

Chromebook Repair Management Tool



By: Nick Dawson
Capstone Night 2020

A Little Background Info

- Worked in the IT Dept
- Repair process was tedious and repetitive
- I wanted to automate the process
- I started with a PDF Filling program



Chromebook Repair Request Form

Please input the following information about your Chromebook.

* Required

Student Name *

Please include First and Last name.

Your answer

Student Email *

Your answer

Location *

Choose

Problem/Damage Description *

Check all that apply. ***If your keyboard is not working specify which keys in the "other" option***

- ☐ Screen Broken/Not Working
- ☐ Case/Chassis Broken
- ☐ Keyboard Not Working **SPECIFY KEY IN OTHER**
- ☐ Headphone Jack Broken
- ☐ Camera Broken
- ☐ Not Turning On
- ☐ Won't Charge
- ☐ "Chrome OS is missing or damaged"
- ☐ Rubber Feet Missing
- ☐ Speakers Not Working
- ☐ Charging Cable Damaged
- ☐ Trackpad Not Working
- ☐ Won't Connect To Internet
- ☐ Other: _____

Submit



Lenovo Inventory Control Sheet

*** BACKUP ALL OF YOUR FILES BEFORE SHIPPING! ***

Lenovo will not be responsible for the loss of your programs or data. If a replacement or re-image of the hard drive is required, all of your data and software settings will be lost.

To provide you with the most efficient service possible, please provide the information requested below. Lenovo technicians will make repair decisions based on your Contact Center case record and the information provided below. Please include this completed form with your PC when it is sent to the repair center. Thank you for your cooperation.

CUSTOMER AND MACHINE INFORMATION:

Customer name: _____ Case number: _____

Contact phone: _____ Machine type/model: _____

Customer E-mail: _____ Serial number: _____

Failure description and steps to recreate failure symptom: _____

☐ I understand that the replacement or reimaging of the hard drive will result in complete data and application loss and reset the machine to the original factory settings: _____ (Signature Required)

Please check any of the following items that are being sent in with the Laptop PC. Please include size where appropriate.

<input type="checkbox"/> Hard Drive Size: _____ GB. <i>Please review hard drive Re-image / Replacement warnings above.</i>	<input type="checkbox"/> Media or Media Device (CD / DVD / CDRW / BluRay) Please specify device type: _____
<input type="checkbox"/> Wireless Device Please specify device type: _____	<input type="checkbox"/> Additional Memory Please specify total memory size: _____ MB
<input type="checkbox"/> Power cord	<input type="checkbox"/> Battery
<input type="checkbox"/> AC Adapter	<input type="checkbox"/> Other(s) Please specify: _____

PASSWORDS:

To accurately diagnose problems and completely test your machine, technicians need to access the Operating System. Without access to the Operating System, your machine can not be fully tested after the repair. Please remove your passwords or include them below prior to shipping the machine into the Repair Center. If there are passwords on the machine we will not be able to properly diagnose the problem and may return the machine to you not completely repaired or not repaired at all.

Remember: Passwords are case sensitive and may include numbers and characters. Please print clearly.

Power On Password: _____ Hard Drive Password: _____ BIOS Password: _____

Supervisor Password: _____ Operating System Password: _____

FOR CUSTOMERS WHO HAVE PURCHASED ACCIDENTAL DAMAGE PROTECTION:

Under the Service Contract Terms and Conditions, Lenovo has agreed to provide you Accidental Damage Protection repair services if your computer is damaged unintentionally due to an accident. Please confirm your computer was damaged due to an accident by providing your signature here: _____

Please Ship PC To:

USA Customers:
Lenovo Authorized Service Center
6380 E. Holmes Rd.
Memphis, TN 38141

CANADA Customers:
Lenovo Authorized Service Center
755 Wallace Road, Unit P
North Bay, Ontario P1A0E7

SHIPPING NOTE:

If we haven't received your machine at the Repair Center within 30 days, the case will be automatically closed. If you still wish to send your machine in for repair, a new case will have to be opened by calling into the Contact Center. 1-877-4LENOVO (1-877-453-6686)

1



Lenovo Inventory Control Sheet

*** BACKUP ALL OF YOUR FILES BEFORE SHIPPING! ***

Lenovo will not be responsible for the loss of your programs or data. If a replacement or re-image of the hard drive is required, all of your data and software settings will be lost.

To provide you with the most efficient service possible, please provide the information requested below. Lenovo technicians will make repair decisions based on your Contact Center case record and the information provided below. Please include this completed form with your PC when it is sent to the repair center. Thank you for your cooperation.

CUSTOMER AND MACHINE INFORMATION:

Customer name: Nicholas Dawson Case number: 1234567

Contact phone: (860) 342-1720 Machine type/model: N22

Customer E-mail: ndawson20@portlandct.us Serial number: LR05ERFG

Failure description and steps to recreate failure symptom: Screen Broken/Not Working, Headphone Jack Broken, Camera

☒ I understand that the replacement or reimaging of the hard drive will result in complete data and application loss and reset the machine to the original factory settings: Nick Dawson (Signature Required)

Please check any of the following items that are being sent in with the Laptop PC. Please include size where appropriate.

<input type="checkbox"/> Hard Drive Size: _____ GB. <i>Please review hard drive Re-image / Replacement warnings above.</i>	<input type="checkbox"/> Media or Media Device (CD / DVD / CDRW / BluRay) Please specify device type: _____
<input type="checkbox"/> Wireless Device Please specify device type: _____	<input type="checkbox"/> Additional Memory Please specify total memory size: _____ MB
<input type="checkbox"/> Power cord	<input type="checkbox"/> Battery
<input type="checkbox"/> AC Adapter	<input type="checkbox"/> Other(s) Please specify: _____

PASSWORDS:

To accurately diagnose problems and completely test your machine, technicians need to access the Operating System. Without access to the Operating System, your machine can not be fully tested after the repair. Please remove your passwords or include them below prior to shipping the machine into the Repair Center. If there are passwords on the machine we will not be able to properly diagnose the problem and may return the machine to you not completely repaired or not repaired at all.

Remember: Passwords are case sensitive and may include numbers and characters. Please print clearly.

Power On Password: _____ Hard Drive Password: _____ BIOS Password: _____

Supervisor Password: _____ Operating System Password: _____

FOR CUSTOMERS WHO HAVE PURCHASED ACCIDENTAL DAMAGE PROTECTION:

Under the Service Contract Terms and Conditions, Lenovo has agreed to provide you Accidental Damage Protection repair services if your computer is damaged unintentionally due to an accident. Please confirm your computer was damaged due to an accident by providing your signature here: _____

Please Ship PC To:

USA Customers:
Lenovo Authorized Service Center
6380 E. Holmes Rd.
Memphis, TN 38141

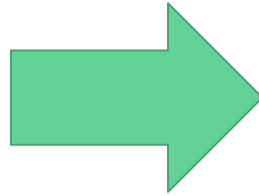
CANADA Customers:
Lenovo Authorized Service Center
755 Wallace Road, Unit P
North Bay, Ontario P1A0E7

SHIPPING NOTE:

If we haven't received your machine at the Repair Center within 30 days, the case will be automatically closed. If you still wish to send your machine in for repair, a new case will have to be opened by calling into the Contact Center. 1-877-4LENOVO (1-877-453-6686)

Without
Automation:

30 Sec



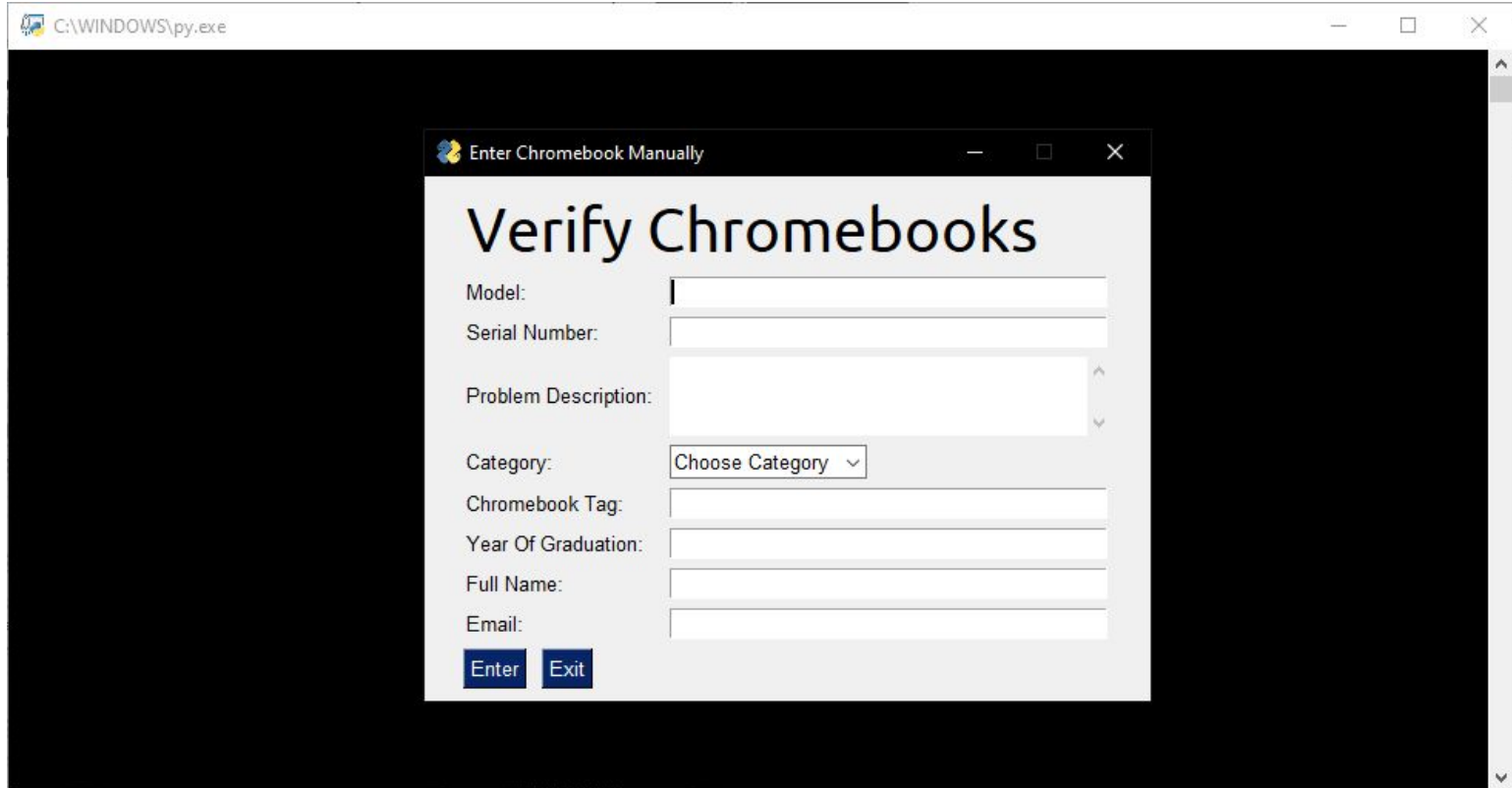
With
Automation:

<1 Sec

Creating the Entire Program v1

- First version completed last spring
- Function is main priority not looks
- First version worked and saved lots of time

What the program looks like:



The image shows a Windows application window titled "Enter Chromebook Manually" with a standard Windows title bar (minimize, maximize, close buttons). The window has a black background. Centered on the screen is a white rectangular form titled "Verify Chromebooks". The form contains the following fields and controls:

- Model:** A single-line text input field.
- Serial Number:** A single-line text input field.
- Problem Description:** A multi-line text area with up and down arrow icons on the right side.
- Category:** A dropdown menu with the text "Choose Category" and a downward arrow.
- Chromebook Tag:** A single-line text input field.
- Year Of Graduation:** A single-line text input field.
- Full Name:** A single-line text input field.
- Email:** A single-line text input field.

At the bottom left of the form are two blue buttons: "Enter" and "Exit".

The Impact of Automation

Without Automation:

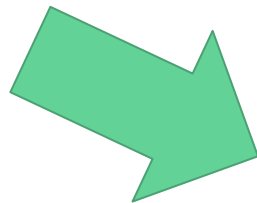
3.38 mins

Only 5% of the
previous time!

2000% Faster!

With Automation:

9.5 Sec

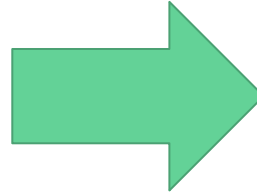


The Numbers (for 1 device)

	Process Incoming	Emailing Principal	Fill Spreadsheet (1 item)	Send Lenovo Email	Get Case Number	Fill PDF	Request FedEx Pickup	Check Device In	Send Student Notification	Total:
No Automation	1	45	25	22	25	30	20	5	30	203
Full Automation	1	5	0.25	0.5	0.5	0.25	0.5	1	0.5	9.5

Without
Automation:

6.94 hrs



With
Automation:

16.6 Sec

Time = Money!

Without Automation	With Automation
56.38 hours	2.64 hours
\$620.18 (at \$11 per hr)	\$29.04 (at \$11 per hr)

Savings:

\$591.14

v2 - GUI and Sustainability

- Add GUI (Graphical User Interface)
- Not changing automation
- Make interface look better
- Allow easy usage
- Allow easy editing of settings



Chromebook Repair Management Tool



Tools Options Help

Process
Incoming

Choose Repair
Procedure

Initiate Lenovo
Repairs

Send Lenovo
Email

Recieve Case
Numbers

Generate Repair
Sheets

Send Package
With FedEx

Pickup:

PHS: 0 PMS: 0

BIS: 1 GS: 0

VV: 0 **Total: 1**

Out For Repair:

PHS: 3 PMS: 0

BIS: 0 GS: 0

VV: 0 **Total: 3**

Device Repaired S/ N:

Repair

Return to Student S/N:

Return to Student





Process Incoming



Verify Information and change any information that is incorrect.

Name: Nick Dawson

CB Tag: CB-2020-14

S / N: LR05EXPL

Problem: Screen Broken/Not Working
Won't Charge

☐ Email Principal

Cancel

Defer

Next

Damage Image:

Select File

Repair Cost:



Choose Repair Procedure



Name: Nick Dawson

CB Tag: CB-2020-14

S / N: LR05EXPL

Problem: Screen Broken/Not Working
Won't Charge

Repair Procedure:

Lenovo Warrenty



Cancel

Defer

Next

Chromebook Repairs - 03-02-2020-22-34-17 >

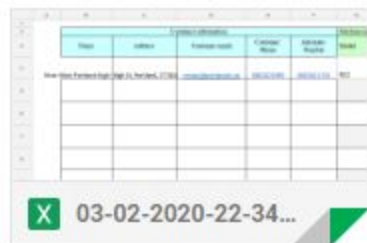


Elliot McBride <ndawson20@portlandct.us>
to dunkindawson ▾

Hello,

Please repair the attached Chromebooks.

Thanks,
Elliot McBride



Reply



Forward

[illegible]



Lenovo Inventory Control Sheet

*** BACKUP ALL OF YOUR FILES BEFORE SHIPPING! ***

Lenovo will not be responsible for the loss of your programs or data. If a replacement or re-image of the hard drive is required, all of your data and software settings will be lost.

To provide you with the most efficient service possible, please provide the information requested below. Lenovo technicians will make repair decisions based on your Contact Center case record and the information provided below. Please include this completed form with your PC when it is sent to the repair center. Thank you for your cooperation.

CUSTOMER AND MACHINE INFORMATION:

Customer name: Nicholas Dawson Case number: 123456789

Contact phone: (860) 342-1720 Machine type/model: N22

Customer E-mail: ndawson20@portlandct.us Serial number: LR05EXPL

Failure description and steps to recreate failure symptom: Screen Broken/Not Working, Won't Charge

☒ I understand that the replacement or reimaging of the hard drive will result in complete data and application loss and reset the machine to the original factory settings: Nick Dawson (Signature Required)

Please check any of the following items that are being sent in with the Laptop PC. Please include size where appropriate.

<input type="checkbox"/> Hard Drive Size: _____ GB. <small>Please review hard drive Re-image / Replacement warnings above.</small>	<input type="checkbox"/> Media or Media Device (CD / DVD / CDRW / BluRay) <small>Please specify device type: _____</small>
<input type="checkbox"/> Wireless Device Please specify device type: _____	<input type="checkbox"/> Additional Memory Please specify total memory size: _____ MB
<input type="checkbox"/> Power cord	<input type="checkbox"/> Battery
<input type="checkbox"/> AC Adapter	<input type="checkbox"/> Other(s) Please specify: _____

PASSWORDS:

To accurately diagnose problems and completely test your machine, technicians need to access the Operating System. Without access to the Operating System, your machine can not be fully tested after the repair. Please remove your passwords or include them below prior to shipping the machine into the Repair Center. If there are passwords on the machine we will not be able to properly diagnose the problem and may return the machine to you not completely repaired or not repaired at all.

Remember: Passwords are case sensitive and may include numbers and characters. Please print clearly.

Power On Password: _____ Hard Drive Password: _____ BIOS Password: _____

Supervisor Password: _____ Operating System Password: _____

FOR CUSTOMERS WHO HAVE PURCHASED ACCIDENTAL DAMAGE PROTECTION:

Under the Service Contract Terms and Conditions, Lenovo has agreed to provide you Accidental Damage Protection repair services if your computer is damaged unintentionally due to an accident. Please confirm your computer was damaged due to an accident by providing your signature here: _____

Please Ship PC To:

USA Customers:
Lenovo Authorized Service Center
6380 E. Holmes Rd.
Memphis, TN 38141

CANADA Customers:
Lenovo Authorized Service Center
755 Wallace Road, Unit P
North Bay, Ontario P1A0E7

SHIPPING NOTE:

If we haven't received your machine at the Repair Center within 30 days, the case will be automatically closed. If you still wish to send your machine in for repair, a new case will have to be opened by calling into the Contact Center. 1-877-4LENOVO (1-877-453-6686)



Send Package



Package up LR05EXPL and scan label below.

Scan FedEx Label:

Cancel

Request

Settings

?

×

FedEx Pickup Information

Contact Name:

Nicholas Dawson

Company Name:

Portland CT Public Schools

Address:

95 High Street

City:

Portland

State:

CT

Zip Code:

06480

Phone Number:

8603421720

Pickup Type:

Business

Number of Packages:

1

Over 150lbs or hazardous?

No

Pickup Location:

Front

Comments:

Lenovo Information

Customer Name:

Nicholas Dawson

Customer Phone:

(860) 342-1720

Customer Email:

ndawson20@portlandct.us

File Directories

Control Sheet Template:

nplates/LenovoRepairSheet-TEMPLATE.pdf

Save Folder:

Print/

Signature Image:

fileTemplates/NickDawson-SIGNATURE.png

Google Credentials:

Account:

ndawson20@portlandct.us

Change

Save

Cancel

*Thank
you*

-Nick