# Assess Reserved Instance Candidates

Process diagram

A diagram of a work flow

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Prerequisites

* If **EA**, a user account with…
  + **Enterprise Administrator** rights
  + or… (untested)
    - **Department Admin** with the view charges policy enabled, [View and download Azure usage and charges](https://learn.microsoft.com/en-us/azure/cost-management-billing/understand/download-azure-daily-usage#download-usage-for-ea-customers))
    - **Reservation Reader** (to view existing Reservations, [Permissions to view and manage Azure reservations](https://learn.microsoft.com/en-us/azure/cost-management-billing/reservations/view-reservations#who-can-manage-a-reservation-by-default))
* If **MCA**, a user account with…
  + **Billing Profile Reader** or **Billing Account Reader** if multiple profiles ([View and download Azure usage and charges](https://learn.microsoft.com/en-us/azure/cost-management-billing/understand/download-azure-daily-usage#download-usage-for-your-microsoft-customer-agreement))
* For **both**, a user account with…
  + **Owner or Reservation Purchaser RBAC rights for a Subscription** (in order to view the reservation costs in Azure Portal for the assessment, [Buy an Azure reservation - Microsoft Cost Management | Microsoft Learn](https://learn.microsoft.com/en-us/azure/cost-management-billing/reservations/prepare-buy-reservation#who-can-buy-a-reservation))

Process steps

**Note:** This process assumes working knowledge of Power BI, PowerPoint and Excel. Steps are intended as guidance and do not detail every step exhaustively.

1. **Prepare RI Assessment workspace**
   1. Create a new working folder named "[date] - RI Assessment" (ex: "2024-12-02 - RI Assessment"). This folder will be the [RIAssessmentFolder]
   2. Copy all files and folders from "Templates/Assess Reserved Instance Candidates" into the working folder
   3. Create a new folder “Downloads” inside the [RIAssessmentFolder]. This folder will be the [DownloadsFolder]
2. **Execute the data collection script**
   1. Open a PowerShell terminal/console and execute the “run-collection-scripts.ps1” script (after reviewing and understanding the related scripts)  
      A screenshot of a computer

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   2. Will download…
      1. Latest RI size flexibility list
      2. Reservation Summaries
      3. Reservation Transactions
3. **Prepare the RI size flexibility list**
   1. Open the “Downloads🡪isfratioblob.csv” file ([reference link](https://learn.microsoft.com/en-us/azure/virtual-machines/reserved-vm-instance-size-flexibility)) in Excel and convert the csv rows into a table
   2. Ensure all values in the “Ratio” column are treated as numbers (“.” vs “,”)
   3. Save the file as an Excel file (=IFSRatio.xlsx)
4. **Download usage data for period (recommended last 12 months)**
   1. Open the Azure Portal in a browser
   2. Go to "Cost Management + Billing", select the appropriate "Billing scope"
   3. Select "Usage + charges"
   4. For each month in the last year
      1. Click "Download" for the month
      2. Select "All Charges" under "Usage Details"
      3. Download CSV for "Usage Details" into the [DownloadFolder]
5. **Prepare RI price list**
   1. Open "RI Assessment List.xlsx" in Excel
   2. Go to tab "Price Matrix" in the Excel sheet
   3. Copy the columns "InstanceSizeFlexibilityGroup", "ArmSkuName" and "Ratio" from "IFSRatio.xlsx" into corresponding columns in the "Price Matrix" tab
6. **Prepare Power BI report**
   1. Open "RI Assessment Report...pbix" in Power BI Desktop
   2. If you get a “Refresh” dialog, “Close/Cancel” out of it
   3. Open "Transform data"
      1. Ensure that the "RISize" query targets the table in the Excel "Price Matrix" tab from the file "RI Assessment List.xlsx"
      2. Ensure that the "UsageDetails" query is updated so that it uses the [DownloadFolder] as its source for the CSV files
      3. Ensure that the “reservation-summaries” query is updated so that it uses the JSON file with the same name in the [DownloadFolder] as its source for the CSV files
      4. Ensure that the “reservation-transactions” query is updated so that it uses the JSON file with the same name in the [DownloadFolder] as its source for the CSV files
      5. Close and apply the changes
   4. Save the report as “.pbix”
7. **Prepare RI Assessment List proposal**
   1. Ensure that you have the Power BI report "RI Assessment Report...pbix" and the Excel file "RI Assessment List.xlsx" with tab "RI Assessment" open
   2. INFO: In the Power BI report there is a Slicer control with the title "Reserved Instance Group" at the top. This control filters the graph below based on selected Reserved Instance group
   3. For each Reserved Instance Group in the Slicer that has data...
      1. Ensure the Reserved Instance Group is selected in the Slicer to load the graphs
      2. From the graph, determine whether it would be reasonable to purchase Reserved Instances for any of the Regions...
         1. If so, create a row in the Excel file and fill in "RI Series", "Region", "Potential Ratio" and “Existing Ratio” for each region
8. **Update prices in RI Assessment List**
   1. Open the Azure Portal in a browser
   2. Go to "Reserved VM Instances" (Azure Marketplace)
   3. Ensure that "All Products" tab is selected
   4. Select an appropriate "Region"
   5. Remove the "Term" filter
   6. Select "Upfront" for "Billing frequency" (only used for price comparison)
   7. For each row in the "RI Assessment" tab
      1. Filter the table in the “Price Matrix” tab based the “RI Series” row
      2. Fill in the “Price Matrix” columns for first “ArmSkuName” in the series…
         1. Select the "One Year" row
            1. Note the "Upfront price per VM" cost in the lower right and type the value into the corresponding field in the "Price Matrix" tab
            2. Note the "Estimated savings" percentage in the lower right and type the value into the corresponding field in the "Price Matrix" tab
         2. Repeat the above steps for the "Three Years" row
      3. Fill in the “Reserved Instance Sku” with the “ArmSkuName” for the lowest Price/Ratio that you find for that size group
9. **Send RI Assessment List to manager**
   1. Save the Excel file in the [RIAssessmentFolder]
   2. Send the Excel file to the Service Manager for approval
10. **Manager approval of RI Assessment List**
    1. Review the Excel file
    2. Approve, reject and revise the proposed "Potential Ratio" numbers as appropriate in the Excel file
    3. Save the modified Excel file
    4. Notify the Service Operator about the results, share the updated Excel file (=[ApprovedRIAssessmentList]) and initiate the "Create Reserved Instances" process
11. **Store approved RI Assessment List**
    1. Store the [ApprovedRIAssessmentList] in the [RIAssessmentFolder]

Process outputs

* [ApprovedRIAssessmentList]
  + The Excel file with details on the Reserved Instances that are approved for purchase