

RI System Software Network and Data Integration Guide

Revised: 03/27/2007 - 02/24/2011
 Author: Ryan Benech

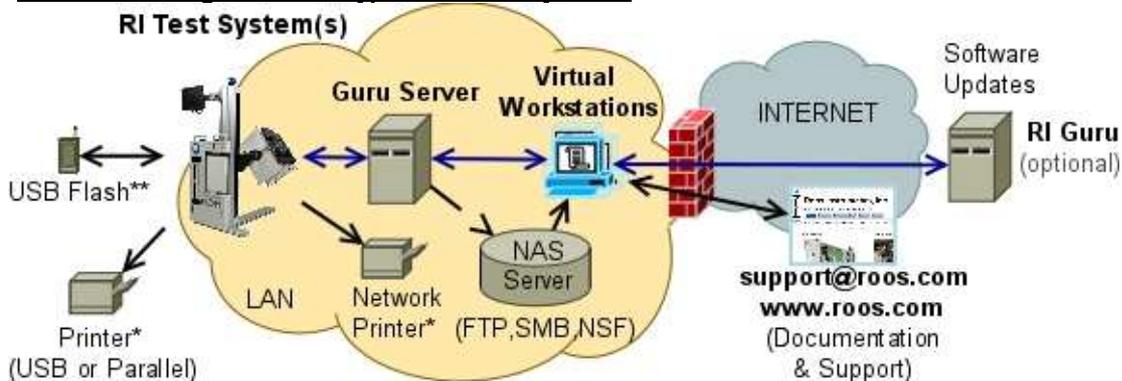
Topic(s): Admin
 Categories: Training, Data, Network, OS/2, FAQ

Doc ID:RBEH-6ZPRVE
 Ver: 15

The RI System software can be integrated with a variety of standard network hardware and operating systems. The system controller uses an embedded platform based on eComStation to interface with a RI Guru Server or directly to shared drives and other network resources on the Local Area Network (LAN). The STDF test data is typically transmitted via Guru Agent from the Guru Server via FTP to a central location where the data is accessible to data analysis tool. All required Guru connections are initiated from within the corporate firewall (outbound port 50000 to guru.roos.com), mobile development is possible with virtual workstation that works offline and only needs a temporary VPN connection to transmit updates.

The network settings and accounts should be provisioned (planned) prior to the initial shipment of a test system. Please [fill out the online survey](#) at least one week prior to the planned ship date.

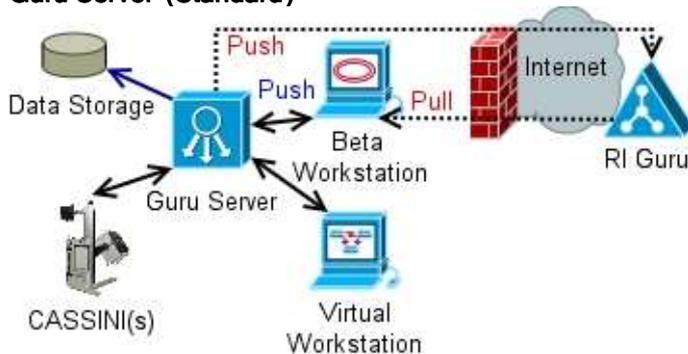
Connection Diagrams for a typical RI Test System :



* Printers supported by OS/2 or eCS only (Postscript II compatible)
 ** USB Flash formatted FAT (OS/2 compatible)

Network Configurations

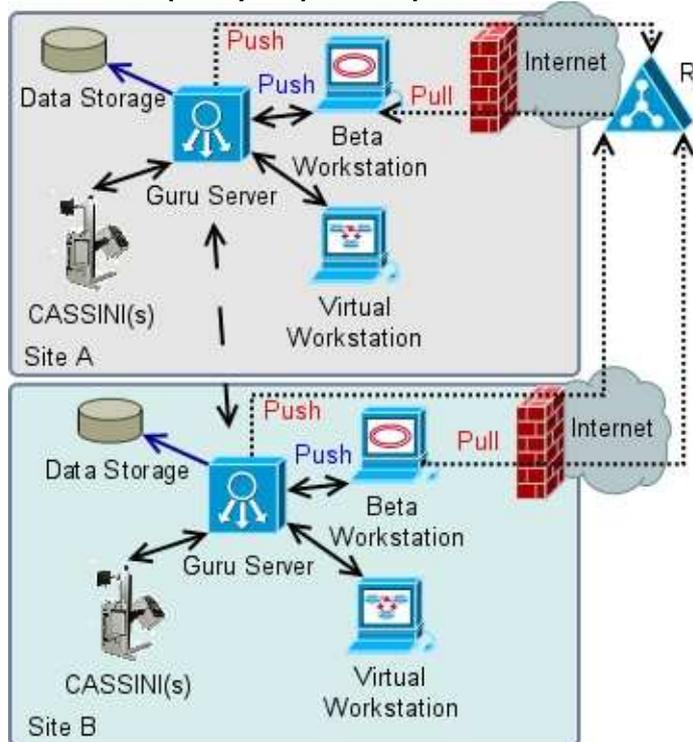
Guru Server (Standard)



Features

- Backup/Disaster Recovery for Cassini and Virtual Workstations
- Push "Support Data" via RI Guru Agent connection (TCP 50000) to guru.roos.com for RI
- Pull "Software Updates" via RI Guru Agent connection (TCP 50000) to guru.roos.com for evaluation
- Once evaluated, "Push" updates to Guru Server (and all clients)
- Cassini & Virtual Workstations can freeze software revision with "Short-Cuts"
- Automated Test Data transfer to "Data Storage" network resource with a Guru Agent.
- Guru Server is Visualized (runs on customer provided Virtual Machine) for easy provisioning

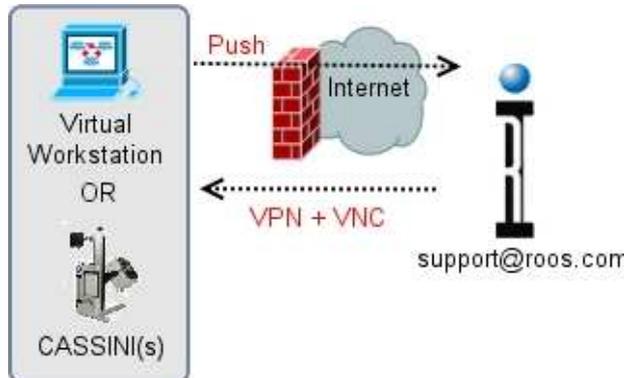
Guru Server (Enterprise) for multiple sites



Features

- Everything from "Guru Server" (above), plus...
- Site to Site exchange handled by Guru Agents
- Guru Encryption used between all links
- Guru Server runs as redundant pair on dedicated server class hardware (RI8559A)

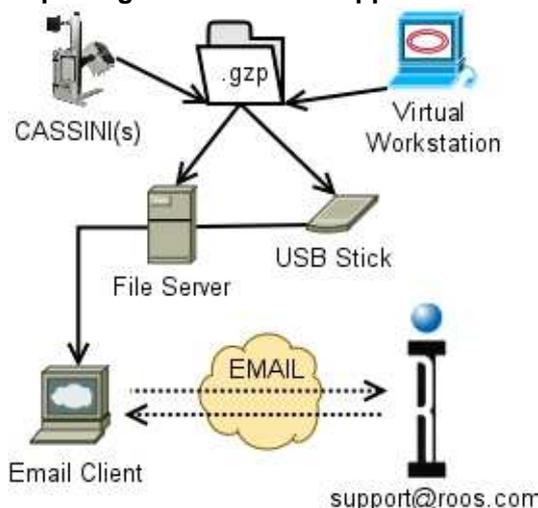
Remote Assistance



Features

- Provides hands on assistance from factory to Cassini or Virtual Workstation
- Enables real-time evaluation (no email or phone back and forth)
- "Push" provides password protected reverse VNC connection to vnc.roos.com:5500 (vnc in listening mode)
- "VPN+VNC" requires a VPN connection from RI and a password protected VNC session

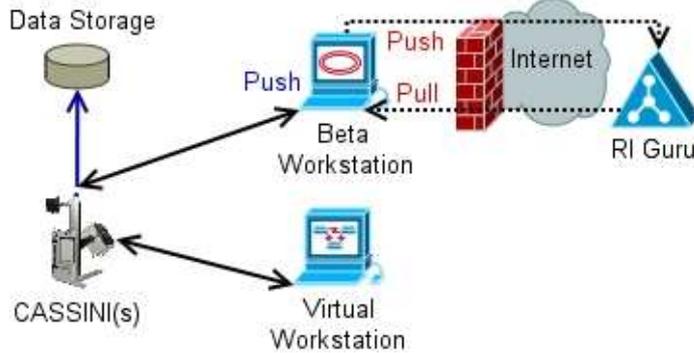
Exporting Guru Data for Support



Features

- No direct connection needed
- Export via "Collect Support Data" action or Guru Browser
- Import via Guru Importer or Guru Browser
- eCS must be able to read USB stick (most but not all FAT32 <4GB work)
- File Server can be SMB, NSF, or FTP

No Guru Server (not recommended)



Features

- No test floor internet access required
- No Backup/Disaster Recovery for Cassini or Virtual Workstations
- Beta Workstation must have test floor network access to update
- Does not scale well
- Cassini can be configured as "Update" and "Backup" Guru

Definitions

Operating System - RI System software runs in IBM OS/2 Warp V4+ and eComStation v2+ (eCS). RI Guru Server currently runs on SuSE Linux (Java 1.3 support required).

RI System Software Programming Languages - Smalltalk (IBM Visual Age Smalltalk (VAST) & Digitalk Smalltalk), Java (1.3 - 1.5), Python, REXX

RI Guru - hierarchical network storage infrastructure ([Overview of Guru](#)), required by [RITS](#) systems, recommended for [Cassini](#) platforms, and optional for [RI7100A](#)

Guru Server - provides redundant on-site disaster recovery for Cassini and Virtual Workstations, can run on dedicated hardware or virtual machine

Guru Enterprise Server - dedicated hardware, redundant backup of server, additional features

Network Interfaces - Gigabit Ethernet (TCP/IP, FTP, SSH, RI-Guru uses TCP port 50000)

Handler Interfaces - Parallel, Serial, GPIB, most common handlers already supported, handler pin out 

Data Storage/File Server - Customer provided file server (SMB, NSF, FTP), hostname or static IP

Virtual Workstation - a VirtualBox image of the RI System Software running on designers workstation/laptop

Beta Workstation - a sandbox system used to evaluate software updates (can be any test system or workstation)

Typical Network Integration

From an Test Engineer or Administrative perspective :

- RI System software uses a "login" to limit operators, developers, and Admin access to required features. Default users are set-up at the factory and they can be easily copied and renamed.
- For Cassini, the system controller is built-in to the mini-rack with the keyboard, mouse, and touch-screen monitor resting on top. (see [Large or Small CASSINI footprint](#))
For RI7100A, the customer supplies location for RI System Controller or an optional tray can be attached to the side of the system rack. (see [RI7100A footprint](#))
- Data distribution can use [Guru Agents](#) or a [custom FTP script](#).
- Testplans can be "released" as read-only to the production systems with specific software revision control (Short-Cuts), preventing accidental alterations on the test floor or unpredictable software related version issues.
- Software Updates can be easily installed via RI Guru from a network connection (FTP, SMB, or NFS)
RI7100A systems can also be updated via select USB flash drives (some flash drives are not compatible), CD-ROM, or LS-120 floppy or standard floppy drive.

From a Production Floor Manager perspective :

- Customer provided naming convention, typically [CUSTOMER ABBREVIATED NAME] + "A,B,C" or "1,2,3", eases support requests.
- Handler support (change kit development)
- A common ground between the tester, test head, fixture, and handler must be maintained to help isolate production issues. A ground wire with alligator clips is provided that connects the RI Systems' ground directly to the handler's ground.
- For RI7100A systems only, DO NOT connect the RIFL-II cables (with the same RJ45 connections) to LAN or Guru LAN hubs or switches. (see [Using the System Controller and RIFL](#))
- [Site Preparation Guidelines](#) highlight the minimum requirements compared to typical devices on the test floor.

From a Information Technology perspective :

- Typical network configuration (Static IP Address (preferred) or DHCP with hostname, Subnet mask, Default Route)
- Only guru server needs outbound access to the internet (below), with the normal LAN is typically used to interconnect Cassini and RI 7100A platforms.
- Printer type (Postscript): Network printers that support Postscript or LPD (Line Printer Daemon) standard. RI7100A can support direct connections to parallel or USB. (See [Adding a Network Printer to OS/2](#) or [Streaming Printer LPR Port driver](#))
- Custom factory automation tools can interface with network sockets via [SEMI Standard E122-0303](#), Standard for Tester Specific Equipment Model (TSEM)
- Virtual Workstations run RI System software with virtualization tools like VirtualBox (or VirtualPC)
- Guru requires outbound TCP port 50000 for Software Updates and remote testplan development, also TCP port 123 for NTP protocol to assure Guru operates at the correct time (UCT).

Network Security

The RI System controller or Guru Server is a typical networked computer and must be protected from the internet like any other critical computer system (i.e. NAT firewalled). The RI System software does have a user account model that is used to limit access to resources and features. RI Guru encrypts all data that is transferred between guru systems. RI Guru needs outbound access to the internet on TCP Port 50000 to be able to upgrade RI System software or allow test plans to be updated remotely (Guru must be configured for this). The Guru server must also have outbound TCP port 13 for the Cassini testers to get updated time information via the Daytime protocol (RPC-867).

Printers - eCS, OS/2 Support

RI systems allow directly attached printers via parallel port (RIFL controller uses the first parallel port), USB, and network (LPD). Drivers are typically supplied by IBM, eCS, or other third parties. Cassini must use a networked printer accessible from the Guru dedicated LAN.

Typical Data Integration

The RI system software has native support for STDFv4 and ATDF formats. Additional CSV (Comma Separated) or similar formats can be generated with NRE (contact sales@roos.com). Custom file definitions are typically done with translators after the data has been collected. The data rate and storage requirements are relatively insignificant, with any modern IT infrastructure able to handle everything we can generate (MB per day). Analyzing the data often requires a dedicated STDF analysis tool or spreadsheet application.

Disaster Recovery

If the system controller fails, return it with a RMA to the factory for an exchange. The system controller is configured at the factory and any custom settings would need to be applied by the

customer. For this reason, any critical system changes should be documented by the customer and updated when needed. A Guru backup server automatically restores all test plan, calibration, software updates based on the USB dongle that uniquely identifies the system controller.

Exchange RMA Process

All support requests require a valid support contract with active Module Exchange (ME) and/or Hardware Repair Parts (HRP). Contact "support@roos.com" to request a RMA (Returned Merchandise Authorization) number and receive specific packaging requirements to prevent damage or documenting instructions so that the equipment can get through customs without delay. Cassini modules are exchanged with a drop-in replacement from the factory (FOB Santa Clara, California). RI7100A systems are typically repaired while on the customer site.

Handler Integration

See [Operations - Docking with a Handler](#) (search roos.com/help)

Discard/Recycle Program

Roos Instruments is dedicated to a safe and sustainable future by accepting all RI hardware for recycling and/or disposal. Shipping is FOB Santa Clara, CA. Roos Instruments' products are exempt from the consumer recycle program requirements.

©2011 Roos Instruments, Inc. All rights reserved.