OFCIO JSON USER GUIDE
For Realized Cost Savings and Avoidance

Tips for Ensuring Your Cost Savings are Displayed Correctly:

1. Work on your data in Notepad or a similar plain-text editor (*not* Microsoft Word).

2. A converter you can use to convert tabular data into JSON is linked on management.cio.gov/schema. This will likely need to be done anytime you wish to add a new cost savings strategy to your data.

3. Use a JSON Schema Validator, such as the one linked on management.cio.gov/schema, to check your data. The left-hand side is for the schema file located on "*IDC Cost Savings and Avoidance JSON Schema*" found on management.cio.gov/schema. The right-hand-side box is for your agency's data. Errors in your file will appear beneath the right-hand-side box immediately.

4. Save your file with the filename "costsavings.json".

5. Post your finished file to [agency].gov/digitalstrategy webpage, ensuring that its URL is [agency].gov/digitalstrategy/costsavings.json (redirects are fine).

6. OMB OFCIO will pull these files once per day to update a public-facing page on the Federal IT Dashboard. In order for your data to be displayed correctly on that page, pay special attention to the field **"ombInitiative".** This field needs to contain the **EXACT** phrase "Data Center" for any savings strategies related to data centers.

   a. *NOTE:* capitaliZation and s p a c e s matter in JSON format. Make sure your answer to **"ombInitiative" EXACTLY** matches one of the options for it on management.cio.gov/schema.

Announcement:

Beginning with the August 2016 collection, OFCIO has added OMB Initiative "Software License Management". This option is intended to refer to cost savings realized because of actions taken related to M-XX-XX "Category Management Policy 16-1: Improving the Acquisition and Management of Common Information Technology: Software Licensing".

Announcement:

The field "useOfSavingsAvoidance" is currently optional, but it is important for oversight purposes. This field provides space for your agency to explain how saved dollars were reinvested within your agency. Failing to fill out this field might result in your agency being unable to accurately track reinvestment. OMB strongly encourages agencies to use this field where feasible.

I.   About JSON:

JavaScript Object Notation (JSON) is another format for presenting data. Unlike data files that you might have worked with in Excel, JSON data is not organized as a table. Instead, JSON is organized like the outline of a document: It has headings, sub-headings, sub-sub-headings, etc.

Also like the outline of a document, lower-level data is indented and punctuated in JSON, in order to indicate that it falls within the most recent heading above it.

The "values" that you would normally put in a cell, are instead placed immediately after the lowest level heading it relates to, preceded by a colon.

II.   Navigating Your JSON File:

Begin by opening your agency's JSON cost savings data in Notepad or a similar, simple text-editor. It is recommended that you *do not* open the file in Microsoft Word or Excel. Work in a simple text-editor.

New cost savings strategies need to be converted to the JSON format, and then added into the file you will upload.

Each strategy should look similar to the picture on the right. Notice that the highest-level heading is called "strategies", and everything that comes after that is information about your realized cost savings and avoidance strategies.

The next level of information contains the fields and values that describe each of your strategies, one strategy at a time.

Each fiscal year within each strategy has a third and final data level -- a cost savings and avoidance "amount" and a field called "netOrGross" (see [Frequently Asked Question #3](#) for definitions).

```json
{
    "strategyId": 5,
    "strategyTitle": "Document Management System (DMS)",
    "decisionDate": "10/01/2012",
    "ombInitiative": "Commodity IT",
    "useOfSavingsAvoidance": "Savings were reinvested in mission activities.",
    "amountType": "Cost-Savings",
    "fy2012": {
        "amount": 0,
        "netOrGross": "Net"
    },
    "fy2013": {
        "amount": 0.81,
        "netOrGross": "Net"
    },
    "fy2014": {
        "amount": 0.699,
        "netOrGross": "Net"
    },
    "fy2015": {
        "amount": 0.667,
        "netOrGross": "Net"
    },
    "fy2016": {
        "amount": 0,
        "netOrGross": "Net"
    }
},
```

III.   Modifying Your JSON File:

<mark>Beginning with the August 2016 collection, OFCIO has added OMB Initiative "Software License Management". This option is intended to refer to cost savings realized because of actions taken related to M-XX-XX "Category Management Policy 16-1: Improving the Acquisition and Management of Common Information Technology: Software Licensing".</mark>

Step 1. Begin by opening your agency's JSON cost savings data in Notepad or a similar, simple text-editor. It is recommended that you ***do not*** open the file in Microsoft Word or Excel. Work in a simple text-editor.

Step 2. Update the figures contained therein as necessary, taking note of the placement of things like quotation marks and brackets. NOTE: capitaliZation and s p a c e s matter in JSON format. Make sure your answer to **"ombInitiative" EXACTLY** matches one of the options for it on management.cio.gov/schema.

Step 3. In the web browser of your choice, navigate to management.cio.gov/schema and scroll down to the "IDC Realized Cost Savings and Avoidance" section. Note the information contained therein.

Step 4. Beneath the preview window, you will see a link to the "*IDC Cost Savings and Avoidance JSON Schema.*" Click on that link to view the JSON schema for this collection. Press Ctrl+A on your keyboard to select the entire schema, and then copy it (Ctrl + C).

Step 5. In a new tab, navigate to the JSON Schema Validator linked on management.cio.gov/schema and in your email. Notice that the webpage has two white boxes in it. Paste (Ctrl + V) the schema into the box on the left, then copy and paste your Starter JSON File in the box on the right. Errors in your file will display immediately, below the right-hand-side box. See Image 1 to view the webpage with the schema and demo file compared.

Step 6. Your file will be missing values for a few required fields. Principally, the "netOrGross" fields will be blank. In some cases, your file might also be missing some values for the "strategyId" field and the "ombInitiatives" field. Lastly, in some cases the "dateOfDecision" field might show an error, depending on the value in it. More information on correcting each of these types of errors is given below.

IV.   Specific Important Fields:

```
},
"fy2012": {
      "amount": 0.34,
      "netOrGross": "Net"
},
"fy2013": {
      "amount": 1.2,
      "netOrGross": "Net"
},
"fy2014": {
      "amount": 2.5,
      "netOrGross": "Gross"
},
"fy2015": {
      "amount":3.190,
      "netOrGross": "Gross"
},
"fy2016": {
      "amount":0.2,
      "netOrGross": "Net"
}
```

"netOrGross" Field:

This field accepts only one of two values, "Net" or "Gross". Note that these words *must* be in quotation marks, as shown in the image to the left and that all amounts must be designated either "Net" or "Gross", <u>even if the amount of savings is zero</u>. Please fill in those fields with the appropriate term, designating that fiscal year's dollars for that strategy as either net or gross dollars (see Frequently Asked Question #3 for definitions). Refer to Appendix A to view a correct demonstration data file.

"ombInitiatives" Field:

For each strategy, please assign the OMB Initiative that most closely matches the purpose, cause, or actions taken in the strategy. You may pick from among the following categories: "Data Center," "Digital Services," "Commodity IT," "PortfolioStat," or "Other." *NOTE:* capitaliZation and s p a c e s matter in JSON format.

Make sure your answer to **"ombInitiative" EXACTLY** matches one of the options on management.cio.gov/schema.

Note that in OMB's public reporting of this data, savings **will be separated out** by whether they are data center-related or not. As a result, if you are reporting savings that even partially related to data centers, we encourage you to use this field to indicate that. This field needs to contain the **EXACT** phrase "Data Center" for any savings strategies related to data centers to be displayed correctly on OFCIO's public IT Dashboard. Strategies of this kind include, but not limited to, server virtualization, data center closing, data system decommissioning, thin client deployment, etc. Ensure that your entry is formatted with quotation marks around it and a comma following it, as shown below. Refer to Appendix A to view a correct demonstration data file.

```
"ombInitiative": "PortfolioStat",
```

"useOfSavingsAvoidance" Field:

The field "useOfSavingsAvoidance" is currently optional for OMB purposes, but it is important to GAO. This field provides space for your agency to explain how saved dollars were reinvested within your agency. Failing to fill out this field might result in your agency being unable to satisfactorily answer to GAO questions and engagements. OMB strongly encourages agencies to use this field as much as desired.

To use this field, type **"useOfSavingsAvoidance":** followed by text describing the way your agency reinvested the cost savings associated with that strategy. Ensure that your entry is formatted with quotation marks around it and a comma following it, as shown below. Refer to Appendix A to view a correct demonstration data file.

```
"ombInitiative": "Other",
"useOfSavingsAvoidance": "Savings have been reinvested in…",
"amountType": "Cost-Avoidance",
"relatedUIIs": [
```

"relatedUIIs" Field:

One of the advantages of JSON format compared to tabular data format (like in Excel) is that a "cell" can have more than one value in it. The "relatedUIIs" field is one case in which that capability can be leveraged in your new cost savings data.

Notice that you will need to place square brackets around your set of UIIs, and each UII will need to be surrounded by quotation marks *inside* of the brackets. Multiple UIIs should also be separated by commas, as shown below. As you can see, it doesn't matter if the UIIs are listed on the same line or separate lines as long as they are *inside* those brackets.

```
"relatedUIIs": [
    "099-000002345",
    "099-000000123"
],
```

Or

```
"relatedUIIs": ["099-000002345","099-000000123"],
```

Refer to Appendix A to view a correct demonstration data file.

V.   Adding Strategies to Your Starter File:

```
{
    "strategyId": ,
    "strategyTitle": "",
    "decisionDate": "",
    "ombInitiative": "",
    "useOfSavingsAvoidance": "",
    "amountType": "",
    "relatedUIIs": [""],
    "fy2012": {
        "amount": ,
        "netOrGross": ""
    },
    "fy2013": {
        "amount": ,
        "netOrGross": ""
    },
    "fy2014": {
        "amount": ,
        "netOrGross": ""
    },
    "fy2015": {
        "amount":,
        "netOrGross": ""
    },
    "fy2016": {
        "amount":,
        "netOrGross": ""
    }
},
```

The simplest way to add a few strategies:

The easiest way to add a strategy or two to your file is to copy the structure of your other strategies and simply replace the information in the fields with the information matching your new strategy.

Step 1. Navigate to a spot in your data that is in between strategies.

Step 2. Hit Enter, and copy and paste the entire empty strategy text provided on the left side of this page. Paste that entry into your file.

Step 3. Enter the appropriate information for each field inside the quotation marks or before the commas, for the new strategy.

This approach is straightforward, but might become tedious for adding *many* new strategies.

The fastest way to add **many** strategies:

First ensure that all of the columns are arranged in the correct order and match the field names in the table on management.cio.gov/schema. For example, instead of "Strategy Title" the column should be called strategyTitle without quotation marks.

Step 1. Opening the link to the Tabular to JSON Converter tool linked at management.cio.gov/schema, you will see two boxes in the webpage, one on the left hand side and one on the right.

Step 2. If you are using Microsoft Excel, highlight and copy the cells you wish to add to your JSON file, making sure to include the column headings, and paste that data into the box on the left-hand-side of the page.

Step 3. Click on the button that says "Convert". The right side window will show your data in a basic JSON structure.

Step 4. In order to conform to the schema, adjust the "amount," "netOrGross," and "relatedUIIs" fields to mimic the spacing, indentation, brackets, colons, and quotation markings of the other strategies in your file and in the images throughout this document. Refer to Appendix A to view a correct demonstration data file.

VI.   Frequently Asked Questions:

Question 1: Can we delete a strategy if the cost savings/avoidances in all fiscal years are zero?

Yes, so long as all of the years' cost savings and avoidances sum to zero. OFCIO recommends saving the information somewhere so that you can reuse it easily if needed in the future, instead of recreating the entire strategy in JSON format from scratch.

Question 2: What field should we use to respond to GAO audits regarding the re-use or re-appropriation of our cost savings and avoidance dollars?

The field "useOfSavingsAvoidance" is provided for agencies for this purpose. OMB considers it optional in this data collection, but OMB recommends that agencies leverage this field, as this information is often important to GAO.

Question 3: What do "net" and "gross" mean in the context of my cost savings strategy?

An amount of savings that is "net" means that the total savings from the strategy exceeded the costs of the strategy, and the figure being reported equals the difference.

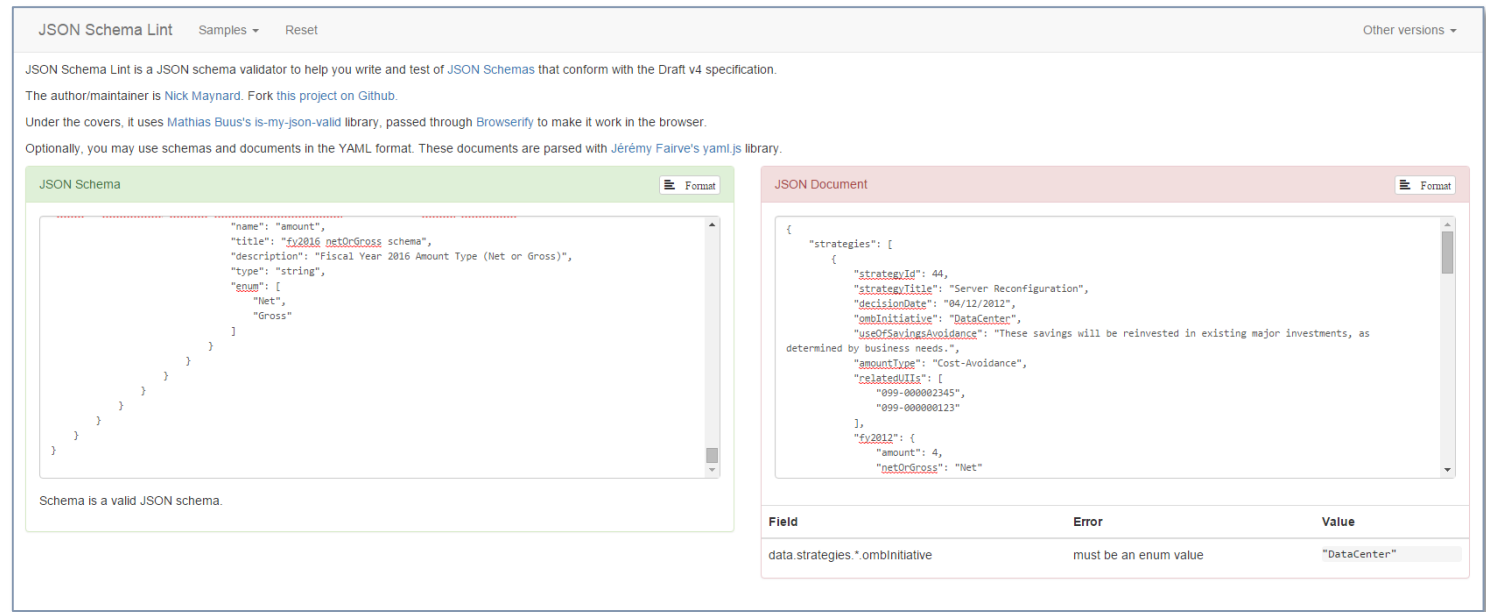$$\text{Gross Savings} - \text{Implementation Costs} = \text{Net Savings}$$

For example, if your agency closed a data center that previously cost $2 million to maintain, then your gross savings are $2 million. If it costs your agency $400,000 to close that data center, then your agency actually saved $2,000,000 - $400,000 = $1,600,000 or $1.6 million in net savings. Net savings is the most accurate way to express savings, and so wherever possible, OMB requests that your agency report only savings that have been realized net of implementation costs. If you are not sure or cannot recall whether a previously reported figure is in net or gross terms, or if the savings amount is zero, default to "Net."

Question 4: When and where will OMB harvest this file?

OMB OFCIO will harvest this file from your [agency.gov]/digitalstrategy page simultaneously with the close of the IDC deadlines. These dates are: February 28th, May 31st, August 31st, and November 30th each year. Your agency should update this file on a rolling basis as savings are realized, and must ensure that the file is updated with all savings that have been realized in a given quarter within the week prior to the IDC collection deadline.

Appendix A: Screenshots & Views

JSON Schema Validator

Correct Demo Data File

```json
{
    "strategies": [
        {
            "strategyId": 44,
            "strategyTitle": "Server Reconfiguration",
            "decisionDate": "04/12/2011",
            "ombInitiative": "Data Center",
            "useOfSavingsAvoidance": "These savings are being reinvested at the bureau level for a new procured service.",
            "amountType": "Cost-Avoidance",
            "relatedUIIs": [
                "099-000002345",
                "099-000000123"
            ],
            "fy2012": {
                "amount": 4,
                "netOrGross": "Net"
            },
            "fy2013": {
                "amount": 2.17,
                "netOrGross": "Net"
            },
            "fy2014": {
                "amount": 5,
                "netOrGross": "Net"
            },
            "fy2015": {
                "amount": 4.87,
                "netOrGross": "Net"
            },
            "fy2016": {
                "amount": 0.06,
                "netOrGross": "Net"
            }
        },
        {
            "strategyId": 5,
            "strategyTitle": "Document Management System (DMS)",
            "decisionDate": "10/01/2012",
            "ombInitiative": "Commodity IT",
```

8

```json
            "useOfSavingsAvoidance": "Savings were reinvested in mission activities.",
            "amountType": "Cost-Savings",
            "fy2012": {
                "amount": 0,
                "netOrGross": "Net"
            },
            "fy2013": {
                "amount": 0.81,
                "netOrGross": "Net"
            },
            "fy2014": {
                "amount": 0.699,
                "netOrGross": "Net"
            },
            "fy2015": {
                "amount": 0.667,
                "netOrGross": "Net"
            },
            "fy2016": {
                "amount": 0,
                "netOrGross": "Net"
            }
        },
        {
            "strategyId": 6,
            "strategyTitle": "Legacy System Upgrade",
            "decisionDate": "12/01/2012",
            "ombInitiative": "Other",
            "useOfSavingsAvoidance": "These savings are being reinvested into the replacement system.",
            "amountType": "Cost-Avoidance",
            "relatedUIIs": [
                "099-000003000"
            ],
            "fy2012": {
                "amount": 0,
                "netOrGross": "Net"
            },
            "fy2013": {
                "amount": 1.2,
                "netOrGross": "Gross"
            },
            "fy2014": {
                "amount": 1.2,
                "netOrGross": "Gross"
            },
            "fy2015": {
                "amount": 0,
                "netOrGross": "Net"
            },
            "fy2016": {
                "amount": 0,
                "netOrGross": "Net"
            }
        }
    ]
}
```

Appendix B: Data Fields

Each of the below fields was previously a column in your tabular Realized Cost Savings and Avoidance data. In JSON format, they are simply represented differently, but conceptually, each of these can still be thought of as a column of your data.

The below table is also available on management.cio.gov/schema.

Field Name	Data Type	Required?	Notes
strategyId	Integer (3)	Yes	The unique identifier for the strategy.
strategyTitle	String (100)	Yes	The title of the strategy.
decisionDate	Date (MM/DD/YYYY)	Yes	The date the agency decided to use this strategy.
ombInitiative	Select: Data Center, Digital Services, Commodity IT, PortfolioStat, Software License Management, Other	Yes	The primary OMB initiative that categorizes this strategy.
relatedUIIs	String (200)	No	Related investments to the strategy, identified as their Unique Investment Identifiers (UIIs).
useOfSavingsAvoidance	String (500)	No	Explain what the resultant savings will be used for, or how it will be repurposed.
amountType	Select: Cost-Savings, Cost-Avoidance, Both	Yes	Indicate whether the amounts given for each strategy are cost-savings, cost-avoidance, or both as defined in OMB Circular A-131.
fy2012			
amount	Numeric, 1-1000	Yes	*Realized* total savings for each strategy achieved in FY12, **in MILLIONS of dollars.**
netOrGross	Select: Net, Gross	Yes	Indicate whether the FY12 amount is net of costs, or gross.
fy2013			
amount	Numeric, 1-1000	Yes	*Realized* total savings for each strategy achieved in FY13, **in MILLIONS of dollars.**
netOrGross	Select: Net, Gross	Yes	Indicate whether the FY13 amount is net of costs, or gross.
fy2014			
amount	Numeric, 1-1000	Yes	*Realized* total savings for each strategy achieved in FY14, **in MILLIONS of dollars.**
netOrGross	Select: Net, Gross	Yes	Indicate whether the FY14 amount is net of costs, or gross.
fy2015			
amount	Numeric, 1-1000	Yes	*Realized* total savings for each strategy achieved in FY15, **in MILLIONS of dollars.**
netOrGross	Select: Net, Gross	Yes	Indicate whether the FY15 amount is net of costs, or gross.
fy2016			
amount	Numeric, 1-1000	Yes	*Realized* total savings for each strategy achieved in FY16, **in MILLIONS of dollars**
netOrGross	Select: Net, Gross	Yes	Indicate whether the FY 16 amount is net of costs, or gross.

Further Information:

Agency-specific questions should be addressed to your agency's OFCIO desk officer.

JSON formatting questions and data submission questions should be directed to Jamie Huang (Jamie_W_Huang@omb.eop.gov), CC'ing Michelle Bacon (Michelle_B_Bacon@omb.eop.gov) and your agency's desk officer.

General questions related to any of OFCIO's JSON-formatted data collections (e.g. Bureau IT Leadership Directory, CIO Governance Board Membership List, etc.) may also optionally be addressed to your agency's Open Data POC.

Questions related to the "ombInitiative" value "Software License Management" or associated forthcoming memorandum "Category Management Policy 16-1: Improving the Acquisition and Management of Common Information Technology: Software Licensing" should be directed to Meredith Romley (Meredith_B._Romley@omb.eop.gov; (202) 395-4644).