Release Notes for FXSERIES V2.7.19 Released on 14/Oct/2018

Contents

Introduction

Zebra's Fixed reader series comprises of the following readers

1. FX7500 RFID reader is a powerful EPC Gen-2 compliant business class fixed reader
2. FX9600 RFID reader is a powerful EPC Gen-2 compliant industrial fixed reader

Both these readers are Linux based devices driven by powerful RFID engine that enables users to integrate RFID into their business logic and applications with great ease and high efficiency.

Release Notes lists new features, any specific usage instructions, and any known issue.

The current build FXSeries 2.7.19 is a common release aimed at both FX7500 and FX9600 readers.

The features and the issues mentioned in this document are applicable for all FX7500 and FX9600 SKUs

Software Download

The version 2.7.19 software update package includes the files required to update FX7500 and FX9600 RFID Readers.

An FTP/SCP/FTPS server is required to upgrade the readers.

Contents of the release package:

IMAGE TYPE	VERSION	FILE NAME	DATE
RM Server LLRP Server	2.7.19 2.7.19	platform_2.7.19.0.tar.gz	10/14/2018
X-Loader	4.0.0	x-load_4.0.0.0.bin.ift	08/26/2018
U-Boot	2.1.2	u-boot_2.1.2.0.bin	08/26/2018
Operating System	2.2.15	uImage_2.2.15.0	09/24/2018

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Root FS	2.1.2	rootfs_2.1.2.0.jffs2	10/14/2018
OsUpdate Utility	1.0.0	Osupdate.elf	10/14/2018
Response	N/A	response.txt	10/14/2018
RFID3 CAPI DLL	5.5.2.7	Rfidapi32.so	09/24/2018
RFID3 JNI DLL	1.4.0.33	librfidapi32jni	09/24/2018
RFID3 Java API	1.4.0.33	Symbol.RFID.API3.jar	09/24/2018
Linux Kernel	2.6.32		
Radio Firmware	1.4.70.0 (FX7500) 2.1.14.0 (FX9600)		
Radio API	2.2.8.2		

Host API release Version Info:

IMAGE TYPE	VERSION	FILE NAME	DATE
RFID3 C API DLL	5.5.2.7	RFIDAPI32PC.DLL	09/24/2018
RFID3 .NET DLL	1.5.1.9	Symbol.RFID3.*.dll	09/24/2018
RFID3 Java JNI DLL	1.4.0.33	RFIDAPI3_JNI_HOST.dll	09/24/2018
RFID3 Java API	1.4.0.33	Symbol.RFID.API3.jar	09/24/2018

Native DLL available for 64-bit. 32-bit RFID C Dll will be provided on request.

Installation Requirements

- A USB drive can also be used directly to initiate the upgrade process. The recommended browsers are IE11, Mozilla Firefox and Chrome V68

Installation Instructions

There are three supported ways to upgrade the FXSERIES RFID reader

Method 1:

Unzip images and copy to a USB drive. Connect USB drive to FXSERIES reader. Upgrade will automatically start in 7-10 seconds.

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Method 2:

Copy images to local drive of PC, log in to the reader, select 'File based upgrade' on reader upgrade webpage, Enter username and password of reader. Select image to upgrade from local PC. Click 'Start upgrade'

Method 3:

Copy images to FTP server. Navigate to the reader upgrade webpage and select 'FTP upgrade' page. Enter username and password of the FTP server. 'Start upgrade'.

✓ FTP/SCP/FTPS server can be used to upgrade the readers.

✓ The latest version of PowerSession demo application (0.40.8 and higher) can also be used to upgrade multiple readers with a single operation. Please refer to the Integrator Guide document for detailed upgrade procedures.

New Features summary

- Removed Java applet dependencies and added web console support for latest IE, Chrome and FireFox browsers.
  - ReadTags along with enhancements to ReadTags Page
  - Advanced Antenna configuration
  - File based firmware update
  - User Application deployment
  - SysLog
  - Profiles Page
- New RFID3 C APIs to support additional functionality:
  - Get LLRP client Connect status and the connected client IP Address
  - Get / Set NTP Config
  - Get / Set Network Config
  - Get / Set Wireless Config
  - Get the current state of antenna connection
  - Get the alarm statistics for various reader alarms as part of RFID_GetReaderStats
  - Get the Reader temperature
- Added support for NXP BrandID in FX7500
- Added flash bad block handling during system start up.
- Added support for detecting antenna connect on disconnected ports when inventory is in progress in FX7500
- Modified default RFMode to M4, 240 KHz for access operation.
- Modified default setting to use Target A for access operation.
- Added support for RS232 modes in FX9600. Serial port can be configured to one of the following 3 modes:
  - Debug port (Default)
  - Push Data – Allows a connected terminal (client) to received tag data once inventory is started from the web console or the RM interface RFID tag data is reported using ZETI (Zebra Easy-Text Interface) format
  - Free port – Supports user app to use serial port
- For ease of use, the files used to update firmware using a USB drive can be taken from either the ftp based or file based folder. **However**, it is strongly recommended to use files from the ftp folder when performing firmware updates using the USB drive method because this folder supports an additional file validation check

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- Added guards to reject firmware update operation when firmware meant for different reader family is accidentally used.
- Added support for Microsoft Edge on Windows 10
- Added support for Safari browser on MAC
- Added feature to manually disabled antennas in the web console.
- Updated all developer guides for ease of use
- Updated the C, .NET and Java SDK installers to use the latest library and header files.

Other changes since 2.6.9

- Changes have been done in RootFS and Platform to optimize the file size so that file based firmware upgrade can be done from older firmware (e.g 2.6.9) on FX7500/FX9600 to 2.7.19.
- Changes to ensure that the applet replacement pages can be used in secure mode when the Web server is configured in secure mode.
- Enabled file-based firmware update and support for splitting RootFS partition to multiple files to allow file based firmware update.
- Added support for configuring tag meta data and inventory criteria when used in serial port push data mode in FX9600
- If reader is reset to factory default, no additional reset is required to get a functional LLRP service.
- Name of the Sample applications developed for latest Visual Studio (supports VS 2015 and VS 2017) have been generalized.
-

Known Issues

Summary of major issues and limitations are listed below.

- File based update cannot be used to downgrade from 2.7.19 (and above) to a lower version (2.6.x and earlier) on FXSeries readers using web console. Power session can be used to downgrade using file based update in the above scenario.
- When using File based update using Web console the progress for writing jumps to 200% (once it reached 100%) incorrectly. The overall progress % is still correct.
- In Reader Wireless Settings Parameter web page, WIFi singnal strength is always shown as 100%. To read the correct strength, refer to the ESSID field
- Serial port push data feature is not supported when baud rate is set to 14400
- Number of rounds stop trigger when more than one antenna is enabled does not stop reads after N rounds
- If a serial cable is not connected when the serial port push data feature is enabled, a number of issues can be observed. It is recommended to reset the reader if reader misbehaves
- File based update folder of the firmware release does not support the following (to allow backward compatibility)
    o Checksum validation
    o Platform type validation

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- LLRP settings if changed from the default will prevent the ReadTags, Advanced Antenna Config and serial port communication pages from functioning properly.
- RFSurvery is not supported in FXSeries Readers even though the LLRP capability reports true for canDoRFSurvey.
- Before the successful tunnel creation two ping packets are sent and received unencrypted.
- IPSEC hand shake is not successful with CISCO router.
- After successful tunnel creation reader accepts unencrypted packets momentarily from the destination.

Serial Port Operations

Below are the operations captured for serial port.

1. **Debug Port:**
   In this mode serial console in FX9600 will be used as the debug kernel port and kernel will use this port for debug messages.

Figure 1: Default setting - Debug Port

2. **Push Data Port:**
   In this mode serial port in FX9600 will be used as push data port and inventory operation can be performed and TAG report will be sent over serial port with selected settings.

Figure 2: Push Data Port Settings

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Configuration Commit/Discard

Uncommitted Configuration Changes
- Serial Port Mode is changed. Needs reader reboot to take effect

Commit the Configuration Changes

[Commit]

Discard the Configuration Changes

[Discard]

Reset reader to factory defaults

[Factory Reset]
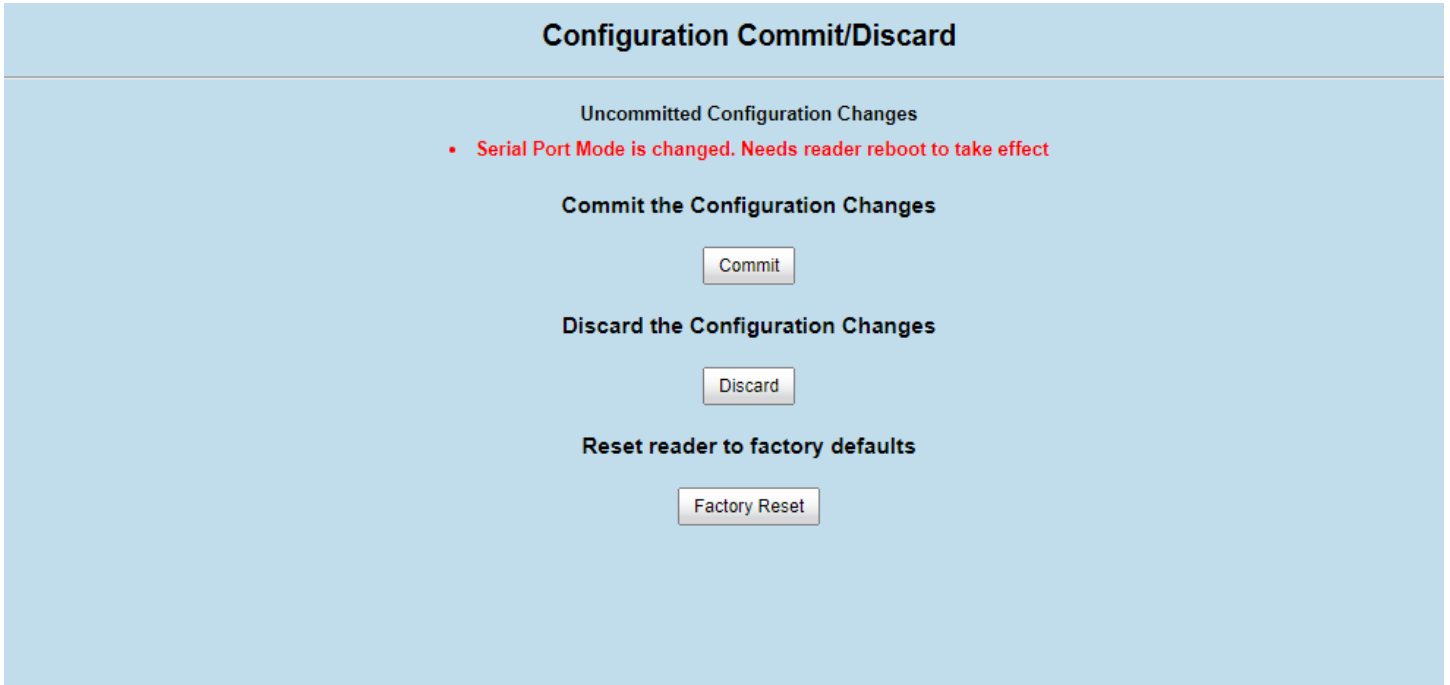
Figure 3: Commit Settings

Serial Port Communication

Inventory started.

Serial Port: [Push Data ▾]

Configure Serial Port

Baud Rate:	115200 ▾
Data Bits:	8 bit ▾
Parity:	None ▾
Flow Control:	None ▾
Stop Bits:	1 bit ▾

Tag Data Section

Antenna ID:	☑
RSSI:	☑
Time Stamp:	☑
Seen Count:	☑
Channel Index:	☐
EPC:	☑
PC:	☐
Phase:	☐

[Save]

Inventory(start/stop): 🟢
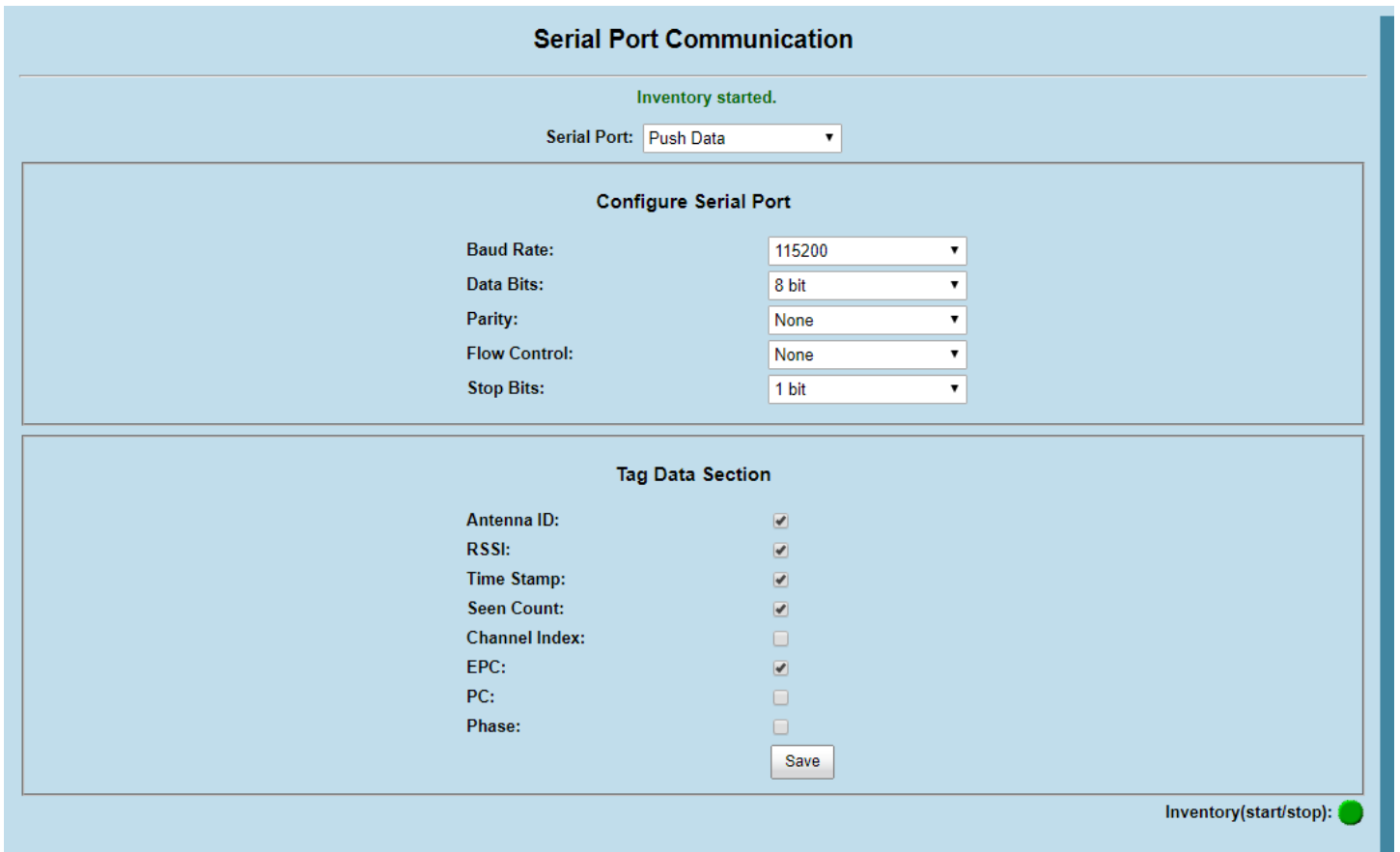
Figure 4: Inventory Operation

```
zebra@ubuntu-16: ~
E28011606000020666AF4DA8,4,-30,1,7/8/2018 3:24:9:22,<dacc>
E28011606000020666B07158,4,-28,1,7/8/2018 3:24:9:22,<9913>
E28011606000020666B035E8,4,-34,1,7/8/2018 3:24:9:22,<e78f>
E28011606000020666AF2BC8,4,-39,1,7/8/2018 3:24:9:22,<3a8d>
E28011606000020666B08398,4,-41,1,7/8/2018 3:24:9:22,<5911>
E28011606000020666B083D8,4,-38,1,7/8/2018 3:24:9:22,<6b5f>
E28011606000020666B0E379,4,-37,1,7/8/2018 3:24:9:24,<2289>
E28011606000020666B0E349,4,-27,1,7/8/2018 3:24:9:24,<4689>
E28011606000020666B07178,4,-31,1,7/8/2018 3:24:9:24,<5e48>
E28011606000020666B07118,4,-39,1,7/8/2018 3:24:9:24,<02fd>
E28011606000020666B0E369,4,-26,1,7/8/2018 3:24:9:24,<dabc>
8DF0000000000000007CCCF7,4,-29,1,7/8/2018 3:24:9:26,<82e8>
E28011606000020666B07148,4,-28,1,7/8/2018 3:24:9:26,<2971>
E28011606000020666B08318,4,-29,1,7/8/2018 3:24:9:26,<fefa>
E28011606000020666B07128,4,-25,1,7/8/2018 3:24:9:26,<bf5d>
E28011606000020666B0E399,4,-31,1,7/8/2018 3:24:9:26,<8bfb>
E28011606000020666B01348,4,-34,1,7/8/2018 3:24:9:26,<b333>
E28011606000020666B08348,4,-28,1,7/8/2018 3:24:9:29,<61d0>
E28011606000020666B0E359,4,-29,1,7/8/2018 3:24:9:29,<4590>
E28011606000020666B0E389,4,-30,1,7/8/2018 3:24:9:29,<e72a>
E28011606000020666B0E339,4,-40,1,7/8/2018 3:24:9:29,<3ae6>
E28011606000020666B0D1E9,4,-51,1,7/8/2018 3:24:9:29,<72db>
E28011606000020666AF2B78,4,-44,1,7/8/2018 3:24:9:31,<abe1>
E28011606000020666B09D18,4,-32,1,7/8/2018 3:24:9:31,<442b>
E28011606000020666B07168,4,-43,1,7/8/2018 3:24:9:31,<3d9a>
E28011606000020666B08318,4,-29,1,7/8/2018 3:24:9:31,<bd2c>
8DF0000000000000007C02A2,4,-51,1,7/8/2018 3:24:9:31,<84a6>
E28011606000020666B0E369,4,-26,1,7/8/2018 3:24:9:33,<996a>
E28011606000020666AF4DA8,4,-30,1,7/8/2018 3:24:9:33,<f9dc>
E28011606000020666B07128,4,-25,1,7/8/2018 3:24:9:33,<dcc9>
8DF0000000000000007CCD29,4,-62,1,7/8/2018 3:24:9:33,<700a>
8DF0000000000000007CCD1E,4,-54,1,7/8/2018 3:24:9:33,<0b13>
E28011606000020666B035D8,4,-25,1,7/8/2018 3:24:9:36,<6c0f>
8DF0000000000000007CCD1B,4,-51,1,7/8/2018 3:24:9:36,<6ec3>
8DF0000000000000007CCD14,4,-52,1,7/8/2018 3:24:9:36,<0cfc>
E28011606000020666B08348,4,-28,1,7/8/2018 3:24:9:36,<a30e>
E28011606000020666B01348,4,-33,1,7/8/2018 3:24:9:36,<912b>
8DF0000000000000007CCCF7,4,-29,1,7/8/2018 3:24:9:36,<b1d9>
E28011606000020666B0E379,4,-37,1,7/8/2018 3:24:9:38,<d034>
8DF0000000000000007E0337,4,-51,1,7/8/2018 3:24:9:40,<5a7c>
E28011606000020666B07128,4,-25,1,7/8/2018 3:24:9:40,<753d>
E28011606000020666B0E349,4,-28,1,7/8/2018 3:24:9:40,<e321>
E28011606000020666B08348,4,-27,1,7/8/2018 3:24:9:40,<15d5>
8DF0000000000000007CCD1A,4,-57,1,7/8/2018 3:24:9:40,<86df>
8DF0000000000000007CCD1E,4,-52,1,7/8/2018 3:24:9:43,<ee75>
E28011606000020666B07118,4,-36,1,7/8/2018 3:24:9:43,<9736>
E28011606000020666B0E359,4,-30,1,7/8/2018 3:24:9:43,<180c>
E28011606000020666B0E339,4,-37,1,7/8/2018 3:24:9:43,<0b33>
E28011606000020666B0E369,4,-25,1,7/8/2018 3:24:9:43,<b695>
E28011606000020666B07178,4,-31,1,7/8/2018 3:24:9:43,<8409>
E28011606000020666B08318,4,-28,1,7/8/2018 3:24:9:45,<09e7>
E28011606000020666B07148,4,-27,1,7/8/2018 3:24:9:45,<fc3e>
8DF0000000000000007CCCF7,4,-29,1,7/8/2018 3:24:9:45,<182d>

CTRL-A Z for help | 115200 8N1 | NOR | Minicom 2.7 | VT102 | Offline | ttyUSB0
```

Figure 5: Tag Report Over Serial Console

3. **Free Port:**

This is free mode, in this mode serial port in FX9600 can be used for user application to perform any user specific operation. In this mode user app can perform open/read/write operation as per their requirement.

Serial Port Communication

Serial Port: Free Port ▾ | Save |

Figure 6: Free Port

Steps to add Self Signed Certificate in browser for Applet replacement pages

When the reader is configured to secure mode with self-signed certificate then the self signed certificate needs to be added in browser to make it accessible for node api's so that the applet replacement pages can use secure web server connection for its transaction.. Below is the example to add certificate in Firefox browser. The steps given below will vary from browser to browser.
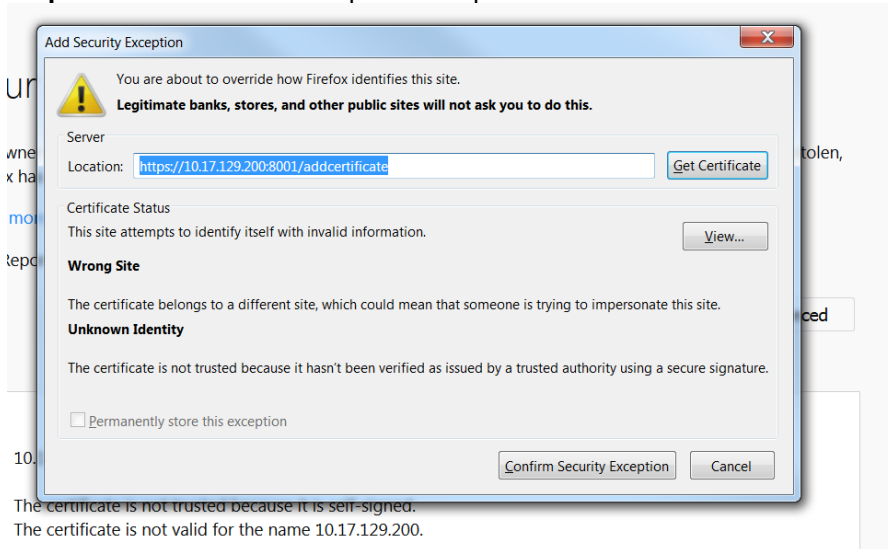
Step 1: open url https://ReaderIPAddress:8001/addcertificate (for example https://10.17.129.200:8001/addcertificate) in browser.

Step 2: Browser will prompt with below error as shown in image. Click on Advanced and then click on Add Exception (This process may vary from Browser to Browser).
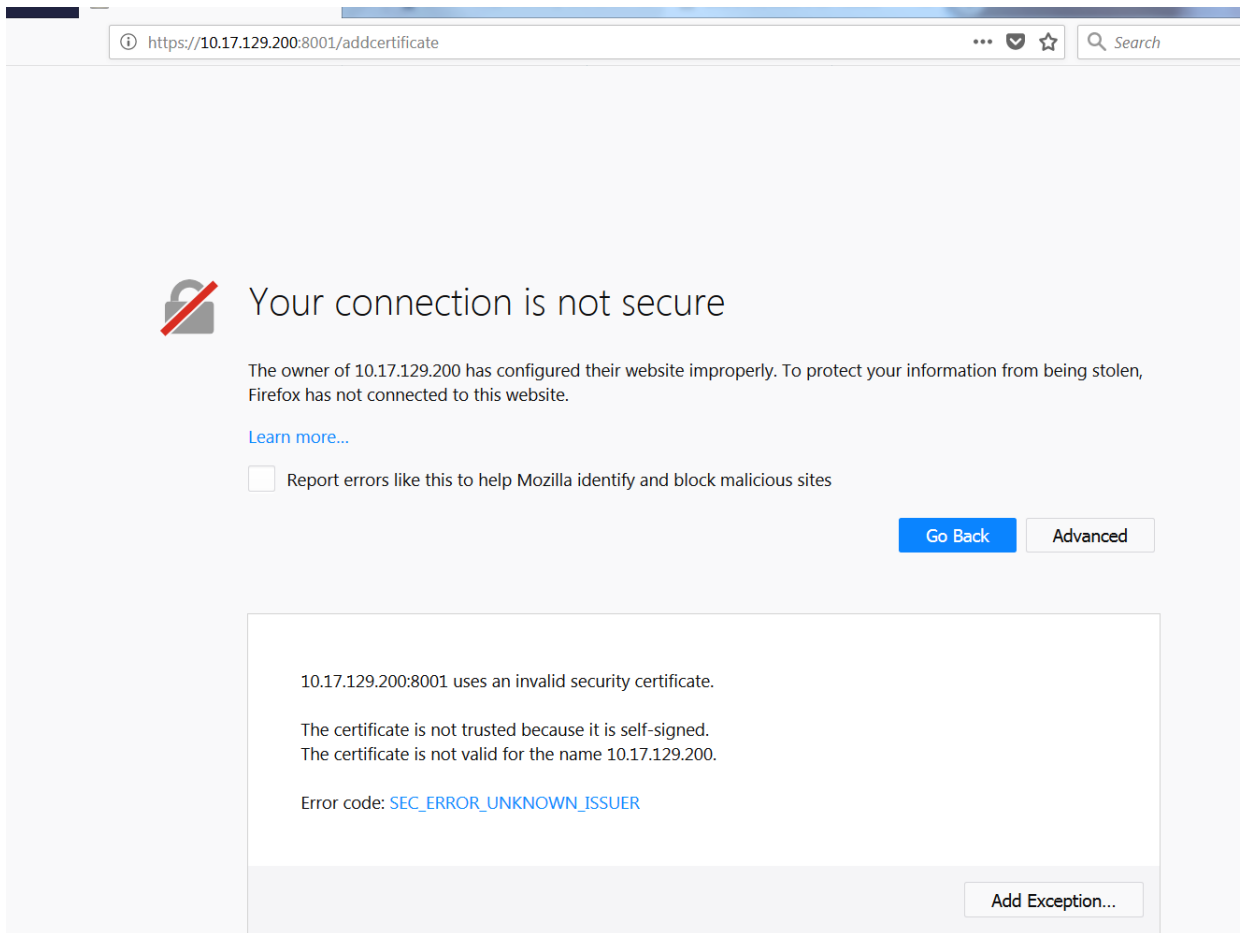
Step 3: On click of Add Exception will open below window.

Click on "confirm Security Exception". It will add certificate into Browser and below page will be shown in browser. Click on "Login to reader web console" link to open reader web console.

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