FinSolve 1.1
User Manual
(Version 1.0)

FinSolve User Manual

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1 Disclaimer

2 Introduction

FinSolve is an Excel based DIY personal finance projection tool created by a CFP professional. You can use it to model your financial future in as little or much detail as you need. It's relatively simple to use but a very powerful tool for comprehensive financial planning. It's slightly more difficult to set up than a typical on-line tool but is much more detailed, accurate and sophisticated in capability.

About: My name is Ramesh Singh and I conceived, designed, and developed the FinSolve. I am a CFP (Certified Financial Planner) professional and work as a Director and the Head of Structured Credit (CLO) Risk & Analytics at a large private equity firm on Wall Street. Previously I worked as a software engineer. I am also a CFA (Chartered Financial Analyst) charter holder. I have an Electrical Engineering degree from Indian Institute of Technology, Roorkee, India and MBA in Finance and Investments Strategy from Tepper School of Business at Carnegie Mellon University, Pittsburgh. You may see my profile on LinkedIn and CFP Board.

My motivation for making FinSolve available for free is to equip everyone who needs a financial plan but can't afford the high cost of a quality financial advisor, to build a detailed do-it-yourself personal financial plan. I have limited availability for pro-bono financial coaching if you need help with setting up FinSolve or interpreting the results. Please visit FinSolve website to check my availability. I am currently not accepting any financial planning clients and FinSolve is truly meant as a DIY educational tool for the public and not creating a client pipeline for me. I have spent countless hours developing this software and pay out of pocket for website hosting but still want to keep it free for everyone because I

believe it's crucial for people to have quality financial planning. If you, or know someone you know, who can help me migrate this Excel/VBA-based software to a purely web-based application, please contact me.

3 FinSolve Features

Annual Projections:
- Annual income, expense, savings, federal and state taxes
- Net Worth, Terminal Estate Value
- Investments by asset location (taxable, tax deferred and tax-exempt accounts)
- Detailed report for income, expenses, investments by location and tax calculations, net worth

Asset Allocation
- Dynamic asset allocation
- By asset type (Savings Account/Bonds/Stocks) for each asset location (taxable, tax deferred and tax-exempt accounts) individually

Scenario Analysis
- Standard scenario analysis to project the effect of retirement age and social security benefit start-age choices.
- Custom scenario analysis

Roth Conversion Optimization
- Minimizes lifetime taxes to maximize terminal estate value.

Medicare Premium Optimization
- IRMAA

Precise Tax Calculations
- Exact federal and state tax projections based on income.

4 Excel Requirements

You need Microsoft 365 to use FinSolve. You need Microsoft 365 (offline version) installed on your computer. It does **not** work with the online version of Microsoft 365.

Many newer computers come with Microsoft 365 pre-installed. If you already have Excel installed on your computer, you can check the version by going to File/Account. There are a couple of ways to get a free version of it.
- Free trial version: https://www.microsoft.com/en-us/microsoft-365/try
- Free education version: https://www.microsoft.com/en-us/education/products/office

5 Quick Start Guide

5.1 Download FinSolve

1. Download FinSolve files ("FinSolve 1.0.Zip") to your computer to a folder of your choice(for example Downloads).
2. Open the Zip file by double clicking on it. Select all 4 files from this.
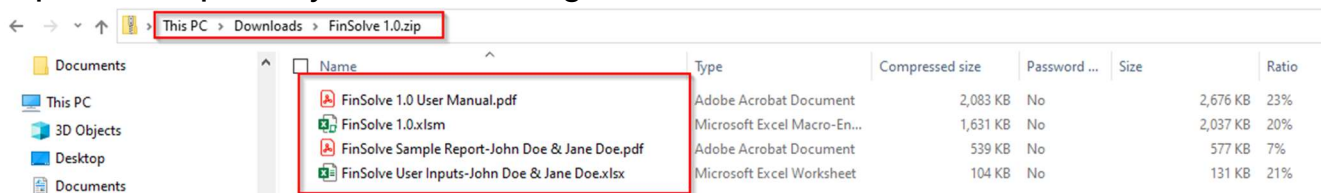
3. Save four files inside the zip file to a folder of choice (for example My Documents).
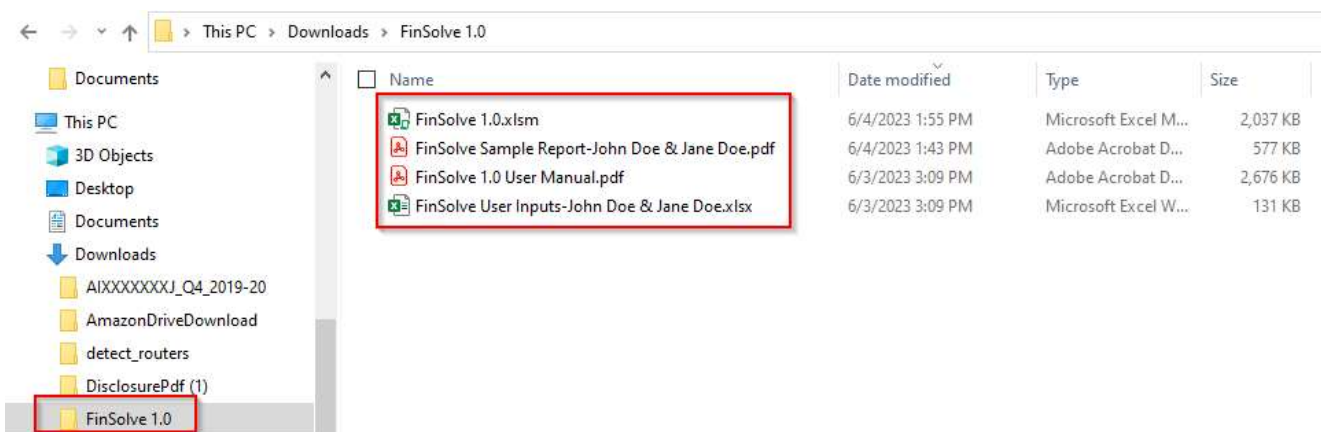
4. Open "FinSolve 1.0.xlsm" from this location.

5.2 UnBlock FinSolve

FinSolve uses Excel Macros to work which are, by default, blocked on most computers. You may see the following warning.
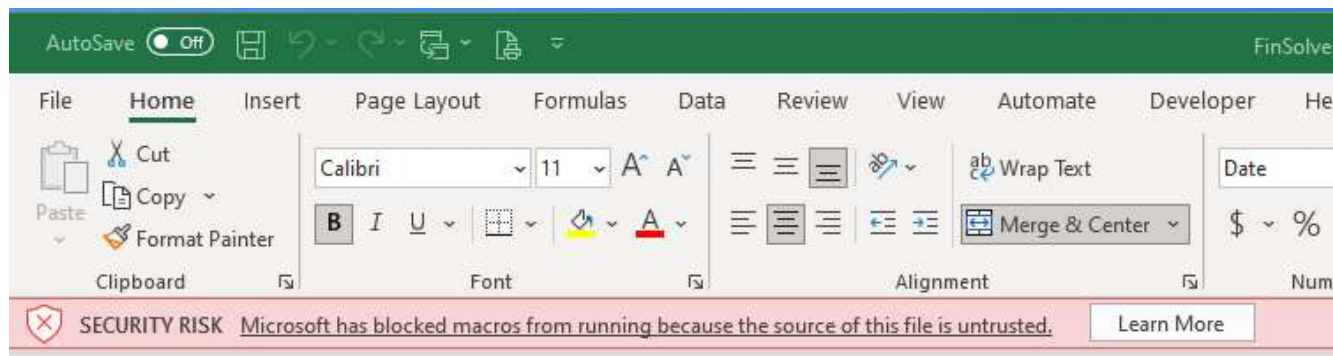
If you see the warning, **close** the file and then follow these steps.

5. Open Windows File Explorer and go to the folder where you saved the file.
6. Select "FinSolve 1.1,xlsm" file and then click on properties.
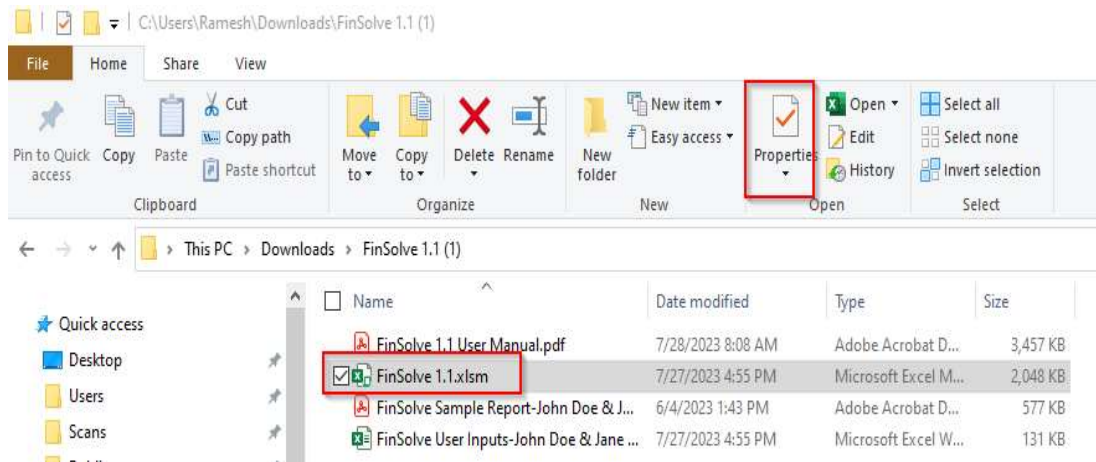
7. Check the Unblock box and click OK.
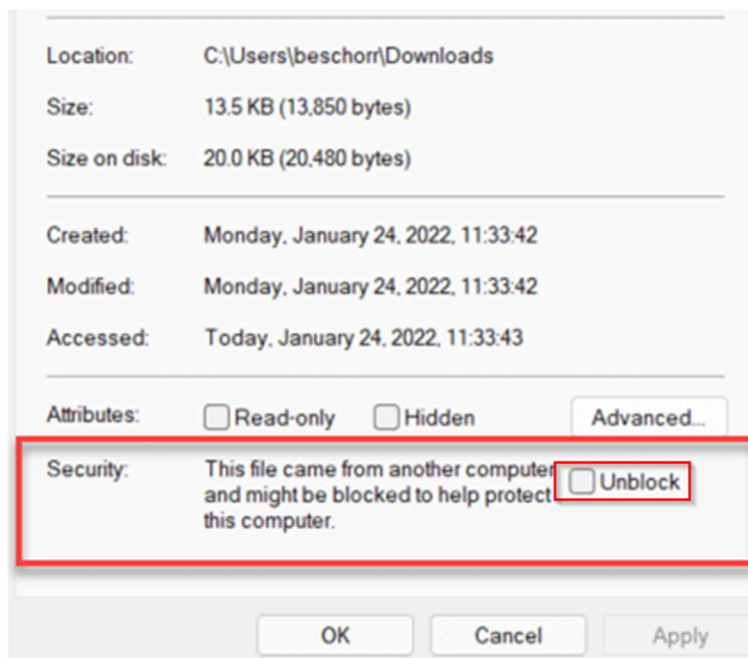
5.3 Enable Macros/Disabled Content

Open the FinSolve Excel file, you may be prompted to "Enable Content". Click on the "Enable Content" button to move forward.
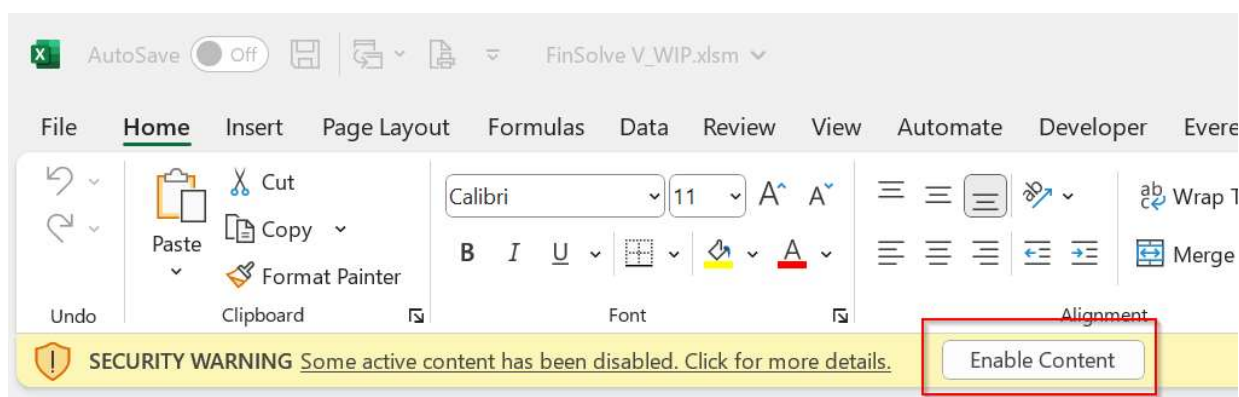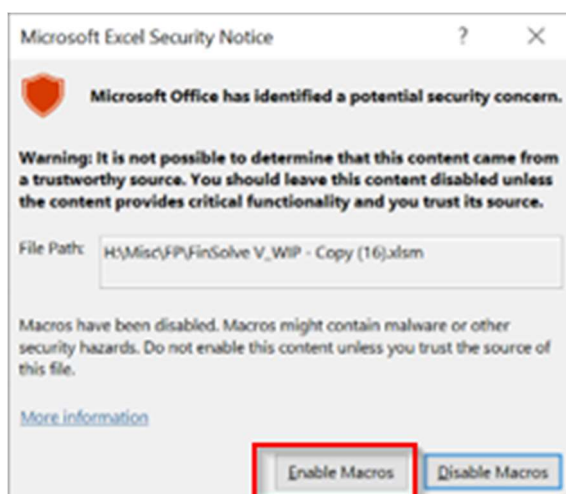
You can also change macro settings for all Excel files (not just FinSolve) in the Trust Center.

- Click the File tab.
- Click Options.
- Click Trust Center, and then click Trust Center Settings.
- In the Trust Center, click Macro Settings.

- Choose "Enable all macros" button. Click OK to accept.

Macros used in FinSolve are 100% safe and do not send any data from your computer out to internet. In fact, you do not need to be connected to internet while using FinSolve. You can learn more about macros by Googling *"Microsoft support enable macro settings"*

5.4 Install License

When you open FinSolve for the first time, you will be prompted to Install License. Note that a copy of FinSolve can be installed and run on only one computer. To install it on another computer, you need to download a new copy from the FinSolve website. You can, however, export and import your setup/user inputs between any FinSolve copies.

- When prompted to confirm license installation, click "Yes".
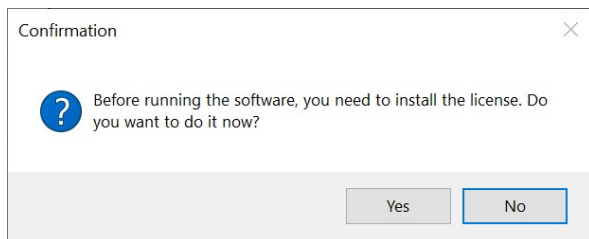
- When prompted to re-confirm license installation, click "Yes".
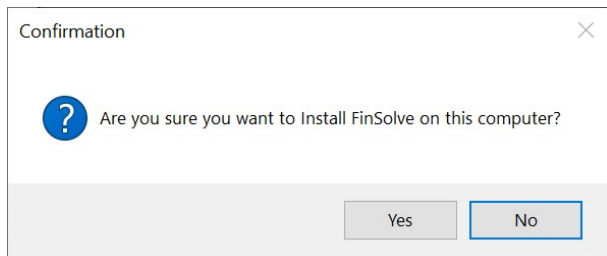
- When license installation completes successfully, you will see this message. Click "OK" to continue.

5.5 Input Your Financial Information

Navigate to the sheet *"User Inputs - Base Case"* and input your information in the following required sections.

5.5.1 Personal Info & Assumptions (Required)

Input your financial information in as many fields as possible. Make sure to input data in yellow highlighted cells only.

	Scenario	Base Case	
Client/Spouse Names	John Doe	Jane Doe	Client and spouse names
Personal Info & Assumptions (Required)			
Demographic Information			
Current Age	57	55	
Retirement Age	65	65	Age when plan to stop working
Social Security Start Age	70	70	Age when plan to claim Social Security
Projection Until Age	90	90	Life Expectancy
Annual Salaries/Wages/Social Security/Expenses			
Current Wages/Salary ($)	$90,000	$60,000	
Salary Growth ($)	3.00%	3.00%	Annual Salary Growth Rate
Social Security Amount ($)	$40,000	$35,000	Social Security benefit
Social Security Amount At	At FRA	At FRA	FRA --> Full Retirement Age
Pension, Annuity (Enter Annual Amounts)			
Annual Pension Amount ($)	$5,000	$4,000	
Pension Annual Increase	3%	0%	Annual Increase in pension
Pension Start Age	65	65	
Annuity Annual Amount ($)	$20,000	$15,000	
Annuity Annual Increase	0%	1%	Annual Increase in annuity payment
Annuity Start Age	65	65	
Is Annuity Qualified?	No	No	Yes means it will be 100% taxable and subject to RMD
Annuity Payout Portion Subject to Tax	80%	70%	Needed only when annuity is not qualified, qualified annuities are always 100% taxable
Other Income (Enter Annual Amounts)			Rental or any other Income etc.
Annual Other Income Amount ($)	$2,000	$1,000	
Other Income Annual Increase	3%	3%	
Other Income Start Age	50	50	Client Age when other income starts
Other Income Subject to Tax	100%	100%	% of other income subject to tax
Current Assets			
Taxable Accounts ($)	$25,000	$10,000	Brokerage, Stocks, Bonds, Mutual Funds, CDs
Tax-Deferred ($)	$200,000	$175,000	401(K), IRA
Tax-Exempt ($)	$25,000	$15,000	Roth IRA, Roth 401K, 529, HSA
Cost Basis for Taxable Account ($)	$10,000	$8,000	Current value of the account minus investment growth
Current Annual Savings			
Annual Savings into Tax-Deferred (Annual) ($)	$5,000	$4,000	Current 401K, IRA contribution (Annual)
Annual Savings into Tax-Exempt (Annual) ($)	$3,000	$2,000	Current Roth 401K, Roth IRA contribution (Annual)
Expenses (Enter Annual Amounts)			
Discretionary Expense Growth Before Retirement (%)	4.00%	4.00%	Annual Discretionary Expense Growth Rate
Expense Decrease After Retirement (%)	1.00%	1.00%	Annual Discretionary Expense Growth Rate after retirement
Annual Living Expenses-Fixed ($)	$50,000	$40,000	Annual Essential expenses such as Mortgage, Rent, Utility, Car payments etc.
Annual Living Expenses-Discretionary ($)	$10,000	$5,000	Annual Non Essential or discretionary expenses such as Eating out, vacation, hobby, etc.
Tax Filing Status	MFJ	MFJ	MFJ-->Married Filing Jointly
Tax Filing State	NJ	NJ	
Legacy Goals			
Legacy Goal (After Tax)	$50,000	$50,000	Desired amount (in today's dollars) to be left as inheritance
Legacy Beneficiary Avg Tax Rate	24%	24%	Expected average income tax rate of the beneficiary

5.5.2 Non-Financial Assets, Liabilities (Required)

Input your non-financial assets (home, cars, boats etc.) and liabilities (mortgage loans, credit card debts, personal or student loans etc.) in this section.

Non Financial Assets/Liabilities (Required)			
Client Assets (Home/Car/Boat etc.)			
Asset Name	**Current/Anticipated Market Value**	**Annual Growth**	**Year Acquired**
Home (123 Main St)	$200,000	3.0%	2010
Toyota Camry	$20,000	(3.0%)	2015
Spouse Assets (Home/Car/Boat etc.)			
Asset Name	**Current/Anticipated Market Value**	**Annual Growth**	**Year Acquired**
Chevy Malibu	$18,000	(4.0%)	2019

Client Liabilities (Loans & Debts)					
Name	**Current/Anticipated Loan Amount**	**Loan Start Year**	**Loan Maturity Year**	**Annual Interest Rate**	**Include Loan Payment In Expenses**
Home Mortgage	$150,000	2010	2040	4.00%	No
Totota Camry Loan	$5,000	2015	2024	6.00%	No
John's Student Loan	$60,000	2005	2045	7.00%	No
					No
Spouse Liabilities (Loans & Debts)					
Name	**Current/Anticipated Loan Amount**	**Loan Start Year**	**Loan Maturity Year**	**Annual Interest Rate**	**Include Loan Payment In Expenses**
Chevy Malibu Loan	$10,000	2019	2025	1.40%	No
Jane's Personal Loan	$5,000	2022	2030	10.00%	No
Jane's Student Loan	$40,000	2007	2045	7.00%	No
					No

5.5.3 Investment Returns, Risk Tolerance (**Optional** Section)

- **Investment Returns:** FinSolve uses "Bucket" investment strategy. Bucket-1 is the safest and Bucket-4 is riskiest. You may want to change the expected return for each bucket in this section.
- **Risk Tolerance:** Input your willingness to take recommended investment risk. 0: 0% of Recommended Risk, 5: 50% of Recommended Risk, 10: 100% of Recommended Risk. FinSolve Never takes more risk than financially recommended. Valid values are 1 to 10. You may assess your asset allocation risk tolerance by taking this questionnaire from Vanguard: https://investor.vanguard.com/tools-calculators/investor-questionnaire/questions

Investment Returns, Risk Tolerance (Optional)		
Investment Type	**Expected Return**	**Description**
Bucket-1 (1-2 Years)	3.00%	Bank Deposits, CDs (Recommended 3%)
Bucket-2 (3-4 Years)	3.50%	Government Bonds, Treasuries (Recommended 3.5%)
Bucket-3 (5-7 Years)	5.00%	Corporate Bonds (Apple, Ford etc.) (Recommended 5%)
Bucket-4 (>7 Years)	8.50%	Stocks, Mutual Funds, ETFs (Recommended 8.5%)
Risk Tolerance (Willingness to take recommended investment risk)	10	Valid values are 1 to 10; Willingness to take recommended investment risk, 0:

5.5.4 Onetime Annual Income/Expenses & Manual Roth Conversion

Onetime income/expenses such as house or car down payments, college tuition payments, inheritance etc. can be entered in this section. This section also allows you model a **manual** Roth conversion.

Onetime Annual Income/Expenses & Manual Roth Conversion Amounts (in Today's Dollars) (Optional)				
Year	Onetime Income	Onetime Expense	Manual Roth Conversion Amount	Comments/Description
2026		$25,000		Vacation Home purchase
2027		$20,000		New Car purchase
2028		$7,000		Big vacation to Europe
2035	$50,000			Inheritance from Jane's mother

5.6 Update Projections

- Once all inputs are completed, Click on the "Update Projections" on *"User Inputs – Base Case"* sheet to update projections.

		Scenario	Base Case			Update Projections
Client/Spouse Names		Client Name	Spouse Name	Client and spouse names		
Personal Info & Assumptions (Required)						
Demographic Information						
Current Age						
Retirement Age				Age when plan to stop working		
Social Security Start Age				Age when plan to claim Social Security Benefits		
Projection Until Age				Life Expectancy		

- When prompted to confirm the run, click on "Yes".

Confirmation ✕

❓ Are you sure you want to run "Update Projections"? It will overwrite all previous projections, including Roth conversions and Scenario Analysis, and can't be undone.

Yes   No

- Once the projection completes and you see the following message, click OK.

Information ✕

ℹ Projections for "Scenario: Base Case" updated successfully!

(Total FinSolve Run Time: 0.5 Minutes)

OK

5.7 Review Projections

You may review the projections on sheets "Summary-Report", "Income Detailed-Report" etc.

Cover	Summary-Report	Income Detailed Report	Expense Detailed Report	Inv. Detailed Report-Taxable

FinSolve Summary Report (Scenario: Base Case)

Report Prepared For: John Doe & Jane Doe   As of Date 5/2/2023

Terminal Estate Value (After Tax) $2,439,081   Risk Tolerance 10 (Very Aggressive)

Year (Client/Spouse Age)	Annual Income/Expense/Savings			Assets: Investments			Assets: Non Investments (Net)	Net Worth	Estate Value (After Tax)
	Total Income	Total Expense (excl savings)	Net Savings	Taxable	Tax Deferred	Tax Exempt			
2023 (57/55)	$153,941	$137,346	$16,596	$233,897	$246,495	$5,267	-$34,388	$451,271	$392,112
2024 (58/56)	$155,164	$137,930	$17,234	$241,477	$269,138	$10,815	-$17,763	$503,668	$439,075
2025 (59/57)	$156,494	$138,555	$17,939	$247,649	$292,990	$16,660	-$5,478	$551,821	$481,503
2026 (60/58)	$158,668	$164,475	($5,806)	$226,208	$318,116	$22,816	$2,379	$569,519	$493,171
2027 (61/59)	$159,626	$160,150	($524)	$206,792	$344,583	$29,302	$10,860	$591,538	$508,838
2028 (62/60)	$158,780	$147,134	$11,646	$199,295	$372,464	$36,133	$19,988	$627,881	$538,489
2029 (63/61)	$157,491	$139,960	$17,531	$197,405	$401,833	$43,330	$29,786	$672,353	$575,913
2030 (64/62)	$156,457	$139,835	$16,621	$194,581	$432,771	$50,910	$40,278	$718,541	$614,676
2031 (65/63)	$90,628	$120,293	($29,664)	$156,309	$460,094	$55,736	$50,467	$722,605	$612,182
2032 (66/64)	$88,653	$119,822	($31,169)	$117,444	$488,875	$60,819	$61,308	$728,446	$611,116
2033 (67/65)	$45,563	$110,811	($65,249)	$52,509	$514,980	$64,066	$72,824	$704,380	$580,784
2034 (68/66)	$42,800	$112,692	($69,892)	$2,710	$522,479	$67,487	$85,042	$677,719	$552,324
2035 (69/67)	$91,010	$122,080	($31,070)	$1,699	$520,379	$71,091	$97,988	$691,157	$566,267
2036 (70/68)	$98,858	$119,905	($21,047)	$676	$528,166	$74,887	$111,694	$715,423	$588,663
2037 (71/69)	$97,957	$120,376	($22,419)	$3,377	$531,369	$78,886	$126,192	$739,824	$612,295
2038 (72/70)	$148,560	$124,008	$24,551	$28,958	$559,743	$83,098	$141,516	$813,315	$678,977
2039 (73/71)	$148,091	$125,342	$22,749	$60,351	$583,136	$87,536	$157,703	$888,726	$748,773
2040 (74/72)	$147,729	$124,989	$22,740	$93,237	$607,446	$92,210	$174,792	$967,685	$821,898
2041 (75/73)	$147,409	$127,352	$20,056	$135,094	$622,888	$97,134	$180,498	$1,035,614	$886,121
2042 (76/74)	$147,239	$127,017	$20,222	$179,004	$638,831	$102,320	$186,701	$1,106,857	$953,537
2043 (77/75)	$147,119	$126,685	$20,434	$225,069	$655,320	$107,784	$193,431	$1,181,605	$1,024,328
2044 (78/76)	$147,050	$126,519	$20,531	$273,841	$671,815	$113,540	$200,718	$1,259,914	$1,098,679
2045 (79/77)	$147,039	$126,354	$20,685	$325,447	$688,348	$119,602	$208,596	$1,341,994	$1,176,790
2046 (80/78)	$147,088	$126,222	$20,866	$380,111	$704,830	$125,989	$208,061	$1,418,992	$1,249,832
2047 (81/79)	$147,199	$126,094	$21,105	$437,987	$721,281	$132,717	$207,559	$1,499,543	$1,326,436
2048 (82/80)	$147,374	$125,982	$21,392	$499,275	$737,664	$139,803	$207,088	$1,583,831	$1,406,791
2049 (83/81)	$147,615	$125,888	$21,727	$564,187	$753,943	$147,269	$206,648	$1,672,046	$1,491,100
2050 (84/82)	$147,926	$125,811	$22,114	$632,944	$770,079	$155,132	$206,234	$1,764,390	$1,579,571
2051 (85/83)	$148,308	$125,730	$22,577	$705,722	$786,110	$163,416	$205,847	$1,861,095	$1,672,428
2052 (86/84)	$148,764	$125,663	$23,101	$782,755	$802,005	$172,142	$205,483	$1,962,386	$1,769,905
2053 (87/85)	$149,297	$125,581	$23,716	$864,210	$817,841	$181,334	$205,143	$2,068,528	$1,872,246
2054 (88/86)	$149,909	$125,507	$24,401	$950,328	$833,609	$191,017	$204,823	$2,179,777	$1,979,711
2055 (89/87)	$150,602	$125,441	$25,161	$1,041,359	$849,303	$201,217	$204,524	$2,296,404	$2,092,571
2056 (90/88)	$151,381	$125,349	$26,032	$1,137,477	$865,040	$211,962	$204,243	$2,418,723	$2,211,113
2057 (/89)	$79,200	$58,520	$20,680	$1,231,025	$882,164	$223,280	$204,132	$2,540,601	$2,328,882
2058 (/90)	$80,313	$58,577	$21,735	$1,329,755	$899,589	$235,203	$190,435	$2,654,982	$2,439,081

6 Detailed User Guide

Follow the instructions in Quick Start Guide to do the basic setup and run the projection at least once before starting here.

6.1 Optimize Roth Conversions

- This optimization is a very intensive process and needs a lot of computer resources.
 Important: Close all other applications (including other Excel files, Chrome and any other applications) before running this step.
- Navigate to sheet "Summary – Reports" and click on "Optimize Roth Conversions" button which at the bottom left of the table.

| | Optimal Roth Conversions | | | Reserved for F |
Year	Amount	TEV Chg.-Add Year Sequentially	TEV Chg. - Remove Only One Year	Year
2031	$100,000	$35,889	(146,679)	
2032	$45,000	$40,435	(98,422)	
2033	$130,000	$158,437	(158,437)	
Total	$275,000	$234,761		

Optimize Roth Conversions

- Confirm that you are ready to run the process. It may take up-to 2-10 minutes, depending upon your computer speed, number of projection years, financial situation etc.
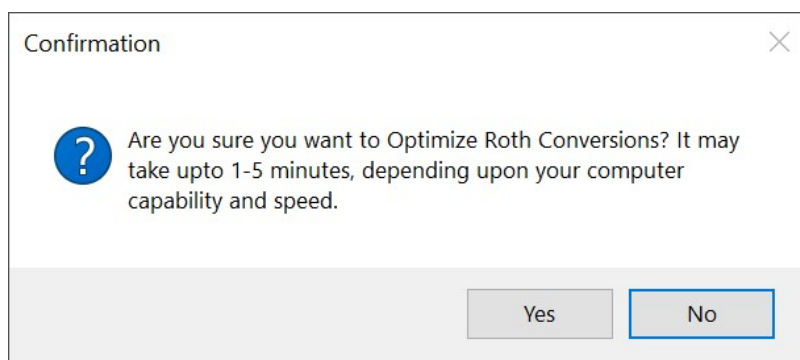
- You can monitor the progress by seeing the status bar on the bottom left of the screen.
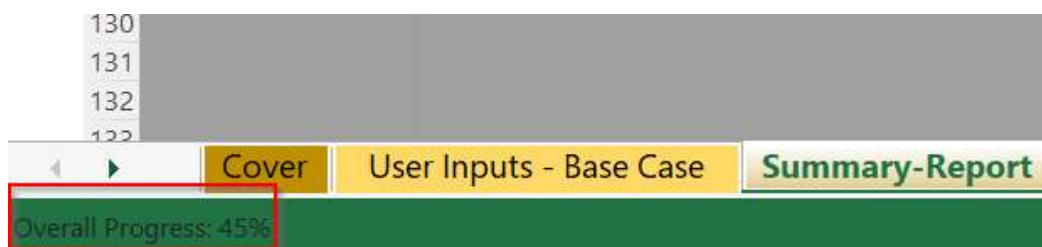
- Once the process finishes and finds a Roth conversion scenario, it will display the lifetime savings it found. Be patient while the process is running!
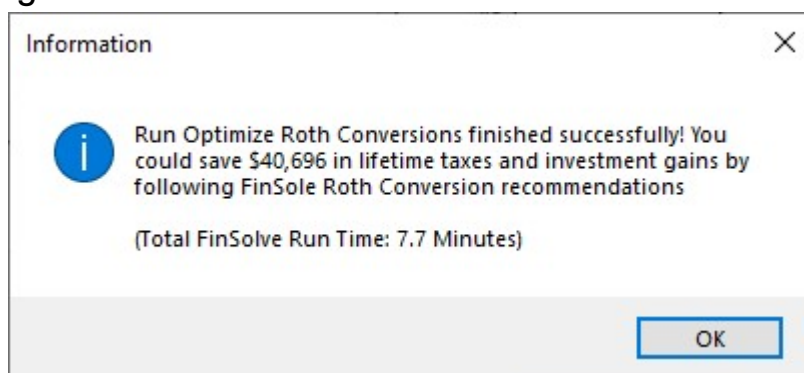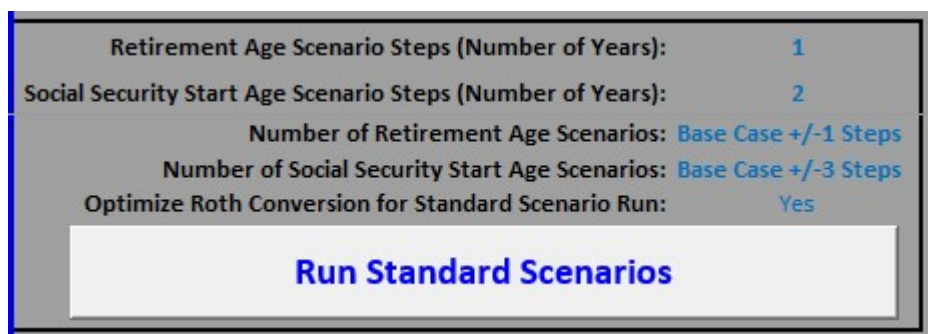

- **Roth Conversion Results:** Suggested conversion plan by year can be seen at the bottom left on the "Summary – Report" sheet.

Optimal Roth Conversions			
Year	Amount	TEV Chg.-Add Year Sequentially	TEV Chg. -Remove Only One Year
2031	$40,000	$12,682	(16,721)
2032	$40,000	$10,614	(14,586)
2034	$35,000	$7,890	(10,814)
2035	$5,000	$3,936	(3,936)
2036	$10,000	$3,359	(3,371)
2037	$10,000	$2,213	(2,213)
Total	$140,000	$40,696	

A note on the columns in Optimal Roth Conversion table.

Year/Amount: Year and amount of optimal Roth conversion recommended by FinSolve.

TEV* Chg.-Add Year Sequentially: Each year's contribution to net increase in TEV when done in the sequence suggested.

TEV* Chg. -Remove Only One Year: Each year's contribution to net decrease in TEV when that year's conversion is not done while doing all other year's conversion as suggested.

*TEV (Terminal Estate Value): After Tax Estate value to heirs after all liabilities (expenses, taxes, Medicare premiums etc.) have been taken care of at life expectancy.

6.2 Scenario Analysis

6.2.1 Standard Scenario Analysis

Standard scenario analysis let's you see how your TEV (terminal estate value) will change if you change your retirement age and social security start age.

- Navigate to "Scenario Analysis" sheet.
- You may change following parameters.
  - o Retirement Age Scenario Steps (Number of Years)
  - o Social Security Start Age Scenario Steps (Number of Years)
  - o Number of Retirement Age Scenarios
  - o Number of Social Security Start Age Scenarios
  - o Optimize Roth Conversion for Standard Scenario Run

Retirement Age Scenario Steps (Number of Years):	1
Social Security Start Age Scenario Steps (Number of Years):	2
Number of Retirement Age Scenarios:	Base Case +/-1 Steps
Number of Social Security Start Age Scenarios:	Base Case +/-3 Steps
Optimize Roth Conversion for Standard Scenario Run:	Yes
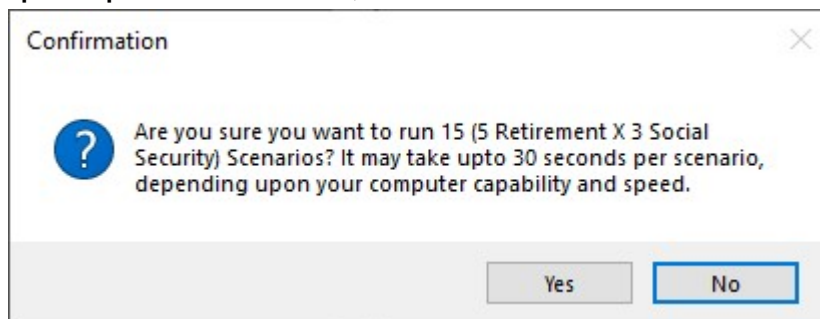
Run Standard Scenarios

- Click on "Run Standard Scenarios"
- When prompted to confirm, click on "Yes"

Confirmation ✕

? Are you sure you want to run 15 (5 Retirement X 3 Social Security) Scenarios? It may take upto 30 seconds per scenario, depending upon your computer capability and speed.

[Yes] [No]

6.2.2 Custom Scenario Analysis

You may create 7 custom scenarios on sheets "User Inputs – Scenario 1" through "User Inputs – Scenario 7".

6.2.2.1   CREATE CUSTOM SCENARIOS

There are three ways to create custom scenarios.

1. **Copy from Current Base Case Scenario:** This is the recommended way because this lets you copy the current base case inputs automatically which then allows you to make changes.

2. **Import User Inputs:** You can import any user inputs that have already exported to a file.

3. **Create from Scratch:** You can create the scenario from scratch.

6.2.2.2   NAME CUSTOM SCENARIOS

Once the custom scenario is created as desired, you can give it an appropriate name as show below.


6.2.2.3   RUN CUSTOM SCENARIOS

Once all the custom scenarios are setup, you may run these scenarios from the sheet "Scenario Analysis". Select "Yes" for the custom scenarios you want to run. Select Yes/No for Optimize Roth Conversion for Each Custom Scenario Run" (selecting "Yes" will take longer to finish the analysis).

	Custom Scenarios (Without Roth Conversion Optimization)						
	Terminal Estate Values in Various Custom Scenarios						
Base Case	1:Contribute All Savings to Tax Deferred Account	2:Contribute All Savings to Tax Exempt Account	3:Invest in a Rental Property	4:Base Case Scenario	5:Base Case Scenario	6:Base Case Scenario	7:Base Case Scenario
$1,919,278	$1,921,793	$1,923,715	$2,058,333				
$0	$2,515	$4,437	$139,055				
Yes	Yes	Yes	Yes	No	No	No	No
5/22/23 3:51 PM	5/22/23 3:52 PM	5/22/23 3:52 PM	5/22/23 3:55 PM				

Optimize Roth Conversion for Each Custom Scenario Run No

Run Custom Scenarios

6.3 Export/Import User Inputs

You may export "User Inputs" from FinSolve to a file on your computer and later import such exported "User Inputs". This allows you to save and retrieve a set of assumptions easily by click of a button.

You would see the buttons for exporting and importing at the bottom of the table on sheet "User Inputs – Base Case". You can also use export/import buttons on custom scenario setup sheets "User Inputs – Scenario 1" through "User Inputs – Scenario 7".
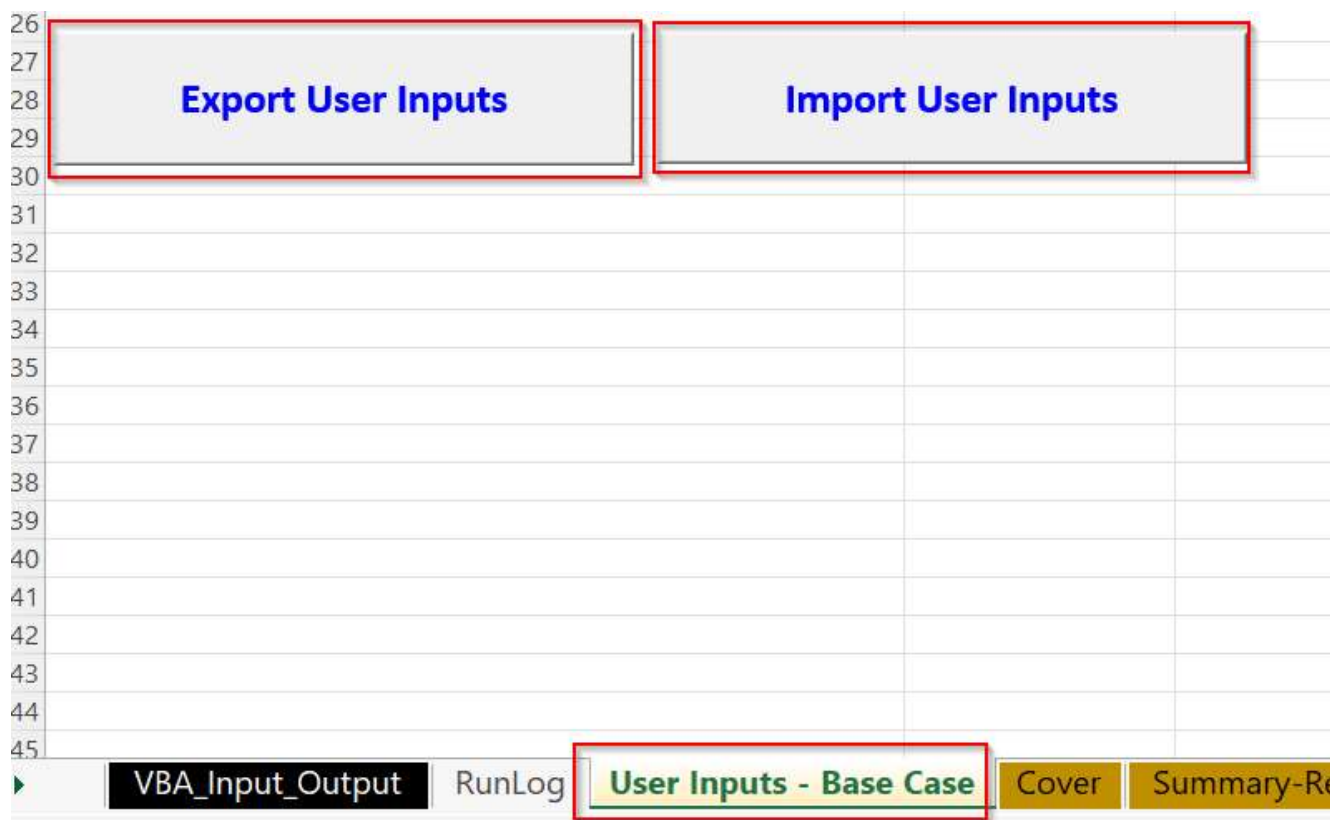
6.4 Printing Reports

Go to File→Print. You may select the entire workbook to print. You may print it to your printer. You may also print it to an Adobe Pdf file and save the .pdf file to your computer.