

MISSISSIPPI OFFICE OF THE STATE TREASURER (OST)
171-00 172-00 174-00 951-00 953-00
5-YEAR STRATEGIC PLAN (2026-2030)

1. Comprehensive Mission Statement

To secure and invest the financial trust for the State of Mississippi.

2. Philosophy

We are pioneers in banking and financial solutions, and trustworthy stewards of the State trust. We are transparent in our activities, innovative in our technologies, strategic in our business partnerships, knowledgeable of the financial markets, and providers of excellent customer service to the taxpayers of Mississippi.

3. Relevant Statewide Goals and Benchmarks

Statewide Goal #1:

To **develop a robust state economy** that provides the opportunity for productive employment for all Mississippians.

Relevant Benchmarks #1:

- Ensure the security of all processes and documents.
- Ensure that the financial integrity of OST work products is maintained.

Statewide Goal #2:

To make available an accessible, quality, education **at an affordable cost** that prepares Mississippians to become productive, financially self-sufficient members of society while meeting the human resources needs of Mississippi employers, including the creation of new jobs through the commercialization of university-based research.

Relevant Benchmarks #2:

- Successfully market and maintain the Mississippi Affordable College Savings Program.
- Successfully market and maintain the Mississippi Prepaid Affordable College Tuition Program.

Statewide Goal #3:

To **create an efficient government** and an informed and engaged citizenry that helps to address social problems through the payment of taxes, the election of capable leaders at all levels of government, and participation in charitable organizations through contributions and volunteerism.

Relevant Benchmarks #3:

- Ensure that all technology required to conduct OST functions is up-to-date and maintained.
- Ensure that all staff is trained to perform necessary functions efficiently.
- Continue to maintain strong relationships with other agencies and entities to conduct OST business effectively.
- Provide ease of citizen access to OST programs and information.
- Invest within parameters as set by state statute.

4. Overview of the Agency 5-Year Strategic Plan

The Office of the State Treasurer is a special-funded agency with no funds being requested from the General Fund.

The Office of the State Treasurer operates as the State's "bank," managing over \$9 billion in annual revenues and over \$27 billion in total transactions. Treasurer David McRae and his staff are committed to performing the duties and fulfilling the responsibilities of the agency in an efficient and effective manner, using innovation and emerging information technology.

Our agency is charged with investing the State's funds to meet the investment objectives of safety, liquidity and yield, and to maximize earnings; locating rightful property owners of unclaimed property; managing the State's debt; providing investment options to assist families in securing an education for their children; and performing the administrative duties of the Office of the State Treasurer, while seeking to maximize the efficiency and public service capability of the office through electronic commerce.

Because the Office of the State Treasurer is responsible for critical information generated on equipment that if damaged/destroyed would jeopardize the constitutional duties of the State Treasurer, now more than ever, it is critical to maintain security and safeguard our networks by purchasing up-to-date software and equipment that helps prevent these threats. It is also essential that we remain in compliance with ITS' ever-changing security protocols.

Other strategies, such as remaining proactive with emerging technology, examining internal processes to streamline activities to manage costs and revenue, moving toward electronic processing, instituting professional development training for staff to be more effective now and in the future, hiring and retaining qualified financial professionals, making sure holders are in compliance with the Unclaimed Property Law, and increasing enrollment in the State's college savings plans, will remain at the forefront of our goals during the next five years.

5. Agency's External/Internal Assessment

The Office of the State Treasurer (OST) is aware of significant factors that may affect achieving designated performance goals. The items listed below have been identified as possible factors that are beyond the control of the agency:

- Weak economy
- Security of technology
- Politics, legislative action, and legal action (Federal, State, local)
- Competing interest for budget dollars
- Unclaimed property fund dwindling from other legislative mandates
- Lack of internal controls with partner agencies
- Lack of security in the office building
- Terrorism
- Natural factors such as hurricanes, tornadoes, etc.
- Manmade factors such as oil spills that directly affect revenue

6. Agency Goals, Objectives, Strategies, and Measures by Program for FY 2026 through 2030:

Program 1: Cash Management

GOAL A: To develop a robust state economy...

OBJECTIVE A.1. Establish structure to collect an administrative fee from agencies for investing their excess funds in the general/special fund pool and introduce legislation to establish structure. The collection of fees would be a source to cover transactional costs, reduce reliance on one-time funding from the unclaimed property fund, and be a potential net revenue generator.

Outcome: Greater return on investments.

A.1.1. STRATEGY: Research, accounting system alterations, and approved legislation are needed to fulfill the objective.

Efficiency: Administrative cost of the program.

Explanatory: Only funds invested would bear the fees associated with investing state monies.

GOAL B: To create an efficient government...

OBJECTIVE B.1. Provide professional development training, cross-training, and job-specific training for Investments staff.

Outcome: Staff better able to understand investments and OST functions, increasing their overall effectiveness.

B.1.1. STRATEGY: Attend State Personnel Board (SPB) classes.

Output: Members of staff trained.

Efficiency: Low cost of training, higher level of specialized competency.

B.1.2. STRATEGY: Pursue the Certified Treasury Professional (CTP) designation, or take online classes based on the employees' training needs through Skillsoft.

Output: Members of staff trained.

Efficiency: Low cost of training, higher level of specialized competency.

B.1.3. STRATEGY: Continue to provide MAGIC implementation training to ensure that all software and processes work seamlessly.

Output: Increase interest earnings for the general and special fund portfolios.

Efficiency: No cost to the agency.

OBJECTIVE B.3. Increase implementation of automated processes and electronic document creation and retention. This would include automating daily banking transaction feeds to reconcile to and upload into accounting system, interest payment process, and account statement distribution process.

Outcome: Reduction in man hours required to facilitate workflow.

Outcome: Electronic processes and document retention streamline daily activities, resulting in more effective management of revenue and expenses.

Outcome: Establish better accountability.

Outcome: Ensure that all staff is trained to perform necessary functions efficiently.

B.3.1. STRATEGY: Resources needed for goal implementation would include EDI software and an additional scanner for the division.

Output: Increase utilization of ACH payments, electronic transactions, and electronic documents, establishing better accountability.

Efficiency: Cost of building out electronic banking interface (i.e., IT development, blue printing, programming, and implementation).

OBJECTIVE B.4. Develop win-win partnerships.

Outcome: Greater return on investment.

Outcome: Ensure that account fees are appropriate for level of service received.

Outcome: Ensure that interest earned and fees paid align with other states with comparable investment structures.

B.4.1. STRATEGY: Perform a comprehensive banking services review to evaluate level of service, interest rates earned on deposits, and account fees in order to ensure that the OST is partnered with the most appropriate financial institutions.

Efficiency: Lower administrative cost of program.

B.4.2. STRATEGY: Use GIOA and NAST network as a resource for market comparisons.

Output: Increase interest earnings and lower administrative cost for the general and special fund portfolios.

Efficiency: Efficient yield on investments.

Program 2: Bond Servicing

GOAL A: To develop a robust state economy...

OBJECTIVE A.1. It is likely the Office of the State Treasurer will be presented with an audit of any series of tax-exempt bonds by the Internal Revenue Service (IRS) during each fiscal year.

Outcome: Ensure that the financial integrity of OST work products is maintained.

A.1.1 STRATEGY: Resources will be needed to retain contract accountants to assist in the completion of any and/or all of these audits.

Output: Ensure compliance with federal law.

Efficiency: Maximize use of staff hours necessary to establish the file necessary for compliance with IRS audits.

GOAL B: To create an efficient government...

OBJECTIVE B.1: Ensure that all projects given bond money are not only spending money in a timely manner but are also spending funds only on projects as authorized in the bond documents.

Outcome: Ensure that all technology required to conduct OST functions is up-to-date and adequate.

B.1.1. STRATEGY: Create a document retention policy and system for all post-issuance bond issues.

Output: Establish better accountability.

Efficiency: Maximize use of staff time in collecting, retaining, and distributing information.

OBJECTIVE B.2: Provide training to staff members (professional development, cross-training, and job-specific training).

Outcome: Ensure that all staff are trained to perform necessary functions efficiently and that workflow can be maintained without interruption.

B.2.1. STRATEGY: This can be accomplished through the State Personnel Board, Skillsoft, or various professional organizations.

Output: Members of staff trained.

Efficiency: Low cost of training.

B.2.2. STRATEGY: Training should include what would be necessary for the staff to remain relevant with changing regulation in the municipal marketplace.

Output: Members of staff trained.

Efficiency: Higher level of specialized competency.

B.2.3 STRATEGY: Training should include continuing education for the successful implementation and continued use of MAGIC.

Output: Members of staff trained.

Efficiency: Low cost of training, higher level of specialized competency.

OBJECTIVE B.3: Create a comprehensive contingency plan to ensure that all daily/monthly processes and procedures for Debt Management can be performed off-site in an emergency situation.

Outcome: Ensure that vital processes are uninterrupted.

B.3.1. STRATEGY: It will be necessary to develop a standard operating manual and provide laptops to key Debt Management personnel in order to facilitate workflow offsite in emergency situations.

Output: Important financial transactions continue without interruption.

Efficiency: Despite cost of equipment, continuity in agency operations.

OBJECTIVE B.4: Develop win-win partnerships in the local and national communities.

Outcome: Ensure that most up-to-date information is being used, leading to more competitive pricing during bond financings and with financing partners.

B.4.1. STRATEGY: Utilize the National Association of State Treasurers and State Debt Management Network as resources for collecting information on best practices for Debt Management.

Outcome: Decisions made on most up-to-date information.

Efficiency: Maximize use of staff time.

Program 3: Financial Management and Processing

GOAL A: To develop a robust state economy...

OBJECTIVE A.1. Improve incoming document efficiencies.

Outcome: Electronic processes and document retention streamline resulting in more effective management of OST workflow.

A.1.1. STRATEGY: Systemwide review and overhaul of current document processing workflow.

Output: This will reduce the number of times a document/data is handled/processed by a user.

Efficiency: Streamlined user interactions with custom applications.

OBJECTIVE A.2. Define IT Security Planning/Mitigation of Risk requirements and meet ITS security requirements.

Outcome: Ensure that all vital processes are uninterrupted.

Outcome: Ensure security of all OST documents and workflow.

A.2.1. STRATEGY: This includes evaluation, planning, implementation, and monitoring in-house as well as utilizing resources from outside security vendors.

Output: Mitigation of IT risks.

Efficiency: Cost of outside security vendor.

OBJECTIVE A.3. OST will maintain all controls and work to mitigate risks.

Outcome: Ensure that all vital processes are uninterrupted.

A.3.1. STRATEGY: Review and manage internal controls.

Output: Mitigation of IT risks.

Efficiency: Ongoing assessment of operations and risk to ensure continuity of operations.

OBJECTIVE A.4. Implement the information gathering portion of continuity planning by program.

Outcome: Ensure that all vital processes are uninterrupted.

A.4.1. STRATEGY: OST will appoint a primary contact by program and give guidelines on what to complete and how to do it.

A.4.2. STRATEGY: Maintain communications with the assigned person to facilitate completion.

Output: Mitigation of IT risks.

Efficiency: Ongoing assessment of operations and risk to ensure continuity of operations.

GOAL B: To create an efficient government...

OBJECTIVE B.1. Increase data center redundancy and bandwidth.

Outcome: Reduction in system hours required to facilitate IT workflows up to 10x.

Outcome: Ensures that all technology required to conduct OST functions are up to date and adequate.

B.1.1. STRATEGY: Upgrade network connectivity between SAN and Servers to 10Gb.

Output: Replace end-of-life devices and upgrade connectivity.

Efficiency: Provide a more efficient SAN/Server infrastructure.

OBJECTIVE B.2. Maintain competency of staff on required software platforms.

Outcome: Ensure that all staff is trained to perform necessary functions efficiently.

B.2.1. STRATEGY: Work with Program Directors to identify the training needs of their employees and coordinate the necessary details.

B.2.2. STRATEGY: Evaluate the effectiveness of training by PDS scores.

B.2.3. STRATEGY: After evaluation, OST will determine if new training courses and certifications are necessary.

Output: Members of staff trained.

Efficiency: Low cost of training, higher level of specialized competency.

OBJECTIVE B.3. Continue to develop effective training programs for OST staff related to information technology.

Outcome: Ensure that all staff is trained to perform necessary functions efficiently.

B.3.1. STRATEGY: Implement a 'train the trainer' strategy.

Output: Members of staff trained.

Efficiency: Low cost of training, higher level of specialized competency.

OBJECTIVE B.4. Provide quality services to citizens, agencies, and banks in a personal and timely manner.

Outcome: Reduction in man hours required to facilitate workflow.

B.4.1. STRATEGY: Provide better database information at appropriate levels to ensure efficient customer service.

Output: Number of calls answered.

B.4.2. STRATEGY: Provide enhanced record keeping of incoming calls and correspondence.

Output: More advanced database.

Efficiency: Ability to respond to more calls and more closely track and improve results for agency constituents.

B.4.3. STRATEGY: Provide complete and accurate financial reporting packages to DFA.

Output: Prepare GAAP Packages

B.4.4. STRATEGY: Process all state warrants issued by DFA.

Output: All state warrants are read, endorsed, imaged, and paid.

Efficiency: Cost to process state warrants.

OBJECTIVE B.5. Maintain data center infrastructure at OST and ITS necessary to provide high availability to current hardware of the OST Department's SQL databases and all other in-house systems other than the Broadridge Investment Accounting platform.

Outcome: Ensure that all technology required to conduct OST functions are up-to-date and adequate.

OBJECTIVE B.6. Improve security posture.

Outcome: Ensures that all technology required to conduct OST functions is up-to-date and adequate.

B.6.1. STRATEGY: Network Segmentation

Output: Micro segmentation of network-based applications.

Efficiency: Provides a more efficient means to monitor, mitigate, and respond to threats.

B.6.2. STRATEGY: Monitor Systems for Anomalous Activity

Output: Security information and event management for all systems.

Efficiency: Monitor and respond to incidents with greater efficiency.

B.6.3. STRATEGY: Replace agency Information Technology equipment that has reached the end of useful life.

Output: Increased technological capacity for more efficient agency operation

Efficiency: Cost of equipment.

Program 4: Collateral Security/Safekeeping

GOAL A: To create an efficient government...

OBJECTIVE A.1: Improve incoming document efficiencies.

Outcome: Electronic processes and document retention streamline daily activities, resulting in more effective management of OST workflow.

A.1.1. STRATEGY: Modernize and maintain electronic forms required for daily collateral and safekeeping activity.

Output: Forms capable of exporting data to internal databases and accounting platforms and minimization of manual entry.

OBJECTIVE A.2: Provide training to staff members (professional development, cross-training, and job specific training).

Outcome: Ensure that all staff are trained to perform necessary functions efficiently.

A.2.1. STRATEGY: This can be accomplished through the State Personnel Board, Skillsoft, or various professional organizations.

Output: Members of staff trained.

Efficiency: Low cost of training.

A.2.2. STRATEGY: Training should include courses to remain relevant in the banking community amidst changing federal and state regulations.

Program 5: Unclaimed Property

GOAL A: To create an efficient government...

OBJECTIVE A.1. Increase and streamline holder reporting of unclaimed property.

Outcome: Holders educated on legal requirement of reporting.

Outcome: Reduction in man hours required to facilitate workflow.

Outcome: Holders will report unclaimed property annually reducing workload during reporting years.

A.1.1. STRATEGY: Continue to communicate holder responsibilities to report unclaimed property.

Output: Number of holders reporting unclaimed property.

Output: Educate holder community through online courses, trade meetings, and professional groups such as CPAs.

Efficiency: Greater compliance by holders.

Efficiency: Cost of education material printing and distribution.

A.1.2. STRATEGY: Substantially shorten distribution cycles, enhance customer service with paperless claim processes, and email notification processes.

Output: Number of total unclaimed property claims processed.

Efficiency: Cost of updating the OST website and automated processes.

A.1.3. STRATEGY: Automation, paperless, strengthen internal controls, segregation of duties, automated processes/reduced opportunity for human error and fraud.

Output: Number of holders reporting unclaimed property.

Output: Expedited processing, tracking, paying claims.

Efficiency: Cost of updating the OST website and background support software and databases.

OBJECTIVE A.2. Increase customer claims for Unclaimed Property.

Outcome: Improved response time for processing claims.

Outcome: Increased public awareness of claims and reporting processes.

Outcome: Increased unclaimed property returned to the rightful owners.

Outcome: Increased level of automation from the beginning to the end of the process.

A.2.1. STRATEGY: Create a call center to handle increased call volume generated by media promotions.

Output: Total number of calls answered.

Output: Shorten hold times for calls.

Efficiency: Cost of call center.

A.2.2. STRATEGY: Utilize not only state personnel but contract labor.

Output: Total number of calls answered and processed.

Efficiency: Cost of personnel, contract labor, and the call center operation.

A.2.3. STRATEGY: Launch an effective advertising campaign, targeted trade shows, conventions, conferences and the use of consultants and experts.

Output: Total number of calls answered and processed.

Efficiency: Cost of advertising campaign.

A.2.4. STRATEGY: Streamline our processes and procedures by maximizing technology, including the UP app, website, and texting platforms, thereby alleviating valuable staff to be more productive and accurate.

Output: Number of total unclaimed property claims processed.

Efficiency: Cost of maintaining technology.

A.2.5. STRATEGY: Provide professional development training and cross training for staff, who will then be able to utilize technology to the maximum capacity.

Output: Staff trained.

Efficiency: Cost of training.

A.2.6. STRATEGY: Enhance online portal to communicate with other state agencies, holders of money, and the public to share information and assist with daily unclaimed property processes.

Output: Total number of calls answered.

Output: Number of total unclaimed property claims processed.

A.2.7. STRATEGY: Improve performance through measurable benchmarks.

Output: Total number of calls answered.

Output: Number of total unclaimed property claims processed.

OBJECTIVE A.3. Prepare and Budget for the FY 2026 Publication year.

A.3.1. STRATEGY: Increase and streamline holder reporting of unclaimed property cycle in FY 2026.

Output: Number of total unclaimed property claims processed.

Efficiency: Cost of advertising and publishing list of new properties.

Program 6: MPACT Administrative Fund

GOAL A: To educate and encourage Mississippi families to save for higher education through community outreach, business partnership, and the administration of the State's two 529 plans...

OBJECTIVE A.1. Effectively manage enrollment in the Mississippi Prepaid Affordable College Tuition (MPACT) program.

Outcome: Change in enrollment year over year (new accounts opened).

Outcome: Change in number of students eligible for tuition payments.

A.1.1. STRATEGY: This will be accomplished through community outreach, marketing strategic plan, and social media provided by the plan's marketing consultant and college savings staff.

Output: Number of new accounts opened.

Output: Rate of return on investments.

Efficiency: Average cost per account opened.

Efficiency: Average cost per account maintained.

OBJECTIVE A.2. Effectively manage enrollment for MPACT through payroll deduction.

Outcome: Change in employer participation offering payroll deduction.

Outcome: Change in number of accounts and contributions in both plans.

A.2.1. STRATEGY: Offer employer/employee presentations and attend benefit fairs statewide.

A.2.2. STRATEGY: Recruit new employers to offer MPACT as an employee benefit.

Output: Number of employers offering payroll deposit.

Efficiency: Greater participation with lower cost of outreach, staff time.

OBJECTIVE A.3. Improve marketing presentations to the public.

Outcome: Enhanced ability to increase enrollment in College Savings Mississippi programs.

A.3.1. STRATEGY: Provide professional development training through MSPB. We will coordinate with the MSPB's training schedule.

A.3.2. STRATEGY: Incorporate audio/visual technology into MPACT marketing presentations. This will allow College Savings marketing representatives to add a visual element to their oral presentations for professional organizations and employee benefit presentations.

Output: Number of presentations made to the public.

Efficiency: Greater program participation.

OBJECTIVE A.4. Improve ability of citizens to access College Savings information and enroll.

Outcome: Heightened public awareness of College Savings Mississippi programs.

Outcome: Easier access to information and enrollment portal.

A.4.1. STRATEGY: Continue to update the College Savings Mississippi portion of the OST website and ensure that it meets all FCC and SEC regulations. This will allow MPACT and MACS to market jointly, ensure we are in compliance with securities laws, and improve the flow of web traffic.

A.4.2. STRATEGY: We will continue to work with our marketing consultant to make design updates.

Output: Number of website traffic impressions.

Efficiency: Greater participation with lower cost of outreach, staff time.

OBJECTIVE A.5. Improve external communication.

Outcome: Heightened public awareness of College Savings Mississippi programs.

A.5.1. STRATEGY: Work with the College Savings Mississippi Board members at the board's regular meetings to help educate the public regarding college savings.

A.5.2. STRATEGY: Increase current communications through email and phone with each board member and potential customers.

Output: Heightened public awareness of College Savings Mississippi programs.

Efficiency: Greater program participation.

OBJECTIVE A.6. Make MPACT enrollment process more efficient.

Outcome: Reduction in paper and mailing costs.

Outcome: Reduction in man hours required to facilitate workflow.

Outcome: Reduction in turnaround time for information requests.

A.6.1. STRATEGY: Continue sending MPACT applications electronically to its third-party administrator.

Output: Number of new accounts opened.

Efficiency: Average cost per account opened.

Program 7: MACS Administrative Fund

GOAL A: To educate and encourage Mississippi families to save for education through community outreach, business partnership, and the administration of the State's two 529 plans...

OBJECTIVE A.1. Effectively manage enrollment in the Mississippi Affordable College Savings (MACS) program.

Outcome: Change in enrollment year over year (new accounts opened).

Outcome: Change in program awareness.

A.1.1. STRATEGY: This will be accomplished through community outreach, marketing strategic plan and social media provided by the plan's marketing consultant and college savings staff.

Output: Number of total accounts.

Output: Dollars under management at FYE.

Efficiency: Average cost per account opened.

Efficiency: Average cost per account maintained.

OBJECTIVE A.2. Effectively manage enrollment for MACS through payroll deposit.

Outcome: Change in employer participation offering payroll deposit.

Outcome: Change in number of accounts and contributions in both plans.

A.2.1. STRATEGY: Offer employer/employee presentations and attend benefit fairs statewide.

A.2.2. STRATEGY: Recruit new employers to offer MACS as an employee benefit.

Output: Number of employers offering payroll deposit.

Efficiency: Greater participation with lower cost of outreach, staff time.

OBJECTIVE A.3. Improve marketing presentations to the public.

Outcome: Enhanced ability to increase enrollment in College Savings Mississippi programs.

A.3.1. STRATEGY: Provide professional development training through MSPB. We will coordinate with the MSPB's training schedule.

A.3.2. STRATEGY: Incorporate audio/visual technology into MACS marketing presentations. This will allow College Savings marketing representatives to add a visual element to their oral presentations for professional organizations and employee benefit presentations.

Output: Number of presentations made to the public.

Efficiency: Greater program participation.

OBJECTIVE A.4. Improve ability of citizens to access College Savings Information and enroll.

Outcome: Heightened public awareness of College Savings Mississippi programs.

Outcome: Easier access to information and enrollment portal.

A.4.1. STRATEGY: Continue to update the College Savings Mississippi portion of the OST website and ensure that it meets all FCC and SEC regulations. This will allow MPACT and MACS to market jointly, ensure we are in compliance with securities laws and improve the flow of web traffic.

A.4.2. STRATEGY: We will continue to work with our marketing consultant to make design updates.

Output: Number of website traffic impressions.

Efficiency: Greater participation with lower cost of outreach, staff time.

OBJECTIVE A.5. Improve external communications.

Outcome: Heightened public awareness of College Savings Mississippi programs.

A.5.1. STRATEGY: Work with the College Savings Mississippi Board members at the board's regular meetings to help educate the public regarding college savings.

A.5.2. STRATEGY: Increase current communications through email and phone with each board member and potential customers.

Output: Heightened public awareness of College Savings Mississippi programs.

Efficiency: Greater program participation.

Program 8: Administration

GOAL A: To create an efficient government...

OBJECTIVE A.1. Train and develop the staff of the OST.

Outcome: Successful execution of the agency's business and operational functions.

A.1.1. STRATEGY: This will be accomplished by identifying training needs of individuals in the agency and then recommending training for them either through MSPB, ITS or other areas.

Outcome: Successful execution of the agency's business and operational functions.

OBJECTIVE A.2. Vendor bills (accounts payable) are processed within a timely manner.

Outcome: Successful execution of the agency's business and operational functions.

A.2.1. STRATEGY: Monitor and evaluate the business process to ensure that all received invoices are reviewed, approved, processed, and paid within the 45 days allowable by law.

Outcome: Successful execution of the agency's business and operational functions.

OBJECTIVE A.3. Look for areas where cost savings can be implemented to be a better steward of the state's money.

Efficiency: Administration as a percentage of the total budget.

A.2.1. STRATEGY: Review agency processes and expenditures and accurately forecast future needs to help streamline costs.

Outcome: Successful execution of the agency's business and operational functions.