ITLDIS Extended Warranty Registration Module - UML Class Diagram

Module Overview

The **Extended Warranty Registration Module** is a sub-module within the Service Module of the ITLDIS application that handles registration and management of Extended Warranty policies for vehicles. It supports two types of extended warranties: Regular Extended Warranty (EW) and ITL Extended Warranty (ITLEW).
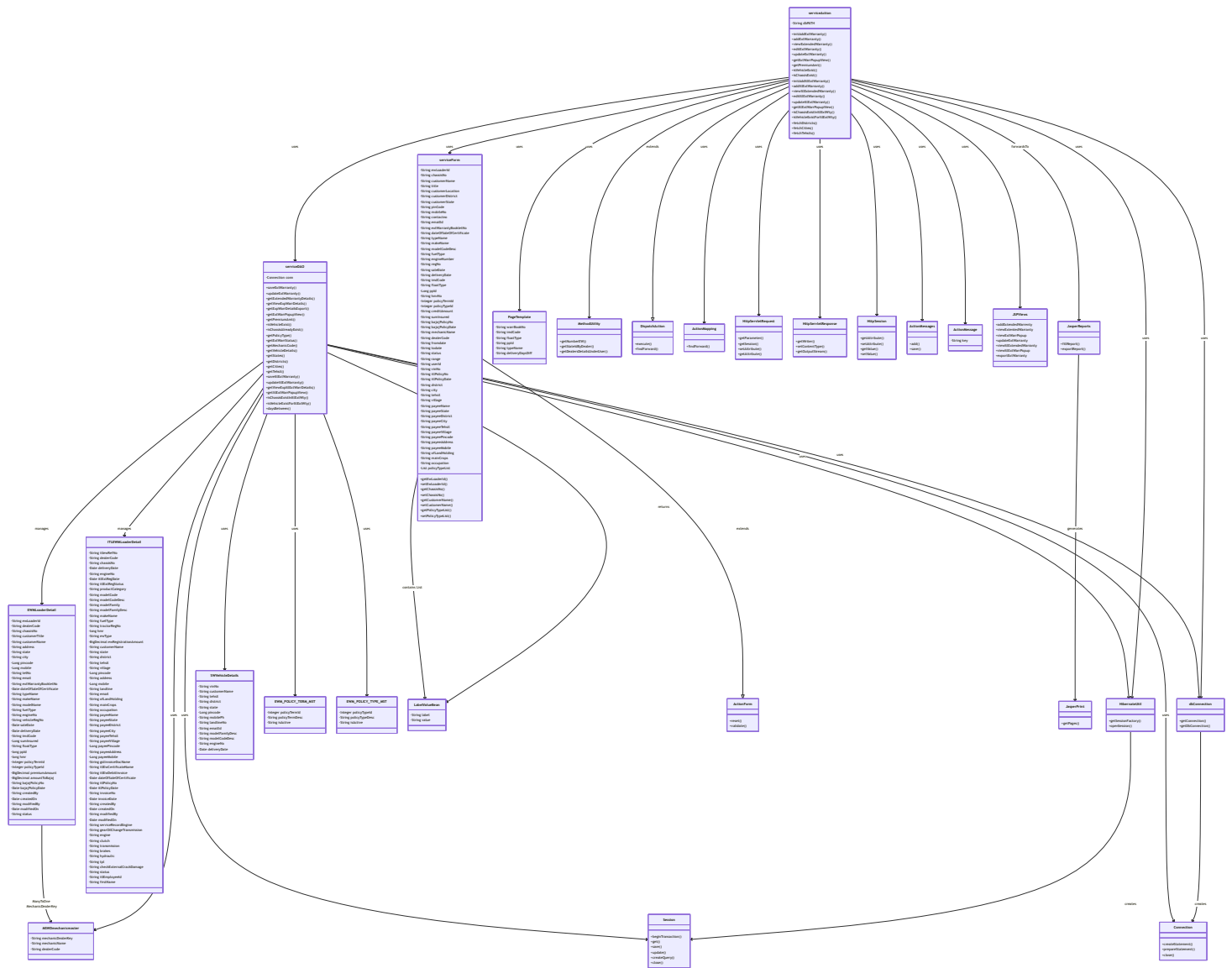
Core Functionalities:

1. Extended Warranty Registration (EW)

- Initialize add extended warranty form
- Add new extended warranty registration
- View extended warranty records with search filters
- Edit existing extended warranty records
- Update extended warranty information
- Get premium amount calculation (AJAX)
- Check vehicle existence validation (AJAX)
- Check chassis existence validation (AJAX)
- Get extended warranty popup view
- Export extended warranty data to Excel

2. ITL Extended Warranty Registration (ITLEW)

- Initialize add ITL extended warranty form
- Add new ITL extended warranty registration
- View ITL extended warranty records
- Edit ITL extended warranty records
- Update ITL extended warranty information
- Get ITL extended warranty popup view
- Check chassis existence in ITL EW (AJAX)
- Check vehicle existence for ITL EW (AJAX)
- Fetch districts, cities, and tehsils (AJAX)

Key Components:

- **serviceAction**: Action class with 15+ methods for extended warranty operations
- **serviceDAO**: Data access layer with 20+ methods for database operations
- **serviceForm**: Form bean with 50+ properties for data transfer
- **EWMLoaderDetail**: Hibernate entity for Extended Warranty (40+ attributes)
- **ITLEWMLoaderDetail**: Hibernate entity for ITL Extended Warranty (60+ attributes)

Technology Stack:

- **Framework**: Apache Struts 1.x (DispatchAction pattern)
- **ORM**: Hibernate
- **Database**: SQL Server

- **View Layer**: JSP
- **Reporting**: JasperReports (Excel export)
- **AJAX**: For validation and dynamic data loading

Data Flow:

1. **Request Flow**: HTTP Request → serviceAction → serviceDAO → Hibernate Session → Database
2. **Response Flow**: Database → Hibernate Entity → serviceDAO → serviceForm → serviceAction → JSP View
3. **AJAX Flow**: AJAX Request → serviceAction → serviceDAO → Database → JSON/Text Response
4. **Session Management**: Uses HttpSession for user context and dealer information
5. **Transaction Management**: Database transactions handled at DAO level using Hibernate

Key Features:

- **Dual Warranty Types**: Supports both Regular EW and ITL EW registrations
- **Premium Calculation**: Dynamic premium calculation based on policy type and delivery date
- **Validation**: AJAX-based validation for vehicle/chassis existence and eligibility
- **Policy Management**: Integration with policy types and terms master data
- **Mechanic Assignment**: Association with mechanics for warranty registrations
- **Export Functionality**: Excel export with complete warranty details
- **Geographic Data**: Support for state, district, city, tehsil, village hierarchy
- **Payee Information**: Separate payee details for ITL Extended Warranty
- **Document Management**: Support for GST invoice, certificate, and debit invoice documents (ITLEW)
- **Service Record Tracking**: Component-wise service record tracking (ITLEW)

Entity Relationships:

1. **EWMLoaderDetail → MSWDmechanicmaster**: Many-to-One relationship (mechanic assignment)
2. **Both entities support**: Created/Modified tracking, Status management
3. **Integration**: Links to vehicle details, policy masters, and dealer information

Business Rules:

- Premium amount must be greater than zero for registration

- Delivery date validation (minimum days from delivery required)
- Chassis number uniqueness validation
- Vehicle existence validation before registration
- Policy type and term selection from master data
- Status tracking (Draft, Registered, etc.)