



AIRA
AMERICAN IMMUNIZATION
REGISTRY ASSOCIATION

Computers & Files

Connecting Systems

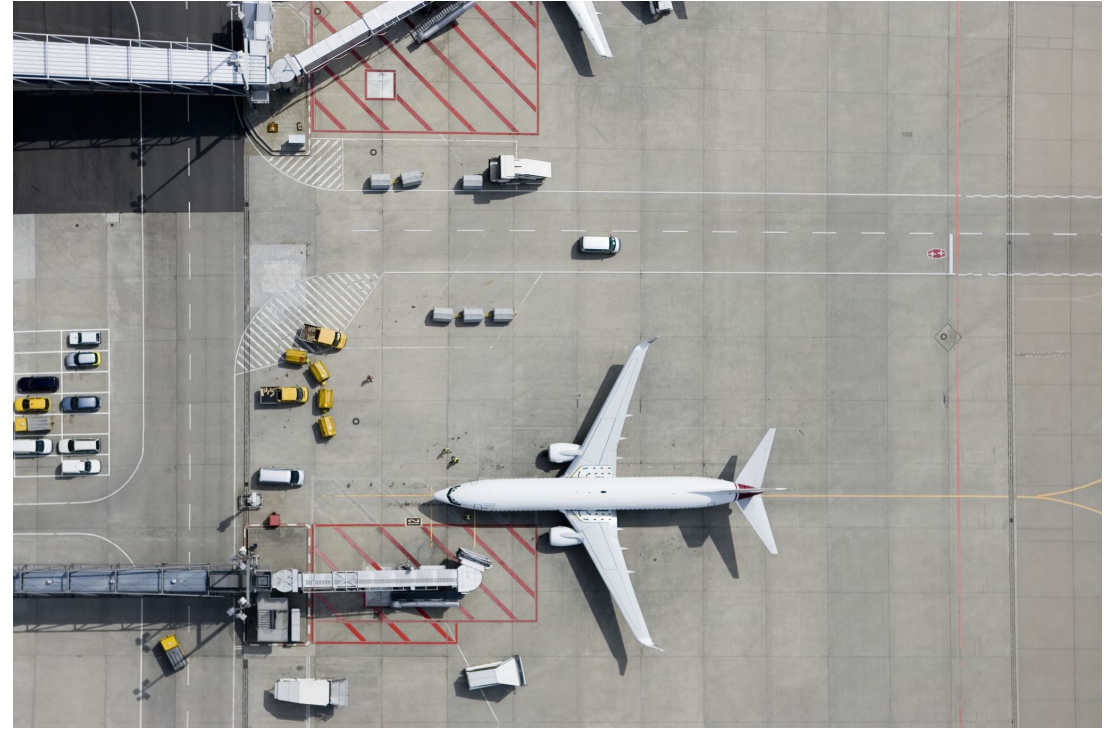
Computers & Files

How computers organize and process data.



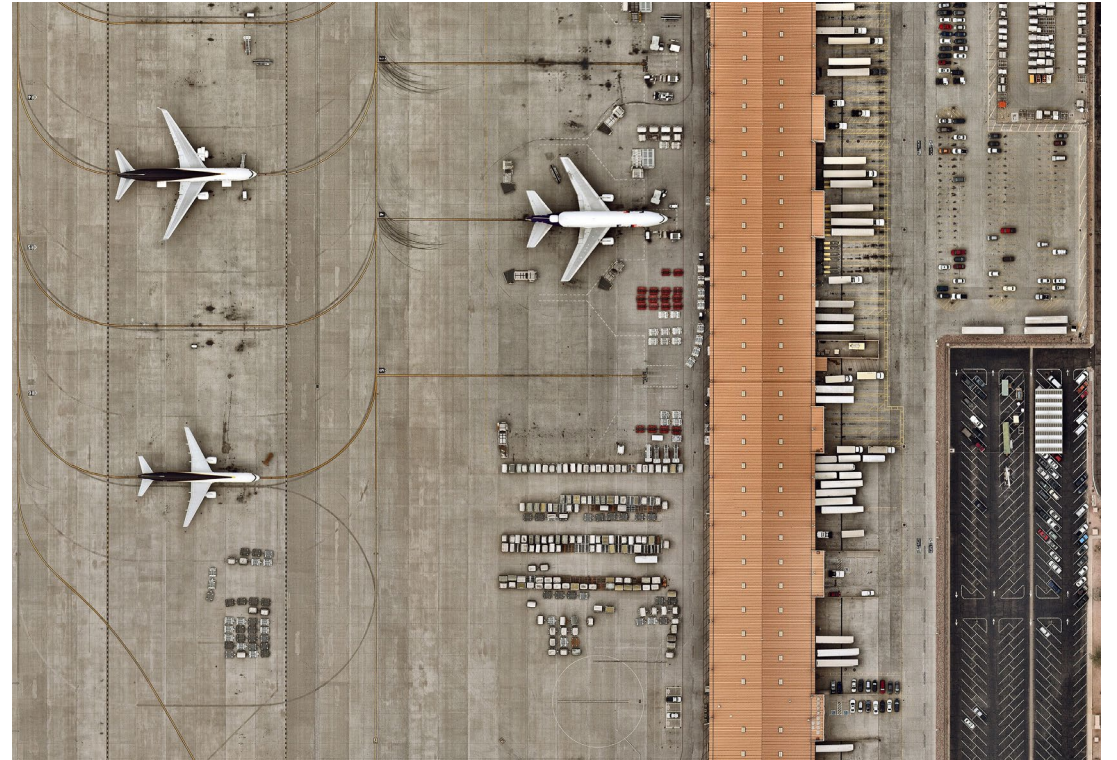
Computer System

- Learn about:
 - Operating System
 - Files and Folders
 - File Path
 - Text Files
 - File Compression
 - Command Line



Operation System

- Master software application
 - Coordinates all computer operations
 - Manages the long-term data storage



Applications

- Designed for specific operating system
- Must be installed
- AKA
 - Apps
 - Software
 - Programs



File and Folders

- Files

- A block of binary data
- Has a name
- Placed in a folder

DBTest.bat	11/29/2018 8:15 AM	Windows Batch File	1 KB
DBTest.class	11/29/2018 8:12 AM	CLASS File	3 KB
DSRDev.bat	9/28/2020 2:14 PM	Windows Batch File	1 KB
DSRDev.config.txt	10/2/2020 8:09 PM	Text Document	4 KB
java	11/29/2018 8:10 AM	File	0 KB
MCIR.config.txt	2/25/2020 2:59 PM	Text Document	3 KB
New Text Document.txt	5/22/2019 1:23 PM	Text Document	1 KB
output.txt	9/28/2020 2:29 PM	Text Document	1 KB
smm-tester-2.25.1-jar-with-dependencies.jar	9/28/2020 2:06 PM	Executable Jar File	21,695 KB
tester.config.txt	9/28/2020 2:29 PM	Text Document	2 KB
wir_test.bat	5/22/2019 1:25 PM	Windows Batch File	1 KB



File and Folders

- Files
 - A block of binary data
 - Has a name
 - Placed in a folder
- Extensions
 - Indicates type of content

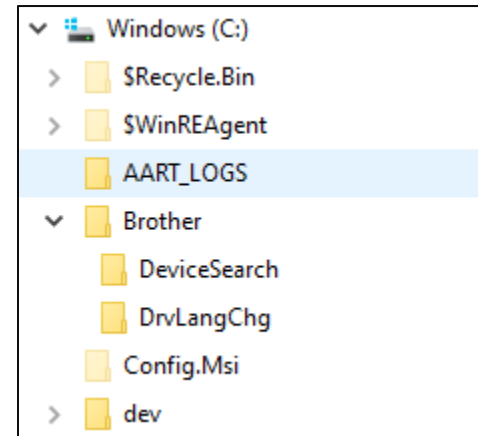
DBTest.bat	11/29/2018 8:15 AM	Windows Batch File	1 KB
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File and Folders

- Files
 - A block of binary data
 - Has a name
 - Placed in a folder
- Extensions
 - Indicates type of content
- Folders
 - Can hold other folders
 - Can hold files

DBTest.bat	11/29/2018 8:15 AM	Windows Batch File	1 KB
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File Path

- Root
 - Windows: "C:\\"
 - Unix, Linux, or Mac: "/"
- Folder name separator
 - Windows: "\"
 - Others: "/"



Files

- Text files

- You can read these with a simple text editor
- Data generally follows old ASCII standard

Data Encoding Quick Sheet

ASCII Lookup

Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char
0	0	NUL (null)	32	20	SPACE	64	40	@	96	60	~
1	1	SOH (start of heading)	33	21	!	65	41	A	97	61	a
2	2	STX (start of text)	34	22	"	66	42	B	98	62	b
3	3	ETX (end of text)	35	23	#	67	43	C	99	63	c
4	4	EOT (end of transmission)	36	24	\$	68	44	D	100	64	d
5	5	ENQ (enquiry)	37	25	%	69	45	E	101	65	e
6	6	ACK (acknowledge)	38	26	&	70	46	F	102	66	f
7	7	BEL (bell)	39	27	'	71	47	G	103	67	g
8	8	BS (backspace)	40	28	(	72	48	H	104	68	h
9	9	TAB (horizontal tab)	41	29	)	73	49	I	105	69	i
10	A	LF (NL line feed, new line)	42	2A	*	74	4A	J	106	6A	j
11	B	VT (vertical tab)	43	2B	+	75	4B	K	107	6B	k
12	C	FF (NP form feed, new page)	44	2C	,	76	4C	L	108	6C	l
13	D	CR (carriage return)	45	2D	-	77	4D	M	109	6D	m
14	E	SO (shift out)	46	2E	.	78	4E	N	110	6E	n
15	F	SI (shift in)	47	2F	/	79	4F	O	111	6F	o
16	10	DLE (data link escape)	48	30	0	80	50	P	112	70	p
17	11	DC1 (device control 1)	49	31	1	81	51	Q	113	71	q
18	12	DC2 (device control 2)	50	32	2	82	52	R	114	72	r
19	13	DC3 (device control 3)	51	33	3	83	53	S	115	73	s
20	14	DC4 (device control 4)	52	34	4	84	54	T	116	74	t
21	15	NAK (negative acknowledge)	53	35	5	85	55	U	117	75	u
22	16	SYN (synchronous idle)	54	36	6	86	56	V	118	76	v
23	17	ETB (end of trans. block)	55	37	7	87	57	W	119	77	w
24	18	CAN (cancel)	56	38	8	88	58	X	120	78	x
25	19	EM (end of medium)	57	39	9	89	59	Y	121	79	y
26	1A	SUB (substitute)	58	3A	:	90	5A	Z	122	7A	z
27	1B	ESC (escape)	59	3B	;	91	5B	[	123	7B	{
28	1C	FS (file separator)	60	3C	<	92	5C	\	124	7C	|
29	1D	GS (group separator)	61	3D	=	93	5D	]	125	7D	}
30	1E	RS (record separator)	62	3E	>	94	5E	^	126	7E	~
31	1F	US (unit separator)	63	3F	?	95	5F	_	127	7F	DEL

Conversions

Unit	Size Comparison
byte	= 8 bits
kilobyte	= 1,024 bytes
megabyte	= 1,024 kilobytes
gigabyte	= 1,024 megabytes
terabyte	= 1,024 gigabytes
petabyte	= 1,024 terabytes
exabyte	= 1,024 petabytes
zettabyte	= 1,024 exabytes

Hexadecimal and Binary

Dec	Hex	Bin	Dec	Hex	Bin
0	0	0000	8	8	1000
1	1	0001	9	9	1001
2	2	0010	10	A	1010
3	3	0011	11	B	1011
4	4	0100	12	C	1100
5	5	0101	13	D	1101
6	6	0110	14	E	1110
7	7	0111	15	F	1111



Files

- Text files
 - You can read these with a simple text editor
 - Data generally follows old ASCII standard
- Binary files
 - Everything else

```
1 PKETXEOTDC4NULACKNULBSNULNULNUL! NULt6Z|zSOHNULNUL,,ENO|^
2 [õ`Eaá€zTDC2õSOHj;°
3 Ý¶éFFBSoílAbFFBBS\¶Ù¶óýLg!;?7@XABESC|%zewDC4àu0ÖÏ+ñ1}í<:
4 CANSONOúÓMEOT, 8Úc%jçø$%éSUBSUB...e^àùdSYNR£^DELÓ\F¥ETBjS
5 y3ÃóHw@JŽìÂ°¶DC1iøú?FFíÉÿ@vqiüFSÉSUB(Æ*Ñ>jø»\;ùNAKÒà3,,Ey
6 ?^9Liò™NAKÈsbgÛ@|È!õùSUBUSH9i°bžr:"y_d1ÀóD>çDC3ý|-NœÈR"
7 f05ETBtYBØ[â -eË...?Á0Ã>ÀtôªªHENOoùJžSOH´±#}DC4?ÁACK!USR°:
8 É²±æÁ' oØ†
9 Ñ5"@(ÁjÚŽéiÆÁÁî7STXe1E»RîAÈETX<t†ëú;£<ACANa)™™@dDC1¯%èpU
10 G·iB@DLEFFSUBVTôENO±ÁHóE.ÛESC*sô%r~EÁákVTá/@ÏÐª«×L,!,7K
```



Files - Examples

- Text files

- .txt
- .xml
- .html
- .csv
- .config
- .ini
- .bat
- .sh

- Binary files

- .gif
- .jpg
- .docx
- .pptx
- .xmlx
- .zip
- .pdf

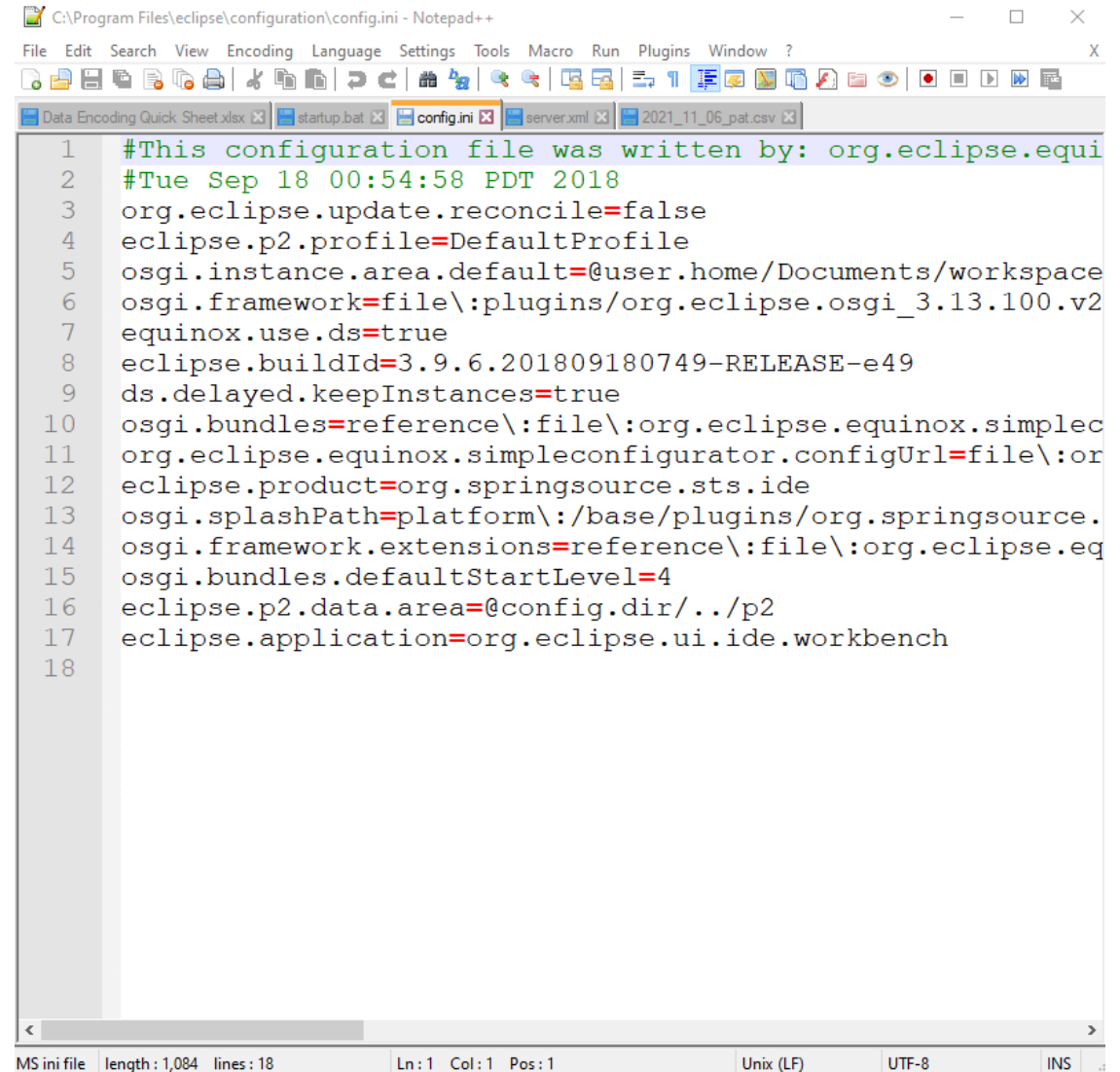


Someone Just Bought A GIF For Half A Million Dollars – Bill McCool, PRINT
<https://www.printmag.com/design-news/someone-just-bought-a-gif-for-half-a-million-dollars/>



Text File Formats

- Parameter files



```
1 #This configuration file was written by: org.eclipse.equinox.simpleconfigurator.configurator
2 #Tue Sep 18 00:54:58 PDT 2018
3 org.eclipse.update.reconcile=false
4 eclipse.p2.profile=DefaultProfile
5 osgi.instance.area.default=@user.home/Documents/workspace
6 osgi.framework=file\:plugins/org.eclipse.osgi_3.13.100.v2
7 equinox.use.ds=true
8 eclipse.buildId=3.9.6.201809180749-RELEASE-e49
9 ds.delayed.keepInstances=true
10 osgi.bundles=reference\:file\:org.eclipse.equinox.simpleconfigurator.configurator
11 org.eclipse.equinox.simpleconfigurator.configUrl=file\:org.eclipse.equinox.simpleconfigurator.configurator
12 eclipse.product=org.springframework.ide.eclipse.p2.ide
13 osgi.splashPath=platform\:/base/plugins/org.springframework.ide.eclipse.p2.ide
14 osgi.framework.extensions=reference\:file\:org.eclipse.equinox.simpleconfigurator.configurator
15 osgi.bundles.defaultStartLevel=4
16 eclipse.p2.data.area=@config.dir/../../p2
17 eclipse.application=org.eclipse.ui.ide.workbench
18
```

MS ini file | length: 1,084 | lines: 18 | Ln: 1 | Col: 1 | Pos: 1 | Unix (LF) | UTF-8 | INS



Text File Formats

- Parameter files
- XML files

```
C:\Program Files\Apache Software Foundation\Tomcat 9.0\conf\server.xml - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
Data Encoding Quick Sheet.xlsx startup.bat config.ini server.xml 2021_11_06_pat.csv
1 <?xml version="1.0" encoding="UTF-8"?>
2 <!--
3 Licensed to the Apache Software Foundation (ASF) under
4 contributor license agreements. See the NOTICE file c
5 this work for additional information regarding copyrig
6 The ASF licenses this file to You under the Apache Lic
7 (the "License"); you may not use this file except in c
8 the License. You may obtain a copy of the License at
9
10 http://www.apache.org/licenses/LICENSE-2.0
11
12 Unless required by applicable law or agreed to in writ
13 distributed under the License is distributed on an "AS
14 WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either e
15 See the License for the specific language governing pe
16 limitations under the License.
17 -->
18 <!-- Note: A "Server" is not itself a "Container", so y
19 define subcomponents such as "Valves" at this level
20 Documentation at /docs/config/server.html
21 -->
22 <Server port="8005" shutdown="SHUTDOWN">
23 <Listener className="org.apache.catalina.startup.Versi
24 <!-- Security listener. Documentation at /docs/config/
25 <Listener className="org.apache.catalina.security.Secu
26 -->
27 <!--APR library loader. Documentation at /docs/apr.htm
28 <Listener className="org.apache.catalina.core.AprLifec
eXtensible length: 7,676 lines: 168 Ln: 1 Col: 1 Pos: 1 Windows (CR LF) UTF-8 INS
```



Text File Formats

- Parameter files
- XML files
- Scripts

```
C:\Program Files\Apache Software Foundation\Tomcat 9.0\bin\startup.bat - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
Data Encoding Quick Sheet.xlsx startup.bat config.ini server.xml 2021_11_06_pat.csv
1 @echo off
2 rem Licensed to the Apache Software Foundation (ASF) under
3 rem contributor license agreements. See the NOTICE file
4 rem this work for additional information regarding copyri
5 rem The ASF licenses this file to You under the Apache Li
6 rem (the "License"); you may not use this file except in
7 rem the License. You may obtain a copy of the License at
8 rem
9 rem http://www.apache.org/licenses/LICENSE-2.0
10 rem
11 rem Unless required by applicable law or agreed to in wri
12 rem distributed under the License is distributed on an "A
13 rem WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
14 rem See the License for the specific language governing p
15 rem limitations under the License.
16
17 rem -----
18 rem Start script for the CATALINA Server
19 rem -----
20
21 setlocal
22
23 rem Guess CATALINA_HOME if not defined
24 set "CURRENT_DIR=%cd%"
25 if not "%CATALINA_HOME%" == "" goto gotHome
26 set "CATALINA_HOME=%CURRENT_DIR%"
27 if exist "%CATALINA_HOME%\bin\catalina.bat" goto okHome
28 cd ..
29 set "CATALINA_HOME=%cd%"
Batch file length : 2,022 lines : 59 Ln : 1 Col : 1 Pos : 1 Windows (CR LF) UTF-8 INS
```



Text File Formats

- Parameter files
- XML files
- Scripts
- Flat files

```
C:\Users\N. Bunker\Downloads\2021_11_06_pat.csv - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
Data Encoding Quick Sheet.xlsx startup.bat config.ini server.xml 2021_11_06_pat.csv
1 "IIS Patient ID","Name - First","Name - Middle","Name - I
2 288212,AltaAIRA,NelekAIRA,FagenAIRA,2020-07-30,F,"1546 Ae
3 288213,DerrellAIRA,,NavarroAIRA,2021-09-28,M,"1270 Kestle
4 288214,MayrahaAIRA,SaulAIRA,LaurelAIRA,2020-02-05,F,"1723
5 288215,ArturoAIRA,,FagenAIRA,2020-05-18,M,"1136 Copik Ave
6 288216,CarineAIRA,ArvalAIRA,LaurelAIRA,2021-10-12,F,"1599
7 288217,ZuzanaAIRA,LynelleAIRA,OkanoganAIRA,2021-08-25,F,"
8 288218,MilbournAIRA,EricaAIRA,FagenAIRA,2020-01-19,M,"122
9 288219,ParthiviAIRA,TesiaAIRA,TitusAIRA,2020-12-18,F,"111
10 288220,SharleenAIRA,CeresAIRA,FagenAIRA,2020-10-20,F,"175
11 288221,SolanaAIRA,,TitusAIRA,2020-01-22,F,"1533 Zus Pl",E
12 288222,TemanAIRA,,TitusAIRA,2020-08-15,M,"1449 Veendam Ci
13 288223,GibsonAIRA,EhnerAIRA,ManningAIRA,2021-08-16,M,"140
14 288224,MuzafferAIRA,BarakahAIRA,FagenAIRA,2021-08-29,F,"1
15 288225,UlrikeAIRA,ItzelAIRA,AndrewsAIRA,2020-03-24,F,"161
16 288226,RafaelaAIRA,ParnitaAIRA,FagenAIRA,2020-03-01,F,"16
17 288227,WashingtonAIRA,,FrontierAIRA,2021-04-15,M,"1050 Ve
18 288228,MaudeAIRA,MickiAIRA,TitusAIRA,2020-08-14,F,"1769 S
19 288229,MagdaAIRA,AliAIRA,LaurelAIRA,2020-02-24,F,"1992 Li
20 288230,WaratahAIRA,MorryAIRA,LaurelAIRA,2020-10-12,F,"160
21 288231,ZadokAIRA,WihtburthAIRA,ColemanAIRA,2020-02-08,M,"
22 288232,HumbertoAIRA,AvisAIRA,TitusAIRA,2021-09-09,M,"1278
23 288233,ConncettaAIRA,ParveenAIRA,TitusAIRA,2021-06-23,F,"
24 288234,PascalAIRA,TurpinAIRA,FagenAIRA,2021-04-13,M,"1442
25 288235,ChristopherAIRA,VanceAIRA,NuckollsAIRA,2021-03-30,
26 288236,MeldaAIRA,JoniAIRA,ManningAIRA,2021-04-02,F,"1736
27 288237,AdenAIRA,HagleyAIRA,FrontierAIRA,2021-04-28,M,"100
28 288238,MyrnaAIRA,BarsAIRA,YorkAIRA,2021-07-03,F,"1628 Her
29 288239,MaritaAIRA,,FagenAIRA,2020-10-31,F,"1624 Koeree-Ov
Normal text length : 22,260,728 lines : 200,002 Ln : 1 Col : 1 Pos : 1 Unix (LF) UTF-8 INS
```



Flat File Formats

- Comma Separated Values (CSV)
 - Each field separated by commas
 - Fields can be wrapped in quotes
- Tab or pipe delimited
 - Fields separated by delimiting character
 - Delimiter cannot be used in data
- Fixed Width
 - Each field is padded with spaces to a standard width



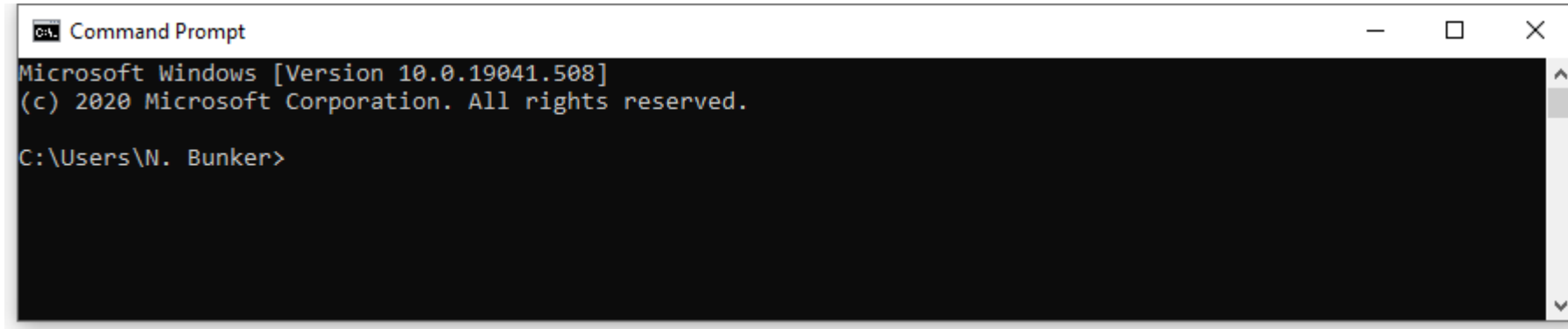
File Compression

- Zip Compression
 - Files named: *.zip
 - Multiple files put together
 - File structure preserved
 - Data is compressed
- Other formats:
 - Linux: *.tar.gz
 - 7.zip: *.7z



Command Line

- Windows
 - Start >> type "cmd", press enter

A screenshot of a Windows Command Prompt window. The title bar reads "Command Prompt". The window content shows the following text: "Microsoft Windows [Version 10.0.19041.508]", "(c) 2020 Microsoft Corporation. All rights reserved.", and "C:\Users\N. Bunker>". The window has standard Windows window controls (minimize, maximize, close) in the top right corner.

```
Command Prompt
Microsoft Windows [Version 10.0.19041.508]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\N. Bunker>
```

- Mac OS
 - Launchpad icon, type "Terminal", the click Terminal, or
 - In Finder, open /Applications/Utilities folder, then double click Terminal





Command Line Activity

- Simple commands

- Show folder contents: `dir` or `ls`

- Go to parent folder: `cd ..`

- Go to a specific folder: `cd [folder name]`



Computer System

- Learn about:
 - Operating System
 - Files and Folders
 - File Path
 - Text Files
 - File Compression
 - Command Line

