

UltraAI Wizard & Orchestration – Release Package (REVISED)

1. Foundational Logic (Current Scope)

- **Initialization** → Confirm models are available and responsive with 5-second timeout.
- **User Inputs** → Normalize user prompt, attachments (max 25MB), and context (max 4000 tokens).
- **Orchestration** (Standard Synthesis only in current release):
 - **Initial Round** → Models independently draft with structured format.
 - **Validation Check** → Confirm all models responded; retry failed models once.
 - **Meta Round** → Models revise with awareness of peer drafts using conflict resolution.
 - **UltraAI Mode** → Neutral Synthesizer consolidates all drafts with consensus scoring.
- **Final Delivery** → UltraAI Synthesis + selected Enhancement Modules.

2. Current Step Matrix

| Phase | Standard Synthesis | Fact-Check | Scenario Analysis | Adversarial |

| --- | ----- | ----- | ----- | ----- |

| **Initial Round** | Prompt: "{user_prompt}" → Structure response: [main claim] → [supporting points] → [caveats]" | ■ Greyed Out | ■ Greyed Out | ■ Greyed Out |

| **Validation** | Check: All models responded? Retry failures (max 1x) | ■ Greyed Out | ■ Greyed Out | ■ Greyed Out |

| **Meta Round** | Prompt: "Revise {your_draft} considering {peer_drafts}. For conflicts, state your position with evidence." | ■ Greyed Out | ■ Greyed Out | ■ Greyed Out |

| **UltraAI Mode** | Prompt: "Synthesize all drafts for {user_prompt}. Mark consensus (>75% agreement) vs divergence." | ■ Greyed Out | ■ Greyed Out | ■ Greyed Out |

| **Final Output** | UltraAI Synthesis with confidence scores | ■ Greyed Out | ■ Greyed Out | ■ Greyed Out |

3. Enhancement Modules (formerly "Outfits")

****Available Now (Active)****

- ****Confidence**** → Output confidence array; 0-1 scale bars with threshold alerts (<0.7).
- ****Traceability**** → Output provenance logs; collapsible JSON (incompatible with Secure Mode).
- ****Summarization**** → 50-word, 200-word, full versions; user toggle.
- ****Formatting**** → Plain text, Bullet points, Academic prose.
- ****Delivery Format**** → Web view, Markdown, PDF, JSON.
- ****Security Options****:
 - Secure Mode: No logs (blocks Traceability)
 - Encrypted Package: AES-256 JSON/PDF
 - Redaction Layer: PII masking via regex patterns

****Greyed Out (Coming Soon)****

Evidence Chain, Divergence Mapping, Scenario Trees, Adversarial Testing, Explainability, Interactive Visualization.

4. Prompt Library (Active)

****Core Prompts****

- ****Initial Round:****

...

The user's question is: {user_prompt}

Provide your best direct answer following this structure:

[Main Claim]: Your primary answer

[Supporting Points]: Key evidence or reasoning

[Caveats]: Limitations or uncertainties

Maximum 500 words unless specified otherwise.

...

- **Meta Round:**

...

Your initial draft: {your_draft}

Peer drafts: {peer_drafts}

Revise your response considering peer insights.

For agreements: Strengthen shared points.

For conflicts: State your position with specific evidence.

Mark confidence level (0-1) for disputed points.

...

- **Ultra Mode:**

...

Role: Neutral Synthesizer

User prompt: {user_prompt}

All drafts: {all_drafts}

Create unified synthesis following these rules:

1. Mark consensus (>75% model agreement) with [CONSENSUS]
2. Mark divergence (<75% agreement) with [DIVERGENT: summary of positions]
3. Weight by confidence scores when available
4. Maintain factual accuracy over completeness
5. Flag any critical uncertainties

...

5. Wizard Flow

0. **Welcome** → "UltraAI Orchestration System v1.0"
1. **Input** → Prompt (required), attachments (optional), context (optional)
2. **Analysis Mode** → Standard Synthesis ✓ | Others coming Q2 2025
3. **Model Configuration**:
 - **Auto** (default): Selects based on prompt complexity scoring
 - **Premium**: GPT-4, Claude Opus, Gemini Ultra
 - **Balanced**: GPT-3.5, Claude Sonnet, Gemini Pro
 - **Economy**: Llama-3, Mistral, Phi-3
4. **Enhancement Modules** → Multi-select from available options
5. **Validation** → Check for module conflicts, display warnings
6. **Summary** → Itemized configuration with estimated processing time
7. **Execute** → Progress bar with stage indicators

6. Model Selection Logic

...

Auto Selection Algorithm:

- Complexity Score = $\text{word_count}/50 + \text{attachment_count} \times 10 + \text{technical_terms} \times 5$
- If score > 100: Premium
- If score 50-100: Balanced
- If score < 50: Economy

...

7. Conflict Resolution Rules

Module Conflicts:

- Secure Mode ON → Traceability DISABLED (auto-notify user)
- Encrypted Package ON → Formatting limited to JSON/PDF
- Multiple formats selected → Create zip archive

Model Response Conflicts:

- No response after retry → Use available models only, note in output
- <3 models respond → Cancel process, return error
- Consensus impossible → Flag as [NO CONSENSUS] with all positions listed

8. Error Handling

Error Type	Response	User Message
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Model Timeout	Retry once, then proceed without	"Model X unavailable, proceeding with Y models"
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All Models Fail	Abort process	"System temporarily unavailable. Please retry."
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Attachment Too Large	Reject at input	"File exceeds 25MB limit"
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Conflicting Modules	Auto-resolve or prompt user	"X conflicts with Y. Defaulting to X."
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9. Visual Specifications

****Light Mode:****

- Active elements: #000000 (black)
- Greyed elements: #CCCCCC with tooltip on hover
- Success: #28A745
- Warning: #FFC107

****Dark Mode:****

- Background: #1A1A2E with 10% opacity frosted glass
- Active step: #9D4EDD (purple)
- Active toggles: #10B981 (green)
- Navigation: #FB923C (orange)
- Greyed: #6B7280

10. Deliverables Checklist

- [x] Logic Specification with error handling
- [x] Complete Prompt Library
- [x] Wizard Flow (steps 0-7)
- [x] Model Selection Algorithm
- [x] Conflict Resolution Matrix
- [x] Error Handling Protocols
- [x] Visual Specifications
- [] API Endpoint Definitions *(next phase)*
- [] Performance Benchmarks *(next phase)*

11. Technical Implementation Specifications

JSON

```
{
  "base_url": "https://api.ultrai.com/v1",
  "endpoints": {
    "/orchestrate": {
      "method": "POST",
      "payload": {
        "prompt": "string (required)",
        "attachments": ["array of base64"],
        "context": "string (optional)",
        "mode": "synthesis|factcheck|scenario|adversarial",
        "models": ["array of model_ids"],
        "modules": ["array of module_ids"],
        "timeout": "integer (seconds, default: 30)"
      }
    },
    "/status/{job_id}": {
      "method": "GET",
      "response": {
        "status": "initializing|processing|validating|synthesizing|complete|failed",
        "progress": "0-100",
        "current_phase": "string",
        "estimated_completion": "ISO 8601"
      }
    },
    "/result/{job_id}": {
      "method": "GET",
      "response": {
        "synthesis": "string",
        "confidence": "float",
        "modules": {},
        "metadata": {}
      }
    }
  }
}
```

}

12. Performance Metrics & Thresholds

	Metric	Threshold	Alert Level	Action
	Model Response Time	>5 seconds	Warning	Log for optimization
	Model Response Time	>10 seconds	Critical	Trigger failover
	Synthesis Agreement	<50%	Critical	Flag for human review
	Confidence Score	<0.6	Warning	Add disclaimer to output
	Token Usage	>90% limit	Warning	Truncate or summarize
	Memory Usage	>2GB	Critical	Queue management

13. Data Flow Architecture

None

User Input

↓

[Input Validation Layer]

- └─ Prompt normalization
- └─ Attachment processing
- └─ Token counting

↓

[Orchestration Engine]

- └─ Model allocation
- └─ Parallel processing
- └─ Response collection

↓

[Validation Layer]

- └─ Response completeness
- └─ Conflict detection
- └─ Retry logic


```
↓
[Synthesis Engine]
  ├── Consensus calculation
  ├── Divergence mapping
  └── Confidence scoring
↓
[Enhancement Layer]
  ├── Module application
  ├── Format conversion
  └── Security processing
↓
[Output Delivery]
```

14. Model-Specific Configurations

GPT-4 Settings

```
JSON
{
  "temperature": 0.7,
  "max_tokens": 2048,
  "top_p": 0.95,
  "frequency_penalty": 0.3,
  "presence_penalty": 0.3
}
```

Claude Opus Settings

```
JSON
{
  "temperature": 0.7,
  "max_tokens": 2048,
  "top_p": 0.95,
  "top_k": 40
}
```

```
}
```

Open Source Models Settings

JSON

```
{  
  "temperature": 0.8,  
  "max_tokens": 1024,  
  "repetition_penalty": 1.1  
}
```

15. Consensus Scoring Algorithm

Python

```
def calculate_consensus(responses):  
    """  
    Calculate consensus score based on semantic similarity  
    """  
    # Extract key points from each response  
    key_points = extract_key_points(responses)  
  
    # Calculate pairwise similarity  
    similarity_matrix = []  
    for i, response_a in enumerate(key_points):  
        for j, response_b in enumerate(key_points[i+1:], i+1):  
            similarity = semantic_similarity(response_a, response_b)  
            similarity_matrix.append(similarity)  
  
    # Calculate overall consensus  
    consensus_score = sum(similarity_matrix) / len(similarity_matrix)  
  
    # Identify points of agreement/disagreement  
    agreement_threshold = 0.75  
    consensus_points = []
```

```

    divergent_points = []

    for point in all_unique_points:
        agreement_rate = count_models_agreeing(point) / total_models

        if agreement_rate >= agreement_threshold:
            consensus_points.append(point)
        else:
            divergent_points.append({
                "point": point,
                "positions": get_model_positions(point)
            })

    return {
        "score": consensus_score,
        "consensus": consensus_points,
        "divergence": divergent_points
    }

```

16. Security & Privacy Protocols

Data Handling

- **In Transit:** TLS 1.3 minimum
- **At Rest:** AES-256-GCM encryption
- **Retention:** 30-day default, immediate purge available
- **PII Detection:** Regex patterns + ML classifier
- **Audit Log:** Immutable, encrypted, 90-day retention

Redaction Patterns

None

SSN: `\b\d{3}-\d{2}-\d{4}\b`

Credit Card: `\b\d{4}[\s-]?d{4}[\s-]?d{4}[\s-]?d{4}\b`

Email: `\b[A-Za-z0-9._%+-]+@[A-Za-z0-9.-]+\.[A-Z|a-z]{2,}\b`

Phone: `\b\d{3}[-.]?d{3}[-.]?d{4}\b`

17. Quality Assurance Checks

Pre-Synthesis Validation

- ☐ All models responded or retry attempted
- ☐ Response length within bounds(50-2000 words)
- ☐ No explicit errors in model outputs
- ☐ Confidence scores present where required

Post-Synthesis Validation

- ☐ Output contains answer to user prompt
- ☐ Consensus/divergence properly marked
- ☐ No contradictions in final synthesis
- ☐ Enhancement modules applied correctly
- ☐ Format matches user selection

18. Monitoring & Analytics

Real-Time Metrics

```
JSON
{
  "dashboard_metrics": {
    "active_jobs": "integer",
    "avg_response_time": "seconds",
    "model_availability": {
      "gpt4": "boolean",
      "claude": "boolean",
      "open_source": "boolean"
    },
    "success_rate": "percentage",
    "consensus_average": "float"
  }
}
```

Daily Reports

- Total requests processed
- Average consensus scores by topic
- Model performance comparison
- Error rate analysis
- Module usage statistics

19. Fallback Procedures

Scenario	Primary Action	Fallback	Final Fallback
All premium models fail	Switch to Balanced tier	Use Economy tier	Return cached similar result

No consensus achieved	Add divergence disclaimer	Request human review	Return all positions
Timeout on synthesis	Extend timeout 10s	Use partial results	Return best single model
Enhancement module fails	Skip that module	Apply basic formatting	Return raw synthesis

20. User Notification Templates

Success

None

- ✓ UltrAI Synthesis Complete
- Consensus Score: {score}%
- Processing Time: {time}s
- Models Used: {count}
- Confidence: {confidence}

Warning

None

- ⚠ Partial Synthesis Available
- Issue: {specific_issue}
- Impact: {what_affected}
- Result Quality: {degradation_level}
- Recommendation: {action_item}

Error

None

- ✗ Synthesis Failed
- Error Code: {code}
- Description: {human_readable}
- Attempted Solutions: {retry_count}
- Next Steps: {recovery_options}

21. Testing Protocol

Unit Tests

- Individual model responses
- Module applications
- Conflict detection logic
- Consensus calculation

Integration Tests

- Full orchestration flow
- Multi-model coordination
- Enhancement module combinations
- Error recovery paths

Load Tests

- 100 concurrent requests
- 10MB attachment processing
- 10,000 daily request volume
- Graceful degradation under load

22. Deployment Checklist

Pre-Launch

- ☐ All API endpoints tested
- ☐ Error messages user-friendly
- ☐ Documentation complete
- ☐ Security audit passed
- ☐ Performance benchmarks met
- ☐ Rollback procedure documented

Launch Day

- ☐ Monitoring dashboards active
- ☐ Support team briefed
- ☐ Rate limits configured
- ☐ Backup systems verified
- ☐ Gradual rollout initiated

Post-Launch

- ☐ User feedback collection active
- ☐ Performance metrics tracking
- ☐ Error rate monitoring
- ☐ Cost optimization review
- ☐ Feature request logging

Version: 1.0.0

Last Updated: Current

Next Review: 30 days post-launch

Status: READY FOR IMPLEMENTATION