Establish an Initial Operating Capability for Your Organization

Matt Marino | Technical Consulting Manager | Esri Professional Services
What is Initial Operating Capability?

- “The state achieved when a capability is available in its minimum usefully deployable form”
Web GIS Is Transforming GIS
Opening, integrating and simplifying everything
Traditional Considerations for IOC

- Desktop -> Enterprise Geodatabase: multi-user editing and viewing

Systems of Record

- Desktop to Server: drawing maps in map services
Modern Web GIS Considerations for IOC

- Users & Workflows
- Security
- Capacity
- Architecture

- Data -> Services -> Webmaps

System of Engagement

Web GIS

Apps

Services

Connected
Identity
Real-Time

Identity

Real-Time
What is Initial Operating Capability?

“The state achieved when a capability is available in its minimum usefully deployable form”
Initial Operating Capability
Enable & Empower Your Organization

- Strategy & Vision
- Assess & Inventory
- Plan & Design
- Build & Deploy
- Operate & Maintain
Strategy & Vision
Roadmap for Success

1. Review Mission & Organization
2. Establish Key Users
3. Identify Success Criteria
4. Set Tentative Plan
The primary mission of the Department of Building Safety is to safeguard the public, promote the health, safety and welfare of the City.

......helps its clients achieve profitable growth with a combination of specialized broking expertise, strategic advisory services.....

Esri Professional Services supports customers and partners in the effective implementation and application of ArcGIS software.
Establish Key Users
How is Location Valuable to Them?

- Desktop Analyst
  - What is being collected?

- Team Supervisor
  - Where is my team?

- Field Worker
  - Where is my next task?
Discuss Goals & Identify Success

How is Location Valuable to Them?

As a [Role] I can [Feature/Function] so that [Goal/Business Value]....

[Image of three people]

.... I will know I’m successful when I can [select/operate] [Feature/Function] so that [output] is [visible/complete/etc.]
Set a Tentative Plan
Preliminary Roadmap

Organizational Vision: 5/14/2017 - 5/18/2017
Goals & Objective: 5/21/2017 - 6/4/2017
Priorities: 6/4/2017 - 6/9/2017
Information Product Needs: 6/28/2017 - 7/7/2017
Geodatabase Design: 7/9/2017 - 7/12/2017
Deployment Pattern: 7/13/2017 - 7/18/2017
Platform Architecture: 7/23/2017 - 8/11/2017
Installation: 8/13/2017 - 8/18/2017
Application Prototyping: 8/20/2017 - 9/1/2017
Configure Maps & Apps: 9/3/2017 - 9/28/2017
Monitoring & Maintenance: 9/29/2017 - 10/31/2017
Initial Operating Capability
Enable & Empower Your Organization

Organizational Vision
Goals & Objective
Success Criteria
Tentative Plan

Operate & Maintain
Build & Deploy
Plan & Design
Assess & Inventory
Strategy & Vision
Assess & Inventory
Org, Business Cases & Infrastructure
Assess Resources
What's available to Use

Technology

Content

People
Document Workflows
Start with Patterns of Use

- **Location Enablement**
  - Discover, use, make, and share maps at work – anywhere, anytime

- **Constituent Engagement**
  - Facilitate and manage communication with stakeholders

- **Decision Support**
  - Inform execs and management with maps and location intelligence

- **Field Mobility**
  - Get authoritative information into and out of the field

- **Analytics**
  - Describe, predict, and improve business performance

- **Location Data Management**
  - Collect and organize location data about your assets and resources
Information Product Needs
Fit to Workflows

Location Enablement
- Discover, use, make, and share maps at work – anywhere, anytime

Constituent Engagement
- Facilitate and manage communication with stakeholders

Decision Support
- Inform execs and management with maps and location intelligence

Field Mobility
- Get authoritative information into and out of the field

Analytics
- Describe, predict, and improve business performance

Location Data Management
- Collect and organize location data about your assets and resources

Operations Dashboard
ArcGIS Navigator
Business Analyst Online
ArcGIS Earth
ArcGIS Explorer
Survey123
ArcGIS Collector
### Set Priorities
What's Impactful & Achievable

<table>
<thead>
<tr>
<th>Product</th>
<th>Impact</th>
<th>Level of Effort</th>
<th>User Base</th>
<th>Score</th>
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<td>4</td>
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<td>1</td>
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Initial Operating Capability
Enable & Empower Your Organization

- Strategy & Vision
  - Organizational Vision
  - Goals & Objective
  - Success Criteria
  - Tentative Plan

- Assess & Inventory
  - Assess Resources
  - Document Workflows
  - Information Product Needs
  - Set Priorities

- Plan & Design

- Build & Deploy

- Operate & Maintain
Plan & Design
Org, Business Cases & Infrastructure
Determine Core Web Maps
Common Maps with Broad Use
Geodatabase Design
Minimum Data Required to Meet Users Needs

1. Layers
   - Map Layers
     - Scene layer
     - Tile layer
     - Map image layer
     - Imagery layers
   - Feature Layers
     - Feature Service
     - Feature collection
   - Tables

2. ArcGIS Online

ArcGIS Data Store

Files

Enterprise Geodatabase
Security Standards
Align to your Industry and IT Standards

✓ Access

✓ Authentication

✓ Authorization

✓ Encryption
Capacity Planning
Sizing Based on Workflows & Usage

Assemble Requirements

Apply Methodology

Determine Needs

Concurrent users

GIS Services

Users

Response Time + Think Time

throughput

Network capacity

TH = TH x Mbits / req

Mbps = TH x Mbits / req

3600

ST_i x TH_t x 100

SpecRatePerCPU_b

# CPU_t = -----------------

3600 x %CPU

SpecRatePerCPU_b

Core SpecRate

TH = Response Time + Think Time

software distribution

CPUs
Determine a Deployment Pattern

- Base Enterprise Deployment (10.5)
  - ArcGIS GIS Server
  - Portal for ArcGIS
  - ArcGIS Datastore
  - ArcGIS Web Adaptor

- Can be configured with a single machine or with multiple machines
Single Machine Deployment

**Benefits:**
- Minimal investment
- All-in-one
- Easiest to deploy
- Best used for testing
- Limited impact on hardware resources

**Considerations:**
- Least stable,
- Not-scalable
Multitiered Deployment

• Benefits:
  - Scales to meet increased load
  - Separation of work
  - More stable

• Considerations:
  - Increased hardware expenses & IT management
High-Availability Deployment

• Benefits:
  - Highest stability
  - Load balancing
  - Fail over

• Considerations:
  - Increased hardware expenses
  - Integration with 3rd party software
  - More IT management required
Platform Architecture
Detail to the Level Necessary

- Components
- Networks
- Users
- Server Configuration
- Sizing
Initial Operating Capability
Enable & Empower Your Organization

Operate & Maintain
Assess & Inventory
Plan & Design
Build & Deploy
Strategy & Vision

Organizational Vision
Goals & Objective
Success Criteria
Tentative Plan

Assess Resources
Document Workflows
Information Product Needs
Priorities

Determine Core Web Maps
Geodatabase Design
Deployment Pattern
Security Standards
Capacity Planning
Platform Architecture
Build & Deploy

SUBHEAD INFORMATION
ArcGIS for Server Installation and Configuration
- Initial setup/configuration on server
- Install ArcGIS Server technology, apply ArcGIS Server patches
- Complete ArcGIS Server post-install process
- Install Server Web Adaptor

Portal for ArcGIS Installation and Configuration
- Install Portal for ArcGIS, apply patches
- Install Portal Web Adaptor and Data Store
- Configure Federated/Hosting Server
- Configuring supported user authentication

Geodatabase Setup
- Create ArcGIS for Desktop database connection
- Run Ent. GDB Tool
- Review maintenance scripts
- Database tuning overview

ArcGIS Administration
- Publishing services
- ArcGIS Server optimization overview
- Portal for ArcGIS User, Publish and Administrator functions
- ArcGIS Enterprise troubleshooting overview

Software Installation
Distribute Content to Users
Configure Organizational Site
Your User’s First Impression

- Use your organizational brand
- Use consistent visual cues
- Intuitive naming conventions
- Add useful descriptions
- Pre-populate with content
- Create a resource destination
Building Data
Central & Authoritative Content
Application Prototyping
Path of Least Resistance

- Custom App
- Solution Template
- Web App Builder
- Foundational App
- Web App Template
Configure Maps & Apps
Finalize Your Prototypes
Runbook
Standard Documentation To Capture

- Intended Use Cases
- Capacity Calculations
- System Diagram
- Installation Summary
- Configuration Specifications
- Go-Live Details
- Logged Incidents
- Training Needs
- Restore Procedures
Rollout
Get People Working

- Location Strategy
- Detailed Plan
- Technology Implemented
- Information Products Ready
- Users Empowered
- Next Big Idea
Operate & Maintain

SUBHEAD INFORMATION
Maintenance
All Facets of Your Implementation
## Monitoring

Proactively Review Your Status

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### Portal Users

- **Accounts:** Using: 219,250
- **Users by Role:** Authors: 87, Publishers: 25, Administrators: 95, Custom Role: 79, Private: 140, Public: 28
- **Login Rate & Logins Today:** 47% & 28

### System Monitor

- **CPU:**
  - System CPU: ▲
  - System CPU Peak Hr: ■
- **Memory:**
  - System Memory Physical: ▲
  - System Memory Physical Peak Hr: ■
  - System Memory Virtual: ▲
  - System Memory Virtual Peak Hr: ■
- **Disk I/O:**
  - System Disk I/O: ▲
  - System Disk I/O Peak Hr: ■
- **Disk Space:**
  - System Disk Space: ▲

### Network Monitor

- **Network:**
  - System Network: ▲
  - System Network Peak Hr: ■

### Processes

- **Process CPU:**
  - All Uptime Peak Hr: ■
- **Process Memory Physical:**
  - All Memory Physical: ▲
- **Process Memory Virtual:**
  - All Memory Virtual: ▲
- **Process Count:**
  - All Active: ▲

### Collector Monitor

- **Collection Times:**
  - Collector CollectionTimes: ■
  - Collector Collection Times Peak Hr: ■
Testing, Tuning, & Scaling
Fixing Issues – Preparing For Expansion

Out of the box tools

Custom Tools
Training
Evolve Your People with Your Technology
Reconnect With Users
Have Needs Changed?
Initial Operating Capability
Enable & Empower Your Organization

- Monitoring & Maintenance
- Testing & Training
- User Engagement

- Strategy & Vision
  - Organizational Vision
  - Goals & Objective
  - Success Criteria
  - Tentative Plan

- Asses & Inventory
  - Assess Resources
  - Document Workflows
  - Information Product Needs
  - Priorities

- Build & Deploy
  - Installation
  - Building Data
  - Application Prototyping
  - Configure Maps & Apps
  - Rollout

- Plan & Design
  - Determine Core Web Maps
  - Geodatabase Design
  - Deployment Pattern
  - Security Standards
  - Capacity Planning
  - Platform Architecture

- Operate & Maintain
  - Monitoring & Maintenance
  - Testing & Training
  - User Engagement
Where to go for Support
Framework to help you move forward

Location strategy
Assess and plan
Operate and measure
Build capability

Launching Your Location Platform
The Esri Guide

www.esri.com/launchguide
Architecting the ArcGIS Platform: Best Practices
Welcome to the Learn–Plan–Configure–Use Community!

Learn–Plan–Configure–Use is a public community group created by Esri for the ArcGIS community, to facilitate discussions on best practices to learn, plan, configure and use the ArcGIS Platform. Here, questions can be asked and expert advice can be offered on six key overarching topics in achieving success using the ArcGIS Platform across an organization:

- Strategy & Planning
- Architecture & Security
- Geodata Engineering
- Configuration & Integration
- Workforce Development
- Operational Support

In this community, subject matter experts in each of these topics share tips and advice on best practices, address questions, and engage in discussion on topics challenging GIS professionals. This includes experts from the Esri Services team, who help thousands of ArcGIS users from all over the world to address these challenges every day. Gain from the experience of these teams by asking your questions, share your experience by offering advice, and follow this community to stay connected.
Platform Performance

System Design Strategies (select here for table of contents)

1. System Design Process
2. GIS Software Technology
3. Software Performance
4. Server Software Performance
5. GIS Data Administration
6. Network Communications
7. Platform Performance
8. Performance Management
8. Information Security
9. GIS Product Architecture
10. Performance Management
11. City of Rome
12. System Implementation
A1. Capacity Planning Tool
B1. Windows Memory Management
Preface (Executive Summary)

Spring 2017 Platform Performance 40th Edition

Chapter 3 (Software Performance) discussed some best practices for publishing high performance map services, and the importance of selecting the right software technology to support your business needs. This chapter will focus on hardware platform performance, and share the value of selecting the right computer technology to support your system performance needs.

Selecting the right hardware will improve user performance, reduce overall system cost, and establish a foundation for building effective GIS operations. Selecting the wrong hardware can contribute to implementation failure - spending money on a system that will not support your business needs.

Hardware vendors do not know what hardware is required to satisfy your GIS needs. This chapter shares the system architecture design methodology developed to help you select the right hardware for your planned GIS operations. This chapter also shares information for justifying hardware purchases based on expected return on investment.

Contents [hide]

1 Platform Performance Baseline
   1.1 Performance Baseline history
   1.2 Moore's Law
   1.3 Faster platforms provide more service with less hardware
   1.4 Relative platform performance
   1.5 Platform performance resources
   1.5.1 SPEC performance benchmarks
Training
Your location for lifelong learning

Authoritative Resources
Thousands of hours of professionally developed and curated content

Relevant Training for Your Role
Content for everyone - students, educators and professionals

Many Ways to Learn
Multiple options and formats to meet your needs

Helping you Grow
Content for all stages along your learning journey
Consulting Services

Project Services
Expert-led engagements throughout the entire project lifecycle

Project services provide comprehensive industry, domain, and technical help. Our expert managers can scope, schedule, and budget and define proven methodologies to deliver timely, cost-effective results. You can consult with us to define the approach to achieving transformational GIS capability for your organization.

Business and Technical Consulting Services
Get productive sooner

We offer consulting across multiple business and technical domains depending on what you need and at what level of your organization. Our consultants work closely with you to provide information on technical and operational technical or business strategy.

Business Consulting
Industry subject-matter experts can help incorporate GIS into your current business strategy, or provide advice or project planning.

Enterprise Consulting
Indepth consultants who can assess and guide your enterprise GIS strategy and implementation approach.

Configuration Consulting
Onsite installation and configuration specialists providing focused services to enable your team to get up to speed fast.

Rent-a-Tech Consulting
Highly skilled technical specialists—app developers, solution engineers, geospatial analysts, and more—will engage your team to help you succeed.

We offer a range of packages, flexible or custom engagements, whether remote or in-person with your team, over a short or long term.
Esri Service Packages
High-Impact, Cost-Effective Consulting Services

Esri Service Packages are short-term, high-impact services, delivered by Esri professionals, that provide knowledge transfer, best practices, and consulting support on a variety of Esri products and GIS management tasks.

Service packages help you:
• Implement Esri technology faster.
• Increase productivity and operational effectiveness.

What are Esri Service Packages?
Service Packages are standardized service offerings with a defined scope and fixed price. They are available to US customers and partners. The following types of Service Packages are offered:
• Jumpstart: Designed to help you quickly become self-sufficient in installing, implementing, and managing Esri software. Jumpstart Service Packages typically provide technical knowledge transfer and best practices for the use of the ArcGIS Platform.
• Launch Kit: Collaborative engagements to empower you with the knowledge and workflows to manage your organizational account, build high quality content and create focused maps and apps.
• Enterprise Consulting: Get specific assistance in key areas such as enterprise GIS architecture design and GIS for land records or facilities.
• Workshop: Interactive, hands-on technology transfer helps you become self-sufficient in using Esri technology. Workshop-based Service Packages cover specific Esri technology and GIS- or industry-related activities.

See the back page for a list of available packages.

"I am grateful to Esri for validating my faith in the people and solutions that make your organization the leader in GIS. As I sit here, I am far ahead of where I thought we would be this evening—armed with what I have learned today. I believe we will have a successful Jumpstart experience. So, there’s nothing but positive feedback.

There is no doubt that the deliberate approach that was taken to this program prior to the team’s visit played a huge role in our success."

Eric Schmidt, MA, GISP, GIS-GIS Supervisor
Douglas County, NV

ArcGIS Enterprise Jumpstart
Best Practices for Implementing ArcGIS Enterprise
ArcGIS Enterprise is a platform that provides the enterprise you need to implement your ArcGIS Enterprise Framework on your infrastructure and meet your unique requirements with the ArcGIS platform. During this 10-hour engagement, an enterprise architect and consultant will work with your team to install and configure the ArcGIS Enterprise software and help you learn best practices for how to scale, administer, and deploy your deployment to meet your needs.

Without ArcGIS Enterprise, you can:
• Reduce the amount of time it takes to install, configure, and become productive.
• Increase the productivity and effectiveness of your Implementation of the ArcGIS Platform.

With ArcGIS Enterprise, you can:
• Increase the productivity and effectiveness of your implementation of the ArcGIS Platform.

With ArcGIS Enterprise, you will:
• Extend your ArcGIS platform to your entire organization.
• Maximize user productivity and efficiency.
• Take advantage of the ArcGIS platform to scale your deployment.

With ArcGIS Enterprise, you get:
• Enhanced system performance.
• Better control over your infrastructure.
• Improved security and compliance.

ArcGIS Enterprise Jumpstart
Best Practices for Implementing ArcGIS Enterprise

Web GIS Launch Kit
Building Maps & Apps—Engaging Users

Enterprise GIS Health Check
Proactively Review and Assess Your GIS

Capacity Planning
System Recommendations Based on Your Workflows and Usage

Enterprises GIS Health Check provides you with an expert Esri enterprise consultant who will review your current and anticipated work processes, perform a risk assessment, and provide recommendations to calculate how server-capacity needs or ArcGIS server sizes.

With this report, you’ll:
• Review your ArcGIS implementation, user needs, requirements, and goals.
• Review your key apps, workflows, data sources, and experiences.
• Review best practices for implementing your application in order to make informed decisions on possible improvements.
• Review a report of findings and recommendations for your GIS.

Email ProServices@esri.com or Visit esri.com/servicepackages.
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2. **Select the session you attended**
3. **Scroll down to find the survey**
4. **Complete Answers and Select “Submit”**