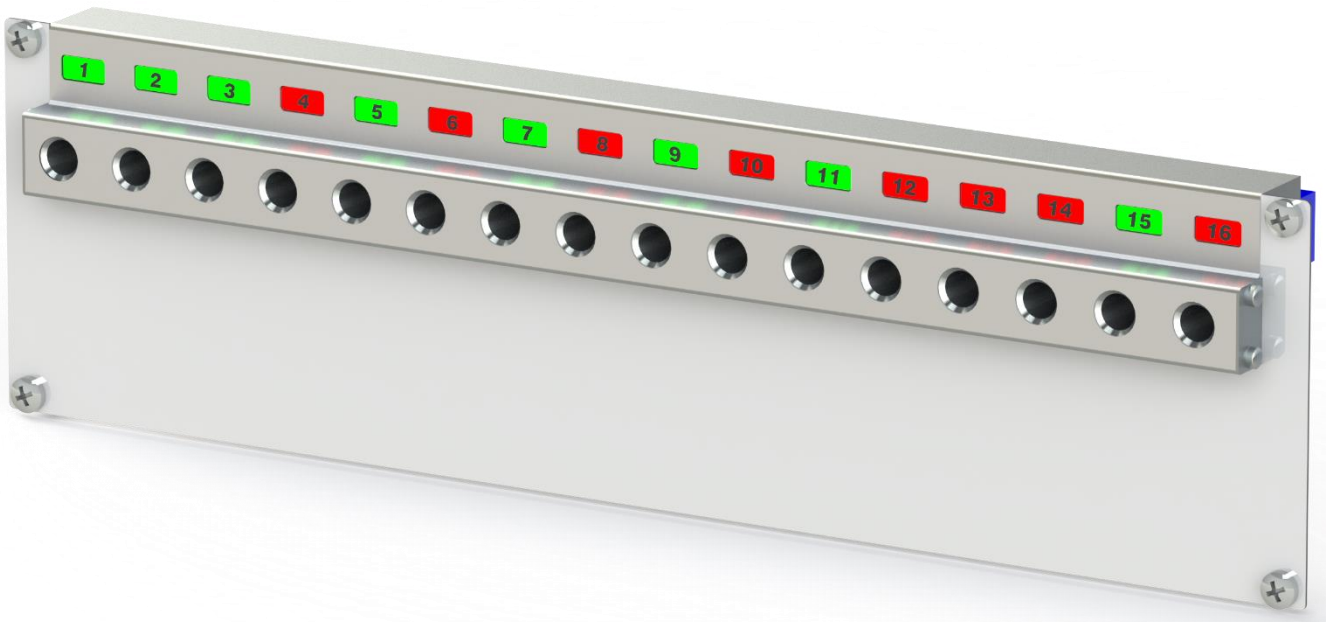
KeySafe KSM16 key module bock draft

16 LED Állapotjelző		PSU
KSM16 key module	Microcontroller STM32 · Microcontroller STM32	
16 RFID olvasó	R ... R	
16 Dugó poziciószenzor	RFID ... RFID	Po RS485 interfész
16 Motor meghajtó	Motor ... Motor	
16 Szöghelyzet szenzor		RJ45
16 Szervomotor zármechanikával		

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PBX safe/box module with separate doors

The boxes of the safe modules can be addresses separately and they have separate doors with electronic bolts, door sensors, status signallers and door knobs. The safe modules are prepared in 1, 2, 3, 4 lines height with metal or safety glass doors. The boxes can be selected in standard sizes.

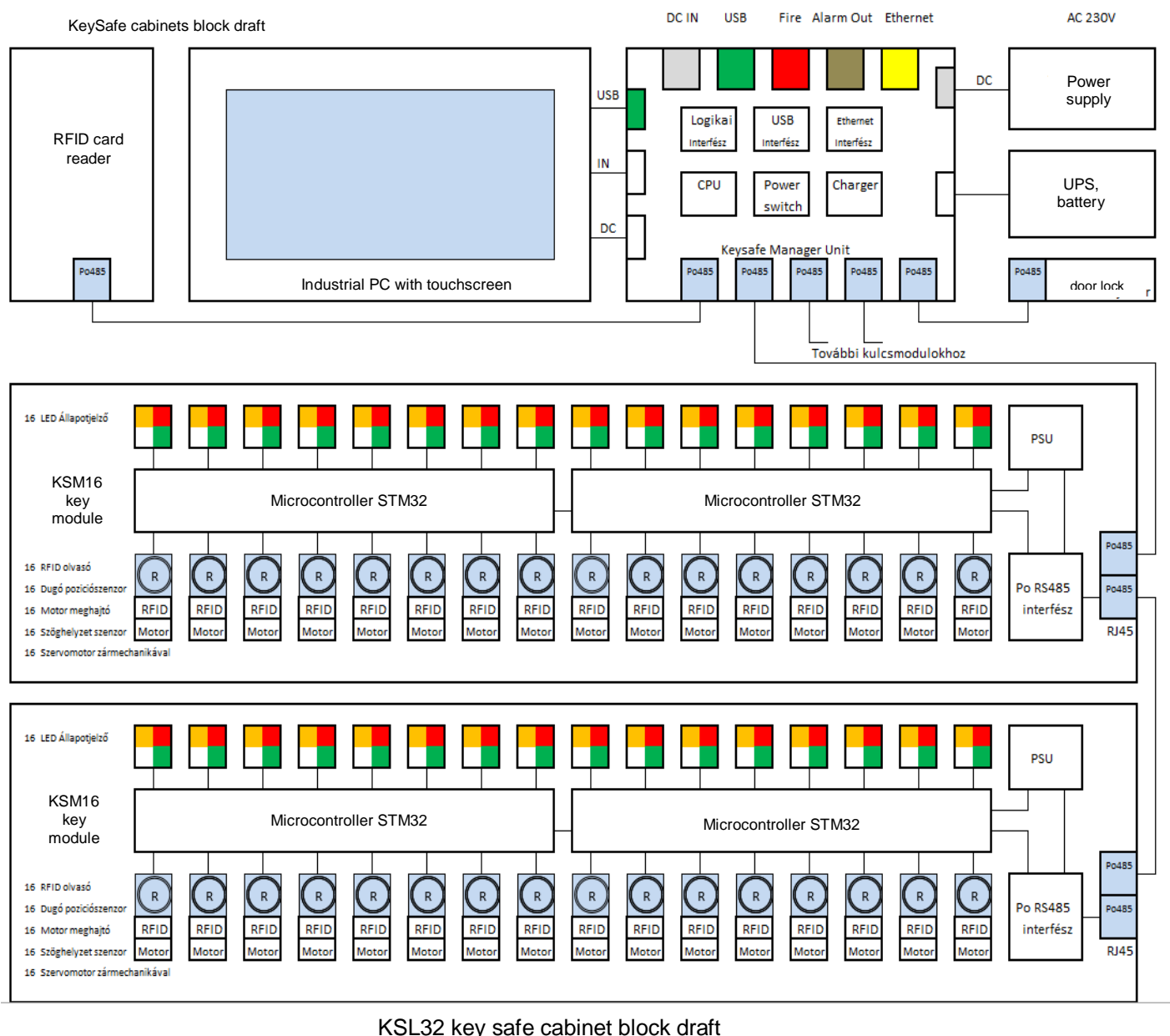## Properties, maintenance, software updates, support

The ProxerSafe key management system is a high-tech product, created as a result of our R+D activity. The elements of the systems are produced in modern, robotized laboratory, along a standardized, controlled process according to ISO 9001 quality management principles, with sophisticated technology.

The advanced 32-bit microcontroller electronics, embedded software, user-friendly GUI Windows software and key management software are all the producer's own R+D products.

Due to these possibilities, beneficial services are available: the software can be modified according to unique needs; integrated into existing access control, attendance control, ERP systems; API (application programming interface) is available.

The key management systems contain precise electromechanical components, latches, locks, propulsion with micro-engine, sensors, which require checking, cleaning and maintenance works from time to time. The operation

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interface and the software are under continuous development, thus regular software update is possible and necessary. Also for quick help, support and guidance, colleagues managing the key cabinet may wish to have our help. To cover these needs maintenance and/ or support agreement is offered.

KeySafe cabinets block draft

| | | DC IN | USB | Fire | Alarm Out | Ethernet | | AC 230V |

RFID card reader

Industrial PC with touchscreen

Logikai Interfész | USB Interfész | Ethernet Interfész

CPU | Power switch | Charger

Keysafe Manager Unit

Power supply

UPS, battery

door lock

További kulcsmodulokhoz

KSM16 key module

16 LED Állapotjelző

Microcontroller STM32

Microcontroller STM32

PSU

16 RFID olvasó
16 Dugó poziciószenzor
16 Motor meghajtó
16 Szöghelyzet szenzor
16 Szervomotor zármechanikával

Po RS485 interfész

RJ45

KSM16 key module

16 LED Állapotjelző

Microcontroller STM32

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Po RS485 interfész

RJ45

KSL32 key safe cabinet block draft

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Tel: +46 (0)8 55151000 * www.loxtore.com * E-mail: info@loxtore.se

KeySafe/ProxerSafe intelligent key and value storage cabinets – technical and IT details

Hardware

- 8" touchscreen operated independent computer with Win 8.1/10 OS, Ethernet TCP/IP RJ45 network interface
- The components of the system (RFID card reader, cabinet door lock, key holder Rack modules) are connected to this built-in computer via series RS485 communication bus
- Built-in UPS and power distribution system

Software

- The KeySafeGUI module runs on the touchscreen of the cabinet, and it is in contact with the end user; it depicts the status of the cabinet, name of the keys, searching for a key is an option, etc. It is connected to the HWServer and the database.
    - There is a possibility for administrators to modify the access rights and display the events on screen, but due to the small display size and lack of keyboard it is suggested only in smaller systems. Otherwise it is advisable to use a dedicated computer with ProxerNet KeySafe module running on it.
- The KeySafe HWServer module runs as Windows backup service, and it controls the hardware components of the cabinet (door lock, key modules, RFID reader) according to the database, registers the events into the database and is connected to the KeySafeGUI. It has no operation interface.
- The system stores the basic data and the transaction data in Microsoft SQL Server database management system (2008 R2 or later version is suggested; in "Stand-alone operation with local and central synchronized databases" operation mode Microsoft SQL Server Standard or Enterprise is needed on the server, Express or WebEdition is not sufficient)
- Client: The convenient management of the system is ensured by the ProxerNet software KeySafe module (multiuser Windows Client program), where the basic data (persons, keys, rights) are perspicuous, editable and the key events can be followed up and printed. We recommend to install this program on the Administrator PC. The software connects to the MS SQL database only, it cannot be used on the touchscreen of the cabinet.

## The available operation modes of the cabinets

1. Separate, standalone operation (not practical at multi-cabinet systems)

- KeysafeGUI, HWServer and database server run on the cabinet's PC independently
- From the Client program, one can connect to the cabinets one by one, make a query and manage the master data.
- Offline operation mode is a possible, so the cabinet keeps on operating even if the connection to the PC is lost.
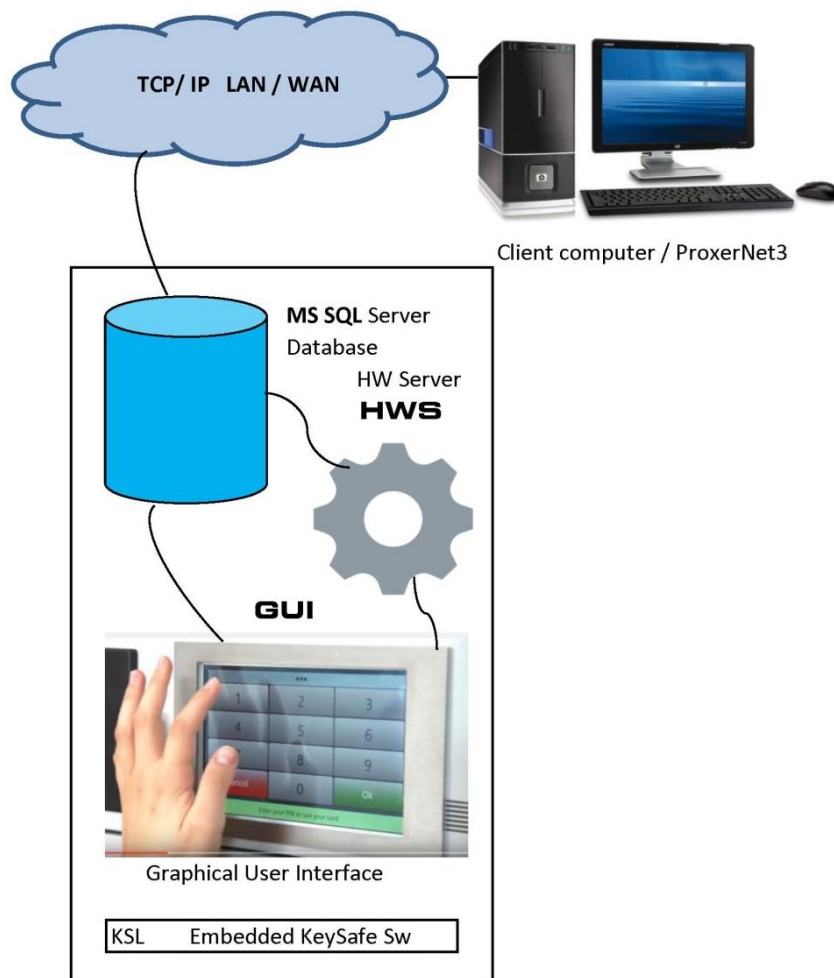
2. Operation controlled and managed from a central server

- (only the KeysafeGUI runs on the computer, in case there is a built-in touchscreen)
- The HWServer service and the MS SQL database run on an external Windows server computer (even on virtual computer or even on two separate computers)
- Common database: all cabinets use common master data and event logs
- Continuous TCP/IP network connection between cabinet and server is a must.
- In case the connection breaks with one of the cabinets, the cabinet cannot access the common database and the HWServer service, so it stops operating.
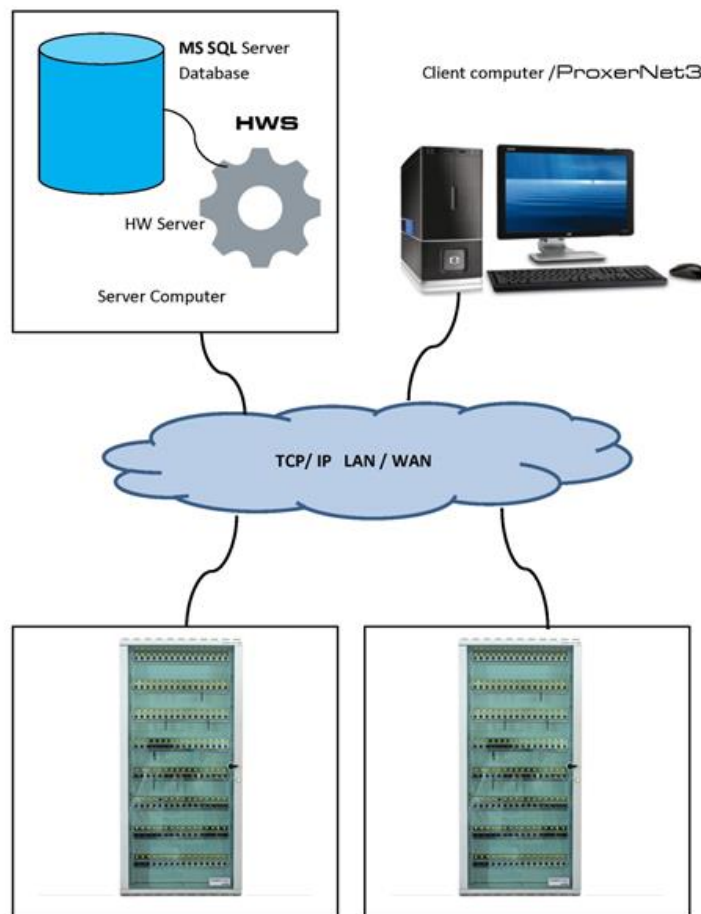
3. Standalone operation with local and central synchronized databases

- cabinets work independently, but they synchronize (exchange) their data with a central database
- if there is an interruption in the connection, the cabinet cannot access the central database, but remains operational according to the last status of its own database
- when the network connection is restored, the databases get synchronized automatically

Prerequisites of the "Standalone operation with local and central synchronized databases" operation mode:

- a Windows server computer (can be virtual, shared), with TCP/IP connection to the KeySafe cabinets
- Microsoft SQL Server 2008 R2 (or later) software Standard (or more advanced e.g. Enterprise) version (Express or Web Edition is not sufficient), with the central KeySafe database copy on it
- access to the MS SQL database manager:
  - o with remote access, via Internet, login name and password
  - o full R/W rights, rights to save and restore database, and handle replications in fully comprehensive way
  - o to save and restore the database, R/W rights are necessary for a local folder too

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